WEST AFRICAN JOURNAL ON SUSTAINABLE DEVELOPMENT

# Influence of Fuel Subsidy Removal on the Prices of Major Food Commodities in Southeastern Nigeria

**[1]Meludu, Nkiru T., [2]Komolafe, O.J. and [3]Chilaka, P.C.**

*[1,2&3]Department of Agricultural Economics and Extension, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria*

*Email: [1]nt.meludu@unizik.edu.ng,*

*+2348023250457*

---

**Sub-theme 11:** Fuel subsidy regime, renewable energy development, industrialization and innovations and access to sustainable energy

**Abstract**

Recently there has been an astronomical increase in food prices with resultant indication in food insecurity. This is positively correlated with the total removal of fuel subsidy. Therefore, this study examined the influence of subsidy removal on prices of food items in Southeastern Nigeria. Data for this study was obtained from National Bureau of Statistics. Data was analysed using descriptive and inferential statistics (t- test) and presented in histogram and bar charts. The result showed that the prices of Rice, Beans, Yam, Garri and Tomato were significantly different after the subsidy removal at 10% level of significance and only Palm Oil was significant at 5% level of significance. There is a speedy rise in food price and other commodities within this short period of subsidy removal. This has resulted to different categories of hardships to the populace, affecting the economy of the country and leading to an unprecedented rise in exchange rate. The consequences continued to affect importation of valued materials into the country. Agricultural production is affected due to high cost of farming inputs and food security is compromised. Therefore, improvement in the transportation system, provision of palliative measures and reduction of corruption will in no small measure increase food production, food security and sustainable livelihood.

**Key words**: Fuel subsidy removal, food price, food security, livelihood.

---

## 1.0 Introduction

Hunger is habitually considered as a condition in which a person does not have the physical or financial capability to eat sufficient food to meet basic nutritional needs for a sustained period. Hunger is the greatest

manifestation of the multi-dimensional phenomenon of poverty and food and nutrition insecurity, the extermination of hunger, therefore is crucial to the eradication of other dimensions of poverty (Meludu, Obidiebube, Chukwu and Ikeogu, 2023) Hunger also presents a severe instance of market failure because the people who are most in need of food may be the least able to voice this need in terms of demand. Even though many nations may be producing much more food than is required to provide everyone with an adequate diet, about 800 million people, almost one person in every seven, do not have enough to eat (Meludu, *et. al.,* 2023), talk more of adequate. There are many issues that will affect access to food including the recent increase in the price of petroleum products. Food security according to the United Nation's Food and Agricultural Organisation (FAO), 'refers to a state of well-being whereby the citizens of an economy have physical, social, and economic access to adequate, safe and nutritious food which meets the food requirements and also dietary needs to gain an active and healthy life. People are food secure when they can get adequate, safe and nutritious diets all year round. Evidence has shown that food insecurity has a positive correlation with socioeconomic characteristics such as poverty and low income, among others that are common with agrarian communities in developing nations (Drammeh, Hamid, and Rohana 2019; Mohammed, Wassie, and Teferi, 2021; Fikire and Zegeye, 2022). Nigeria has become more food insecure because of its population explosion, droughts, land degradation, insecurity and lack of productive resources due to subsidy, insufficient assets, poverty and other deprivations.

The SDG or Project 2030 is a global call to eradicate poverty, secure the planet and ensure that everyone enjoys peace and prosperity by 2030. Zero hunger is the second SDG that must be achieved by 2030. It was referred to as eradicating hunger in the Millennium Development Goal (MDGs) of 2015. Several excuses were given as to why it was not possible for hunger to be eradicated at that time. Uninterestingly, some of the ugly situations challenged the world up to 2021 (Meludu, *et. al.,* 2023) and still challenging the world even today. Therefore, how workable is it that the world will be free from hunger by 2030?

The alarming incidence of food insecurity in Nigeria calls for prompt action. About 21.4% of Nigerian households experienced acute

food scarcity in 2020 (Osabohien, Ohalete, and Osabuohien, 2020). Also, according to Erokhin and Gao, (2020), 50% of the Nigerians were living below the poverty line of 1.9 USD per day. The Global Food Security Index (GFSI) rating shows that Nigeria ranked 94th out of 113 nations in 2019 with a 48.4% score, which puts the country below Ethiopia, Niger, and Cameroon (Ayinde, Otekunrin, and Akinbode, 2020). In addition, Nigeria has overtaken India as the world's most impoverished country (Ayinde, Otekunrin, and Akinbode, 2020). The Food and Agriculture Organisation (FAO, 2022) has projected that about 25.3 million people in Nigeria will face acute food insecurity from June to August 2023. A quarterly report released by the global organization shows that the figure projected is higher than the 19.45 million forecasts in 2022 (Meludu, *et. al.,* 2023). The magnitude to which efforts were made to address this situation is of major concern considering the current state of hunger, starvation and malnutrition in the country. This situation calls into question the effectiveness of the intervention programs or efforts such as promoting technology adoption in promoting food security. This condition is likely to worsen by the outright and total removal of fuel subsidies without adequate measures and reforms to cushion the multiplier effect on the economy.

