

Impact of Fuel Subsidy Removal on Agricultural Production among Smallholder Farmers in Niger State, Nigeria

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The study examined the impact of fuel subsidy removal on agricultural production among smallholder farmers in Niger state, Nigeria. Four objectives guided the study. Data were collected with structured questionnaires distributed to 120 smallholder farmers. The study used a multistage stage random sampling procedure to select farming household from each village. Descriptive statistics, regression and Likert type scales were used to analyze the data. The results of logistic regression results revealed that the removal of fuel subsidy has negatively impacted agricultural activities in the study area with challenges such as increased in transportation cost, inadequate vehicles to transport produce to the market due to high cost of fuel, poor sales and lastly increase in prices of agricultural commodities in the country presently. The results also revealed that youths between the ages of 20-29 (64.2%) dominated in the field of agriculture, this prompted the researcher to draw conclusions on the fact that agriculture is a lucrative industry for youths to venture into. The findings revealed that high cost of transportation affects the price of agricultural produce while the distance that exists between the market and the farms is a major reason why the cost of transportation is high. Therefore, the government should support rural farmers through subsidized transportation, improved market access, incentives and road networks. The study therefore suggested that emphasis should be made on thorough research before implementing policies like fuel subsidy removal, advocating for a gradual transition to mitigate hardships for citizens, particularly among smallholder farmers, in Niger State.

Keywords: Fuel subsidy, Smallholders' farmers, Agricultural production, Niger, Transportation.

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INTRODUCTION

Nigeria, as the sixth-largest oil exporter in Organization of the Petroleum Exporting Countries (OPEC), boasts abundant oil reserves that have generated billions of dollars over the past fifty years. However, despite this wealth, the nation's refined crude oil products supply has dwindled due to a myriad of issues including inefficiency, corruption, mismanagement, and excessive subsidizing (Ibanga, 2011; Balouga, 2012). The oil industry has not only dominated Nigeria's economic policy but has also been deemed the "life-blood" of the Nigerian economy (Adekoya, 2021).

Fuel subsidies, a policy keeping consumer prices for goods or services below market rates, were initially implemented during the military era to alleviate the burden on the masses. However, over time, these subsidies became unsustainable, leading to issues like corruption, smuggling, and fiscal constraints (Omoniji, 2012). Despite the vast sums spent on fuel subsidies, the benefits largely eluded the majority of Nigerians, with funds being mismanaged and diverted from crucial infrastructure projects (Onanuga, 2012).

The abrupt announcement of the end of fuel subsidies in 2012 highlighted the need for a shift in economic policies, aiming to redirect funds towards other sectors for sustained development (Onanuga, 2012). However, the removal of subsidies is a sensitive issue, often sparking societal unrest and economic instability (Sheeran, 2015). Nigeria's proposal to eliminate subsidies must be carefully assessed, considering its potential impacts on the economy and society.

The removal of fuel subsidies has far-reaching consequences, affecting various sectors like transportation, agriculture, and overall economic development. Studies have shown that subsidy removal leads to increased transport costs and fares, impacting both agricultural and non-agricultural commodities (Olaniyi, 2016). Furthermore, the agricultural sector, once the backbone of Nigeria's economy, has suffered neglect amid the dominance of the oil industry (Agu et al., 2018). The withdrawal of subsidies also presents challenges such as inflation, diminished household income, and reduced competitiveness (Adenikinju, 2009; Bazilian and Onyeji, 2012; Ocheni, 2015).

Given Nigeria's heavy reliance on oil, oil price shocks have significant macroeconomic effects on the economy, affecting output, prices, exchange rates, government revenues, and more (Adeniyi et al., 2011; Akinlo, 2012). The removal of fuel subsidies further exacerbates these effects, leading to increased fiscal planning discrepancies, inflation, and income disparity (Umar and Umar, 2013; Siddig et al., 2015).

