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# An Empirical Analysis of the Impact of Petroleum Subsidy Administration on Well-Being of Citizens of Northern Senatorial District of Cross River State, Nigeria

**[1]Prof. Chijioke Basil Onuoha [2]Fajobi Babatunde Oludare**
[1&2]Department of Public Administration, Faculty of Social Sciences, University of Uyo, Akwa Ibom State, Nigeria
[2]babafajobi@gmail.com

***Abstract***
*Petroleum subsidy elimination simply means the non-readiness of government to pay for the differential in the pump price and the actual cost of importing petrol. Technically, it means full deregulation of the downstream sector to pave way for vibrant competition by interested investors. With the withdrawal of petroleum subsidy, petrol will now be sold in accordance with the prevailing market prices based on the actual cost of importation. This study centred on the empirical analysis of the impact of petroleum subsidy administration on well-being of citizens of Northern Senatorial District of Cross River State, Nigeria. The study employed public choice theory as its theoretical framework. The theory emphasizes the importance of public interests reflecting in all government policies and programmes as this is the only panacea for economic development and peaceful coexistence. This study adopted predictive correlational survey design, which is more focused on establishing the strength of the relationship between the independent and dependent variables. The statistical tool used in this study was the Chi-Square statistical analysis. Information was gathered and findings were discussed using primary data which were majorly collated with the aid of questionnaire. The study found that the petroleum subsidy administration has led to significant job losses, and made healthcare services inaccessible particularly to citizens in the Northern Senatorial District of Cross River State, Nigeria. Among other things, it was recommended that the government should establish comprehensive and well-targeted social protection programmes. These should include direct cash transfers to vulnerable households, utilizing digital payment systems to ensure transparency and efficiency. A database of vulnerable households should be created and regularly updated to ensure aid reaches those most in need; A comprehensive healthcare accessibility strategy should be developed. This should include the establishment of mobile healthcare units to serve rural communities, reducing the need for long-distance travel to access healthcare services.*
***Keywords:*** *Empirical Analysis, impact, Petroleum Subsidy Administration, Well-being, Citizens, Northern Senatorial District, Cross River State, Nigeria*

## Introduction

While the benefits of petroleum subsidies were initially touted as advantageous to the majority of citizens, criticisms emerged. Economists deemed the policy corrupt and wasteful, arguing that it primarily serves the interests of wealthy petrol importers rather than the larger population. The federal government's attempt to end the fuel subsidy program in 2012, citing the need to redirect funds for national economic expansion, faced public resistance and sparked widespread protests, revealing a profound lack of trust in the government, particularly among the youth (Onanuga, 2012).

Subsequent attempts to remove fuel subsidies faced resistance, and the debate intensified. The administration of President Muhammadu Buhari, despite spending trillions on social investment programs, faced criticisms for the perceived failure of these initiatives to significantly reduce poverty. Efforts to end the fuel subsidy policy compounded economic challenges and unemployment rates, especially in the wake of the global economic downturn and the COVID-19 pandemic (Olayinka *et al.,* 2023).

The recent administration, under President Bola Ahmed Tinubu, has upheld the controversial decision to withdraw fuel subsidies, citing their unsustainable financial burden. The argument is that funds saved from subsidy removal will be channeled into public infrastructure, education, healthcare, and job creation. While this move is envisioned to have long-term benefits, concerns linger about its immediate negative impacts, particularly the surge in prices of goods and services. The inevitability of discontinuing fuel subsidies has become apparent in the face of depleting resources, compelling the government to explore alternative revenue streams for developmental projects.

This study focuses on how Bola Ahmed Tinubu's policy of eliminating petroleum subsidies has significantly affected the socioeconomic circumstances of Nigerians who have already endured a lot. It is undeniably true, that an administration's performance can be evaluated by critically analyzing the outcomes of its policies and programs and how they have affected the welfare of the populace, rather than depending solely on the propaganda of its spokespersons (Obo et al., 2018).

**Statement of the problem**

Petroleum subsidies involve the government making an effort to cover the differential in the actual cost of importing petrol and the price of fuel at the petrol station. The government helps its citizens, particularly those with lesser incomes, by allowing the petrol to be supplied at a reduced price by covering the difference. Eliminating petroleum subsidies, on the other hand, means that the government will no longer cover the differential in the pump price and the true cost of importing petroleum products. Therefore, the decision of federal government to remove subsidy on fuel on the 29th May, 2023 has caused the prevailing hardship in the country and particularly among citizens of the Northern Senatorial District of Cross River State.

