Interdisciplinary Journal of Agriculture and Environmental Sciences
ISSN: 2837-9977| Impact Factor : 7.11
Volume. 11, Number 4; October-December, 2024;
Published By: Scientific and Academic Development Institute (SADI)
8933 Willis AveLos Angeles, California
https://sadijournals.org/index.php/IJAES| editorial@sadijournals.org

FUEL SUBSIDY REMOVAL AND ITS INFLUENCE ON FOOD SECURITY STATUS AMONG RURAL FARMERS IN GWER-WEST LOCAL GOVERNMENT AREA OF BENUE STATE, NIGERIA.

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DOI: https://doi.org/10.5281/zenodo.14516077

ABSTRACT: This study was carried out to analyze the influence of fuel subsidy removal on food security among rural farmers in Gwer-West Local Government Area of Benue State. Public opinion survey design was adopted for the study; multi-stage technique was used to select 100 respondents. Data for the study were sourced from primary sources with the aid of questionnaire. Descriptive statistic and logit regression were tools for data analysis. Results showed that most 70.0% of the rural farmers in Gwer-West experienced some level of food insecurity. Results of the logit regressions indicated that fuel subsidy removal (-.0940236), cost of transportation (-.0424023), cost of labour (-.0151491), and inadequate capital (-.0563771) negatively and significantly influenced food security while educational level (.0130138), and farming experience (.0134532) were positive and statistically significant to food security status. The result also showed that the major coping strategies adopted by rural farmers in Gwer-West Local Government Area of Benue State to cope with the hardship orchestrated by fuel subsidy removal were reduction of food consumption (88.0%), followed by reduction of movement (86.0%) and diversification of income (84.0%). It was concluded that rural farmer's food security is negatively and significantly influenced by the removal of fuel subsidies, which leads to a high cost of agricultural production inputs, a high cost of transportation, and an increase in food stuff prices. It was recommended that government should subsidize agricultural production inputs and means of transportation to rural farmers to make agricultural production inputs available and affordable to rural farmers.

Key wards: Fuel, Subsidy, Removal, Food Security, Influence, and Rural Farmers

INTRODUCTION

Food security is a global concern, and its importance cannot be overstated. Food security, as defined by the Household Food Insecurity Access Scale (HFIAS), refers to the accessibility of sufficient, safe, and nutritious food that meets the dietary needs and food preferences for an active and healthy life. According to the Food and

Agriculture Organization (FAO, 2018), around 821 million people were malnourished worldwide in 2017, highlighting the persistent challenge of food insecurity.

In Nigeria, nothing about the circumstances is different, as the country faces various issues, such as poverty, inadequate infrastructure, and climate change, which contribute to food insecurity (Ojo, 2019). Benue State, located in Nigeria's Middle Belt, accounts for a significant portion of its population depending on agriculture as their source of income. Gwer West Local Government Area (LGA) is an area in Benue State where rural farmers play a pivotal role in food production and security. However, the state's food security status is affected by various factors, including inadequate infrastructure, limited access to resources, and climate change (Adekunle *et al.*, 2017).

According to Ogwuche et *al.,* (2024), "fuel subsidy removal" refers to the government's decision to eliminate or reduce the financial assistance provided to maintain an artificially low price for fuel. On May 29, 2023, Nigerian President Bola Tinubu announced in his inaugural speech the removal of the decade-long subsidy on petroleum products. The new president cited deficit budgetary concerns as the basis of his decision and echoed his desire to channel funds toward public infrastructure and improving the lives of the Nigerians. (Adinnu, 2023). Ogwuche et *al.,* (2024) provided useful insights into the impact of fuel subsidy removal on food security, particularly with regard to specific experiences. The aforementioned research enhances our understanding of the intricate aspects of fuel subsidy removal and the consequences for marginalized groups, especially farmers in rural areas. Susa (2024) highlighted the complex interplay between the removal of fuel subsidies and its effects on many industries, including agriculture.

