



THE IMPACT OF FUEL SUBSIDY REMOVAL ON CONSUMER GOODS IN SELECTED STATES IN NIGERIA

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ABSTRACT

Fuel subsidy removal in Nigeria has impacted consumer goods, transportation, and house rent in different facets. Political economists and data analysts opined that fuel subsidy removal frees up resources, while others say it enhances poverty. This study was conducted to investigate the impact of fuel subsidy removal on consumer goods. The rentier state theory was employed as the theoretical framework for analysis, and the study used the descriptive survey method with a cross-sectional procedure as the research design. The study employed the frequency distribution, and simple percentages to analyze the impacts of fuel subsidy removal. The Wilcoxon signed-rank test was used to test the formulated hypotheses at a significance level of 5%. The study affirmed that the removal of fuel subsidy increased the cost of consumer goods, since factors such as house rent and transportation which generally have effect on the cost of goods are affected, leading to poor standard of living of Nigerians.

Keywords: Fuel subsidy, Consumer goods, Transportation, House rent, Standard of living

INTRODUCTION

According to the Oxford online dictionary, a subsidy is a sum of money granted by the state or a public body to help an industry or business keep the price of a commodity or service low. It can be given directly, such as cash payments, or indirectly, such as tax exemptions. The objective of subsidy is to improve the welfare of society and stabilize the economy. Fuel subsidy also known as Petroleum Support Fund (PSF), is a financial assistance provided by the government to lower the cost of fuel for energy consumers. To understand the historical background of fuel subsidies in Nigeria, let us briefly look at the fuel pricing policies, which date back to the first "oil shock" of 1973. The Nigerian government introduced a formal control of petroleum product pricing in 1973 by implementing uniform crude pricing across the nation, irrespective of the associated transportation and cost differences. The main objectives of this policy were to foster industrialization, promote regional development, and control inflation (Adenikinju, 2012). Initially, when the policy started in 1973, the government made available a subsidy of 35.7% by fixing the prices of crude oil at \$1.93 per barrel in the domestic market, where \$3.00 per barrel (Adeyeye, 1991) was the price of crude oil in the international market. When the international price of crude oil increased to \$14.10 per barrel, the subsidy element was drastically reduced to 2% in 1978 and the government increased the price of crude oil in domestic refineries to \$13.80 per barrel. Although, as the international price of oil increased to \$40/b in 1980, and there was no corresponding change in the prices of local refineries, the subsidy element became more potent at 65.5%. The crash in the export price of crude oil to \$15.11 per barrel in 1988, led to the drop in the price of crude in local refineries to \$2.0 per barrel. With this, the subsidy element increased to 86.8%. Between 1960 and 1978, the petrol price in Nigeria remained stable at 0.088 Naira/l. The first attempt to increase the petrol price occurred on October 1st, 1978 when General Olusegun Obasanjo increased the price by 73.9% to 0.153 Naira/l. In April 1982, President Shehu Shagari increased the price to 0.20 Naira/l. In 1986, the military government announced that the poor domestic fuel price had become a burden to the federal government's revenue due to the devaluation of the Naira within the framework of the country's Structural

Adjustment Programme (SAP). To address this, General Ibrahim Babangida then military government raised petrol prices four times between 1986 and 1993: from 0.20 to 0.395 Naira/l in 1986, 0.42 Naira/l in 1988, 0.60 Naira/l in 1989, and 0.70 Naira/l in 1993. These represent increases of 97.5%, 6%, 43%, and 16.6%, respectively. In 1993, as a result of the devaluation of Naira, President Ernest Shonekan increased the price of petrol to 5.00 Naira/l. After the military took over in November 1993, General Abacha reduced petrol prices by 35% to 3.25 Naira/l to gain public support. However, in 1994, the same government announced a sharp increase in the price of petroleum products, with petrol sold for 11.00 Naira/l. General Abdulsalami, who took over from General Abacha, raised the price to 25.00 Naira/l, which was later reduced to 20.00 Naira/l in January 1999 due to public outcry and labor resistance. After retired General Olusegun Obasanjo came to power in May 1999, his government led to the increase in the price of petroleum products four times within eight years, stating reasons such as eradicating waste, freeing government funds, and encouraging foreign and local investment in the country's upstream sector. During this period, the price of petrol increased from 20.00 Naira/l to 22.00 Naira/l in 1999, 34.00 Naira/l in 2003, 40.00 Naira/l in 2006, and finally, it increased to 75.00 Naira/l as a parting gift in 2007. President Yar'dua, who succeeded Obasanjo, reduced the official price of petrol to 65.00 Naira/l in 2008. In January 2012, former Nigerian President Goodluck Jonathan announced the removal of fuel subsidy, causing the price of fuel to rise from ₦65 (\$0.14) to ₦140 (\$0.30) per liter. The removal of fuel subsidies sparked widespread protests lasting for about two weeks. The protesters included petroleum product marketers, labor unions, civil rights groups, and others. They believed that the subsidy removal would cause undue economic and social hardship for the poor, who were already struggling with high living costs, unemployment, and other issues (Adetayo, 2023). This protest, which was called "Occupy Nigeria," eventually led to Jonathan retreating his pronouncement and reducing the price to ₦90 (\$0.20) while reintroducing a partial subsidy (Kowo, 2023). The payments on Subsidy have always been riddled with issues of corruption and a lack of fiscal transparency. In 2012, a 200-page report released by a parliamentary inquiry uncovered a \$6bn fraud involving