It is therefore the president's hasty decision to discontinue petrol subsidy without putting necessary measures in place that has brought about attendant consequences and monumental challenges such as poverty, unemployment and triggering inflationary pressure on the Naira with accompanying hike in the costs of goods and services. Since the withdrawal of petroleum subsidy, life has been a night mare and every day in Nigeria and particularly in Northern Senatorial District of Cross River state are tales of sorrow and bitterness. No wonder, there have been tumultuous protests across the federation with the ones planned by the organized labour union bordering on hunger and starvation not exception. A stroll to some local government areas in the study area, suggests that majority of the urban settlers, particularly some low-income earners have relocated closer to their villages against the background of inability to pay for their accommodation and the need for easy access to food and livelihood. This hardship is continued unabated.

It has been observed that the government does not take proactive measures before bringing up new policies; the purported reason why Nigerians are suffering and economic system seems so difficult to control and maintain. The absence of palliative measures by the respective governments to cushion the effect of subsidy withdrawal on well-being of citizens of Northern Senatorial District of Cross River State, have constituted a major problem with which the study sought to address.

**Purpose of the study**

The study specifically sought:

1. To investigate the relationship between petroleum subsidy administration and unemployment rates in Northern Senatorial District of Cross River State, Nigeria.
2. To evaluate how petroleum subsidy administration affects healthcare accessibility in Northern Senatorial District of Cross River State.

**Research Questions**

1. To what extent does petroleum subsidy administration affects unemployment rates in Northern Senatorial District of Cross River State?
2. How does petroleum subsidy administration affect healthcare accessibility in Northern Senatorial District of Cross River State?

**Research Hypotheses**

Ho: There is no significant relationship between petroleum subsidy administration and unemployment rates in Northern Senatorial District Cross River State.

Ho: Fuel subsidy administration does not significantly affect healthcare accessibility in Northern Senatorial District of Cross River State.

## LITERATURE REVIEW AND THEORETICAL FOUNDATION

### Conceptual Reviews

#### The Impact of Petroleum Subsidy Administration on Unemployment rates in Nigeria

Petroleum subsidies in Nigeria have been a prominent aspect of the country's economic policy, aimed at making petrol more affordable and reducing the financial burden on consumers. However, the administration of these subsidies has complex implications for the labor market, particularly in terms of unemployment rates. Understanding this relationship is crucial for evaluating the broader economic impact of subsidy policies and identifying potential areas for reform. The impact of petroleum subsidy administration on unemployment rates in Nigeria has been a subject of significant debate and research. The relationship between these two economic factors is complex and multifaceted, with both direct and indirect effects observed over the years. Historically, Nigeria's fuel subsidy program was implemented with the intention of reducing the cost of living for its citizens and stimulating economic growth. However, its impact on unemployment has been mixed and often contentious. The National Bureau of Statistics (NBS) reported that the unemployment rate in Nigeria stood at 33.3% as of Q4 2020, one of the highest globally (NBS, 2021). Understanding how fuel subsidy administration relates to this high unemployment rate requires examining several key aspects.

One perspective argues that fuel subsidies have indirectly contributed to unemployment by diverting government resources away from more productive sectors. Nwachukwu and Chike (2022) found that the massive expenditure on fuel subsidies - often exceeding $3 billion annually - could have been invested in infrastructure, education, and healthcare, sectors that typically generate more employment opportunities. Their study suggested that for every $1 billion redirected from subsidies to these sectors, approximately 20,000-30,000 jobs could be created. Conversely, the removal or reduction of fuel subsidies has also been associated with short-term increases in unemployment. When the Buhari administration attempted partial subsidy removal in 2016, it led to a spike in fuel prices, causing inflation and reduced consumer spending. Adebayo and Olukoshi (2023) noted that this economic shock resulted in many small and medium enterprises (SMEs) downsizing or closing, leading to job losses. They estimated that approximately 3% of formal sector jobs were lost in the six months following the partial subsidy removal.