Many studies have focused on examining the implications of fuel subsidies for the Nigerian economy. For instance, Umar and Umar (2013) and Siddig, Aguiar, Grethe, Minor and Walmsley, (2014) noted that Nigeria's subsidy regime distorts fiscal planning, encourages inefficient consumption and increases inequality as richer households benefit more. It has also been shown that fuel subsidy removal in Nigeria could cause inflation, reduce economic welfare, hurt economic growth, reduce household income and make firms less competitive (Ocheni, 2015). Distinctively, little or no literature is available on how the removal of subsidy has affected the prices of major food commodities in southeast Nigeria hence, the objective of this paper is to consider the impacts of fuel subsidy removal on the prices of major food commodities here in southeastern Nigeria.

## 2.0 Literature Review

### 2.1 Oil and Agricultural Productivity in Nigeria

Oil is a major player in the global economy as its role in the macroeconomic platform of

the world has not diminished despite the inclinations to alternative renewable natural energy sources like water, solar power, nuclear and wind (Ani, Onoja, & Humbe, 2021). Nigeria is the largest oil producer in Africa and the 6th highest producer as a member of the Organization of the Petroleum Exporting Countries (Ani, Onoja, & Humbe, 2021). Unfortunately, crude oil has both positive and negative impact on Nigerian economy. The oil industry is the main sector commanding height of the economy, contributing the highest share of the Gross Domestic Product (GDP) and accounting for the bulk of Government revenue both locally and foreign exchange earnings since its discovery in 1970 (Ani, Onoja, & Humbe, 2021). This has negatively affected agriculture production which used to be the mainstay of Nigeria's economy before oil (Helleineer. 1996; Adegboye, 2004; Komolafe, and Adeoti, 2018).

Before independence, agriculture provided food at a subsistence but self-sufficient level (Helleineer. 1996; Adegboye, 2004 Komolafe, and Adeoti, 2018). A decade after independence food shortage became feasible as a result of over-dependency on oil leading to rising food prices (85-125%) and declining foreign earnings from agricultural exports (Oyatoye and Babatunde, 2009, Komolafe, and Adeoti, 2018). Nigeria's food import bill rose from ₦3.474 billion in 1990 to ₦195.81 billion in 2001 and rises to ₦6.4 trillion in 2012 (NBS, 2012) and it continues to rise.

Agriculture is an energy conversion process, converting solar energy through photosynthesis to food energy for humans and feed for animals. Modern agriculture requires an energy input at all stages of agricultural production. Direct energy use in agriculture is primarily fossil fuel-based to operate farm vehicles and machinery for fields preparation, transportation of inputs, labour for planting and applying chemicals, water management, irrigation, cultivation and harvesting. Post-harvest energy use includes energy for food processing by small and medium industries, storage and in transporting products to the markets. Also, petrol and diesel is used to power generator use for heating and lightening poultry houses as well as kerosene. In addition, there are many indirect or sequestered energy inputs used in agriculture in the form of mineral fertilizers and chemical pesticides, insecticides and herbicides production. In addition, oils and lubricants are needed for lubrication in all types of farm machinery. Energy especially from oil plays a major role

in the production of any output which is a key input in the production process be it agricultural or non-agricultural products. Its availability, accessibility and affordability are key driver of economic growth and development because all economic sectors and agents including households require energy to function well and contribute meaningfully to economic growth and development.

Over the years The Nigerian economy has been programmed to revolve around the supply of subsidized petroleum products. An average household depends on these cheap by-products of crude oil such as petrol and kerosene for domestic and commercial use. This do not help the economy as public electricity supply is also epileptic forcing every home and business including agribusiness to be powered by subsidized fuel using generator. With this scenario any increase in the price of fuel impacts other sectors of the economy negatively. This is happening because transport cost for other services increases and it creates multiplier effect in the economy, the ripples are felt even up to the rural areas that are majorly agrarian and the prices of food items skyrockets.

### 2.2 The issue of fuel subsidy

Subsidy comes into play when consumers of a commodity are assisted by the state to pay part of the prevailing market price for the product (Soile, Tsaku and Yar Adua; 2014). Hence, subsidy could be expressed as the differential between the actual market price and the amount final consumers pay for the item. The subsidy is an important policy instrument that is adopted by governments to attain economic, social and environmental objectives. Energy resources, (especially fuel) were one of the areas that have witnessed active intervention of governments regarding comprehensive subsidization in developing countries. The estimated value of fossil fuel consumption subsidies globally was $325 billion in 2015, (International Energy Agency, 2019). Nigeria has been running a costly fuel subsidy reform, from US$10bn in 2022 to an estimated cost of about US$15bn in 2023 and has weighed significantly on the fiscals (Italian Institute for International Studies, 2023). Therefore, this new regime made bold to stop the subsidy reform. This action came with it consequences, because nothing was put in place to cushion the effect of subsidy removal.

