Effect of Fuel Subsidy Removal on Tomatoes Production in Garun Mallam Local Government Area, Kano State, Nigeria

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Abstract

The study examined the socio-economic impact of the fuel subsidy removal on food scarcity in Nigeria, with a specific focus on tomatoes production in Garun Mallam Local Government Area, Kano. The research aimed to assess how the removal of fuel subsidies has affected tomatoes production, analyze its socio-economic consequences, and identify potential solutions to mitigate the negative effects. The study relied on the Price Pass-Through Theory as its theoretical framework and adopted a survey method, using questionnaires and in-depth interview as the main instrument for data collection. The study found that the fuel subsidy removal significantly increased production and transportation costs for tomatoes farmers. Higher fuel prices led to greater expenses in transporting tomatoes to both local and regional markets, which resulted in reduced supply and fewer deliveries. The study also highlighted a decline in the volume of tomatoes available for sale as farmers faced challenges in meeting market demand, due to the higher costs of production and transportation. This ultimately impacted the profitability and productivity of tomatoes farmers. The study contributes to knowledge by highlighting the interconnectedness of fuel prices, agricultural productivity, and food security in Nigeria. It also provides insights into the challenges faced by farmers in rural areas, particularly in adapting to the economic implications of national policy changes. The study recommends that the Nigerian government provide targeted subsidies for essential agricultural inputs, such as fertilizers, seeds, and irrigation equipment, to help mitigate the rising production costs caused by the fuel subsidy removal among other recommendations.

Keywords: Policy, Production, Socioeconomic, Subsidy, Tomatoes.

Introduction

Nigeria, often referred to as the "Giant of Africa," is a country with a complex socio-economic context. It is characterized by a diverse economy with vast human and natural resources, yet it faces significant challenges in achieving sustainable development. Abdulkareem et al. (2023), opines that the country's socio-economic development is influenced by several factors. Poverty reduction and social inclusion are critical to Nigeria's attainment of the Sustainable Development Goals (SDGs). However, despite high economic growth rates in recent years, the country has struggled to improve the socio-economic conditions of its citizens. This paradox raises questions about the distribution of wealth and the inclusiveness of growth. The socio-economic context is further complicated by the country's dependence on oil revenues, which makes it vulnerable to global oil price fluctuations. The removal of fuel subsidies, for instance, has had far-reaching implications for various sectors of the economy, including agriculture.In the agricultural sector,

the removal of fuel subsidies has led to increased costs of production, affecting food security and the livelihoods of farmers. This is particularly evident in the case of tomatoes production in Kano, a significant agricultural activity in the region.

Fuel subsidies were first introduced in Nigeria in 1977 as a temporary fiscal response to an oil price spike. The intention was to cushion the impact of sudden increases in fuel prices on the Nigerian populace, particularly the low-income earners. However, what was initially intended as a temporary measure became a permanent feature of Nigeria's economic policy (IMF, 2022). The subsidies were continuously retained by subsequent governments, becoming institutionalized and forming a significant part of government expenditure. The fuel subsidy policy in Nigeria has been characterized by the government's attempt to keep petrol prices artificially low. This has been achieved by the government paying the difference between the cost of importation and the pump price of petrol. The policy has led to the government borrowing heavily to finance the subsidy, which in turn increases the country's deficit.Despite the noble intentions behind the fuel subsidy its administration in Nigeria has been plagued with serious allegations of corruption and mismanagement. This has led to calls for the removal of the subsidy, with critics arguing that it is not sustainable in its current form.

The removal of fuel subsidies in Nigeria has significant implications, both positive and negative, for the country's socio-economic landscape. According to Ozili & Obiora (2023), who argues that, the removal of fuel subsidies can free up financial resources for other sectors of the economy on the positive side. This could incentivize domestic refineries to produce more petroleum products, thereby reducing Nigeria's dependence on imported fuel. The removal of subsidies could also increase employment, channel funds for the development of critical public infrastructure, reduce the budget deficit, and potentially generate a budget surplus in the near future. Furthermore, it could curb corruption associated with fuel subsidy payments, increase competition, reinvigorate domestic refineries, and reduce pressure on the exchange rate.However; the removal of fuel subsidies also has potential negative implications. It may decrease economic growth in the short term, increase inflation, and exacerbate poverty. Other potential negative impacts include an increase in fuel smuggling, crime, and the prices of petroleum products. The removal of subsidies could also lead to job losses in the informal sector.