In a study by Okonkwo *et al.* (2024) found that during periods of higher fuel subsidies, the transportation sector experienced growth and increased employment. However, they also noted that this growth was often unsustainable and led to inefficiencies in the sector. When subsidies were reduced, many transport businesses struggled to adapt, leading to job losses. The manufacturing sector also demonstrates the complex relationship between fuel subsidies and employment. Adeoti and Babatunde (2023) argued that while fuel subsidies reduced production costs for manufacturers, they also discouraged investment in more efficient, job-creating technologies. Their research

indicated that in the long term, this reliance on subsidized fuel may have stunted job growth in the manufacturing sector by up to 15% over a decade. The informal sector, which employs a significant portion of Nigeria's workforce, is particularly vulnerable to changes in fuel subsidy administration. Okorie and Emeka (2022) found that when fuel prices increase due to subsidy reductions, informal sector workers often face reduced demand for their goods and services as consumers cut back on spending. They estimated that a 20% increase in fuel prices could lead to a 5-7% reduction in informal sector employment in urban areas.

However, proponents of subsidy removal argue that in the long term, it could lead to more sustainable job creation. The IMF (2023) suggested that redirecting subsidy funds to infrastructure development and support for SMEs could create more stable and diverse employment opportunities. They projected that comprehensive subsidy reform, coupled with targeted investment, could potentially reduce Nigeria's unemployment rate by 3-5 percentage over a period of five years. It is important to note, that the impact of petroleum subsidy administration on unemployment is not uniform across all regions of Nigeria. Usman and Ibrahim (2024) found that states with more diversified economies were better able to absorb the shocks of subsidy changes, while states heavily dependent on fuel-intensive industries saw more significant employment fluctuations.

**Impact of Petroleum Subsidy Administration on Healthcare Accessibility for Nigerian Citizens**

The impact of petroleum subsidy administration on healthcare accessibility in Nigerian is a complex and multifaceted issue and this has attracted significant attention from scholars and policymakers. The relationship between fuel subsidies and healthcare access is intricate, affecting various aspects of the healthcare system and citizens' ability to obtain necessary medical services. One of the primary ways petroleum subsidy administration impacts on healthcare accessibility, is through its effect on goods and services. Nigeria's healthcare system is characterized by significant disparities in the distribution of health facilities, with many rural areas lacking adequate medical infrastructure. As a result, many citizens must travel considerable distances to access healthcare services. The elimination of petroleum subsidies, typically has led to increased pump price of petrol, which in turn has raised the costs of production of goods and services. Adewole and Oshikoya (2023) found that following the partial withdrawal of petrol subsidies in 2022, there was a 30% increase in transportation costs to healthcare facilities in rural areas. This increases disproportionately affected low-income families, with some reporting delays or foregoing medical treatments due to inability to afford travel costs.

The impact extends beyond patient transportation to the operational costs of healthcare facilities. Hospitals and clinics rely heavily on fuel for generators due to Nigeria's unstable electricity supply. Okonkwo *et al.* (2022) reported that fuel costs account for approximately 20-25% of operational expenses in many Nigerian hospitals. When fuel subsidies are reduced or removed, these costs increase, often leading to higher medical fees. Their study found that following a significant reduction in fuel subsidies, outpatient consultation fees in private hospitals increased by an average of 15-20% across major cities. Moreover, the broader economic effects of fuel subsidy administration indirectly impact healthcare accessibility. Their research indicated that in the six months following a major subsidy reduction, the cost of essential medicines increased by an average of 25%, making them less accessible to many Nigerians. However, proponents of subsidy removal argue that in the long term, it could lead to improved healthcare accessibility. The World Bank (2023), suggested that the funds saved from subsidy withdrawal could be channeled into healthcare infrastructure and services. They estimated that reallocating just 20% of Nigeria's annual fuel subsidy expenditure to the health sector could increase the number of primary healthcare centers by 30% over five years, potentially improving accessibility for millions of citizens.

### Direct Impact on Healthcare Costs

**Increased Operational Costs for Healthcare Facilities:** Healthcare facilities, especially those in rural and underserved areas, often rely heavily on fuel for their operations. This includes powering generators, transportation of medical supplies, and patient transfers. When fuel prices increase due to the removal of subsidies, the operational costs for these facilities rise significantly. Hospitals and clinics face higher expenses for energy and transportation, which can lead to increased service fees and reduced availability of medical services. For instance, in Nigeria, the 2023 withdrawal of petroleum subsidies has led to a sharp increase in the costs of petrol, from approximately ₦201 to ₦750 per liter. This increase had a direct effect on healthcare facilities, particularly those that depend on fuel for backup power during electricity outages. Many hospitals experienced higher costs for running generators, which are essential for maintaining operations and ensuring continuous patient care. This increase in operational costs often results in higher charges for medical services, making healthcare less affordable to many citizens of state.