According to Omotosho, (2020), the Nigerian government introduced a fuel subsidy regime as part of strategies for cushioning the macroeconomic impacts of oil price shocks on the economy. Under this arrangement, the government regulates the domestic price of fuel and pays domestic marketers the difference between the regulated domestic price and the Expected Open Market Price (EOMP), which is determined by the Petroleum Products Pricing and Regulatory Agency (PPPRA). It is estimated that about ₦10 trillion has been spent on fuel subsidy payments between 2006-2018 (Budgit, 2019).

### 2.3 Countries and how they Handled the Removal of Fuel Subsidy

Fuel subsidies have been a contentious economic policy for many nations, several countries have taken the bold step of removing fuel subsidies. We thus, explore the strategies they have employed to cushion the impact on their population.

#### a. Brazil

Brazil has implemented a system of fuel pricing that involves regular adjustments based on international oil prices, exchange rates, and other factors. The government introduced programs like the "Bolsa Família" to provide financial assistance to low-income households, which can help offset the impact of rising fuel prices (Sugiyama and Hunter, 2020).

#### b. Indonesia

Indonesia initiated fuel subsidy reforms in 2014, gradually reducing subsidies on gasoline and diesel fuel. To mitigate the impact, the government introduced the "Indonesia Smart Card" program, providing targeted assistance to low-income households affected by rising fuel prices. Investment in public transportation and efforts to diversify energy sources have also been part of Indonesia's strategy (Ichsan, Lockwood and Ramadhani, 2022).

#### c. India

India has periodically adjusted fuel prices to align with global oil prices, reducing direct subsidies. The government introduced the "Pradhan Mantri Ujjwala Yojana" program to provide free cooking gas connections to poor households, reducing their reliance on subsidized kerosene for cooking. Financial assistance and cash transfer programs have been employed to support vulnerable populations (Ranjan and Singh, 2020).

#### d. Malaysia

Malaysia has reduced fuel subsidies over the years, gradually moving toward a market-

based pricing mechanism. The government introduced cash assistance programs, such as the "Bantuan Sara Hidup" (BSH) cash aid, to help low-income households cope with higher fuel prices (Nooh, Subramaniam and Hanafiah, 2021).

**e. Ghana**

Ghana reduced fuel subsidies in 2015, leading to higher fuel prices. The government introduced the "Lifeline" subsidy program to provide relief to low-income households through targeted subsidies on electricity and water bills (Cooke, Hague, Tiberti, Cockburn and El Lahga, 2016).

**f. Zimbabwe**

Zimbabwe removed fuel subsidies in 2019, resulting in a significant increase in fuel prices. The government introduced a rebate system for public transport operators to help manage the impact on transportation costs for citizens. Some cash transfer programs and subsidies on public transportation were also introduced (Houeland, 2021).

## 2.4 Challenges faced by the removal of fuel subsidy in Nigeria

Energy subsidies and specifically fuel subsidies, which are the subject of this review, have a long history and have been applied in different forms with differing outcomes nationally and internationally. Two major classes of subsidies exist namely; production subsidy and consumer subsidy. Production subsidies are mainly features of developed economics and consumer subsidies are found in developing countries. The justifications for the introduction or removal of subsidies vary remarkably. In developed economies: environmental issues, international trade and maintaining competitiveness are the main drivers of policy. Whereas welfare, poverty alleviation and election cycle politics largely underpin the reasons for which subsidies are introduced in developing countries.

International experience indicates that the results of subsidy removal have been mixed. In some countries subsidy removal as a program enjoyed relative success with limited social stress. In other cases, the exercise was deemed a failure (Amosun, Ayo-Vaughan, Babalola and Eketunde, 2015).

There is a view that the Arab Spring was caused by a build-up of tension from stresses caused by high food prices and extreme social inequality.

Several developed and developing countries have engaged in fuel subsidy policy reforms.

These countries include Argentina, Brazil, Canada, China, Ghana, Senegal, India, Indonesia, Italy, Korea, Mexico, Russia, Spain, France and the United States. The International Institute for Sustainable Development IISD (2010) maintains that once in place, fuel subsidies are extremely difficult to remove, and there is no single observed formula for success, country circumstances and changing global conditions are major contributory factors.

Subsidizing petrol for a country with a population of over two hundred million people and with one of the fastest population growth rates in the world can be herculean. The Nigerian economy is the largest in Africa and one of the major producers of crude oil in the world. Yet at present, it imports the majority of the fuel consumed by its population and industries. Though moribund, the four government-owned refineries under the supervision of the NNPC have a combined total full refining capacity of 470,000 barrels per day. Nigeria's reported daily consumption of PMS has grown astronomically in the last 7 years with little empirical evidence to back it up, thus giving credence to the proposition that smuggling of petroleum products across Nigeria's borders exists. According to Abdulkadir and Shuaib, (2023), it is estimated that at least 15.6 million litres of petrol per day are smuggled across Nigeria's borders to its neighbouring countries which has partly led to Nigeria's reported daily consumption of petrol to blow to the sky.

