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ANALYSIS OF EFFECTS OF FUEL SUBSIDY REMOVAL ON FOOD SECURITY AMONG RICE FARMING HOUSEHOLDS IN BENUE STATE, NIGERIA

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Abstract

The study analysed effects of fuel subsidy removal on food security status in Benue State, Nigeria. Multi-stage sampling procedure was employed in selecting 180 respondents for the study. The data collected were analyzed using descriptive statistics (such as frequencies, percentages mean and standard deviation) and logistic regression. The results on the socioeconomic characteristics of the respondents revealed that majority (61.67%) of the rice farmers were male and married (81.11%), with an average age of 41.65 years and mean household size of 10 persons. The rice farmers averaged 14.3 years' experience in rice farming though on subsistence basis, with mean farm size of 1.7 hectares and mean monthly income of N9617.78 with 9.78% of this income spent on fuel. Majority (99.44%) of the farmers had no contact with extension agents and majority (98.89%) had no access to credit. The logistic regression results on the effects of fuel subsidy removal on rice farming household's food security revealed that household income with coefficient of 0.002 and fuel price before subsidy (-0.089) both significant at 1% probability level influenced food security status positively and negatively, respectively. The result of the coping strategies adopted by the farming households revealed that majority (97.2%) engaged in reduction of food consumption, 96.7% substituted high quality food for cheaper food items, others got involved in additional income-generating activities (18.3%), 16.7% increased their borrowing and 2.2% sold some of their assets as a strategy to cushion against fuel subsidy removal. The results of the measures taken by government to mitigate the adverse effects of fuel subsidy removal on rice farming household's food security revealed that majority (98.33%) were not aware of government measures to mitigate effects of fuel subsidy removal, 99.44% of the respondents did not participate in any measures and majority (82.22%) reported that the measures were very ineffective. The study concludes that the removal of fuel subsidy led to increased transportation and production costs with the resultant increase in prices of commodities, thus making households food insecure and deepening their poverty status. The study therefore, recommended that government should reconsider implementing other measures to support rice farmers, this could include providing subsidies or

incentives to offset the increase in production costs, as well as investing in infrastructure to improve efficiency of rice farming sector, amongst others.

Keywords: *Analysis, Effects, Food security, fuel subsidy, subsidy removal.*

1.0 Introduction

Fuel subsidies have been a critical component of Nigeria's economic policy framework for several decades. These subsidies aim to lower the cost of fuel by reducing the difference between the market price and the consumer price, thereby making fuel more affordable for the general population. Historically, this policy was justified on the grounds of alleviating poverty and ensuring equitable distribution of the country's oil wealth. However, the subsidy regime has also been fraught with challenges such as corruption, fiscal drain, and economic distortions (Nigeria Extractive Industries Transparency Initiative, (NEITI), 2021). Nigeria, as one of Africa's largest oil producers, has long implemented fuel subsidies to keep fuel prices affordable for its population.

The removal of fuel subsidies has been a contentious policy issue in Nigeria. Proponents of subsidy removal argue that it is necessary to reduce fiscal deficits and reallocate government expenditure to more productive sectors such as infrastructure, health, and education (Olawale, 2015). The government also aims to curb the corruption associated with the subsidy regime and promote more efficient energy use by allowing market forces to determine fuel prices (Nwosu, 2020).

The increase in fuel prices as a result of subsidy removal affects rice farmers by raising the costs of inputs such as fertilizers, seeds, and pesticides, all of which are crucial to maintaining high yields. Furthermore, the rise in transportation costs makes it more difficult for rice farmers to get their products to market, thus reducing their profit margins

and exacerbating economic vulnerability. This situation is particularly severe in Benue State, where most rice farming households operate on a small scale and have limited access to financial resources, making them highly susceptible to price fluctuations (Nwosu, 2020).

Food security, as defined by the Food and Agriculture Organization (FAO), exists when all people have consistent physical, social, and economic access to sufficient, safe, and nutritious food. However, food security is not uniformly experienced across all households in Benue State. Rice farming households, which are heavily dependent on fuel-powered machinery and transportation, are particularly vulnerable to the negative effects of fuel subsidy removal. Increased production costs lead to lower agricultural output, reduced household income, and ultimately, diminished access to food (FAO, 2020).