Despite Nigeria's vast oil wealth and natural resources, the country faces numerous challenges that hinder its socio-economic development. With the tenth-largest proven crude oil reserves globally and substantial natural gas reserves, Nigeria should be positioned for economic prosperity. However, the continued dependence on oil revenues, coupled with inefficiencies and mismanagement, has stifled growth and perpetuated poverty (Onyeizugbe and Onwuka, 2012).

The removal of fuel subsidies, while intended to address fiscal deficits and promote economic diversification, has led to unintended consequences. Rising fuel prices have cascading effects on transportation costs, inflation, and overall consumer welfare (Olaniyi, 2016). Moreover, the removal of subsidies has strained household budgets, exacerbated poverty, and contributed to social unrest (Adelabu, 2012).

The overarching problem lies in Nigeria's overreliance on oil revenues and the failure to effectively manage and diversify the economy. Despite decades of oil wealth, the country's infrastructure remains underdeveloped, its industries uncompetitive, and its population impoverished (Adekoya, 2021). The withdrawal of fuel subsidies further highlights the need for comprehensive reforms and sustainable development strategies to address Nigeria's socio-economic challenges.

The removal of fuel subsidies in Nigeria represents a pivotal moment in the nation's economic history, with profound implications for its citizens and various sectors. This study aims to explore the effects of subsidy removal on the Nigerian economy, considering its impact on transportation, agriculture, and overall economic stability. By examining existing literature and empirical evidence, this study seeks to provide insights into the challenges and opportunities associated with this policy shift.

Research Questions

- i. What are the socio-economic characteristics of the smallholder farmers in the study area?
- ii. How does the cost of transportation affect the availability of agricultural products in the study area?
- iii. What are the consequences of fuel subsidy removal on the marketing of agricultural products in the study area?
- iv. What is the relationship between transportation and the marketing of agricultural products?

Objectives of the study

The aim of the study is to examine the impact of fuel subsidy removal on agricultural productivity among smallholders in Niger State. The specific objectives were to:

- i. describe the socio-economic characteristics of the smallholder farmers in the study area,
- ii. examine the impact of transportation cost on availability of agricultural products in the study area,
- iii. examine the effects of fuel subsidy removal on the marketing of agricultural products in the study area,
- iv. determine the relationship between transportation and marketing of agricultural products.

LITERATURE REVIEW

Petroleum Subsidy Removal and the Nigerian Economy

The removal of fuel subsidies in Nigeria has been a subject of intense debate and scrutiny since 2010. Initiated as part of the deregulation of the downstream sector in alignment with IMF requirements, the gradual elimination of subsidies has led to significant increases in fuel costs and subsequent price hikes across various sectors (Akinyemi et al., 2017). This removal has both informational and macroeconomic

implications, with fuel dealers passing on higher costs to consumers, thereby impacting transportation costs and the prices of other goods (Olaniyi, 2016).

The macroeconomic effects of subsidy removal are intertwined with the interdependence between transportation costs, petroleum product prices, and commodity prices. Increases in fuel costs lead to higher transportation and power generation expenses, ultimately driving up commodity prices (Olaniyi, 2016). Despite arguments in favor of subsidy removal for improved agricultural sector performance (Akinyemi et al., 2017), concerns remain regarding its impact on transport costs, particularly in low- and middle-income countries (Olaniyi, 2016).

While some researchers advocate for the careful planning and implementation of subsidy removal to enhance overall welfare (Obo et al., 2017), others highlight the need for structural economic models to understand the relationship between oil price shocks and the broader economy (Kilian, 2014). Studies such as those by Lorusso and Pieronib (2018) shed light on the causes and effects of oil price shocks on economies like the UK, emphasizing the importance of separating price swings from underlying causes to evaluate their impact accurately.

Impact of Fuel Subsidy Removal on The Poor

The removal of fuel subsidies disproportionately affects the poor, exacerbating existing socio-economic disparities. Despite Nigeria's abundant natural resources, its residents often do not enjoy commensurate wealth, with poverty remaining prevalent (Siddig et al., 2015; Adekoya, 2021). Nigeria's heavy reliance on oil exports further complicates matters, with the economy vulnerable to fluctuations in global oil prices (Obasi et al., 2017).