The implementation of fuel subsidies in Nigeria, originated in the 1970s and was formalized in 1977, after the enactment of the Price Control Act. This legislation prohibited the sale of certain products, such as gasoline, at prices exceeding the prescribed regulatory limits. The administration of subsidies in Nigeria has been marred by significant allegations of corruption and mismanagement, despite the inherent nobility of the concept (Oyedele and Akinduyite, 2022). The concept of fuel subsidy removal pertains to the act of eliminating or reducing the financial support provided by the government for fuel prices. Nigeria has previously attempted the removal of fuel subsidies without success. Since 1999, there have been attempts for upward adjustment of fuel prices which have often been accompanied by civil unrest and protests. The Nigerian government has attempted to reform subsidies several times, but it has not succeeded, mainly due to strong popular opposition to reform and the coalition of

interest groups that had worked to protect the subsidies (Akov, 2015).

Protagonists of fuel subsidy have argued that subsidy must be removed on fuel because the nation needs money to boost the economy. They believe that the removal would reduce fuel scarcity to the barest minimum as well as hoarding leading to an adequate supply of fuel across the country. Also, the subsidy funds can be diverted to meeting other social needs like education, infrastructure and basic medical healthcare (Majekodunmi, 2013).

According to Raji, Mohammed, Sulaiman, Adeshina and Abdulbaqi (2018), the following are some of the demerits of fuel subsidy removal in Nigeria:

- standard of living will drop drastically as workers who earn low salaries in both public and private sectors will struggle to make a living based on the inflation caused by the removal of fuel subsidy;
- there will be much more pressure from labor organizations on the government to increase the minimum wage paid to workers.
- increase in unemployment as businesses tend to close down with the increase in fuel prices.

Theoretically, it is expected that the removal of fuel subsidy will impact the agricultural sector negatively. The negative effect is reflected in the increase in the cost of agricultural produce attributed to the high cost of transportation which is a crucial component of logistics. In aggregate terms, the agriculture sector would be badly affected by the fuel subsidy removal policy and this is in line with the findings by Harun, Mat, Fadzim, Khan and Noor, (2018), who argued that fuel subsidy removal could lead to an increase food prices and the consumer price index (CPI) of foods.

The removal of the oil subsidy is not completely bad considering the following reasons the government has given for the removal of the subsidy. However, only if the funds that will be saved as a result of the removal will be judiciously utilized and the shock on the economy can adequately be managed. According to the government, oil subsidy removal would significantly reduce the fiscal burden, freeing up resources for other critical sectors such as agriculture, healthcare, education, and infrastructure development. The removal of fuel subsidies allows governments to redirect funds towards priority areas, such as social welfare programs, thereby promoting inclusive

growth in the long run. Subsidy removal can incentivize the development of alternative energy sources, reduce government debt, improve economic efficiency, promote environmental sustainability and create a more equitable distribution of resources. Fuel subsidy removal may initially impact low-income households negatively, as it can lead to higher transportation costs and increased prices for essential goods. However, targeted social welfare programs and support measures can be implemented to cushion this impact.

## 3.0 Methodology

The study area is Southeast Nigeria. The zone consists of five states; Abia, Anambra, Ebonyi, Enugu and Imo. The population of the area is estimated at 22.3 million people, who are predominantly of Igbo tribal extraction (NPC, 2007). Southeast Nigeria lies between latitude 4°47′35″N and 7°7′44″N, and longitudes 7°54′26″E and 8°27′10″E and occupies a total land area of approximately 78,612 km$^2$ representing 8.5% of the country's total land area (Okoye, Onyenweaku and Asumugha, 2010; Olumba, Olumba and Alimba, 2021). The study made use of Secondary data obtained from the National Bureau of Statistics. Hypothesis of the study was tested using inferential statistics (Independent t-test).

**Analytical Technique**

Independent t -Test for testing the difference of two means (Akinbile, Akinpelu, Akwiwu and Uzoamaka, 2013) was used to test if there were significant differences in the prices of selected major food commodities in Southeast Nigeria before and after the removal of fuel subsidy.

$$T = \frac{\bar{x_i} - \bar{x_j}}{\sqrt{\frac{S_i^2}{n_i} + \frac{S_j^2}{n_j}}} \quad \text{.....(1)}$$

Where $\bar{x_i}$ = mean price before subsidy removal.

$\bar{x_j}$ = mean price after subsidy removal

$S_i$= sample variance before subsidy removal.

$S_j$ = sample variance after subsidy removal

$n_i$= number of months under consideration before subsidy removal

$n_j$= number of months under consideration after subsidy removal

The hypothesis tested was;

**Ho1:** There is no significant difference between the prices of selected food items before and after the subsidy removal.

