

Assessing the Long-Term Socio-Economic Impact of Fuel Subsidy Removal on Households Living Standards in Adamawa State, Nigeria: An Empirical Analysis

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Abstract

The removal of fuel subsidies in Nigeria under the current administration has caused a thoughtful shift with extensive long-term effects across employment, income over a period of time, business, daily life, healthcare, and education. Thus, this study is to assess the long-term socio-economic impact of fuel subsidy removal on households' living standards in Adamawa State, Nigeria: an empirical analysis. The study covered three (3) Adamawa State Senatorial Zones: Southern Zone, Central Zone, and Northern Zone, with two (2) local government areas from each: Demsa and Numan (Southern), Yola North and Yola South (Central), and Mubi North and Mubi South (Northern). The objective of the study was to evaluate the long-term socioeconomic impact after fuel subsidy removal. A total of 400 respondents were interviewed through the use of a structured questionnaire. The study was anchored on the Economic Theory of Subsidy and Welfare Theory by Pigou in 1920. The result shows that employment status, income prospects, entrepreneurial opportunities, education, skill development, and lifestyle changes are affected by subsidy removal in the long term, and based on this conclusion, the following recommendations were made, among others: the government should target the social safety net (SSN), such as cash transfers of fund subsidies, to assist vulnerable households.

Keywords: Long-Term, Socio-Economic, Fuel Subsidy, Removal, Households

JEL Classification: H20, H31, F21

1.0 Introduction

Over the past thirty years, the Nigerian government has made several attempts to remove the subsidy on petroleum products (Adenikinju, 2009). However, from a political economy perspective, the elimination of said subsidy proves to be a challenging task, as it affects a wide range of Nigerian households. Although the majority of the subsidies primarily benefit wealthier households, the desire for lower and less volatile fuel prices resonates with all segments of the population. Hence, Nigerian consumers have expressed their opposition to any attempts to eradicate the subsidy on petroleum products. The prevailing belief in Nigeria is that any increase in petroleum product prices would result in inflation and diminish economic well-being (Adenikinju, 2009). Nevertheless, on January 1, 2012, the subsidy on imported petroleum products was abolished with the rationale that the illicit exportation of these products had

rendered the provision of affordable petroleum products excessively expensive (Rice, 2012). The elimination of the petroleum product subsidy led to a more than twofold increase in fuel prices. Following over a fortnight of strikes, the government introduced a new subsidy that reduced the price of fuel from 140 to 97 Naira per liter. Despite the implementation of this new subsidy, the prices of petroleum products remained more than 50 percent higher than the pre-subsidy removal price of 65 Naira per liter.

Subsidies have historically been a favored instrument employed by governments to channel economic advantages towards the broader populace. These subsidies manifest in diverse forms, encompassing reductions in commodity prices, issuance of consumption vouchers, reductions in tax obligations, and even direct financial aid. In essence, subsidies epitomize a prevalent economic strategy aimed at ensuring that essential goods and services become more accessible to individuals with low incomes, thereby augmenting their standard of living and fostering the growth of commercial enterprises. The efficacy of such policies is often evidenced by the overall economic activities within a nation. For instance, in Nigeria, fuel subsidies were implemented in 1973, as documented by Eyiuche (2012), with the principal objective of facilitating the ready availability and affordability of petroleum products to the general public. It is noteworthy to acknowledge that international oil prices have historically demonstrated a pattern of fluctuations, as underscored by McCulloch et al. (2021). The removal of the fuel subsidy in Nigeria in 2023 marks a significant milestone in the development of the nation's economy, society, and environment. This decisive change in policy carries a plethora of implications that necessitate a rigorous examination in order to comprehend its extensive consequences. The fundamental issue at the core of this investigation lies in uncovering the intricate network of positive and negative, direct and indirect impacts that arise from the removal of the subsidy, and analyzing their ramifications for both the Nigerian economy and society.

The removal of the subsidy, motivated by the desire to align with global trends of reducing fossil fuel subsidies and enhancing fiscal sustainability (Al Jazeera, 2023), presents numerous challenges. This dilemma echoes the concern raised by Ude (2023), emphasizing that while the elimination of the subsidy may have long-term benefits, it can strain the financial resources of households, particularly those who are already marginalized. The underlying structure of Nigeria's economy adds further layers of complexity. The current state of the country's refineries, coupled with a dependence on imported oil, heightens the risk of escalated fuel prices. The delicate balance between promoting domestic refining capabilities and managing consumer costs requires a detailed examination, considering that the removal of the subsidy could amplify the challenges posed by an underperforming domestic refining sector. The anticipated redirection of funds from subsidies to public goods such as healthcare, education, and infrastructure holds the potential for positive transformation. However, the effective allocation of these funds and their equitable distribution must be closely scrutinized. Ensuring that the removal of the subsidy results in tangible improvements in these areas without causing unintended negative consequences becomes a central concern. In the realm of literature, numerous investigations have delved into the ramifications of subsidy removal (Nwafor et al. 2006; Osunmuyiwa & Kalfagianni, 2016; Greve & Lay, 2023; and Harring et al., 2023). When evaluating the influence of subsidy removal on the impoverished population, Nwafor, Ogujiuba, and Asogwa (2006) employ an analysis based on computable general equilibrium. Their study scrutinizes whether subsidy removal disproportionately impacts the economically