For rice farming households in Benue State, the removal of fuel subsidies directly influences both food availability and affordability. Higher fuel prices translate to increased costs of agricultural production, which, in turn, lead to higher food prices in local markets. This situation is further complicated by factors such as poor infrastructure, inadequate storage facilities, and post-harvest losses, which contribute to food price volatility. As a result, many rice farming households may find themselves unable to afford sufficient nutritious food, thereby exacerbating food insecurity in the region (Akor, 2018).

Despite the severity of these challenges, limited empirical research has specifically examined how fuel subsidy removal associated factor costs affects rice farming household's production in Benue State. Existing studies have primarily analyzed

the broader economic impacts of subsidy removal or focused on urban regions, leaving a substantial gap in understanding the unique effects on rural agricultural hubs like Benue. For example, Ujah and Etumudo (2017) investigated the macroeconomic effects of fuel subsidy removal in Nigeria, while Nwafor et al. (2017) explored its implications for food prices at a national level. Other studies, such as Okeke *et al.* (2018), looked at the effects on household welfare in urban settings, but did not address the specific agricultural dynamics of Benue State. Although Adebayo and Yusuf (2015) analyzed fuel price increases on rural households in Northern Nigeria, their findings did not consider the unique economic and agricultural profile of Benue State, a critical agricultural hub with extensive rice production. To address this gap, this study examined the localized effects of fuel subsidy removal on food security among rice farming households in Benue State.

2.0 Objectives of the Study

The broad objective of this study was to analyse the effects of fuel subsidy removal on food security among rice farming households in Benue State, Nigeria. The specific objectives were to:

i. describe the socio-economic characteristics of respondents in the study area;
ii. determine effects of fuel subsidy removal associated factor costs on small scale rice farming household's food security in Benue State;
iii. identify coping strategies adopted by households in Benue State in response to the removal of fuel subsidies.

3.0 Methodology

3.1 The Study Area

The study was conducted in Benue State Nigeria. The State capital is Makurdi. Benue State lies within the lower river Benue trough in the middle belt region of Nigeria.

It's geographic coordinates are Latitudes 6° 25' and 8° 8' North and longitudes 7° 47' and 10° 0' East. Benue State is bordered by Nasarawa State to the north, Taraba State to the east, Cross River State to the south, and Enugu and Kogi States to the west. The state also shares a southeastern border with Cameroon. The Benue River, which runs through the state, significantly influences its agricultural activities. The state's capital, Makurdi, is centrally located, providing a strategic point for accessing various parts of the State.

The climate of Benue State is tropical, characterized by two distinct seasons: the wet season, which lasts from April to October, and the dry season, which spans from November to March. The average annual rainfall ranges from 1,200 to 1,500 millimeters, supporting the cultivation of various crops like yam, cassava, rice, groundnuts and maize. The temperature ranges between 23°C and 30°C throughout the year, providing a conducive environment for farming. During the hot season, November - March, temperatures may reach 23°C - 38°C in March – April. The wet season, April - October is characterized by more moderate temperatures due to increased cloud cover and rainfall. During this period, temperatures are generally lower, often ranging from 23°C to 27°C. The cooler temperatures are a result of frequent rains and reduced solar heating.

Benue State is predominantly an agrarian state and is often referred to as the "Food Basket of the Nation" due to its extensive agricultural activities. The state has a population of approximately 5 million people with the major ethnic groups being the Tiv, Idoma, and Igede, each with distinct cultural practices that influence their farming techniques and crop choices. The state's economy is heavily reliant on agriculture, with major crops including yams, rice, beans, and maize. (Benue State Agricultural and Rural Development Authority, 2018). The state is also known for its livestock farming, including cattle, goats, and poultry. Agriculture is the primary source of livelihood for the

majority of its residents, and the state's productivity is crucial to national food security (Ogebe *et al.,* 2017). Despite its agricultural potential, Benue State faces several challenges that affect food security. These include inadequate infrastructure, limited access to markets, and periodic conflicts between farmers and herders, which disrupt agricultural activities (Ikyurav & Terlumun, 2014).