officials at the state-run Nigerian National Petroleum Company (NNPC), now a limited company. Since then, governors and members of parliament have routinely called for an investigation into NNPC and a review of subsidy payments to oil marketers. In 2015, former president Muhammadu Buhari referred to the subsidy as “fraud” and “non-existent,” even though his administration retained it, spending 11.7 trillion naira (\$26bn) between 2016-2023. Ahead of the February 2023 election, all three major presidential candidates promised to have subsidy removed and introduce oil sector reforms in their manifesto, which signify an agreement among the political class to do away with the assistance (Adetayo, 2023). Experts agree that the subsidy has become a huge financial burden in light of Nigeria's economic reality. “There is no doubt that fuel subsidy has adversely impacted Nigeria's finances and keeping the same would have been fiscally irresponsible,” according to Ayodele Oni, energy partner at Lagos-based Bloomfield Law Practice, in an interview with Al Jazeera. The previous Nigerian administration under Buhari left a debt of 77 trillion naira (\$167 billion) to local and foreign lenders. Currently, 96 percent of the government's revenue goes towards servicing this debt, and there are concerns that the government could face a cash crunch if it continues to make subsidy payments. During the previous administration, the payments on subsidy were funded through debts after the state funds were depleted, according to the former finance minister (Adetayo, 2023). In May 29th, 2023, President Bola Ahmed Tinubu announced the removal of fuel subsidy. This verdict led to an increase in fuel prices from about ₦198 per liter in May to the current rate of ₦617 per liter. The NNPC Limited welcomed this move, and its CEO added that the government owes the company 2.8 trillion naira (\$6 billion) for the petrol subsidy. However, labor unions have protested this plan due to a lack of transparency and a history of corruption in government spending. Additionally, Nigeria's high cost of governance has increased concerns among citizens, who feel the need for government to adjust its spending before having subsidies removed. “You can't remove subsidies without reducing the waste in government. You cannot be living extravagantly while the citizens bear the brunt of the higher cost of living,” said Oluseun Onigbinde, director at Budget IT, a nonprofit and transparency watchdog (Adetayo, 2023). Without government regulation of pump prices, the cost of petrol would fluctuate with crude oil prices on international markets. To minimize the effects of this fluctuation, the Nigerian government introduced fuel subsidy in the 1970s. In 1977, fuel subsidy became formalized through the promulgation of the Price Control Act, which regulated the prices of some products, including fuel, during the Olusegun Obasanjo military regime (Adetayo, 2023). Since then, different measures have been made to remove fuel subsidies, but these developments have been confronted with significant disapproval from opponents, including members of the general public, and have sometimes resulted in conflicts and loss of life.). Statistical techniques can be adopted for effective analysis (Okwonu and Ogini, 2017; Okwonu et al, 2022). Nigeria's economy depends on petroleum, which accounts for 90% of its exports and one-third of its Gross Domestic Product (GDP). According to (Oluwabukola, 2023), from the report in October 2022 by the Nigerian National Petroleum Corporation (NNPC) the petroleum industry recorded zero revenue from oil export due to the subsidy.

The Nigerian government's decision to remove fuel subsidy was intended to improve the economy by reinvesting the subsidy funds and curbing corruption in the oil sector. This

move was also expected to raise the living standards of Nigerians. However, despite these positive intentions, the removal of fuel subsidy has had a significant impact on the people of Nigeria. This is because petrol prices are a major driver of the cost of living in Nigeria. Petrol is used by nearly everyone, including small businesses and households, due to the unstable electricity supply. The rise in fuel prices directly affects the prices of goods and services across the country, making it difficult for people to afford necessities. The recent announcement made by the federal government of Nigeria regarding the removal of fuel subsidies has generated a great deal of controversy among Nigerians, highlighting a complex issue surrounding Nigeria's fuel subsidy. A profound understanding and analysis of this argumentative issue is required to solve this puzzle. Energy subsidies, especially fuel subsidies, have a long history and have been applied in various ways with varying outcomes globally. Fuel subsidies are ways by which the government pays a portion of the price that consumers are supposed to pay to enjoy the use of petroleum products to reduce the price burden (Onyeizugbe&Onwuka, 2012). There are two main types of fuel subsidies: production subsidy and consumption subsidy.