## 4.0 Result

### 4.1 Prices of Food Commodities Pre and Post-Subsidy Removal

President Bola Ahmed Tinubu, during his inauguration speech on 29th May 2023, announced to Nigeria and the rest of the world that: "The fuel subsidy is gone!" signaling the end of the subsidy on Premium Motor Spirit ('PMS'). This was immediately followed by increases in PMS prices nationwide, with the Nigerian National Petroleum Company ('NNPC') Limited, on 31st May 2023, adjusted retail prices for PMS to prices ranging between ₦488 – ₦626 per litre from the initial ₦184 per litre. The prices of food commodities were not left behind as there was an immediate and astronomical increase as presented in Figure 1 below. This has led to increased economic hardship faced by the populace and further exacerbated food insecurity.

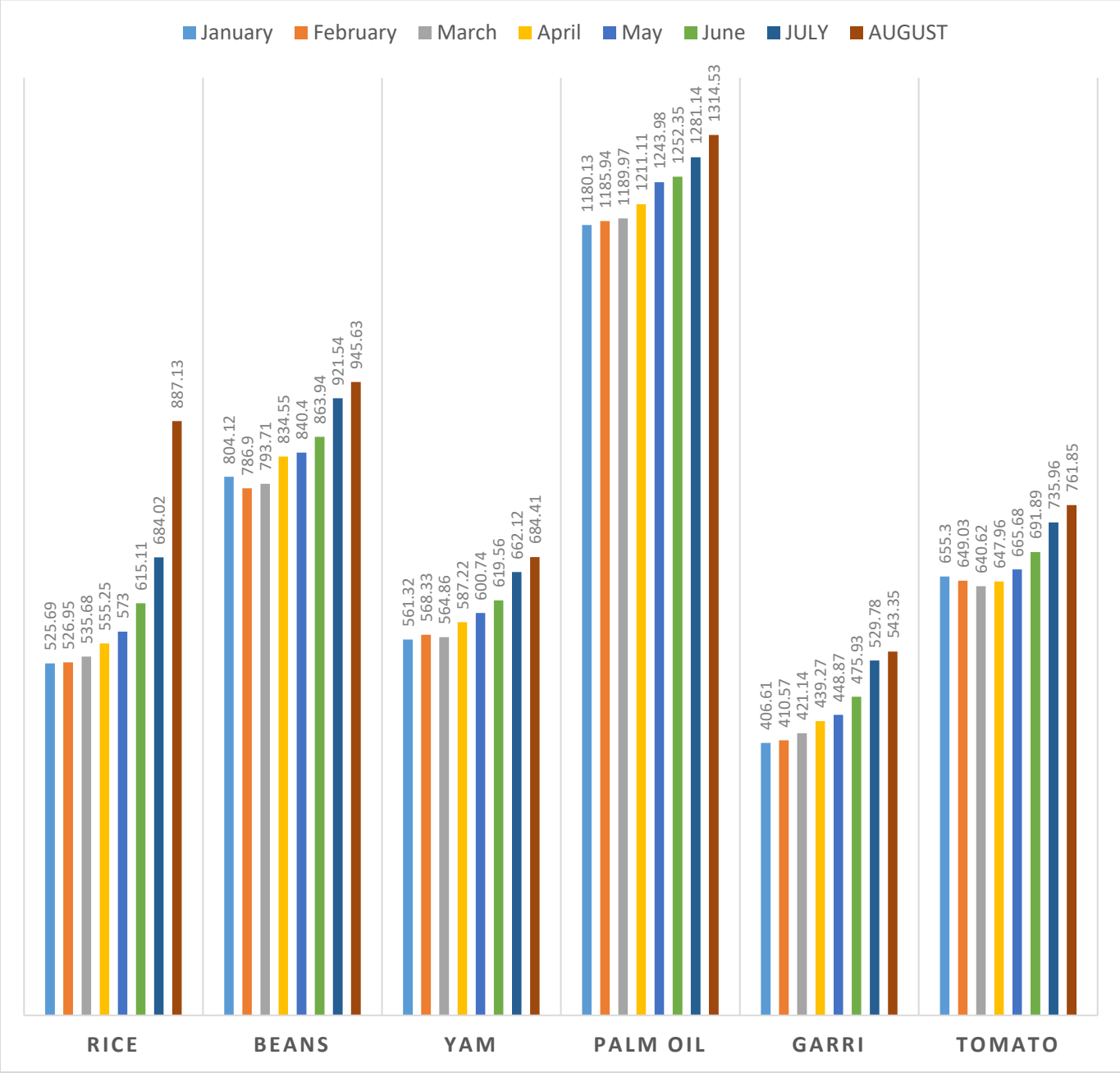
**Table 1.0: Mean difference between the prices of food commodities before and after subsidy removal.**

| S/n | Variables | Mean Price Before Subsidy Removal (January, February, March and April) | Mean Price After Subsidy Removal (May, June, July and August) | t-value | Decision |
|---|---|---|---|---|---|
| 1 | Rice | 535.89 | 689.82 | 0.0701* | Reject $H_o$ |
| 2 | Beans | 804.82 | 892.88 | 0.016* | Reject $H_o$ |
| 3 | Yam | 570.43 | 641.71 | 0.012* | Reject $H_o$ |
| 4 | Palm Oil | 1191.79 | 1273.00 | 0.0034** | Reject $H_o$ |
| 5 | Garri | 419.40 | 499.48 | 0.014* | Reject $H_o$ |
| 6 | Tomato | 648.23 | 713.85 | 0.024* | Reject $H_o$ |

Source: Computed from NBS data, 2023. Where * is significant at 10%, ** is significant at 5%.