Numerous studies have highlighted the detrimental effects of subsidy removal on household incomes, inflation, and overall economic wellbeing (Adenikinju, 2009; Ocheni, 2015). Moreover, the withdrawal of subsidies skews fiscal planning, promotes wasteful expenditure, and widens the income gap, disproportionately affecting poorer households (Siddig et al., 2015). While subsidy reduction may raise GDP, it often comes at the expense of household income and welfare.

The Agricultural Economy and Fuel Subsidies

Nigeria's economy was historically agrarian, with agriculture playing a vital role in economic development and social welfare. However, the dominance of the oil sector marginalized agriculture, leading to neglect and underinvestment in the sector (Abayomi et al., 2015). Transportation infrastructure is crucial for agricultural development, facilitating the movement of goods from farms to markets and driving local productivity (Agu et al., 2018).

The removal of fuel subsidies impacts the agricultural sector's cost structure, affecting production, transportation,

and overall competitiveness (Okwuanya et al., 2015). Nigeria's dependence on imported petroleum products further exacerbates the situation, jeopardizing the nation's balance of payments and capital investments (Adelabu, 2012). The withdrawal of subsidies also disrupts rural economies, hindering access to markets and impeding economic growth (Abdulkareem and Abdulhakeem, 2016).

Empirical Review

The removal of fuel subsidies has been a topic of interest in Nigeria, particularly in relation to its impact on agricultural production among smallholder farmers. Several studies have been conducted to examine the effects of this policy change on various sectors, including agriculture.

Sanchi et al., (2023) conducted a qualitative study on Sudden Exit of Fuel Subsidy and its Implications on Agricultural Productivity in the 2023 Production Season: A Review reviewed the impact of fuel subsidy removal on selected food prices in Port Harcourt, focusing on the prices of rice, garri, yam, beef, and fish. The study found that from 1966 to 2012, Nigeria had removed fuel subsidies 24 times in 58 years, and the prices of most food items increased astronomically from 2001 to 2012, especially for beef and fish. The study concluded that removal of fuel subsidies has affected food prices, but it did not specifically examine the impact on agricultural production among smallholder farmers in Nigeria.

Adepoju et al. (2023) conducted a study to investigate the impact of fuel subsidy removal on gross domestic product and transportation costs in Nigeria. The study utilized a correlational research design and relied on secondary data from Statista on the price of Premium Motor Spirit (PMS) and the country's Gross Domestic Product (GDP). It was found that the removal of fuel subsidies in Nigeria led to a 64% increase in inflation and a 42.5% decrease in GDP. The study argues that addressing the issue of fuel subsidies has a significant effect on the economy and suggests that alternative fuels and policies promoting non-motorized transport could help mitigate the impact of fuel price increases. Additionally, the research proposes two alternatives to subsidy removal: increasing fuel supply to meet demand and exploring alternative fuels, as observed in other countries. The study emphasizes the importance of locally refining crude oil and privatizing refineries with strategic policies.

Moreover, the study of Izom et al. (2023) examines the policy of fuel subsidy removal in Nigeria, focusing on its challenges and prospects. It argues that the policy has negatively affected citizens and recommends that the government develop effective implementation strategies to mitigate future hardships. Content analysis and logical inference were employed as tools for data analysis, with the research anchored on structural functionalism as its theoretical framework. The findings indicate that instead of delivering anticipated benefits, the policy has had a negative

impact on citizens, and no evident arrangements were made by the government to alleviate future hardships foreseen in the policy implementation, among other issues. The paper recommends that governments at all levels urgently review the subsidy removal policy and provide well-structured palliatives to alleviate the suffering of the citizenry, among other suggestions.