1. Production subsidy: These include tax breaks or direct payments that reduce the cost of producing fossil fuels. Producer subsidy aims to support domestic production of energy and are mainly a feature of developed economies.

2. Consumption subsidy: These include energy price cuts for consumers, such as setting fixed prices at petrol stations. Consumer subsidies aim to reduce the cost of consuming energy and are more common in developing countries.

About three-quarters of the world's subsidies are estimated to focus on consumers, and a quarter on producers. In (Onyeizugbe&Onwuka, 2012), developed economies, environmental issues, international trade, and maintaining competitiveness are the main drivers of the policy of introducing or removing production subsidies. Meanwhile, consumption subsidies are often used in low-income countries to reduce poverty by reducing the cost of cooking gas or transportation. In 2020, Iran, China, and India were the top three countries providing consumption subsidies, as reported by the International Energy Agency (IEA). Nigeria is also listed among the top 20 countries subsidizing fuel consumption by the (IEA, 2013). (Adeoti et al., 2016) stated that Nigeria has been highly dependent on local and imported technologies powered by fossil fuels for many decades. The country's economy is highly dependent on this system, which is supported by a regime of consumer subsidies. Petroleum production and export play a dominant role in Nigeria's economy and account for about 90% of its gross earnings. This dominant role has pushed agriculture, which was the traditional main income of the economy in the early 1950s and 1960s, to the background. In recent years, its oil production has averaged about 2.3–2.5 million barrels per day (BP, 2014). The government manages the importation of petroleum products through the NNPC and major marketers. These marketers buy refined products in Europe and sell them at a fixed domestic price. The rates of importation by these marketers make up about two-thirds of the industry's total. The price difference (i.e., the subsidy) comes from the Petroleum Support Fund held by the Central Bank of Nigeria. The petroleum industry in Nigeria plays a crucial role, contributing to 90% of exports and one-third of the Gross Domestic Product (GDP). However, the decision to remove fuel subsidies has had a significant impact, making it difficult for people to afford basic necessities due to the skyrocketing petrol prices. This controversial move has sparked widespread debate, highlighting the complex issues surrounding energy

subsidies, particularly fuel subsidies. It's important to recognize that Nigeria heavily relies on petroleum products, and the removal of subsidies which has substantial implications for the country's economy. The country's refineries have the capacity to meet domestic fuel demand, and the importation of petroleum products is managed by the Nigerian government through the NNPC and major marketers. However, the domestic prices for petrol and kerosene are lower than the purchase prices, with the difference drawn from the Petroleum Support Fund (PSF) held by the Central Bank of Nigeria (CBN). It's vital to understand the far-reaching effects of this decision and its implications for the country's economy and its people. Despite being a lucrative investment opportunity, the oil and gas sector in Nigeria faces challenges such as foreign exchange controls and local content rules, which may present obstacles to foreign participation and imports. However, industry experts believe that the sector will continue to offer opportunities for marketing essential capital equipment and technology, both for extraction and production. The purpose of this paper is to investigate the impact of fuel subsidy removal on consumer's goods, house rent and standard of living of Nigerians.

The rest of this paper is organized as follows: The procedure and experimental methodology are discussed in Section 2 followed by data collections, results and discussion in Section 3. Conclusion is presented in Section 4.

MATERIALS AND METHODS

Procedure and experimental methodology

The study is based on the theory of the "Rentier state", which describes a state that derives a significant portion of its revenue from the rent of natural resources such as oil and gas. This theory was developed in the 1960s, and although it has undergone some adjustments since then, the central economic factor of having abundant natural resources remains the constant element around which the definition is structured. However, it's important to note that the implications of this theory are not just economic, but also political. The theory suggests that states that rely heavily on resource rents tend to have weaker civil societies, less democratic governments, and are more prone to corruption. Therefore, it's crucial that anomalies are not addressed through reductive, automatic reflexes, but rather that their context is taken into account. This means that we need to consider the social, political, and economic context of a particular rentier state before making any conclusions or proposing solutions. Studies on the effects on subject has been demonstrated using other statistical procedures (Okwonu, 2015). Nigeria is seen as a rentier state where a huge part of the government's revenue is derived from external sources, such as oil exports. Removing fuel subsidy in this context can have negative effects on the standard of living of its citizens. The rentier's theorists suggest that Nigeria should diversify its economy and reduce its dependence on oil, which will allow the country to integrate more fully into the global economy and trade. An example of successful diversify can be seen in Bahrain, which discovered its oil resources in 1932 and was the first to exploit its non-renewable energy reserves. Despite having low reserves compared to its neighbors, Bahrain recognized the need for diversification and implemented a strategy from the 1970s onwards. These led to Bahrain being seen as the most open and liberal economy in the Gulf Cooperation Council (GCC) area, with the most diversified economy among Gulf countries. In 2010, Bahrain generated more than 92% of its value-added in the non-oil sector. To achieve similar success, the Nigerian government should create more opportunities for