The removal of fuel subsidies in Nigeria has negatively impacted food security among rural farmers in Gwer-West LGA of Benue State. The increased cost of transportation and agricultural inputs due to subsidy removal has limited farmers' ability to access essential resources and produce food efficiently. This has led to a serious decline in agricultural productivity, a reduction in income levels and drastic increases in food prices. Consequently, rural farmers face challenges in meeting their basic food needs and ensuring food security for their families and communities, worsening poverty and nutritional deficiencies. This study seeks to; [1]determine the food security status of rural farmers, [2]examine the influence of fuel subsidy removal on poverty status among rural farmers and [3]identify the coping strategies adopted by rural farmers to survive the removal of fuel subsidy in the study area. It becomes necessary to examine fuel subsidy removal and its influence on the food security of rural farmers in the Gwer-West Local Government Area of Benue State as it would review the urgency of the potential threats to food security posed by fuel subsidy removal in Nigeria. The goal of this study is to foster informed decision-making and proactive measures to ensure the resilience and well-being of rural communities despite evolving government policies. The Political Economy Theory, Social Behavioral Theories, and Theory of Accessform the grand theories for this research.

METHODOLOGY

The study area

The study was conducted in Gwer-West Local Government Area (LGA) in Benue State, Nigeria. Gwer-West is one of the 23 Local Government Areas (LGAs) in Benue State, Nigeria. It is approximately at latitude 7.7475° N and 8.1870° This location locates it in the central part of Nigeria, near the River Benue, and close to the border with Nasarawa State. It is located in Zone B of the State and central Nigeria. It shares borders with Makurdi LGA to the North, Guma LGAto the East, Tarka LGA to the South, and Gwer -East LGA to the west.

The headquarters of Gwer-West LGA is located in Naka, a town that serves as the administrative and economic center of the area. Gwer-West LGA of Benue State covers an estimated land area of approximately 1,094 to 1,479 square kilometers, the LGA's population is estimated at approximately 176,600 people and is divided into 15 council wards. The proximity to the river makes it an agriculturally fertile spot. The terrain is a combination of flat plains and gentle hills with a Savannah climate that is marked by distinct wet and dry seasons. The climate is tropical, with a rainy season from April to October and a dry season from November to March. This climate supports the various types of agriculture.

Sample procedure and sample size selection

The population of the study consists of all rural farmers in the Gwer-West Local Government Area of Benue State. Sample sizes of 100 rural farmers were selected using a multi-stage random sampling technique. The first stage involves the purposive selection of five council wards (Shaghev/ukusu, Tijime, Tsambe, Mbabuandeand Mbapa) out of the fifteen (15) council wards based on their predominance in agricultural activities. The second stage involves the selection of one (1) community from each of the selected council wards using simple random sampling techniques. The final stage involves the development of a sample size for each selected community using a proportional allocation of 5% (0.05). A total of 100 rural farmers were selected for this study.

Methods of data analysis

Data collected for the study were analyzed using descriptive and inferential statistics.

Analytical tools

Food security index

The Household Food Insecurity Access Scale (HFIAS) was used to establish the food security status of the rural farmers.

The Household Food Insecurity Access Scale Generic Questions were asked and used to distinguish food secure from food insecure rural farmers. These questions represent an apparently universal domain of the households' food insecurity access experience (FANTA, 2007).

Household Food Insecurity Access was categorized as 1 = Food secure, 2 = Mildly food secure, 3 = Moderately food secure, and 4 = Severely food insecure.

Food secure = 1 if [(Question1a=0 or 1) and Question 2 = 0, Question3 =0, Question4 =0, Question5 =0, Question6 =0, Question7 =0, Question8 =0, and Question9 =0]

Mildly food insecure = 2 if [(Question1a=2 or 3 or Question2a=1 or 2 or 3 or Question3a=1 or Question4a=1) and Question5 =0, Question6 =0, Question7 =0, Question8 =0, and Question9 =0]

Moderately food insecure = 3 if [(Question3a=2 or 3 or Question4a=2 or 3 or Question5a=1 or 2, Question6a=1or 2) and Question7 =0, Question8 =0, and Question9 =0]

Severely food insecure = 4 if [Question5a=3 or Question6a=3 or Question7a=1 or 2 or 3, Question8a=1or 2 or 3 or Question8a =1 or 2 or 3, or Question9a =1 or 2 or 3]

Logit regression

The logit regression model was used to analyze the influence of fuel subsidy removal on food security.