Ogbu (2012) observed that despite the gradual commencement of fuel subsidy removal during President Jonathan's tenure, the current challenges being experienced in Nigeria are more pronounced compared to earlier periods. Consequently, there has been a limited number of studies conducted on this topic. In his paper titled "Implications of Fuel Subsidy Removal on the Nigerian Economy," Ogbu highlights both the advantages and disadvantages of subsidy removal. The benefits of this action include the liberation of financial resources, stimulation of domestic refineries to enhance petroleum production, reduction of Nigeria's reliance on imported fuel, creation of employment opportunities, allocation of funds for critical public infrastructure development, reduction of budget deficits, anticipation of surplus generation in the near future, mitigation of government borrowing, and suppression of corrupt practices. On the other hand, the drawbacks encompass escalated inflation, heightened crime rates, increased prices of petroleum products, and potential job losses within the informal sector.

The study by Adinoyi and Kpae (2023) examines the impact of fuel subsidy removal in Nigeria and proposes palliative measures to mitigate its adverse effects. It emphasizes the need for accountability and transparency in the distribution of palliatives to enhance public trust. The research, employing qualitative methodology, highlights the lack of social inclusiveness in past palliative efforts and the consequent loss of public confidence in government initiatives. Recommendations include the involvement of diverse stakeholders, a 100% increase in government employee wages, and measures to prevent hoarding of food palliatives. Overall, the study underscores the importance of addressing socioeconomic challenges and enhancing social inclusiveness in the distribution of fuel subsidy removal palliatives.

While several studies have explored the broader economic effects of fuel subsidy removal in Nigeria, there is a clear gap in research that directly addresses the impact of this policy change on agricultural production among smallholder farmers. Additionally, there is a lack of attention to local contexts and regional variations within Nigeria, as well as the absence of tailored mitigation strategies for the agricultural sector. Moreover, there is a need for further research to understand the long-term effects and sustainability of fuel subsidy removal on agricultural productivity and resilience among smallholder farmers.

Despite the absence of a specific study on the impact of

fuel subsidy removal on agricultural production among smallholder farmers in Nigeria, the broader economic implications of fuel subsidy removal in the country have been well-documented. The removal of fuel subsidies has led to increased inflation, decreased GDP, and negative impacts on citizens. Potential strategies for mitigating the impact of fuel price increases include the use of alternative fuels, policies that encourage non-motorized transport, and ensuring accountability and transparency in the distribution of fuel subsidy removal palliatives.

MATERIALS AND METHOD

Brief Description of the Research Settings

The research was conducted in Niger State, Nigeria. Niger State is one of the 36 states of Nigeria. It is situated in the North Central Region of the nation and is bordered to the south by the Niger River. The Kaduna River floodplains are part of the Niger State's scenery, which is primarily made up of wooded savannas. The British formed Niger Province in 1908; it was known as Nupe Province from 1918 to 1926 and encompassed the then-existing Abuja, Agaie, Bida, Kontogora, and Lapai Emirates, the Gwari, Kamaku, and Wushishi chiefdoms, and the Zuru Federation. The Nupe in the south, the Gwari in the east, the Busa in the west, and the Kambaris in the north make up the majority of the population in Niger State. The majority religion in the state is Islam. The majority of the population works in agriculture, both for export and domestic use. Locals primarily farm cotton, shea nuts, peanuts, yam, sorghum, millet, cowpea, maize, and tobacco. The renowned Gurara Falls are located in Niger State, as is Kainji National Park, the largest national park in Nigeria, which is also home to the Zugurma Game Reserve, the Borgu Game Reserve, and the Kainji Lake (Obasi et al., 2017).

Population of the Study

The target population for this study were farmers in the North Central Zone, Nigeria. Specifically, those located in the selected zones (Zone A and Zone C), local government areas (Borgu and Bida), and rural communities within these areas were included. Therefore, the study encompassed all selected smallholder farmers residing in the selected zones, local government areas, and rural communities within the North Central region of Nigeria.

Sample Size and Sampling Procedures.