Tomatoes production in Garun Mallam Local Government Area, Kano State, stands as a vital component of the region's agricultural sector, significantly influencing both the socio-economic status and food security of its inhabitants. The cultivation of tomatoes is deeply embedded in the local culture and economy, with a majority of the population engaged in farming activities. This engagement is not merely a means of subsistence but also a substantial source of income for the community. These farmers, who typically manage less than 5 hectares of land, have honed their expertise over an average of 15 years, underscoring the generational transfer of knowledge and the community's commitment to this crop. The profitability of tomatoes farming in the area is evident, with a reported gross margin of ₦302,832 and a net farm income of ₦245,916, which translates to a return on investment of 114.5% (Amurtiya & Adewuyi, 2020). Such figures not only reflect the economic potential of tomatoes production but also its role in sustaining the local economy.

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Furthermore, the local markets, particularly the Kadawatomatoes market, are bustling hubs of activity, where the produce is primarily sold fresh. This necessitates efficient supply chains to ensure that the quality and profitability of the tomatoes are maintained from farm to market in Garun Mallam Local Government Area. However, the farmers face challenges such as pests and diseases, lack of modern production facilities, inadequate capital, and price fluctuations, which can impede the growth of tomatoesproduction. Addressing these challenges is crucial for the sustainability of tomatoes production in Garun Mallam. Research suggests that the application of organic nutrients can significantly enhance the growth and yield of tomatoes, which could be a viable strategy for local farmers to increase productivity and sustainability. Implementing such practices could lead to improved crop health, higher yields, and potentially greater economic returns for the community.

Theoretical Framework

The Price Pass-Through Theory is a fundamental economic principle that explored the dynamics of how businesses adjust their product prices in response to changes in production costs. This theory is pivotal in understanding the ripple effects of cost fluctuations throughout the supply chain and onto the final consumer. At its core, the theory posits that when a company faces a change in production costs, it has the option to either absorb these costs or pass them on to consumers in the form of price adjustments. The degree to which these costs are passed through, known as the pass-through rate, can vary. It is influenced by factors such as market structure, the elasticity of demand and supply, and competitive strategies. One of the early proponents of the theory underlying price pass-through is Alfred Marshall (1890), who, in his seminal work “Principles of Economics”, explored the elasticity of supply and demand and their effects on price formation. However, the specific term "price pass-through" and its formal analysis are more modern developments, with contributions from various scholars over the years.

The proponents of this theory are numerous, as it has been a subject of study and refinement by many economists over the years. However, the foundational ideas can be traced back to early economic theories of tax incidence and monopoly pricing. The theory has been further developed and quantified in various studies, including a comprehensive report prepared for the Office of Fair Trading by RBB Economics (2014), which provides an extensive review of the literature on the causes, consequences, and measurement of cost pass-through. In practice, the application of Price Pass-Through Theory is extensive. It is used to analyze the state of competition, evaluate mergers, and assess the impact of policy changes on prices. For instance, in a perfectly competitive market, a cost increase might be fully passed on to consumers if the demand is inelastic. Conversely, if the demand is highly elastic, producers may have to absorb the cost to maintain their market share. Understanding this theory is crucial, especially when considering the socio-economic effects of policies like fuel subsidy removal. Such policies can lead to increased production costs for goods like tomatoes, which may then be passed on to consumers, affecting food scarcity and prices. The theory helps to predict and analyze these outcomes, providing valuable insights for policymakers and stakeholders. The followings are the Tenets of the Price Pass-Through Theory according to the report by Office of Fair Trading by RBB Economics (2014):

i. The degree of cost pass-through is influenced by the market structure, with different outcomes expected under conditions of perfect competition, monopoly, or oligopoly.