The t-test was carried out on the selected food items based on the stated null hypothesis that there is no significant difference between the prices of selected food items before and after the subsidy removal. The result showed that Rice, Beans, Yam, Garri and Tomato were significant at 10% and only Palm Oil was significant at 5% level of significance. Therefore, the null hypothesis $H_o$ was rejected and the alternative hypothesis $H_a$ accepted.

**Figure 1: Prices of food commodities from January- August, 2023.**

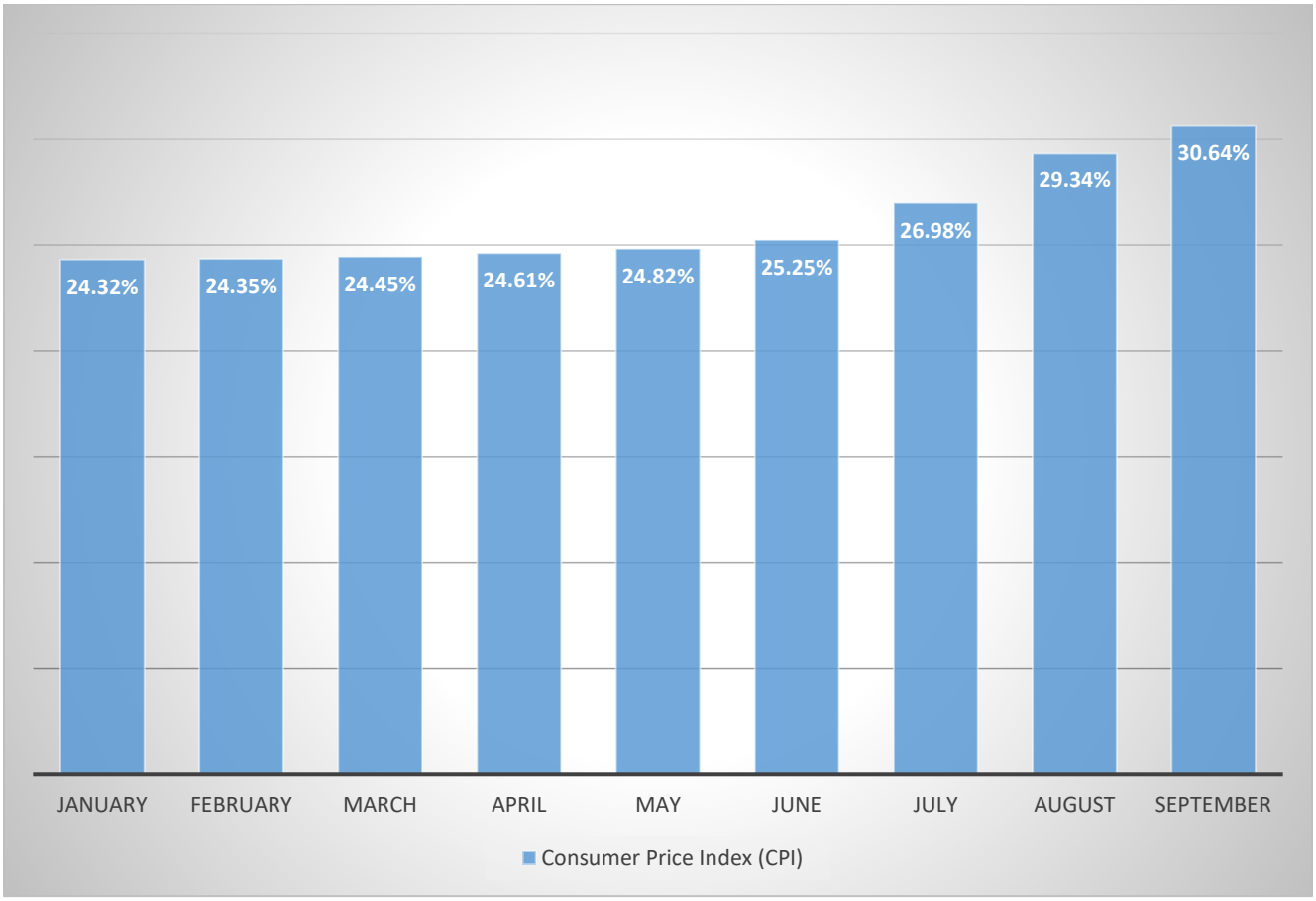



**Source: National Bureau of Statistics, 2023.**

Figure 1 above shows the trend in the prices of major food commodities in southeast Nigeria. From the chart, it is observed that after the removal of fuel subsidy in the month of May, represented in blue, there was an immediate rise in the prices of all major food commodities month –on- month. This further buttresses the negative impact the removal of

fuel subsidy has on food affordability, thereby threatening food security.