the private sector in the national economy, reduce barriers to private sector activities, attract more foreign direct investment in knowledge-based and high-value-adding companies, and increase the living standards of the people by providing new jobs for the national workforce. The study is limited to particular occupations in Lagos and Delta state, and specifically targets individuals whose livelihoods are significantly influenced by fuel, including transporters, traders, farmers, business owners, students, and salary earners.

Methods

In this study, the descriptive survey method was used with a cross-sectional design. The cross-sectional research design involves collecting data through a survey method. It allows the researcher to obtain a random sample of individuals to answer questions about their opinions or attitudes towards a particular issue. The study will gather information from residents of Lagos and Delta states within a specified time frame. The purpose of this study is to investigate the effects of fuel subsidy removal on consumer goods and how it can affect the standard of living of Nigerians, with the aim of filling the gap in knowledge. Two variables were examined in this research to measure the standard of living: prices of consumer goods and cost of house rent. By examining these variables, we gained insights into how the removal of fuel subsidy may have influenced the standard of living, particularly in terms of prices of goods and costs of house rent. The study had two objectives to address the two research questions raised which include:

- i. to quantify the relationship between the removal of fuel subsidies and changes in consumer goods prices.
- ii. to conduct a quantitative analysis to determine the relationship between the removal of fuel subsidies and the subsequent change in the cost of house rent.

Steps to perform the Wilcoxon signed-rank test:

Step 1: Present the null (H₀) and alternative hypotheses (H₁).
Step 2: Find the differences between paired measurements and ranks, this can be done by subtracting the rating before and after treatments.

Step 3: Calculate the sums of the ranks for the negative difference and sums of the ranks for the positive difference.

The Wilcoxon signed rank test statistics is the lowest of the two sums of rankings.

Step 4: Find the p-value and interpret it

Two hypotheses were subsequently tested in line with the objectives, and the findings were summarized

Data Collection, Results and Discussion

Data collection

Data were collected through a questionnaire administered to 300 respondents selected using purposive random sampling since we are trying to identify members in the population with certain Awareness. The study population consisted of individuals in Lagos and Delta states since they are among the major oil-producing states. Data were collected through a questionnaire administered to 300 respondents selected using purposive random sampling. For reliability purposes, the questions in the questionnaire were pre-tested using Cronbach's alpha before being fully administered to the respondents. The calculated Cronbach's alpha value was 0.824, indicating good reliability. Similar to the study in (Okwonu and Apanapudor 2019), the data obtained were analyzed using frequency distribution, tables, and simple percentages. The Wilcoxon signed-rank tests were used to test the formulated hypotheses at a significance level of 0.05.

RESULTS AND DISCUSSION

Table 1: Analysis of Respondents Profile

		Respondents (%)
Age (Years)	18-30	61.3
	31-50	26.3
	51-30	10.7
	70 Above	1.7
Gender	Female	38.3
	Male	61.7
Occupation	Farmers	3
	Mechanics	4.3
	Transporters	10
	Business Owners	19.3
	Pharmacists	6
	Unemployed	28.7
	Others	28.7
Monthly Income	₦50,000 below	18.7
	₦50,001 - ₦100,000	22.7
	₦100,001 - ₦150,000	12.7
	₦150,001 - ₦200,000	10.3
	₦200,000 above	10
	Not Disclosed	25.7

Table 2: Level of Awareness and Knowledge of Respondents on Fuel Subsidy

		Respondents (%)
Subsidy knowledge	Clear	32.7
	Fair	52.3
	Lacked	15
	Aware	93.7
Subsidy Removal	Not-Aware	6.3
	Well- informed	54
Subsidy Removal effects	Not well-informed	27.7
	Not sure	18.3
Alternative Measures to mitigate subsidy removal effects	Aware	23.7
	Not-Aware	76.3

Presentation and Analysis according to Research Questions

Research Question 1: What impact does the removal of fuel subsidy have on the prices of goods?

Question 1: asks about the affordability of food items before the removal of fuel subsidy. The study revealed that 20.7% of the respondents found it very affordable, 45.3% found it affordable, 10.3% found it neutral, 13.3% found it expensive, and 10.3% found it very expensive.

Question 2: asked about the availability of affordable clothing and personal care products before the subsidy removal. The study showed that 11% found it abundant and affordable, 34% found it mostly affordable, 14.3% found it neutral, 20.3% found it somewhat expensive, and 20.3% found it expensive.