Population and sampling techniques

The population of the study comprised of all small-scale rice farming households in Benue State. A multi-stage (3-stage) sampling procedure was employed in selecting respondents for the study. Due to the fact that rice farmers were spread all over the local government areas of the state, the three agricultural zones (ADP) that made up the Benue State Agricultural Zone were considered. In the first stage, a simple random sampling procedure was used in the selection of two (2) LGAs from each of the three (3) ADP zones in the state, making a total of six (6) LGAs. These are as follows: Zone A (Kwande and Katsina-Ala), Zone B (Gboko and Buruku), and Zone C (Otukpo and Ogbadibo), respectively. In the second stage, two (2) communities each were randomly selected from each of the selected six (6) Local Government Areas. Lastly, in the third stage, 180 rice farming households were randomly selected using a proportionate distribution of 10%.

Table 1: Sample Size Selection Plan

Zones	LGA	Communities	Sampling frame	Sample size (10%)
A	Kwande	Mbahav	148	15
		Mbaikyan	130	13
	Kastina-Ala	Towship	201	20
		Abaji	81	8
B	Gboko	Yandev	211	21
		Tse-kucha	110	11
	Buruku	Abwa	191	19
		Tyowanye	201	20
C	Otukpo	Otobi	171	17
		Adoka	139	14
	Ogbadibo	Ade-Igwu	120	12
		Ai-Ifam	97	10
	Total		**1,800**	**180**

Computed from BNARDA (2023)

Method of Data Collection

The instrument for data collection was a structured questionnaire which sectionalized based on the specific objectives of the study. The questionnaire was divided into five sections – A,B,C,D and E. Section A focused on socio-economic characteristics of rice farming households in Benue State. Section B consists of information on agricultural production of rice farming households in the study area. Section C focused on effects of fuel subsidy removal on rice farming household's agricultural production in the study area. Section D considered the food security status of respondents. Section E was on coping mechanisms and government measures.

Data Analysis Techniques

Data for the study were analyzed using both descriptive and inferential statistics. Objectives i and iii were analyzed using descriptive statistics (such as frequencies, percentages mean and standard deviation). Objective iii was analyzed using logistic regression.

4.0 Results and Discussion

4.1 Socioeconomic Characteristics of the Small-Scale Rice Farming Households

The result on the socioeconomic characteristics of the rice farming households is presented in Table 2. The socioeconomic characteristics examined include: age, sex, marital status, educational years, household size, farming experience, monthly income, proportion of income spent on fuel, extension contact, membership of cooperative and credit accessibility.

Age (years)

The result revealed that 47.22% of the respondents were with the age of 41 to 60

years, 23.33% were above 60 years, 21.67% were between 21 and 40 years while 7.78% were 20 years or below. The result also shows that the rice farmers have an average age of 41.65 years. This implies that most of the respondents are in their economically active age which can supply enough labour for rice production. This is not surprising as rice production is tedious and laborious which requires energy of the young. The success or failure of rice production depends largely upon how labour and other associated resources are utilized. This is in line with Ajala and Gana (2015) who found that rice production and processing enterprise is dominated by the younger ones who are more active and stronger.

Sex

Furthermore, it was revealed that most (61.67%) of the respondents were male while 38.33% were female. This shows that rice production is the study area is dominated by men. This could be attributed to the tediousness of the job involved in production activities as the female mostly focus on the processing and marketing aspect of the value chain. Akanbi *et al.* (2023) reported that females were more involved in rice processing activities than the male. Similarly, Ajala and Gana (2015) pointed out that women play active roles in the processing of agricultural produce.

Marital Status

The marital status of the respondents showed that most (81.11%) of the respondents are married, 10.00% were separated, 8.33% were single while 0.56% were widow(er). This means that rice production in the study area is dominated by married people. This could be due the fact that married people have the responsibility of family up keep therefore engaged in different ventures including rice farming to meet up with the

food and financial demand of the household. This is in line with Daniel and Uziel (2020) who found majority of rice producers to be married.