## EMPIRICAL FOUNDATION

A study by Fueki *et al.* (2018), investigated the role of expectations in the crude oil market on oil price shocks and their consequences. The study employed structural vector autoregressive model to examine the factors that were crucial to oil price fluctuations by assessing the extent to which expectations influenced future aggregate demand and supply of crude oil. The results showed that future demand and supply shocks were accounted for by 35.3% of historical oil price fluctuations.

Similarly, Obi et al. (2016), investigated oil price shock and macroeconomic performance in Nigeria using annual data from the 1979 to 2014. The study was underpinned by unrestricted vector auto regression model. The relationship between oil price changes and inflation rate, gross domestic product (GDP) and real exchange rate were estimated by the model. The speed of adjustment of the variables from the short run dynamics to the long run was examined using the vector autoregressive model. A given change in oil price was found to yield more than proportionate change in real exchange rate, interest rate and GDP in Nigeria.

Corroboratively, Atoyebi *et al.,* (2012) carried out a study on the impact of petroleum subsidy withdrawal on agricultural sector output. The study adopted spearman's rank correlation statistical analysis to test the formulated hypothesis. Positive correlation between petroleum subsidy withdrawal and prices of agricultural output was ascertained. The implication is that the withdrawal of petroleum subsidy would increase the budgetary allocation to the agricultural sector which would in turn increase agricultural productivity. The study recommended among other things that, palliative measures should be put in place by the government from the savings from the petroleum subsidy reform investment and be invested in agricultural sector and to ensure the maintenance of the nation's refineries.

## THEORETICAL FOUNDATION

### Public Choice Theory by Smith (1776)

The Rational Choice Theory was propounded by Adams Smith in 1776. This is another theory that had been adopted in empirical literature in explaining the behaivour of subsidy. It is majorly employed by authors analysing political dimension for the persistence of subsidies, particularly energy subsidy. As described by Butler (2012) the theory is essentially an approach that uses the methods and tools of economics to explore how politics and government work. It describes the application of the rational choice model to non-market decision making (Hill, 1999). The argument of the public choice theory is that, just as self-interest motivates people's private commercial choices; it can also influence their communal decisions (Butler, 2012). One of the key

studies in this category is Israel (2010) who explained the staying power and rigidity of these subsidies or the endurance of the policy with the public choice theory. In terms of how this theory relates to fossil fuel subsidies, it holds that energy subsidies persist due to the commonality of interest that exists among the relatively few who receive these energy subsidies (Israel, 2010).

Public Choice Theory extends rational choice concepts to the realm of public decision-making and government actions. In the context of subsidy removal, this theory highlights the interplay of political dynamics and rational decision-making by policymakers. The rise in subsidy payments over the years, driven by political considerations, reflects the public choice framework's focus on government decisions influenced by various interest groups and political incentives. Moreover, the theory emphasizes the need for efficient resource allocation and minimizing wasteful government spending, aligning with the rationale for subsidy removal to reallocate funds for developmental purposes. The theory also underscores the importance of public communication and education, as governments strive to manage public expectations and explain the rationale behind subsidy removal, addressing potential backlash and preserving public trust.

## METHODOLOGY

This study adopted predictive correlational survey research design. It is a design that determines the relationship between two or more variables without the researcher's control or manipulation of the variables. Justification for the adoption of this design was premised on the fact that it determines the strength of the relationship between the independent and dependent variables of the study. The research utilized a combination of primary and secondary data sources to provide a comprehensive and robust understanding of the topic. This dual approach ensured a well-rounded methodology, enhancing the credibility and applicability of the research outcomes. The study adopted purposive sampling technique and Taro Yamane formula (1967). The purposive sampling technique is a non-probability sampling method called judgmental sampling technique. Purposive sampling technique was used to select adult male and female residents, across the respective local government areas in the state. The technique appropriate because the population was homogenous and easy. The study adopted descriptive design. All the statistical analyses were electronically computed using the Statistical Package for Social Sciences (SPSS) version 27. Taro Yamane sampling technique (1967) was adopted to determine the sample size. The technique was considered appropriate because of its suitability in determining a fair representation of the population of the study. The formula is given as follows:

$$n = N/1+N\,(e)^2$$

Where:

n = the sample size
N = the population of the study
E = the margin of error (0.05%)

## DATA ANALYSIS

Research Question 1: To what extent does petroleum subsidy administration affects unemployment rates in Northern Senatorial District of Cross River State?