Question 3: asked about the increase in the prices of essential household items since the removal of fuel subsidy. The study showed that 3.3% feel it's a very minimal increase, 8.7% feel it is a minimal increase, 2% feel it is a neutral increase, 32.7% feel it is a significant increase, and 53.3% feel it is a very significant increase.

Question 4: asked about the extent to which the increase in prices of goods has affected the respondents' monthly expenses. The study showed that 3.3% say that the increase has no impact at all on their monthly expenses, 1.7% said it has a slight impact, 2.7% say it has a moderate impact, 30.7%

said it has a significant effect, and 61.7% of them said it has a very significant impact on their monthly expenses.

Research Question 2: What effect does the removal of fuel subsidy have on the cost of house rent?

Question 5: the survey asked about the affordability of housing options before the removal of fuel subsidy, and the study revealed that 11.7% of respondents found it very affordable, 41.7% found it affordable, 16% were neutral, 21% found it expensive, and 9.7% found it very expensive.

Question 6: asked about the impact of the fuel subsidy removal on the cost of house rent, and the study showed that 7.3% of respondents said it had no impact, 6.3% said it had a slight impact, 10.3% said it had a moderate impact, 26.3% said it had a significant impact, and 49.7% said it had a very significant impact.

Question 7: the survey asked about how affordable suitable houses were for low-income individuals before the removal of the fuel subsidy. The study revealed that 15.7% of respondents found it very affordable, 43.7% found it affordable, 20% were neutral, 15.3% found it expensive, and 5.3% found it very expensive.

Question 8: asked about the impact of fuel subsidy removal on the prices of utility bills. The study revealed that 5.3% of respondents said it had no impact, 8% said it had a slight impact, 13% said it had a moderate impact, 31.7% said it had

a significant impact, and 42% said it had a very significant impact.

Hypotheses Testing

Variable Definitions for Hypothesis Testing

Goodsbefore = The median prices or perceptions of goods before the removal of fuel subsidy.

Goods after = The median prices or perceptions of goods after the removal of fuel subsidy.

Rent before = The median costs or perceptions of house rent before the removal of fuel subsidy.

Rent after = The median costs or perceptions of house rent after the removal of fuel subsidy.

Z = Standardized test statistic (estimate of the effect size).

Hypothesis 1

H₀: There is no significant difference in the prices of goods before and after the fuel subsidy removal in Nigeria.

H₁: There is a significant difference in the prices of goods before and after the fuel subsidy removal in Nigeria.

This can be represented as follows:

H₀: $M_d = 0$

H₁: $M_d \neq 0$

Where; M_d is the median difference between the paired observations (before and after the fuel subsidy removal.)

Table 3: Report (Median Prices of Goods)

Goodsbefore	Goodsafter
2.5000	4.5000

Table 4: Ranks (Prices of Goods)

		N	Mean Rank	Sum of Ranks
Goodsafter – goods before	Negative Ranks	25 ^a	85.94	2148.50
	Positive Ranks	251 ^b	143.74	36077.50
	Ties	24 ^c		
	Total	300		

a. goodsafter < goodsbefore; b. goods after > goodsbefore; c. goodsafter = goodsbefore

Table 5: Related-Samples Wilcoxon Signed Rank Test Summary (Prices of Goods)

Total N	300
Test Statistic	36077.500
Standard Error	1323.917
Standardized Test Statistic	12.814
Asymptotic Sig.(2-sided test)	.000

Table 6: Hypothesis Test Summary (Prices of Goods)

	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The median of differences between goods before and goods after equals 0.	Related-Samples Wilcoxon Signed Rank Test	.000	Reject the null hypothesis.

a. The significance level is .050; b. Asymptotic significance is displayed.