The multistage sampling technique was employed for the study. The first stage involved a purposive selection of 2 Zones from the 3 Agro-geographical Zones in Niger State due to significant presence of smallholder farmers within this region. The selected zones were Zone A and Zone C. The second stage involved purposive selection of Borgu and Bida

local government areas (LGAs) from the 2 selected agricultural zones based on their significant contribution to agricultural production. The third stage involved a systematic selection of three (3) rural communities from each of the two (2) selected LGAs includes Agumu, Bakuta, Alafiyaro, Pategi, Kutigi, Baddeggi, to ensure representation from various parts of the LGAs. The final stage involved a simple random selection of 20 respondents from each of the 6 rural communities to ensure a fair and unbiased representation of smallholder farmers within each community. This represents a total sample size of 120 smallholder farmers who were selected for the purpose of this study.

Data collection

Primary data were collected using structured interview schedule, focus group discussion and in-depth interview from smallholder farmers. Structured questionnaires were administered to collect data and the survey took about 2 hours. The key themes in the survey involved the socio-characteristics of smallholder farmers, impact of transportation cost on availability of agricultural products, effects of fuel subsidy removal on the marketing of agricultural products and relationship between transportation cost and marketing of agricultural products in the study area. The questionnaires were designed to ensure ease of response, with participants indicating their choices by marking [√] for Strongly Agree (), Agree (), Disagree (), Strongly Disagree (), and using Yes () or No ().

Data Analysis

The data collected for the study were analyzed using descriptive statistics such as frequency and percentages. Logit regression technique was also used to examine impact of transportation cost on availability of agricultural products of the farmers in the study area. A four (4) point Likert type scale of Strongly Agreed (SA), Agreed (A), Disagreed (D) and Strongly Disagreed (SD) assigned values of 4, 3, 2 and 1 was used to determine the extent of relationship existing between transportation cost and marketing of agricultural produce in the study area. Data were analyzed with aid of Statistical Package for Social Science (SPSS) version 27 and the descriptive and inferential statistics were used to present the results.

RESULTS AND DISCUSSION

Socio-economics characteristics of respondent in the study area

The socio-economic characteristics of the respondents investigated in the study included: sex, age, marital status,

household size, level of education, nature of farming, farming experience, and income level were presented in Table 1. The study revealed that a large proportion of small-scale farmers in the area were male (60.0%), while female accounted for (40.0%). This discovery supports the findings of Okwuanya et al. (2015) who found that male-led households are more likely to embrace agricultural technology, because of their leading role; facilitating the planning and operation of the farm to improve productivity and maintain the well-being of the family. The results revealed that majority of the respondents (64.2%) were between the ages of 20-29 years which implies that majority of the farmers are youths, therefore agricultural activities in the area of study is dominated by youths which is a good impression while 27.5% of respondents lie between 30-39 years and 8.3% aged between 40-49 years. 50.0% of respondents were married, while 47.5% were single, 0.8 were divorced and 1.6% were widows. 50.0% are married, while 47.5% were single. 1.7% were widowed and only 0.8% are divorced.

Most respondents (65.8%) reported having household sizes ranging from 1 to 5 members. Smaller percentages reported larger household sizes, with 24.2% having 6-10 members, 3.3% having 11-15 members, and 6.7% having 16-20 members. This finding is unsurprising given that large family sizes are typical in Northern Nigeria, where they serve as accessible workforces. Additionally, cultural traditions and religion permit men to marry up to four women. The utilization of household labor for various activities, such as plowing, planting, weeding, and harvesting, was widespread in the study area. Similarly, large households may facilitate access to agricultural information.

Educationally, 52.5% of the respondents had acquired higher education, while 24.2% had secondary education. Only 4.2% of the respondents possessed elementary education while 19.1% had no education at all. This indicated that the level of literacy of the sampled respondents is relatively high in the study area. Overwhelmingly, 82.5% of the small-scale farmers in the study area were into full-time farming while 17.5% were part-time farmers. This implies that farming is the major occupation of the residents in the study area. Furthermore, 4.8% of respondents had farming experience of 1-5years, while 3.2% had 6-10 years, 19.4% had 11-15years, 26.6% had 16-20 years and 46.0% had 21 years of farming experience in the study area. The farming experience really help the farmers to improve their productivity through practical knowledge acquired over a period of time in the study area. In relation to family income, greater proportion (58.9%) were in the income range of N201,000 – 300,000 followed by 27.4% who were in the range of N101, 000 – N200, 000. While 12.9% earned between the range of N301,000 – 400,000 and 0.8% earned less than N100,000. This implies that agriculture is lucrative whichever field one engages in as long as one has experience and is willing to work hard and smart.