Prob (Y_i=1) = $\text{Ln}(\frac{P_i}{1-P_i}) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \beta_5 X_{5i} + \beta_6 X_{6i} + \beta_7 X_{7i} + \beta_8 X_{8i} + \beta_9 X_{9i} + \beta_{10} X_{10i}$

Where, Y= the farmer is food-secure or otherwise (one if food secure, 0 otherwise).

X_1=Fuel subsidy removal (whether fuel subsidy removal affected rural farmers ability to access food; very high = 3, high = 2 and low = 1)

X_2=Level of formal education (years)
X_3 = Fuel price (whether fuel subsidy removal affected rural farmers ability to access food; very high = 3, high = 2 and low = 1)
X_4= Age of respondents (years)
X_5= Cost of transportation (rural farmer perceives high cost of transportation as a strong barrier to achieve food security; strongly agreed = 4, agree = 3, disagree = 2, strongly disagree = 1)
X_6= Cost of labor (Naira)
X_7= Price of fertilizer (Naira)
X_8=Machinery (one if farmers perceive machinery as a strong limiting factor in achieving food security, 0 otherwise)
X_9= Inadequate capital (very high = 3, high = 2 and low = 1)
X_{10}= Farming experience (Years)
β=estimated parameters, including the constant term (β_0).
Prob (Yi=1) denotes the probability that farmers will be food secure.

RESULTS AND DISCUSSION

Food security status of rural farmers in Gwer-West Local Government Area.

Results of the food security status of rural farmers in the Gwer-West Local Government Area of Benue State are presented in Table 1. The households were classified into three food security status categories based on their responses to household food insecurity access scale (HFIAS) generic questions. The results revealed that 41% of the rural farmers were food insecure, 29% were moderately food insecure, 70% of the rural farmers experienced some level of food insecurity, and only 30% of the rural farmers were food secure. This implies that most rural farmers in the study area were food insecure. This could be attributed to the removal of fuel subsidies, which leads to a high cost of production that led to a reduction in the area of land cultivated and inadequate capital to buy food items due to the high cost of food items to argue for the shortfall in their production level. Ozili and Obiora (2023) emphasized that without adequate compensatory measures, such as targeted social programs, the removal of fuel subsidies could push an additional 5-10 million Nigerians into poverty. This study is in line with Abu and Soom (2016), who found that 46.7% and 37.8% of the rural and urban households in Benue State were food insecure and unable to meet the recommended daily per capita calorie requirement of 2500 kcal. This result is also in line with the findings of Biam and Tavershima (2020) that 59.96% of rural farming households were food insecure.

The increase in fuel prices likely raised the costs of farming inputs, transportation, and food processing. This can intensify food insecurity because higher costs reduce profit margins and the affordability of basic needs. Farmers may struggle more with access to markets, obtaining fertilizers, or using mechanized tools, all of which impact productivity and, ultimately, food security.

Table 1: Distribution of respondents by food security status

Food security status	Frequency	Percentage (%)
Food insecure	41	41.0
Moderately food insecure	29	29.0
Food secure	30	30.0

Source: Field survey, 2024.

Influence of Fuel Subsidy Removal on Rural Farmers' Food Security

Logistic regression was conducted using 10 explanatory variables to determine the influence of fuel subsidy removal on the food security status of rural farmers in the study area. The log likelihood value is -55.7545; and the associated Chi-square value (15.66) is statistically significant at the 1% level of probability. This implies

that the model can be relied upon to explain the influence of fuel subsidy removal on the food security status of rural farmers in the study area. Furthermore, the significance of the associated chi-square at the 1% level of probability implies that fuel subsidy removal significantly influences the food security status of rural farmers in the Gwer-West Local Government Area of Benue State. The results revealed that the following variables; fuel subsidy removal (-.0940236), educational level (.0130138), cost of transportation (-.0424023), cost of labor (-.0151491), inadequate capital (-.0563771) and farming experience (.0134532) were statistically significant to the food security status in the study area.