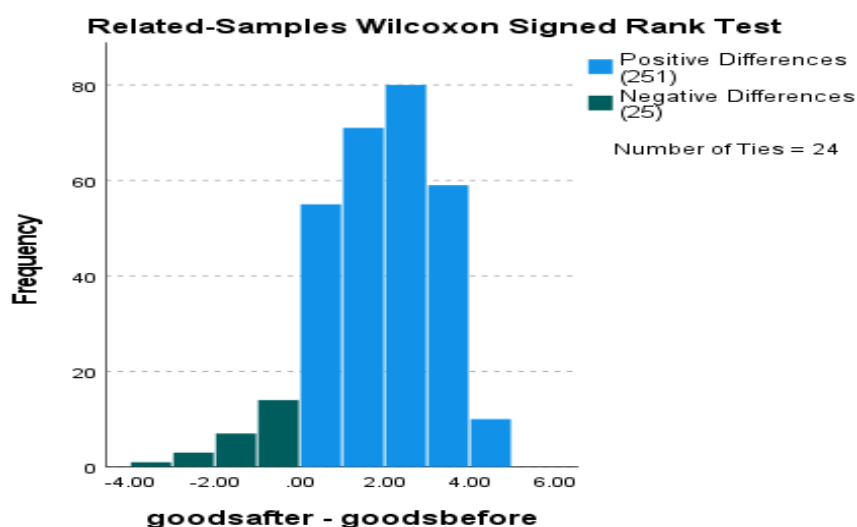
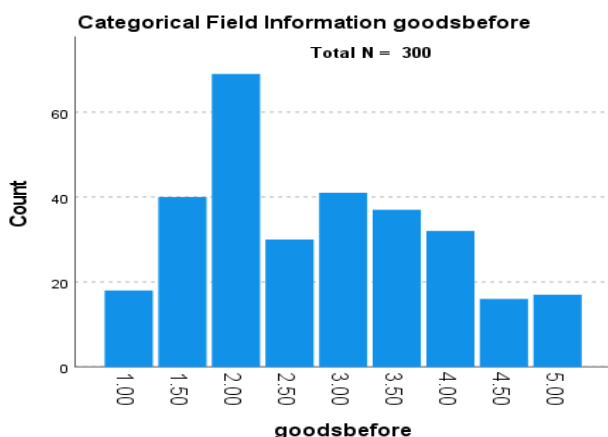
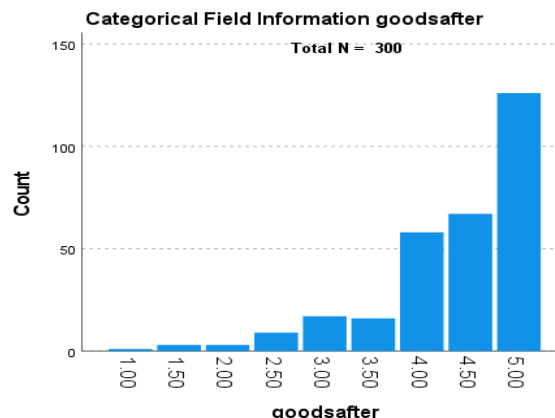


Figure 1: Bar Chart of Positive and Negative Differences in Wilcoxon Signed Rank Test for Median Prices or Perceptions of Goods



goodsbefore field is ordinal but is treated as continuous in the test.

Figure 2: Bar Chart of Median Prices or Perceptions of Goods Before the Removal of Fuel Subsidy



goodsafter field is ordinal but is treated as continuous in the test.

Figure 3: Bar Chart of Median Prices or Perceptions of Goods After the Removal of fuel subsidy

Discussion and analysis for hypothesis 1

From Table 1, the overall median price or perception of goods before the removal of the fuel subsidy was $M_d = 2.5$, and after the removal of the fuel subsidy, it was $M_d = 4.5$. This suggests that there is an increase in the median of the responses after the removal of the subsidy compared to before, as the median shifted from 2.5 to 4.5. This indicates that, on average, the prices of goods have risen (55.56%). From Tables 2, 3, and 4, a Wilcoxon signed rank test indicated that the prices of goods were significantly different before and after the subsidy removal, $W = 36077.50$, $p = 0.000 < 0.05$. Therefore, we reject the null hypothesis and accept the alternative hypothesis. A Z value of 12.814 and a p-value of 0.000 indicate that the difference between the prices of goods before and after the removal of fuel subsidy is highly

statistically significant, that is, there is a substantial increase in the prices of goods after the removal of fuel subsidy. Figure 1 to Figure 3 revealed the bar chart for the impact of subsidy removal based on the data collected.

Hypothesis2

H_0 : There is no significant difference in the cost of house rent before and after the fuel subsidy removal in Nigeria.

H_1 : There is a significant difference in the cost of house rent before and after the fuel subsidy removal in Nigeria.

This can be represented as follows;

$H_0: M_d = 0$

$H_1: M_d \neq 0$

Where; M_d is the median difference between the paired observations (before and after the fuel subsidy removal.)

Table 7: Report (Median Cost of House Rent)

Rentbefore	Rentafter
2.5000	4.5000

Table 8: Ranks (Cost of House Rent)

		N	Mean Rank	Sum of Ranks
rentafter – rentbefore	Negative Ranks	28 ^a	100.64	2818.00
	Positive Ranks	237 ^b	136.82	32427.00
	Ties	35 ^c		
	Total	300		

a. rentafter<rentbefore; b. rentafter>rentbefore; c. rentafter = rentbefore

Table 9: Related-Samples Wilcoxon Signed Rank Test Summary (Cost of House Rent)

Total N	300
Test Statistic	32427.000
Standard Error	1245.124
Standardized Test Statistic	11.890
Asymptotic Sig.(2-sided test)	.000

Table 10: Hypothesis Test Summary (Cost of House Rent)

	Null Hypothesis	Test	Sig. ^{a,b}	Decision
1	The median of differences between rentbefore and rentafter equals 0.	Related-Samples Wilcoxon Signed-Rank Test	.000	Reject the null hypothesis.

a. The significance level is .050; b. Asymptotic significance is displayed.