Table 1. Socio-economic characteristics of the respondents in the study area.

Socio-Economic Variables	Frequency	Percentage (%)
Gender		
Male	72	60.0
Female	48	40.0
Age Range		
20-29	77	64.2
30-39	33	27.5
40-49	10	8.3
Marital Status		
Single	57	47.5
Married	60	50.0
Divorce	1	0.8
Widow/Widower	2	1.7
Household Size		
1-5	79	65.8
6-10	29	24.2
11-15	4	3.3
16-20	8	6.7
Level of Education		
No Education	23	19.1
Elementary Education	5	4.2
Secondary Education	29	24.2
Higher Education	63	52.5
Nature of Farming		
Full-time	99	82.5
Part-time	21	17.5
Farming Experience (years)		
1-5	8	6.7
6-10	10	8.3
11-15	23	19.2
16-20	33	27.5
21 and above	46	38.3
Income Level		
Less than 100,000	1	0.8
101,000-200,000	34	28.4
201,000-300,000	73	60.8
301,000-400,000	12	10.0
TOTAL	120	100

Source: Field survey, 2023.

Logit regression results showing the impact of transportation cost on availability of agricultural product in the study area

The results presented in Table 2, revealed the effect of

farmers' demographic characteristics on how transportation cost influence availability of agricultural products in the study area which was examined using the logistic regression model. The R-squared value, denoted by "R Square," is 0.275.

Table 2. Logit regression on the impact of transportation cost on availability of agricultural products.

Variables	Coefficient (B)	Standard error	Wald	Sig.	Exp (B)
Gender	0.03034	0.0155	-0.207	0.0384*	0.1028
Age	0.2519	0.0120	0.802	0.4820	0.1293
Income level	0.3105	0.2535	0.802	0.1391	0.2711
Household size	0.3057	0.2579	0.082	0.1291	0.2520
Agricultural exp	0.0729	0.5298	0.452	0.0041**	0.7147
Level of education	0.1426	0.4260	0.034	0.0028**	0.1476
Log likelihood	-28.19470				
NgelkerkeR ²	0.2751				

Source: Field Survey, 2023

Key

* = Significant at 5% significant levels

** = Significant at 1% significant levels

This means that approximately 27.5% of the variance in availability of agricultural productivity can be explained by the independent variables included in the model. From the study, it was observed that gender, agricultural experience, and level of education have significant effects on the availability of agricultural products, while age, income level, and household size do not appear to have significant impacts in the study area.

The coefficient for gender is significant at 0.0384, indicating that gender has a statistically significant impact on the availability of agricultural products. The odds ratio suggests that being male (compared to female) increases the likelihood of agricultural product availability by a factor of 0.1028. While the agricultural experience is significant at the 0.0041, indicating that agricultural experience has a statistically significant impact on the availability of agricultural products. The odds ratio suggests that as agricultural experience increases, the likelihood of agricultural product availability decreases by a factor of 0.7147. The study also revealed that the level of education is significant at the 0.028, indicating that the level of education has a statistically significant impact on the availability of agricultural products. The odds ratio suggests that as the level of education increases, the likelihood of agricultural product availability decreases by a factor of 0.1476.

Overall, regression analysis highlighted the significant associations between certain variables and the availability of agricultural products. Gender, agricultural experience, and level of education emerged as key factors influencing agricultural product availability. Specifically, being male, possessing less agricultural experience, and having a higher level of education were all linked to a lower likelihood of agricultural product availability while age, income level, and household size has no significant impacts. These findings

provide valuable insights for policymakers and stakeholders seeking to address challenges in agricultural product accessibility, guiding the development of targeted interventions and policies to support vulnerable groups.