Educational years (Years spent in school)

On the educational years of the respondents, it was revealed that 48.88% spent 6 years or less in acquiring formal education, 37.24% spent between 7 to 12 years in school while 13.88% spent 13 years and more in acquiring formal education. The mean of educational year is 5.5 years. This implies that most of the respondents only acquire the basic education that enabled them to communicate and sell their farm produce. Education is necessary in rice production as the farmers communicate with customers and marketers. More so, educated farmers are more open to accept innovation than the uneducated ones. This finding agreed with Babatunde (2019) stated that majority of the processors have no formal education. Similarly, NPC (2010) revealed that many households in Benue State have limited access to quality education, with a significant proportion of adults having only primary education.

Household Size

The result on the household size of the respondents revealed that most (55.56%) had household size of 6 to 10 people, 31.67% had 5 or less people in their household, 10.0% had household size of 10 to 15 people, 1.67% had household size of 21 people or more while 1.11% % had 16 to 20 people in their households. The mean household size of the respondent was 10 persons. This implies that rice farming business in the study area is undertaken by households with large household size. Large household size provides the needed labour in rice production, as members of the household may be involved in some production activities such as tillage, planting and harvesting, thereby reducing total cost

of production. This finding is in line with Tondo (2017) who reported that the traditional rice farmers were using their household size to complement their labour force that is not paid in other to maximized profit.

Farming Experience (years)

On the farming experience of the respondents, it was revealed that 56.67% are into rice production for 10 to 20 years, 37.78% had been farming rice for 10 years or less while 5.56% are into rice farming for 21 years and above. The mean years of farming experience was 14.3 years. This means that most rice farmers in the study area are well experienced in the field. Experience is crucial in rice production as the producers learn from previous experiences which can still be useful in the current state. Experienced farmers are known to be more efficient in resources allocation for optimum profit. Similarly, Akanbi *et al.* (2023) revealed that majority of rice producers and processors had spent between 11 to 26 years in rice enterprise.

Major Occupation

The distribution of the respondents based on their occupation revealed that most (98.33%) were fulltime farmers while 1.67% were into other occupations such as trading, rice processing amongst others. This could be due to the predominance of farming as the major occupation of residents in the study area. This agrees with Eze and Ibekwe (2007) who highlighted that Benue State is predominantly agrarian, with over 70% of the population in relying on agriculture as their primary source of income.

Farm Size (hectares)

It was further shown that majority (92.78%) of the respondents had farm size of 1 hectare or less, 6.67% had between 2 to 3 hectares while 0.56% had 4 hectares and above. The

average farm size of the respondents was 1.7 hectares. This implies that most rice farming households in the study area are small scale farmers who operate below 5 hectares of land. Farmers with large farm size are expected to produce more output that will meet the ever-increasing market demand for rice thereby curbing the issue of food insecurity. Small scale farmers have low productivity due their scale of operation. In line with this, Bamire, *et al.* (2007), Kasim, *et al.* (2014) all observed that increased yield in maize production was associated with expanded land area.

Monthly Income (N)

The monthly income of the respondents shows that most (79.44%) had income of N10,000 or less, 16.67% earned between N10,001 to N20,000 monthly, 2.78% had monthly income of N30,001 and above while 1.11% obtained N20,001 to N30,000 monthly. The mean monthly income of the respondents is N9,617.78. This implies that most of the rice producers in the study area are operating on small scale basis as evident by their monthly earnings. Producers who earn more income are had the opportunity to invest more in rice production, therefore earn more returns on their investment. This is in line with the report of Aigbokhan (2008) that rural households in Nigeria, particularly those in agricultural communities, typically have lower and more unstable incomes compared to urban households. This lower income makes them more vulnerable to price shocks resulting from fuel subsidy removal.

Proportion of Income Spent on Fuel (%)

The distribution of the respondents on the proportion of income spent on majority (56.11%) of the respondents spent between 1 and 25% of their income on fuel, 37.78% spent between 26 and 50% of their income on fuel, 3.89% spent 75% to 100% of income on fuel while

2.22% spent between 51% and 75% of their income on fuel. The average percentage of amount of income spent on fuel is 9.78%. This shows that out of the average monthly income of N9617.78, only N940.61 was spent on fuel monthly. This compares with the current price of fuel in the country, the respondents only consumed a liter of fuel monthly. This is relatively low amount of fuel consumption by the farmers which could be the reason behind the little amount spent on fuel.