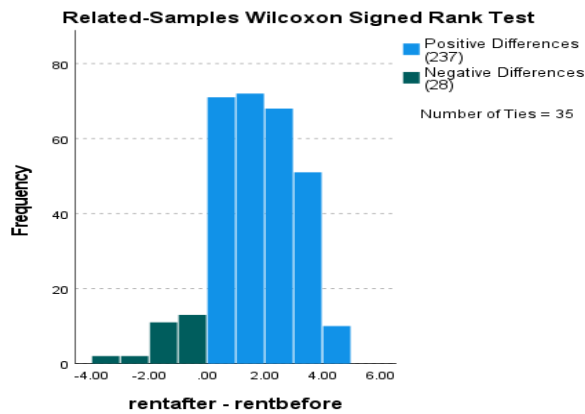


Figure 4: Bar Chart of Positive and Negative Differences in Wilcoxon Signed Rank Test for Median Costs or Perceptions of House Rent

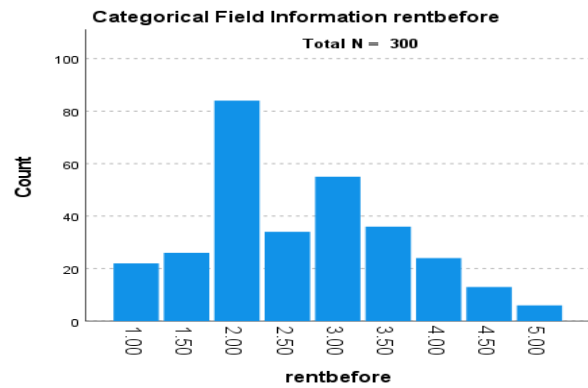


Figure 5: Bar Chart of Median Costs or Perceptions of House Rent Before the Removal of Fuel Subsidy

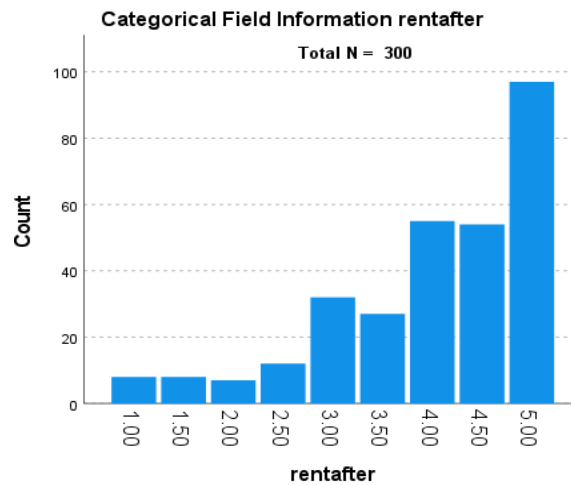


Figure 6: Bar Chart of Median Costs or Perceptions of House Rent after the Removal of Fuel Subsidy

Discussion and analysis for Hypothesis 2

From Table 5, the overall median cost or perception of house rent before the removal of the fuel subsidy was $M_d = 2.5$, and after the removal of the fuel subsidy, it was $M_d = 4.5$. this suggests that there is an increase in the median of the responses after the removal of the subsidy compared to before, as the median shifted from 2.5 to 4.5. This indicates that, on average the cost of house rent has risen. From Tables 6.7 and 8, a Wilcoxon signed rank test indicated that the cost of house rent was significantly different before and after the subsidy removal, $W = 32427.00$, $p = 0.000 < 0.05$. Therefore, we reject the null hypothesis and accept the alternative hypothesis. A Z-value of 11.890 and a p-value of 0.000 indicate that the difference between the cost of house rent before and after the removal of fuel subsidy is highly statistically significant, that is, there is a substantial increase in the cost of house rent after the removal of fuel subsidy. Figures 4 to 6 indicate the bar chart for the impact of subsidy removal.

Limitations

One challenge during the research is related to trust and online security. Since most questionnaires were administered online via Google Forms, some respondents hesitated to click on the link provided due to concerns regarding potential scams. This issue posed a significant constraint on the data collection process.