The coefficient for fuel subsidy removal (-.0940236) was negative and statistically significant at a 10% probability level of food security status. This implied that the removal of fuel subsidies may have led to an increase in food insecurity among the rural farmers in the study area. This could be because removal of fuel subsidy led to an increase in the cost of farm inputs and entire production costs, which could decrease the farm size cultivated. A decrease in farm size can lead to a decrease in the quantity of output and income from farming activities. A decrease in output and farming income connotes food insecurity. The results justify the findings of Susa (2024) findings that highlighted the complex interplay between the removal of fuel subsidies and its effects on many industries, including agriculture. The social consequences of fuel subsidy removal are often severe, especially for low-income households. Iwayemi et *al.,* (2019) highlighted that energy costs constitute approximately 40% of the total expenditure for low-income Nigerian households. Thus, the elimination of subsidies significantly increases the cost of living for these populations. Sennuga et *al.,* (2024) explored the particular impacts of removing fuel subsidies on agricultural productivity, illustrating the difficulties rural farmers encounter in adjusting to policy changes.

Acquiring Formal Education was positive (.0130138) and statistically significant at the 5% level of probability to food status in the study area. This indicates that better access to formal education improves rural farmers' food security status while holding other variables constant. The educated rural farmers are more food secure because they respond and adjust to policy change promptly and positively and can adjust production and diversify income to meet their family needs. It is implied that rural farmers with more education are more likely to be food secure than those with uneducated rural farmers. This finding agrees with Akinsulu *et al*., (2016) that the educational status of a household head is positively and directly related to household food security. An educated rural farmer is more sensitive to adopting new technology to maximize the output he/she generates from farming activities, which directly contribute to rural farmers' food security. The results also agree with the findings of Biam and Tavershima (2020) that the educational status of household heads positively and significantly influences their food security status.

The transportation cost was found to be negative (-.0424023) and significant to the food security status at the 5% level of probability. This implies that the higher the cost of transportation for rural farmers to transport their farm produce to their homes or markets may lead to food insecurity. The cost of production is bound by the end users, farmers are the end users of agricultural production inputs, and the high cost of transportation from the factory due to fuel subsidy removal is bound by rural farmers who were the end users of the inputs. Similarly, labor cost was negative (-.0151491) and significant to food security at the 5% level of probability. Connoting that a one-unit increase in the cost of labor may increase food insecurity among rural farmers. This could be because an increase in the cost of labor may reduce the area of land cultivated and a reduction in farm size connotes reduction in outputs, which could likely negatively influence food security. Inadequate capital (-.0563771) was negative and statistically significant at a 1% probability level to food security. This implies that rural farmers' limited access to capital increases their food insecurity while decreasing their food security. This

is because rural farmers need more money to increase their production and purchase other food items that they are not producing on their own. Increased production could lead to food security.

Farming experience was found to be positive (.0134532) and significant at the 5% level of probability to food security. This implies that rural farmers who have gained more experience in farming activities tend to be more food secure. Experience reduces food insecurity because as rural farmers gain more experience in production, it leads to higher yields, which are positively related to improved food security. This implies that seasoned farmers may be better equipped to adopt practices that optimize food production and contribute positively to household food security. The result is in agreement with the findings of Haddabi *et al.*, (2019) in the study on the analysis of food security status among rural farming households in Mubi North LGA of Adamawa state and revealed that age, education, farm size, farming experience, gender, source of labor and monthly income were significant factors influencing the food security status of farming households in the study area.

Table 2: Logit regression estimates of influence of fuel subsidy removal on food security.

Variables	**dy/dx**	**S.E**	**Z-value**	**p>/z/**
Fuel subsidy	-.0940238***	.05184	-1.81	0.070
Educational level	.0130138**	.00975	-1.33	0.022
Fuel prices	.045095	.06135	073	0.462
Age	.0038405	.00478	0.80	0.421
High transportation cost	-.0424023**	.05759	-0.30	0.012
Cost of labor	-.0151491**	.0501	-0.58	0.034
Fertilizer price	-.0333255	.05775	-0.58	0.564
Lack of machinery	.0542768	.05576	0.97	0.330
Inadequate capital	-.0563771*	.05263	-1.07	0.004
Farming Experience	.0134532**	.00864	-1.56	0.019
Log likelihood = 55.754534				
LR chi (10) = 15.66				
P>chi-square	0.000			
Psuedo R^2	0.5873			