Extension Contact

Furthermore, the result on extension visit to the farming households revealed that most (99.44%) do not have any contact with extension agents while 0.56% had 2 contacts with extension agent. This implies that the rice farmers in the study area have no contact with extension agents. This lack of extension visits may be attributed to weak extension system in the area. Farmers who had contact with extension agents tend to be more innovative in their farming operations. This is in consonant with Agber *et al.* (2013) who pointed out that extension services, which provide essential technical support and information, are often inadequate in Benue State

Membership of Cooperative Society

Membership of cooperative was also considered. The result revealed that most (98.33%) of the rice farmers do not belong to any farmers cooperative while 1.67% were members of cooperative. Farmers' cooperative society could give the members upper hand in enjoying some dividends of cooperative like economy of scale through bulk purchase of farm inputs, easy access to market information, access to credit amongst others. In line with this, Osuji *et al.* (2022) reported most farmers belong to cooperative societies enjoys the benefits which abound in cooperative societies.

Credit Accessibility

The study further assessed farmers on their credit accessibility; it was revealed that most (98.89%) had no access to credit while 1.11% had access to credit. On the amount of credit received, out of the 1.11%, only 0.56% received N100,000 and the other 0.56% received N150,000 annually. This implies that most of the rice farmers in the study area do not have access to credit which could be attributed to absence of formal credit lending institutions such as Bank of Agriculture in the area. The farmers' lack of access could also be attributed to lack of collateral which is mostly demanded by the few financial institutions in the area and the farmers can not readily present. This is in lie with Nwaru *et al.* (2011) who found that only a small proportion of farmers in Benue State have access to formal credit facilities.

Table 2. Distribution of the Socioeconomic Characteristics of Respondents (N=180)

Variables	Frequency (F)	Percentage (%)	Mean
Age (Years)			**41.65**
≤ 20	14	7.78	
21 – 40	39	21.67	
41-60	85	47.22	
61 and above	42	23.33	
Sex			
Male	111	61.67	
Female	69	38.33	
Marital Status			
Single	15	8.33	
Married	146	81.11	
Separated	18	10.00	
Widow(er)	1	0.56	
Educational Level (Years)			**5.5**
≤6	88	48.88	
7 – 12	67	37.24	
13 and above	25	13.88	
Household size			**10**
≤5	57	31.67	
6 – 10	100	55.56	
11-15	18	10.00	
16-20	2	1.11	
21 and above	3	1.67	
Farming Experience (years)			**14.3**
≤10	68	37.78	
11 – 20	102	56.67	
21 and above	10	5.56	
Major Occupation			
Farming	177	98.33	
Trading	3	1.67	
Farm size (hectares)			**1.7**
0-1	167	92.78	
2-3	12	6.67	
4 and above	1	0.56	
Monthly Income (₦)			**9617.78**
≤ 10,000	143	79.44	
10,001 – 20,000	30	16.67	

20,001 – 30,000		5	2.78
30,001 and above		2	1.11
Proportion of Income on fuel (%)			**9.86**
1-25		101	56.11
26 – 50		68	37.78
51 – 75		7	3.89
76-100		4	2.22
Extension Contact (Number of times/year)			
0	179		99.44
2		1	0.56
Membership of Cooperative/association			
Yes	3	1.67	
No		177	98.33
Access to Credit			
Yes	2		1.11
No		178	98.89
Amount of Credit Received (₦)			
0	178		98.89
100,000		1	0.56
150,000 and above		1	0.56

Source: Field Survey, 2024.

4.2 Effects of Subsidy Removal on Food Security among Rice Farming Households

The logistic regression results on the effects of fuel subsidy removal on food security among in the study area as shown in Table 4. The result revealed that 2 independent variables contribute to food security status of the respondents. The associated Chi-square value (30.796) was statistically significant at 1% level of probability. This implies that the model can be relied upon to explain probability of food security status in the study area.