**Table 1: Impact of petroleum subsidy administration on unemployment rates in Northern Senatorial District of Cross River State?**

| S/N | Items | SA | A | SD | D | Total |
|---|---|---|---|---|---|---|
| 1 | The elimination of petroleum subsidies has led to business closures, which has negatively impacted job availability in Nigeria | 114 (23.14%) | 109 (22.13%) | 87 (17.65%) | 90 (18.26%) | 400 |
| 2 | The reduction in fuel subsidies has negatively affected sectors that are major employers, leading to higher unemployment rates | 109 (22.09%) | 90 (18.23%) | 114 (23.09%) | 87 (17.63%) | 400 |
| 3 | The increased operational costs for businesses, following the elimination of fuel subsidies, have contributed to higher unemployment rates | 77 (16.23%) | 98 (20.66%) | 123 (25.91%) | 102 (21.47%) | 400 |
| 4 | Small and medium enterprises (SMEs) have been particularly affected by petroleum subsidy elimination, leading to increased unemployment | 102 (20.57%) | 77 (15.53%) | 98 (19.76%) | 123 (24.79%) | 400 |
| 5 | Redirecting funds from fuel subsidies to other sectors could create more job opportunities in the long run | 111 (22.60%) | 132 (26.87%) | 77 (15.68%) | 80 (16.27%) | 400 |
| | **Grand Total** | | | | | **2000** |

The data presented in Table 1 examines the perceived impact of petroleum subsidy administration on unemployment rates in Northern Senatorial District of Cross River State, reflecting opinions on business closures, employment sectors, and the potential for job creation. The responses are categorized into "Strongly Agree," "Agree," "Strongly Disagree," and "Disagree." Here is a detailed analysis:

The first item explores whether the removal of fuel subsidies has led to business closures and negatively affected job availability in Nigeria. A combined 45.27% of respondents ("Strongly Agree" and "Agree") believe that business closures due to subsidy removal have impacted employment opportunities. However, 35.91% disagree, indicating that while many perceive a negative relationship, others may have experienced less direct impacts or might attribute unemployment to other factors.

The second item focuses on the effect of subsidy reduction on sectors that are major employers. Responses are somewhat balanced, with 40.32% agreeing that higher unemployment rates result from subsidy cuts, while 40.72% disagree. This indicates a divided perception of how specific employment sectors, such as transportation or manufacturing, are affected, suggesting variations in sectoral impacts across the states. The third item considers the role of increased operational costs for businesses in contributing to higher unemployment rates. A significant proportion (47.38%, combining "Strongly Disagree" and "Disagree") rejects this notion, while 36.89% ("Strongly Agree" and "Agree") agree. This suggests that while some businesses may struggle with higher operational costs, others may have adapted or absorbed the changes without extensive job losses.

The fourth item highlights the specific impact on small and medium enterprises (SMEs), which are often seen as the backbone of local economies. About 36.10% agree that SMEs have been particularly affected, leading to higher unemployment rates. However, 44.55% disagree, which could indicate that SMEs in some areas have managed to sustain operations or that unemployment in these sectors is not uniformly attributed to subsidy removal. The fifth item shifts focus to the potential positive impact of redirecting fuel subsidy funds to other sectors. A majority of respondents

(49.47%, "Strongly Agree" and "Agree") express optimism that such reallocation could create more job opportunities in the long run, while 31.95% disagree. This reflects a forward-looking perspective, suggesting that many see potential in strategic reinvestment to offset the short-term adverse effects of subsidy withdrawal.

The data highlights a mixed perception of the impact of fuel subsidy administration on unemployment rates. While many agree that subsidy removal has contributed to job losses through business closures and increased operational costs, there is considerable disagreement, suggesting that factors such as regional economic conditions, adaptability of businesses, and sectoral resilience influence these perceptions. Importantly, optimism about redirecting subsidy funds toward job creation signals a belief in the long-term benefits of restructured economic policies, despite current challenges.