Source: Field survey, 2024

*,**,*** significant at 1%, 5%, and 10%, respectively

Coping Strategies Adopted by Rural Farmers after Fuel Subsidy Removal

The coping strategies adopted by rural farmers in Gwer-West Local Government Area of Benue State to cope with the hardship orchestrated by fuel subsidy removal in this study are presented in table 3. The majority (88.0%) of the rural farmers adopted a reduction in food consumption, followed by a reduction in movement

(86.0%) and diversification of income (84.0%). This implies that the majority of rural farmers reduced the quantity of food consumed to manage the resources at hand. The prizes of food items skyrocketed due to removal of fuel subsidy and the availability of money diminished. To cope with this scenario, the farmer only buys the quantity he/she can afford. The results are consistent with the coping strategies documented by Mkpadoand Opeyemi (2020), who found that rural farmers adapt to economic hardship by adjusting their essential lifestyle elements, like food consumption, income sources, and health practices.

Mkpado and Opeyemi (2020) similarly noted reduced food consumption among households, indicating that reducing meals or adjusting feeding patterns is a common response to limited resources in both settings. Rural farmers also engage in other business activities. This reflects a shared approach to financial security that creates alternative income streams when agricultural income is unstable. Furthermore, the results showed that (80.0%) of the rural farmers in Gwer-West adjusted their feeding formula, (79.0%) changed their farm practices, (75.0%) used herbal treatment as a health strategy, (73.0%) adopted trekking, and only (41.0%) of the rural farmers considered dropping their children from school, whereas there was no government or NGOs intervention in Gwer-West (0.0%). This is in line with the findings of Mkpado and Opeyemi (2020) in their study of coping strategies among female farmers in Ondo State, Nigeria, during the recent economic recession, reporting that the majority of rural households also rely on herbal medicine. Both groups prioritize affordable health care options as a way to cope with financial constraints. Educational sacrifices are a last resort but are necessary during economic hardship. The adaptation of farming techniques is another coping mechanism that aligns with the broader trend of adapting primary livelihoods to improve resilience despite economic changes. In essence, this finding reinforces the patterns Mkpado and Opeyemi (2020) observed where rural farmers take a multifaceted approach to economic resilience by adjusting food consumption, exploring alternative income sources, and adopting affordable health practices.

Table 3. Distribution of respondents using coping strategies adapted after fuel subsidy removal

Coping strategies	Frequency	Percentage (%)	Ranked
Reduced food consumption	88	88.0	**1st**
Diversified income sources	84	84.0	**3rd**
Use of herbs in treatment	75	75.0	**6th**
Reduced movement	86	86.0	**2nd**
Trekking	73	73.0	**7th**
Adjust the feeding formula	80	80.0	**4th**
Change in farming practices	79	79.0	**5th**
Children drop out of school	41	41.0	**8th**
Support from Gov. or NGO	0	0.0	**9th**

Source: Field survey, 2024

CONCLUSION AND RECOMMENDATION

The study concludes that most rural farmers are food insecure. The food insecurity of rural farmers is influenced by many factors. The study also concludes that rural farmers' food security is negatively and significantly influenced by the removal of fuel subsidies, which leads to a high cost of agricultural production inputs, a high cost of transportation, and an increase in food stuff prices. People thought that an increase in the prices of

agricultural produce due to removal of fuel subsidy could make rural farmers food secure, but the reserve is the case as the chunk of the money earned from sales of agricultural produce by rural farmers was spent on other food items not produced by the rural farmers and transportation. The study further concludes that rural farmers reduced their quantity of food consumption; reduced movement, and diversified their income sources to cope with the effect of fuel subsidy removal. Based on the findings, the research recommends that; government should be encouraged to subsidize agricultural production inputs and means of transportation to rural farmers to make agricultural production inputs available and affordable to rural farmers, ease the cost of transportation, enhance their income levels, and provide financial support to rural farmers. The government should also implement cash transfer programs to rural farmers or subsidies for essential commodities, which could reduce the impact on rural farmers.

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