Effect of Fuel Subsidy Removal on the Marketing of Agricultural Products

Knowledge on Fuel Subsidy and Impact on the Economy

The Survey results presented in Figure 1 revealed that the bulk of the sampled respondents (85.7%) indicated that they have an existential knowledge of what fuel subsidy is as majority of the respondents were youth and have a high educational background which is an avenue for them to research on issues pertaining to agriculture and how it affects them. The minority (14.3%) who have no knowledge of fuel subsidy at the time of this research was carried out indicated interest in finding out what fuel subsidy is and how it relates to their production.

Challenges or Barriers Faced Since the Removal of Fuel Subsidy

The data presented in Table 3 revealed that the majority of the respondents attested to have faced several challenges in agricultural production since the removal of fuel subsidy. It is also revealed that they also have faced barriers in production and transportation of produce from the point of production, which is the farms in the villages to the markets which is not really close to the farms. The major challenges faced by the farmers were the increase in the cost of planting materials which includes cost of fertilizers, pesticides and improved seed varieties. Other challenges were transportation cost, inadequate transportation and storage facilities and lastly lost

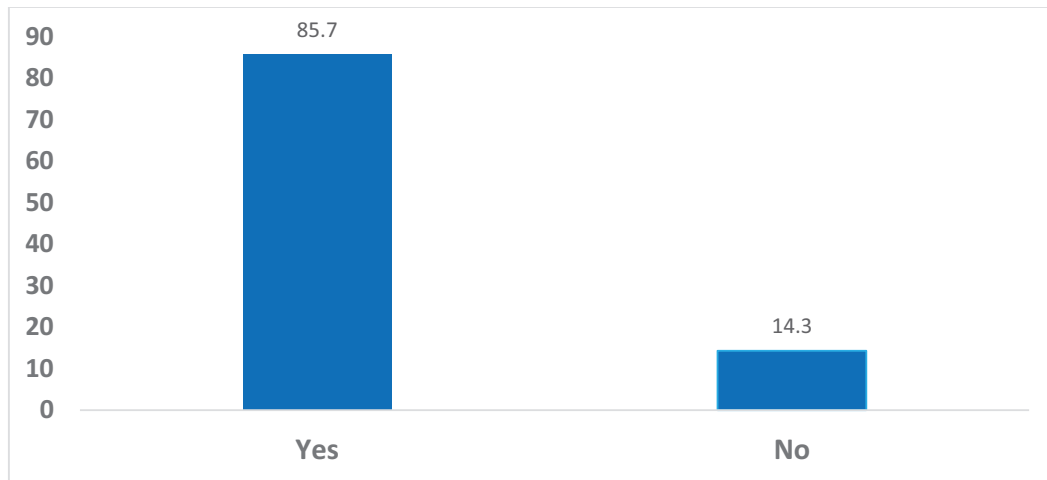


Figure 1. Respondents' prior knowledge of fuel subsidy. Field Survey, 2023

Table 3. Challenges or Barriers Faced Since the Removal of Fuel Subsidy.

Variable	Frequency	Percent (%)
Yes	98	81.7
No	21	17.5
Total	120	100.0

Source: Field survey 2023

Table 4. Relationship Existing between Transportation Cost and Marketing of Produce.

S/N	CONSTRAINTS	SA		A		SD		D	
		F	(%)	F	(%)	F	(%)	F	(%)
1.	High cost of transportation affects price of produce	82	67.4	28.6	24.6	5	4.0	5	4.0
2.	Distance between farms and markets impacts transportation and logistics	56	45.2	32	25.8	14	11.3	18	14.5
3.	Availability of reliable means of transport will affect farmers expansion of market	61	49.2	38	30.6	8	6.5	13	10.5

Source: Field survey, 2023

SA: Strongly Agree, **A:** Agree, **SD:** Strongly Disagree, **D:** Disagree

sales due to the increase in prices of agricultural commodities in the country presently. All these barriers are challenges according to the respondents as a result of the fuel subsidy removal.