**Figure 2: Food inflation rate for January- September, 2023.**




**Source: National Bureau of Statistics, 2023.**

Figure 2 above shows the trend in the rate of food inflation in Nigeria. From the chart, it is observed that food inflation has been rising gradually from the month of January to May, 2023. The month of June through September witnessed a significant increase owing to the removal of fuel subsidy in May. Thus, a true reflection of the deplorable living condition of the citizens who are now forced to embrace economic hardship and food insecurity.

**Conclusion**

Fuel subsidy removal stimulated an astronomical increase in food prices and food inflation in Southeastern Nigeria, leading to hunger and affecting household food security. The consequences continued to affect the importation of valued materials into the country. Agricultural production is affected due to the high cost of farming inputs and food security is compromised. There is a lack of understanding of citizen engagement and education on the economic and social importance of fuel subsidy removal with no palliatives. This is a major setback in the attainment of the SDGs by 2030. By effectively communicating the rationale, benefits and mitigation strategies, the government can navigate the intricacies of subsidy removal and ensure that the impact on the people is cushioned. Through transparency, public consultation, and targeted support, the government can foster a sense of shared responsibility and work towards sustainable energy policies that benefit society as a whole.

**Way Forward**

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

1. The government should subside transportation for the populace by operating effective Mass transit schemes for the urban working population to mitigate these effects,
2. Revitalize the railway system to enable the transportation of agricultural commodities across the country.
3. the government should implement palliative measures such as targeted cash transfer programs, subsidies for specific consumer groups and support affected businesses to alleviate the burden on low-income households.
4. there must be strong political will to fight corruption, otherwise Nigeria is going nowhere. Those powerful politicians alleged to have stolen public funds must be made to account for it. They must be prosecuted to serve as a deterrent for others who may be nursing the idea when opportunity presents itself.

**REFERENCES**

Abdulkadir, A. and Shuaib, A. (2023). The Nigerian state and the issue of oil Subsidy. *International Journal of Law, Politics & Humanities Research, 28*(6); 113-126.

Adegboye, R.O (2004): Land and food security in Nigeria, 3rd Faculty Lecture, Faculty of Agriculture, University of Ilorin, 25/2/2004.

Akinbile, L. A., Akinpelu, O. M. and Akwiwu, U. N. (2013). Risk management strategies utilized by small scale poultry farmers in Oyo State, Nigeria: Implications for agricultural transformation. http://dx.doi.org/10.4314/jae.v17i1.4

Akov, E., 2015, "Fuel subsidy corruption and the illusions of economic reconstruction in Nigeria". *Academic Journal of Interdisciplinary Studies 4* (1).

Amosun, P.A., Ayo-Vaughan, A.F., Babalola, S.O. and Eketunde, O. (2015). Political development in Nigeria at hundred: a case of fuel subsidy removal and a rural populace perception of governance. *Nigerian Journal of Social Studies, 18*(1): 135-149

Ani, D. P., Onoja,E. A., and Humbe, (2021). Partial fuel subsidy removal in Nigeria: its effects on the economy and agricultural sector. *International Journal of Social Ecology and Sustainable Development 12*(1).

Ayinde, I. A., Otekunrin, O. A., and Akinbode, S. O. (2020). Food security in Nigeria: impetus for growth and development. *Journal of Agric. Econ.* 6(1); 808–820.

Budgit (2019). Nigeria's petrol subsidy regime: dilemma of the world's most populous black nation. *Budgit Policy Brief.*

Cooke, E. F., Hague, S., Tiberti, L., Cockburn, J., & El Lahga, A. R. (2016). Estimating the impact on poverty of Ghana's fuel subsidy reform and a mitigating response. *Journal of Development Effectiveness, 8*(1), 105-128.

Drammeh, W., Hamid, N. A., and Rohana, A. J. (2019). Determinants of household food insecurity and its association with childmalnutrition in Sub-Saharan Africa: a review of the literature. *Curr. Res. Nutr. Food Sci*. 7, 610–623. doi: 10.12944/CRNFSJ.7.3.02

Erokhin, V., and Gao, T. (2020). Impacts of COVID-19 on trade and economic aspects of food security: Evidence from45 developing countries. *Int. Journal Environ. Res. Public Health* 17, 57–75. doi: 10.3390/ijerph17165775

Fikire, A. H., and Zegeye, M. B. (2022). Determinants of rural household food security status in North Shewa Zone, Amhara Region, Ethiopia. *Sci. World J.* 12,1–8. doi: 10.1155/2022/9561063

Harun, M., Mat, S. H. C., Fadzim, W. R., Khan, S. J. M., & Noor, M. S. Z. (2018). The effects of fuel subsidy removal on input costs of productions: Leontief input-output price model. *International Journal of Supply Chain Management, 7*(5), 529-534.

Helleineer G.K. (1996) *Present Agricultural and Economic Growth in Nigeria*, Homewood Publisher, United Kingdom.

Houeland, C. (2021). Labour resistance against fossil fuel subsidies reform: neoliberal discourses and African realities. *The Palgrave Handbook of Environmental Labour Studies*, 493-516.