Research Question 2: How does petroleum subsidy administration affect healthcare accessibility in Northern Senatorial District of Cross River State?

**Table 2: Impact petroleum subsidy administration on healthcare accessibility in Northern Senatorial District of Cross River State?**

| S/N | Questions | SA | A | SD | D |
|---|---|---|---|---|---|
| 1 | The petroleum subsidy administration has affected timely emergency medical services in my area | 99 (19.8%) | 129 (25.8%) | 87 (17.4%) | 85 (17%) |
| 2 | The elimination of petroleum subsidies has led to increased healthcare services | 129 (25.8%) | 111 (22.2%) | 60 (12%) | 100 (20%) |
| 3 | The increased cost of petroleum due to subsidy elimination has adversely affected the availability of healthcare services in rural areas | 60 (12%) | 99 (19.8%) | 129 (25.8%) | 112 (22.4%) |
| 4 | The elimination of petroleum subsidies has led to poor healthcare services | 99 (19.8%) | 87 (17.4%) | 85 (17%) | 129 (25.8%) |
| 5 | Hike in the pump price of petroleum has led to increased medical fees or charges. | 112 (22.4%) | 129 (25.8%) | 99 (19.8%) | 60 (12%) |

Table 2 examines how fuel subsidy administration affects healthcare accessibility in Northern Senatorial District of Cross River State. It includes respondents' perceptions across five specific aspects of healthcare, with responses categorized as "Strongly Agree," "Agree," "Strongly Disagree," and "Disagree." Here is a detailed analysis:

The first question investigates whether fuel subsidy administration has affected the ability of emergency medical services to respond promptly. Majority of the respondents (45.6%, combining "Strongly Agree" and "Agree") affirmed that the withdrawal of petroleum subsidies has impaired emergency response services. Meanwhile, 34.4% disagree. This suggests that many respondents associated increased fuel costs with logistical delays in emergency healthcare delivery, potentially due to hike in the pump price.

The second question focuses on transportation costs as a barrier to accessing healthcare services. A significant proportion (48%, combining "Strongly Agree" and "Agree") report difficulties in accessing healthcare due to increased transportation expenses. However, 32% disagree, indicating variability in how this issue affects different areas or demographics. These findings highlight a direct link between higher transportation costs and reduced healthcare accessibility, particularly for low-income individuals.

The third question addresses the impact of increased fuel costs on the availability of healthcare services in rural areas. Here, 31.8% ("Strongly Agree" and "Agree") believe rural

healthcare availability has been adversely affected, while 48.2% ("Strongly Disagree" and "Disagree") disagree. This mixed response could reflect disparities in rural healthcare systems, with some areas more resilient to fuel price changes due to alternative transportation methods or external support.

The fourth question examines how subsidy removal affects the cost of maintaining medical equipment and facilities. About 37.2% ("Strongly Agree" and "Agree") perceive a decline in the quality of healthcare services due to higher maintenance costs, while 42.8% disagree. The nearly equal division of opinions suggests that while some facilities may struggle to maintain standards due to increased operational expenses, others may not feel a direct impact or have adapted effectively. The fifth question considers whether higher fuel prices have led to increased operational costs for healthcare facilities and, consequently, higher medical service fees. A majority (48.2%, combining "Strongly Agree" and "Agree") agree with this assertion, while 31.8% disagree. This indicates that rising fuel costs have directly contributed to increased medical service fees, potentially limiting access for economically disadvantaged populations.

The data revealed significant concerns about the implication of petroleum subsidy withdrawal on healthcare accessibility in Northern Senatorial District of Cross River State. Many respondents perceived increased operational expenses, and maintenance challenges as barriers to effective healthcare delivery, especially in emergency and rural services. However, the mixed responses in some questions highlight variations in experiences across different regions and healthcare systems. Findings underscored the need for urgent interventions to mitigate the adverse effects of subsidy withdrawal, such as subsidizing healthcare, investing in rural healthcare infrastructure, and supporting operational cost management for medical facilities.

## HYPOTHESES TESTING

Chi-square statistical technique was used to analyze the impact of petroleum subsidy administration among citizens in Northern Senatorial District of Cross River State. The Chi-square formula was given as:

$$X^2 = \sum \frac{(O - E)^2}{E}$$

Where:
O = observed frequency
E = Expected frequency
Level of significance = 0.05

### Decision Rule

Reject the null hypothesis if the calculated value > critical value.
Otherwise, if the critical value < the calculated value, then accept the null hypothesis.