Relationship Existing Between Transportation Cost and Marketing of Produce

Attempts were made to determine the relationship existing

between transportation cost and marketing of agricultural produce in the study area. The results are shown in Table 4. The table shows that majority of the respondent farmers (67.4%) strongly agreed that high cost of transportation affects the price of agricultural produce, while (28.6%) agreed also that one of the major reasons contributing to the high cost of agricultural produce in the market was increase in transportation. 4.0% strongly disagreed stating that

transportation cost does not affect price of produce in the market. Further survey results also show that distance that exist between the market and the farms is a major reason why the cost of transportation is high. About 45.2% of respondent majority strongly agreed to it, while 25.8% only agreed, with 11.3% strongly disagreed to it and about 14.5% minority disagreement. Bringing markets closer to the farms will help resolve the burden of transportation cost on those farmers who cannot afford to pay such exorbitant prices and reduce the prices of produce and products in the markets.

Furthermore, the results revealed that availability of reliable means of transportation will positively impact farmers' expansion of market, with a good and affordable transport network, farmers will want to explore other markets away from the ones in the study area. With 49.2% majority of the respondent farmers strongly agreed to the fact that availability of reliable means of transportation will positively impact farmers' expansion of market, 30.6% of respondent farmers also agreed to the fact that availability of reliable means of transportation will positively impact farmers' expansion of market in the study area. Another 10.5% of the respondents disagreed that availability of reliable means of transportation will positively impact farmers' expansion of market in the study area, as they argued that transportation cannot in anyway affect market expansion in the study area.

CONCLUSION

This study examined the impact of fuel subsidy removal on agricultural production among smallholder farmers in Niger state, Nigeria. Based on the results this research work the study concludes that the problems militating against the performance of agriculture in Niger state, Nigeria as a result of the fuel subsidy removal which was approved by the Nigerian president Bola Ahmed Tinubu on the 29th of May, 2023. The study revealed that the majority of farmers were male, with youths aged 20-29 dominating the agricultural sector. Farmers had significant farming experience, and a considerable portion had attained tertiary education. The removal of fuel subsidy negatively impacted agricultural activities in the region, leading to challenges such as increased transportation costs, inadequate vehicles for transporting produce to the market due to high fuel costs, and poor sales. The impact of fuel subsidy on agricultural production and livelihood of farmers in the study area cannot be emphasize, therefore, interventions are needed to curb this high rising cost of living in the study area. This is because new problems will daily arise in addition to old ones. As a result, the attitude requirements must be considered. Therefore, the identification of the impact of fuel subsidy removal on agricultural production is important especially to smallholder farmers. Based on the result of the study, high cost of transportation affects the price of agricultural produce, distance that exists between the market and the farms is a

major reason why the cost of transportation is high. Availability of reliable means of transportation will positively impact farmers' expansion of market, increase in the cost of planting materials which includes cost of fertilizers, pesticides and improved seed varieties. Other challenges were transportation cost, inadequate transportation and storage facilities and lastly lost sales due to the increase in prices of agricultural commodities in the country presently.

RECOMMENDATIONS

Drawing from the study's findings, the subsequent recommendations are made:

- i. Transportation costs should be subsidized for small-scale farmers in rural areas through public-sector efforts to bolster agricultural development and rural livelihoods. Funding for these subsidies could originate from the national budget or specific agricultural development funds. Partnerships with private sector stakeholders and collaboration with international aid agencies or NGOs specializing in rural development to enhance the implementation of these subsidies.
- ii. Provision of markets close to farming communities and accessible road networks should be facilitated, possibly by local government authorities or relevant governmental bodies, to enable small-scale farmers to sell their produce more quickly and easily, particularly perishable goods.
- iii. Incentives should be provided and cost of raw materials subsidized.
- iv. On the issue of fuel subsidy, the government should have made provisions for its citizens to help them acclimatize to the subsidy removal and find a level ground before implementing it. Therefore, this is a call to future leaders to make a thorough and valid research on the implications of the policies they will be implementing so as not to bring untold hardships to their citizens.

Conflict of interest

The authors declare that they have no conflict of interest.

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