CONCLUSION

This study has revealed in theory and practice how the removal of fuel subsidy affected Nigerians' overall living standard. The study demonstrated that there has been a significant increase in the prices of consumer goods since the government removed fuel subsidy. The removal of fuel subsidy directly impacted transportation costs, and house rent which in turn affected the prices of consumer goods. The study affirmed that the removal of fuel subsidy impacted negatively on distribution of consumer goods and services. Therefore, it can be concluded that subsidy removal has contributed significantly to the overall inflation in the economy and poor standard of living in Nigeria.

RECOMMENDATIONS

- i. The government should consider implementing price regulations to prevent excessive price hikes and ensure that essential goods and services remain affordable.
- ii. The government should diversify the economy by embracing agricultural production of our staple foods instead of importing them. This will reduce reliance on subsidized goods and promote sustainable growth in other sectors.
- iii. The government should prioritize investments in renewable energy sources, reduce the country's reliance on fossil fuels, and contribute to long-term environmental sustainability.

REFERENCES

- Adenikinju, A. (2009). Energy pricing and subsidy reforms in Nigeria, in 'OECD Conference Centre, Paris 910 June 2009'.
- Adenikinju, A. (2012). Phasing out fuel subsidies in Nigeria. *Oxford Energy Forum*, bl No. 90. November.
- Adeyeye, A.S. (1991). Energy pricing policy and problems in Nigeria. *OPEC Rev.* 15(3), 263–276.
- Adeoti, J., Chete, L., Beaton, C., & Clarke, K. (2016). Overview of the Fuel Subsidy Regime in Nigeria. Compensation Mechanisms for Fuel Subsidy Removal in Nigeria. International Institute for Sustainable Development (IISD). Retrieved from <http://www.jstor.com/stable/resrep14771.5> on December 16, 2023.
- Adetayo, O. (2023). Nigeria fuel subsidy cut and spiralling costs: What to know. *aljazeera*. Retrieved from
- Bello, R. (2016). Fuel subsidy in Nigeria: Why and how it should be eliminated. *thecable*. Retrieved from <https://www.thecable.ng/fuel-subsidy-nigeria-eliminated> on December 15, 2023.
- BP. (2014). Statistical Review of World Energy.
- Energy Information Administration. (2012). Country Analysis Brief – Nigeria. Retrieved from <http://www.eia.gov/countries/cab.cfm?fips=NI> on December 15, 2023.
- International Energy Agency (IEA). (2013). Energy Indicators-Nigeria country. Retrieved from <http://www.iea.org/statistics/statisticsearch/report/?country=NIGERIA&product=indicators&year=2012> on December 15, 2023.
- International Energy Agency (IEA). (2014). Global Energy Trends: Fossil-fuel Subsidies. World Energy Outlook 2014. IEA Paris France, 12 November, 2014.
- Kowo, L. (2023). Subsidy removal: Challenges and solutions. *punchng*. Retrieved from <https://punchng.com/subsidy-removal-challenges-and-solutions/> on December 26, 2023.
- Oluwabukola, A. (2023). Here is why Nigeria needs to remove petrol subsidy. *thecable*. Retrieved from <https://www.thecable.ng/here-is-why-nigeria-needs-to-remove-the-fuel-subsidy> on December 26, 2023.
- Okwonu, F.Z.,(2015). A chi square approach to determine the effect of students' residence on academic performance, *Journal of Basic and Applied Research International*;15(4):280-286
- Okwonu, F. Z.; Ahad, N.A; Okoloko, I.E; Apanapudor, J.S.; Kamaruddin, S.A; Arunaye, F.I. (2022). Robust hybrid classification methods and applications. *Pertanika Journal of Science and Technology*:(30):4:29 JST 3314-2021
- Okwonu, F.Z and Apanapudor, J.S.(2019), The Statistical Value of Water Transport: A Preliminary Study of Niger Delta Creek. *Data Research*; 3(3):41-50. <http://www.itspoa.com/>
- Onyeizugbe, C.U. & Onwuka, E.M. (2012). Fuel subsidy removal as an imperative for enhancing business development in Nigeria. *VSRD International Journal of Business and Management Research*, 2(9), 454-461.
- Soile, I., & Mu, X. (2015). Who benefit most from fuel subsidies? Evidence from Nigeria. *Energy Policy* 87, 314-324.
- Okwonu, F.Z. and Ogini, N.O. (2017). Application of x and S Control Charts to Investigate Students Performance, *Journal of Advances in Mathematics and Computer Science*:23(4):1-15.
- Sulaimon, A. (2023). Why I ended fuel subsidy – Tinubu. *punchng*. Retrieved from <https://punchng.com/why-i-ended-fuel-subsidy-tinubu/> on December 26, 2023.
- Yusuf, K. (2023). ANALYSIS: As fuel subsidy goes, Nigerian government must cut cost of governance. *premiumtimesng*. Retrieved from <https://www.premiumtimesng.com/news/603753.html> on December 26, 2023.



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