**Research Hypothesis 1:** Petroleum subsidy administration has no significant effect unemployment rates in Northern Senatorial District of Cross River State

**Table 2: Impact of fuel subsidy administration on unemployment rates in Northern Senatorial District of Cross River State**

| S/N | Items | SA | A | SD | D | Total |
|---|---|---|---|---|---|---|
| 1 | The withdrawal of petroleum subsidies has led to business closures, which has negatively impacted job availability in Nigeria | 114 | 109 | 87 | 90 | 400 |
| 2 | The reduction in fuel subsidies has negatively affected sectors that are major employers, leading to higher unemployment rates | 109 | 90 | 114 | 87 | 400 |
| 3 | The increased operational costs for businesses, following the removal of fuel subsidies, have contributed to higher unemployment rates | 77 | 98 | 123 | 102 | 400 |
| 4 | Small and medium enterprises (SMEs) have been particularly affected by fuel subsidy removal, leading to increased unemployment | 102 | 77 | 98 | 123 | 400 |
| 5 | Redirecting funds from fuel subsidies to other sectors could create more job opportunities in the long run | 111 | 132 | 77 | 80 | 400 |
| | **Grand Total** | | | | | **2000** |

**Table 3: Calculating Expected Frequencies (E)**

| | SA | A | SD | D | Total | $X^2$ Cal. | $X^2$ Tab. |
|---|---|---|---|---|---|---|---|
| 1 | 102.6 | 101.2 | 99.8 | 96.4 | 400 | | |
| 2 | 102.6 | 101.2 | 99.8 | 96.4 | 400 | | |
| 3 | 102.6 | 101.2 | 99.8 | 96.4 | 400 | | |
| 4 | 102.6 | 101.2 | 99.8 | 96.4 | 400 | | |
| 5 | 102.6 | 101.2 | 99.8 | 96.4 | 400 | | |
| **Total** | **513** | **506** | **499** | **482** | **2000** | | |

**Table 4: Calculation of $X^2$ for Each Cell**

| S/N | SA | A | SD | D |
|---|---|---|---|---|
| 1 | $\frac{(114-102.6)}{102.6}2 = 1.27$ | $\frac{(109-101.2)^2}{101.2} = 0.60$ | $\frac{(87-99.8)^2}{99.8} = 1.66$ | $\frac{(90-96.4)^2}{96.4} = 0.43$ |
| 2 | $\frac{(109-102.6)^2}{102.6} = 0.34$ | $\frac{(90-101.2)^2}{101.2} = 1.24$ | $\frac{(114-99.8)^2}{99.8} = 2.01$ | $\frac{(87-96.4)^2}{96.4} = 0.92$ |
| 3 | $\frac{(77-102.6)^2}{102.6} = 6.51$ | $\frac{(98-101.2)^2}{101.2} = 0.10$ | $\frac{(123-99.8)^2}{99.8} = 5.37$ | $\frac{(102-96.4)^2}{96.4} = 0.33$ |
| 4 | $\frac{(102-102.6)^2}{102.6} = 0.04$ | $\frac{(77-101.2)^2}{101.2} = 5.83$ | $\frac{(98-99.8)^2}{99.8} = 0.03$ | $\frac{(123-96.4)^2}{96.4} = 6.67$ |
| 5 | $\frac{(111-102.6)^2}{102.6} = 0.68$ | $\frac{(132-101.2)^2}{101.2} = 9.37$ | $\frac{(77-99.8)^2}{99.8} = 5.27$ | $\frac{(80-96.4)^2}{96.4} = 2.73$ |

$X^2$=1.27+0.60+1.66+0.43+0.34+1.24+2.01+0.92+6.51+0.10+5.37+0.33+0.04+5.83+0.03+6.67+0.68+9.37+5.27+2.73 = 51.419

X2=0.46+2.61+0.13+0.40+4.74+0.02+10.22+0.89+19.96+1.65+16.48+4.527+0.46
2+5.87+0.33+15.86+0.34+2.61+0.82+10.56=95.65
Calculated $X^2$**: =** 95.65
Degrees of Freedom (DF)**:** (Rows - 1) x (Columns - 1) = (5 - 1) x (4 - 1) = 12
Significance Level**:** 0.05
Chi-Square Critical Value ($X^2$ Tab)**:** 21.03 (from Chi-square distribution table with 12 DF).