ii. The theory distinguishes between idiosyncratic cost changes, which affect only one firm, and industry-wide changes, which affect all firms in a market.
iii. The responsiveness of consumers (demand elasticity) and the flexibility of producers (supply elasticity) in adjusting to price changes are crucial determinants of the extent of cost pass-through.
iv. In markets where firms have some degree of market power, strategic considerations can influence pricing decisions and the resulting pass-through of costs to prices.
v. Prices may not adjust symmetrically to cost increases and decreases; this can be due to a variety of factors, including menu costs, consumer behavior, and firm strategies.

The Price Pass-Through Theory, while providing a robust framework for understanding the dynamics of cost changes on prices, has faced its share of criticism. Scholars have pointed out that the theory may oversimplify the complexities of real-world markets. One key criticism is that the theory assumes a level of market efficiency and rationality that may not exist in practice (Competition and Markets Authority, 2014). Critics argue that factors such as market power, imperfect information, and behavioral biases can significantly alter the expected outcomes of price pass-through. Additionally, the theory has been challenged for its potential to overlook the asymmetry in price adjustments. Prices often rise more quickly than they fall in response to cost changes, a phenomenon not always adequately explained by the theory (Fabra & Reguant, 2021). This "rockets and feathers" effect suggests that firms may be quicker to pass on cost increases to consumers than to pass on cost decreases, which could be indicative of anti-competitive behavior or other market inefficiencies.

Methodology

Research design is the structured plan of investigation aimed at answering research questions. Sousa et al. (2022), emphasize the importance of a well-conceived research design that is both contextualized and personalized to the subject matter. This study adopts a descriptive survey research design, which involves collecting and analyzing data from a representative sample of a larger group. Data will be sourced from Questionnaires which are the primary sources with random sampling used to select the sample size. The data collection for secondary data for the research integrates literature review, while primary data is basically from questionnaires to gather insights from respondents. The data analysis will utilize simple percentage analysis to evaluate the questionnaire responses.

Population of the study

In this research, the term 'population' is employed to describe the tomatoes producers and marketers within Garun Mallam. The estimated population of Garun Mallam Local Government Area (LGA) in Kano State is approximately 130,000 people, based on recent demographic estimates (National Population Commission, 2022). This group represents a vital segment of the local economy, contributing significantly to both regional food security and economic activity. The population of the study is set at 156 farmers and 264 traders. This study therefore adopts the population. This population is significant as it provides a comprehensive analysis, ensuring that the findings accurately reflect the socio-economic realities post-fuel subsidy removal.

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Table 1: Population Distribution of the Study

Population	**No.**	Percentage
Farmers	156	37
Traders	264	63
Total	**420**	**100**

Source: Field Survey (2024)

Sample Size and Sampling Technique

The sample size for this study is set at 156farmers and 264 traders, which represents approximately 30% of the target population. This decision aligns with the sampling principle suggested by Wu & Thompson, (2020), who emphasize that a sample must be a representative cross-section of the entire group being studied. This is achieved through a random selection to ensure unbiased representation. The Sampling process will be used in recruiting respondents for the questionnaire, due to the nature of the study and to satisfy predetermined criteria. This method involves the deliberate selection of certain groups because of their relevance to the investigation. The sample comprises a balanced mix of both farmers and traders, ensuring a representative cross-section of the stakeholders in tomatoes production in Garun Mallam Local Government of Kano State.

Table 2 Sample Size of the Study

Type of SMEs	**Population**	**Sample size**
Farmers	156	47
Traders	264	79
Total	**420**	**126**

Source: Field Survey (2024)

Method of data collection

The study employed the use of electronically administered questionnaire (Kobo tool-kits) and in-depth interviewwith both farmers and traders of tomatoes in Garun Mallam LGA in KanoState.