Household Income

The result revealed that the coefficient of household income (0.002) was positively significant at 1% probability level. The implication is that increase in household income will lead to increase in food security by 0.002 units. This is not surprising as increased household income will improve the purchasing power of households. Household with large income are expected to have access to wide variety of nutritious foods thereby improving their food security status. This is in line with the

report of Cheema and Abbas (2016) that increased income significantly impacts household food security positively.

Fuel Price before and after Subsidy Removal

Furthermore, the result revealed that the coefficient of fuel price before subsidy (-0.089) was negative and statistically significant at 1% probability level. The implied that increase fuel price before subsidy leads to decrease in food security by 0.089 in the study area *ceteris paribus*. The effect of fuel price on the economic situation of the country is multidimensional. Increase fuel price can lead to increase in transportation which also adds to production cost thereby causes increase in selling price of food products. Increase in food prices can lead to reduction in the purchasing power of the consumers leading decrease in food security. Therefore, the null hypothesis that stipulated that fuel subsidy removal has no significant effect on household food security status in Benue State is hereby rejected. This gives credence to Sanchi *et al*. (2023) reported that the removal of fuel subsidies has affected food prices. Similarly, Oladeji *et al*. (2018) pointed that higher fuel prices lead to increased production costs, transportation expenses, and ultimately, consumer prices.

Interestingly, after the subsidy removal, the effect of fuel price on food security became statistically insignificant (coefficient = 0.002, p = 0.293), which may indicate a period of adjustment or adaptation by farmers and consumers. While initially, the removal of subsidies resulted in significant disruptions, as reflected in the pre-subsidy findings, over time, households and agricultural producers might have adjusted to the new economic conditions, leading to a more stabilized food security status despite higher fuel prices. This may reflect a shift towards more efficient farming practices,

better resource allocation, or government interventions aimed at mitigating the negative effects of subsidy removal on food security. This suggests that the removal of fuel subsidies can have short-term adverse effects on household food security due to immediate increases in production and transportation costs. However, over time, the significance of fuel prices may diminish as other factors, such as household income, access to credit, or technological advancements in farming, play a more prominent role in mitigating these effects. As Adenikinju (2013) pointed out, when fuel subsidies are removed, governments and policymakers must implement measures to cushion the impact on vulnerable households, such as providing targeted financial support or investing in infrastructure to reduce transportation costs. In conclusion, while the initial removal of fuel subsidies significantly affects food security, the long-term effects may be mitigated through adaptive strategies and policy interventions. This finding emphasizes the importance of addressing both short-term disruptions and long-term sustainability to ensure that households can maintain access to affordable food despite fluctuating energy prices.

Table 3. Logistic Regression Results of the Effects of Fuel Subsidy Removal Associated Factor Costs on Small Scale Rice Farming Household's Food Security (n=180)

Variables	Coef.	St.Err.	t-value	p-value
Household income	0.002	0.000	4.89***	0.000
Fuel price before subsidy removal	-0.089	0.02	-4.35***	0.000
Fuel price after subsidy removal	0.002	0.002	1.05	0.293
Total expenditure	0.001	0.000	1.63	0.103
Household size	0.104	0.132	0.79	0.427
Education (years)	-0.055	0.118	-0.47	0.641
Pest control	0.000	0.000	0.27	0.791
Fertilizer cost	-0.001	0.001	-0.69	0.493
Mean dependent var	0.478	SD dependent var	0.501	
Number of obs	180	Chi-square	30.796	
Prob > chi2	0.000	Akaike crit. (AIC)	70.850	

*** Significant at 1%, ** Significant at 5% * Significant at 10%.
Source: Field Survey, 2024.

4.3 Coping Strategies Adopted by Households in Response to the Removal of Fuel Subsidies

Multiple responses were used to ascertain the coping strategies adopted by rice farming households in Benue State in response to the removal of fuel subsidies. The result (Table 4) identified 5 strategies adopted by the rice farmers in the study area.