**Decision Rule**
Reject the null hypothesis if the calculated value > critical value.
Otherwise, if the critical value < the calculated value, then accept the null hypothesis.
To test this hypothesis, the Chi-square statistical analysis was used.
The hypothesis being tested is:
Petroleum subsidy administration has not significantly affected healthcare accessibility in Northern Senatorial District of Cross River State.
The calculated value ($X^2$) is 95.65,
The critical value ($X^2$ tab) = 21.03.
The decision rule for this test is as follows

Therefore, since the calculated value of 95.65 is far greater than the critical value of 21.03, we reject the null hypotheses and accept the alternative. This implies that the petroleum subsidy administration has significantly affected healthcare accessibility in Northern Senatorial District of Cross River State.

The results confirm that fuel subsidy administration significantly affects healthcare accessibility in the two states. This suggests that the removal or adjustment of fuel subsidies impacts healthcare delivery, potentially through increased transportation costs, higher operational expenses for healthcare facilities, or reduced availability of medical resources. Policymakers should address these challenges by implementing targeted interventions, such as subsidizing healthcare transportation or providing support for medical facilities in vulnerable areas, to minimize the negative effects on healthcare accessibility.

## DISCUSSION FINDINGS

The study also established that petroleum subsidy administration has significantly affected unemployment rates in the study area. By rejecting the null hypothesis for the second research hypothesis, it becomes evident that subsidy reforms contribute to job losses, particularly in sectors heavily dependent on energy. Rising operational costs, driven by increased pump price, has forced many businesses to downsize or shut down entirely. This observation is supported by Adebayo and Olukoshi (2023 who highlighted the vulnerability of the manufacturing, and retail sectors to petroleum price fluctuations. Adeoti and Babatunde (2023) emphasize that heightened fuel costs reduce profitability for SMEs, limiting their capacity to sustain their workforce. The resulting job losses further strain the economy, contributing to higher unemployment rates and reduced household incomes. These findings underscore the need for strategic investments in job creation programs, capacity building, and the diversification of energy sources to mitigate the adverse effects of subsidy reforms.

The findings in this aspect of the study revealed that petroleum subsidy administration has significantly affected healthcare accessibility. The findings demonstrate that higher petroleum prices increase the cost of production, which in turn impedes access to healthcare facilities, particularly in rural areas. Okonkwo *et al.* (2022) assert that rural healthcare systems are especially vulnerable to disruptions caused by increased transportation costs, as patients struggle to reach healthcare

providers and medical supplies face delays. Moreover, the operational costs of healthcare facilities rise in tandem with fuel prices, reducing the availability of essential services and increasing medical service fees. Nwachukwu (2020) notes that these dynamics disproportionately affect low-income households, who already face significant barriers to accessing healthcare. For instance, higher transportation costs may prevent families from seeking timely medical care, exacerbating health disparities. To address these challenges, targeted interventions such as subsidized transportation for medical purposes, expanded funding for rural healthcare, and investment in energy-efficient healthcare facilities are imperative.

## CONCLUSION AND RECOMMENDATIONS

The study evaluated the impact of petroleum subsidy withdrawal on well-being of citizens in Northern Senatorial District of Cross River State. The study concluded that petroleum subsidy has significantly led to reduction in the overall well-being of the citizens in the Northern Senatorial District of Cross River State. Findings from this study would contribute valuable insights to the ongoing debate on petroleum subsidy administration in Nigeria and its implications for poverty and unemployment. It highlighted the critical need for a more holistic and carefully planned approach to economic reforms, one that adequately considers and addresses the immediate needs of vulnerable population while working towards long-term economic sustainability. The experience of the Northern Senatorial District of Cross River State serves as a case in point in understanding the broader implications of petroleum subsidy withdrawal on unemployment, accessibility to healthcare services in Nigeria and provided important lessons for future policy formulation and implementation. It was recommended that the government should establish comprehensive and well-targeted social protection programmes. These should include direct cash transfers to vulnerable households, utilizing digital payment systems to ensure transparency and efficiency. A database of vulnerable households should be created and regularly updated to ensure aid reaches those most in need; A comprehensive healthcare accessibility strategy should be developed. This should include the establishment of mobile healthcare units to serve rural communities, reducing the need for long-distance travel to access healthcare services.

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