Instrument for Data Collection

The primary and secondary instruments of data collection were both used in this study. The Liker scale was used, with each item created by checking the following responses to the research questions: Strongly Agree, Agree, Disagree, Strongly disagree and Undecided. Data, both quantitative and qualitative, werecollected.The questionnaire contains four sections: 'A', 'B', 'C', and 'D'. The Kobo toolkit was utilized for the quantitative portion of the study, while in-depth interviews were employed for the qualitative data. Open-ended questions were provided formally.

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Method for Data Analysis

Frequency counts and bio-data charts wereused to examine the field data acquired. The data collected through the Kobo tool-kits and in-depth interviews was analyzed using a descriptive statistical analysis utilizing percentages that were acquired from the Kobo tool-kits.

Discussion of Results

The cost of production for tomatoes cultivation has gone up since the fuel subsidy was eliminated.

Table 1: The cost of production for tomatoes cultivation has gone up since the fuel subsidy was eliminated.

Value	Frequency	Percentage
StronglyAgree	52	52
Agree	46	46
Undecided	1	1
Strongly Disagree	1	1

Source: Field Survey (2024)

Table 2: shows the cost of production for tomatoes cultivation has gone up since the fuel subsidy was eliminated was strongly agreed by 52%, agreed 46%, undecided and strongly disagreed by 1%. This explains the extent to whichfuel subsidy removal has affected the production cost for tomatoes cultivation in producers in the Garun Mallam Local Government Area.

Table 3 Since the removal of the fuel subsidy, the cost of transporting tomatoes to local and regional markets has increased.

Value	Frequency	Percentage
Agree	53	53
StronglyAgree	47	47

Source: Field Survey: (2024)

Table 4 showsthe cost of transporting tomatoes to local and regional markets has increased, since the removal of the fuel subsidy. It was agreed 53%, and strongly agreed 47%. This indicates that transporting tomatoes to local and regional markets increased as a result of fuel subsidy removal.

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Table 5: Labour costs and availability for tomatoes farming have been negatively impacted by the removal of the fuel subsidy.

Value	Frequency	Percentage
Agree	55	55
StronglyAgree	41	41
Disagree	2	2
Strongly Disagree	2	2

Source: Field Survey (2024)

Table 5: shows how labour costs and availability for tomatoes farming have been negatively impacted by the removal of the fuel subsidy. Agree 55%, strongly agree 41%, disagree 2%,and strongly disagree 2%. This entails that, labor costs and availability for tomatoes farming have negatively beenimpacted by the removal of the fuel subsidybase on the higher percent responses of agree and strongly agree. This is because fuel is one of the most essential commodities used in the production and distribution of tomatoes in the local markets.

Table 6: Due to increasing production and transportation expenses brought on by the removal of the fuel subsidy, tomatoes are now more expensive at local markets.

Value	Frequency	Percentage
Agree	59	59
StronglyAgree	38	38
Disagree	2	2

Source: Field Survey: (2024)

Table 6: shows that tomatoes are now more expensive at local markets mainly due to increasing production and transportation expenses brought on by the removal of the fuel subsidy. Agreed 59%, strongly agreed 38% and disagreed 2%. This indicates that increase in transportation expense and production cost are mainly due removal of the fuel subsidy.

Table 7: What effects has the removal of fuel subsidies had on tomatoes producers in the Garun Mallam Local Government Area in terms of tomatoes production, transportation, and marketability?

Effects	Frequency	Percentage
Negative effects	70	70%
Positive effects	6	12%
Measures	24	24%

Source: Field Survey (2024)

Table 7: Shows the opinions made by the respondents on the effects the removal of fuel subsidy had on tomatoes producers in the Garun Mallam Local Government Area in terms of tomatoes production, transportation, and marketability. Negative effects70%, this is a result of the high cost of transportation, low production output, spoilage, scarcity, and increase in the cost of tomatoes. Positive effects 6% of farms and trades are now looking at another method of machination as well as improved irrigation systems. While measuring 10% reduction in the cost of transportation, and the use of renewable energy. This illustrates that most of the respondents opiate negative effects because they felt that the removal of fuel subsidies resulted in a change in tomatoes producers in the Garun Mallam Local Government Area.