Reduction in Food Consumption

The result revealed that most (97.2%) of the respondents agreed to reduction in food consumption as a strategy used to cushion the effect of fuel subsidy removal. This could be due to the fact that the removal of fuel subsidy comes with increase in price of fuel which leads to high inflation rate in the country. The skyrocketed price of food product can reduce the consumer purchasing power and reduced food availability leading to reduction in food consumption. Akerele and Adewuyi (2011) found that food expenditure accounts for more than 50% of total household expenditure in many rural communities in Nigeria. Therefore, reduction in food consumption can reduce household expenditure drastically.

Substituted Cheaper Food Items

Furthermore, 96.7% of the respondents substituted high quality food with cheaper food items. Due to high cost of food items as a result of fuel subsidy removal, in order to cope with increasing market price and also have money for other expenses, most households substituted high quality and costly food with cheaper food items. This is in consonant to the report of Iwayemi and Onakoya (2019) that households may need to reallocate their budgets to accommodate higher food prices, potentially reducing expenditure on food items.

Engaging in Additional Income-Generating Activities

Engaging in additional income-generating activities was reported by 18.3% of the respondents as a coping strategy to fuel subsidy removal. In order to cope with harsh economic situation caused by fuel subsidy removal, farmers diversify their means of livelihood into other income generating activities in order to increase their off-farm income. Farmers who have extra means of income (*side hustle*) as it is popularly called, have more money to purchase food items and therefore are expected to be more food secured. This finding is in line with Adegbite *et al.* (2017) who reported that households may engage in other income-generating activities to offset higher food expenditures.

Increased Borrowing

More so, 16.7% of the respondents reported increased borrowing as a coping strategy to fuel subsidy removal. This could be attributed to the high cost of living which makes household to spend above the income level, thereby resulting to borrowing in order to upset the difference between income and expenditure. This is in line with Adebayo (2017) who pointed out that access to microfinance institutions and credit facilities allows Nigerian households to cope with financial shocks.

Sale of Assets

Finally, 2.2% of the respondents adopted selling of their assets as a strategy to cushion against fuel subsidy removal. This could be the last strategy available to the farming households when other strategies could not meet up. Household could sell the assets in order to meet up with their day-to-day food demand. Similarly, Oyekale and Olomola (2016) reported that families liquidate their assets such as livestock or jewelry to cover immediate expenses during times of financial strain.

Table 4. Distribution of the Respondents on the Coping Strategies Adopted in Response to the Removal o f Fuel Subsidies (n=180)

Variables	Frequency (F)	Percentage (%)	Rank
Reduced Food Consumption	175	97.2	1st
Substituted with cheaper food items	174	96.7	2nd
Engaging in additional income -generating activities	33	18.3	3rd
Increased borrowing	30	16.7	4th
Sale of assets	4	2.2	5th

Source: Field Survey, 2024.

5.0 Conclusion and Recommendations.

5.1 Conclusion

This study reveals that the elevated transportation costs impact the ability of rice farmers to access markets efficiently, ultimately reducing their income and profitability. These factors combine to create a ripple effect on food security among rice farming households. As production costs escalate, so do the prices of locally produced rice, leading to inflationary pressures that decrease the purchasing power of consumers, particularly in rural areas. The study further demonstrates that food security for rice farming households in Benue State is compromised, as reduced income and increased production costs diminish their access to affordable, nutritious food, heightening their vulnerability to food insecurity.

In conclusion, fuel subsidy removal, while fiscally beneficial for the Nigerian government, has imposed significant economic strain on rice farming households. Addressing these challenges through targeted agricultural policies, infrastructure improvements, and support systems will be essential in promoting both economic resilience and food security in Benue State and similar regions across Nigeria.

5.3 Recommendations

Based on the findings of this study, the following recommendations were made:

i. Farming households should form cooperative societies in order to poll their resources together to be able to buy inputs in bulk and also sell their products in bulk to benefit from economy of scale.

ii. Government should reconsider implementing other measures to support rice farmers, this could include providing subsidies or incentives to offset the increase in production costs, as well as investing in infrastructure to improve the efficiency of the rice farming sector.

iii. Government should establish more financial institutions in the study area that will grant loans and credit to farmers at low interest rates. This will foster more investments in rice production and enhancement in food security status.

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