Ichsan, M., Lockwood, M., & Ramadhani, M. (2022). National oil companies and fossil fuel subsidy regimes in transition: The case of Indonesia. *The Extractive Industries and Society*, *11*, 101104.

International Energy Agency, 2019. World Energy Outlook. URL. https://www.iea.org/weo/energysubsidies/

Italian Institute for International Studies, 2023. Slow Growth, High Inflation: Nigeria's Economy Needs Vital Reforms. Rome Med Dialogue: 9th Edition

Komolafe, J. O. and Adeoti, I. A. (2018). Influence of social capital on the use of improved maize seed among farmers in Southwestern Nigeria. *International Journal of Agriculture and Forestry* 2018, 8(3): 129-138 DOI: 10.5923/j.ijaf.20180803.03.

Majekodunmi, A. (2013). The political economy of fuel subsidy removal in Nigeria. *International Journal of Management and Social Sciences Research, 2*(7).

Meludu, N. T., Obidiebube, E. A., Chukwu, O., & Ikeogu, C. F. I. (2023). Sustainable agriculture, nature conservation and climate change response: Proceedings of the 1st Faculty of Agriculture International Conference, Nnamdi Azikiwe University, Awka, Nigeria. In *e-Proceedings of the Faculty of Agriculture International Conference* (pp. 1-477).

Mohammed, A., Wassie, S. B., and Teferi, E. T. (2021). Determinants of smallholders' food security status in Kalu District, Northern Ethiopia. Challenges 12, 17. doi: 10.3390/challe12020017.

National Population Commission (NPC) (2007). The 2006 population census. Official Gazette Abuja, Nigeria

Nooh, M. A. M., Subramaniam, G., & Hanafiah, M. H. (2021). Cash transfer programme in Malaysia-A Conceptual Analysis. *International Journal of Academic Research in Business and Social Sciences*, *11*(2), 494-507.

Ocheni, S. I. (2015). Impact of fuel price increase on the Nigerian economy. *Mediterranean Journal of Social Sciences, 6*(1), 560.

Okoye, B. C., Onyenweaku, C. E., & Asumugha, G. N. (2010). Allocative efficiency of small-holder cocoyam farmers in Anambra State, Nigeria. *Nigeria Agricultural Journal*, *38*, 70-81.

Olumba, C. C., Olumba, C. N., & Alimba, J. O. (2021). Constraints to urban agriculture in southeast Nigeria. *Humanities and Social Sciences Communications*, *8*(1), 1-11.

Omotosho, B. S. (2020). Oil price shocks, fuel subsidies and macroeconomic (in) stability in Nigeria. *CBN Journal of Applied Statistics, 10*(2)

Osabohien, R. O., Ohalete, M. P., and Osabuohien, E. (2020a). Population–poverty– inequality nexus and social protection in Africa. *Soc. Indic. Res. 151*, 575–598. doi: 10.1007/s11205-020-02381-0.

Oyatoye E. and Babatunde R. (2009) Food Security and Marketing Problems in Nigeria: The Case of Maize Marketing in Kwara State. "The Global Food & Product Chain—Dynamics, Innovations, Conflicts, Strategies" Deutscher Tropentag, October 11-13, 2005, Hohenheim. Available at http://www. tropentagde/2005/abstracts/links/babatunde_deu4urzi.pdf.

Oyedele, T., and Akinduyite, A. (2022). Fuel subsidy in Nigeria: issues, challenges, and the way forward.

Raji, A., Mohammed, A. Y., Sulaiman, l. A., Adeshina, I. O. and Abdulbaqi, S. Z., (2018). Fuel subsidy removal and the lives of rural dwellers in Nigeria. *International Journal of Social Sciences and Humanities Reviews, 8*(1): 60 – 68.

Ranjan, R., & Singh, S. (2020). Household cooking fuel patterns in rural India: Pre-and post-Pradhan Mantri Ujjwala Yojana. *Indian Journal of Human Development*, *14*(3), 518-526.

Siddig, K., Aguiar, A., Grethe, H., Minor, P., & Walmsley, T. (2014). Impacts of removing fuel import subsidies in Nigeria on poverty. *Energy Policy, 69*(1): 165-178.

Soile, I., Tsaku, H., & Musa-Yar'Adua, B. (2014). The impact of gasoline subsidy removal on the transportation sector in Nigeria. *Ismail O. Soile, Hezekiah Tsaku, and Bilikisu Musa Yar' Adua, "The Impact of Gasoline Subsidy Removal on the Transportation Sector in Nigeria." American Journal of Energy Research, 2*(3), 60-66.

Sugiyama, N. B., & Hunter, W. (2020). Do conditional cash transfers empower women? Insights from Brazil's bolsa família. *Latin American Politics and Society*, *62*(2), 53-74.

Umar, H., & Umar, M. (2013): An assessment of the Direct Welfare Impact of Fuel Subsidy Reform in Nigeria. *American Journal of Economics, 3*(1): 23-26.