Summary

The study investigated the socio-economic impact of fuel subsidy removal on food scarcity in Nigeria, focusing on tomatoes production in Garun Mallam Local Government Area, Kano. It specifically aimed to assess how the removal of fuel subsidies has affected the cost of tomatoes production, transportation, and the overall availability of tomatoes in the local markets. The findings revealed that fuel subsidy removal significantly increased the production and transportation costs for tomatoes farmers. Higher fuel prices led to greater expenses in moving tomatoes to both local and regional markets, resulting in reduced supply and fewer deliveries. Additionally, the cost of labor for tomatoes farming also increased due to the rising price of fuel, affecting the overall sustainability of tomatoes farming in the area.

The socio-economic consequences of fuel subsidy removal have had a detrimental effect on the tomatoes production landscape in Garun Mallam. The study highlighted a decline in the volume of tomatoes available for sale, as farmers struggled to meet market demand due to the increased production and transportation costs. As fuel prices directly influence both production and transportation costs, many farmers found it increasingly difficult to maintain profitability and productivity. This disruption in supply dynamics has also led to a rise in tomatoes prices, reducing consumer access to this essential food item and contributing to local food scarcity.

To mitigate these negative effects, respondents suggested a range of potential solutions, including the introduction of government policies such as subsidies or financial support for agricultural inputs. Farmers also emphasized the need for more efficient, fuel-saving farming technologies and better access to alternative energy sources. Training and education on modern agricultural techniques, which reduce reliance on fuel-powered machinery, could help improve farming practices. Furthermore, the establishment of government-backed or community-run transport systems was seen as a way to lower transportation costs and improves market accessibility for tomatoes farmers. These measures could not only alleviate the impact of rising fuel costs but also help stabilize tomatoes production and ensure food security in the region.

Conclusion

This study concludes that the removal of fuel subsidies has had a profound impact on tomatoes production in Garun Mallam Local Government Area, exacerbating production and transportation costs, which in turn have led to reduced tomatoes availability in local markets. The

rising cost of fuel has significantly disrupted the supply chain, making it increasingly difficult for farmers to meet market demand. This has not only contributed to food scarcity but also made tomatoes less accessible to consumers due to higher prices. The findings clearly illustrate how deeply intertwined fuel prices are with agricultural production costs, and the challenges faced by farmers in managing these increases highlight the vulnerability of local food systems to broader economic shifts.

To address these issues, it is crucial for both the government and agricultural stakeholders to implement targeted solutions that can reduce the financial burden on tomatoes farmers. Policy interventions such as subsidies for agricultural inputs, financial support for farmers, and the promotion of fuel-efficient farming technologies can help mitigate the negative effects of rising fuel costs. Additionally, improving infrastructure through community-run transport systems and providing education on sustainable farming practices can enable farmers to increase production efficiency and reduce dependence on expensive fuel. By adopting these measures, it is possible to safeguard tomatoes production in Garun Mallam and ensure greater food security for the region.

Recommendations

Based on the findings, the study will propose some recommendations. Therefore, the study will recommend the following:

i. The government should subsidies provide for agricultural inputs such as financial support for fertilizers, seeds, and irrigation equipment to reduce production costs and help farmers manage rising fuel expenses.

ii. Farmers should be encouraged to adopt fuel-efficient technologies such as solar-powered irrigation, efficient tractors, and energy-saving equipment through subsidies or partnerships with agricultural technology providers to lower fuel use and boost productivity.

iii. The government should develop government-backed or community-run transportation systems, such as cooperatives or subsidized services, to offset rising transportation costs and ensure timely delivery to markets.

iv. The government should provide farmers with training, and offer education on modern fuel-efficient agricultural practices, such as effective irrigation and organic farming, to enhance productivity and sustainability while reducing fuel dependency.

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