vulnerable factions of society. This research brings to light the intricate interplay between fiscal policy, subsidy removal, and social fairness, signifying that while subsidy removal can entail fiscal consequences, it is imperative to consider its distributive effects. Similarly, Osunmuyiwa and Kalfagianni (2017) delve into the broader energy context, examining whether Nigeria's fuel subsidy reforms can serve as a catalyst for energy transitions, their research underscores that subsidy removal can result in shifts in energy consumption patterns, thereby affecting government revenue and expenditures through alterations in the dynamics of the energy. By exploring the intricate relationship between subsidy removal, energy transitions, and fiscal dynamics, this study accentuates the necessity for a comprehensive comprehension of how policy changes reverberate throughout the economy. Though these antecedent studies have shed light on the economic and environmental repercussions of various subsidy removal endeavors, there is limited exploration of the effects of the 2023 subsidy removal in Nigeria. Grasping these potential challenges, opportunities, and the need for holistic approaches is pivotal in devising effective strategies that garner public support, alleviate potential social unrest, and ensure the long-term viability of the policy change. The objective of this paper is to analyse long term socioeconomic impact after subsidy removal in Adamawa State-Nigeria.

2.0 Literature Review

2.1.1 Conceptual Clarification

2.1.2 Fuel Subsidy Removal

Removing fuel subsidies is an important policy decision by governments around the world to address fiscal challenges and promote market efficiency. This project involves phasing out or reducing government fuel subsidies, which subsequently leads to increased fuel prices for consumers (Gupta and Mahajan, 2019). By eliminating financial assistance aimed at keeping fuel prices artificially low, governments aim to rationalize spending, increase resource allocation and reduce market distortions associated with subsidies (Fatima et al., 2020). However, the consequences of removing fuel subsidies are different and may affect different economic actors for households, rising fuel prices lead to increased spending on transportation, higher prices for goods and services, and potentially lower purchasing power (Fatima et al., 2020). Despite these short-term challenges, eliminating fuel subsidies could yield positive results in the long term. In summary, while eliminating fuel subsidies may present initial challenges, careful implementation and accompanying measures can mitigate negative impacts and support long-term economic stability.

2.1.3 Household Living Standard

Households' living standards encompass a plethora of elements that contribute to the welfare and quality of life of families within the societal framework (Arze del Granado et al., 2012). These elements encompass the level of income, accessibility to fundamental necessities such as sustenance, shelter, healthcare, and education, as well as possession of tangible assets. The economic climate, with its fluctuations, notably alterations in employment rates and inflation, directly impact the income and purchasing power of families, thereby affecting their capacity to fulfill basic needs (Deaton, 2003). Governmental policies, such as taxation and social programs, also wield a pivotal role in modifying living standards and either facilitating or

impeding families' utilization of essential services and resources. Grasping and addressing these multifaceted repercussions on the living standards of families is of utmost importance for policymakers and researchers striving to enhance overall well-being and equity within societies.

2.1.4 Socio-Economic Impact

Socioeconomic effects refer to the repercussions of political transformations or economic occurrences on the entirety of society, incorporating both social and economic dimensions. The assessment of the outcomes of eliminating fuel subsidies encompasses an array of alterations, including shifts in employment tendencies, alterations in the distribution of income, variations in the rates of poverty, disparities in the accessibility of fundamental services, and overall welfare outcomes. The influence on diverse demographic groups demonstrates the broader outcomes of political determinations or economic alterations on the welfare and functioning of society (OECD, 2018).

2.1.5 Inflation and Consumer Price Changes

The removal of petroleum subsidies has generated considerable debate due to its potential economic impact, particularly in terms of inflation and consumer prices. The key indicator is the Consumer Price Index (CPI), an important metric for measuring inflationary pressures resulting from such policy changes. According to the National Bureau of Statistics (NBS), Nigeria Compared to December 2022 CPI inflation, CPI inflation fell by 3.1 percentage points, from 6.5 per cent in December 2022 to 3.4 in December 2023. Core inflation, which leaves out volatile food and energy prices, came in at 3.9 per cent this year, down 1.8 points from its 12-month Dec 2022 rate of 5.7 per cent. Several studies have examined the connection between subsidy cuts and inflation Okwanya et al. (2015) examined the impact of oil subsidies on the Nigerian consumer price index. Their results show that the removal of subsidies tends to put upward pressure on the CPI, thereby triggering inflation on all index, farm product and food in Nigeria for the period of 12 month January-December, 2023.

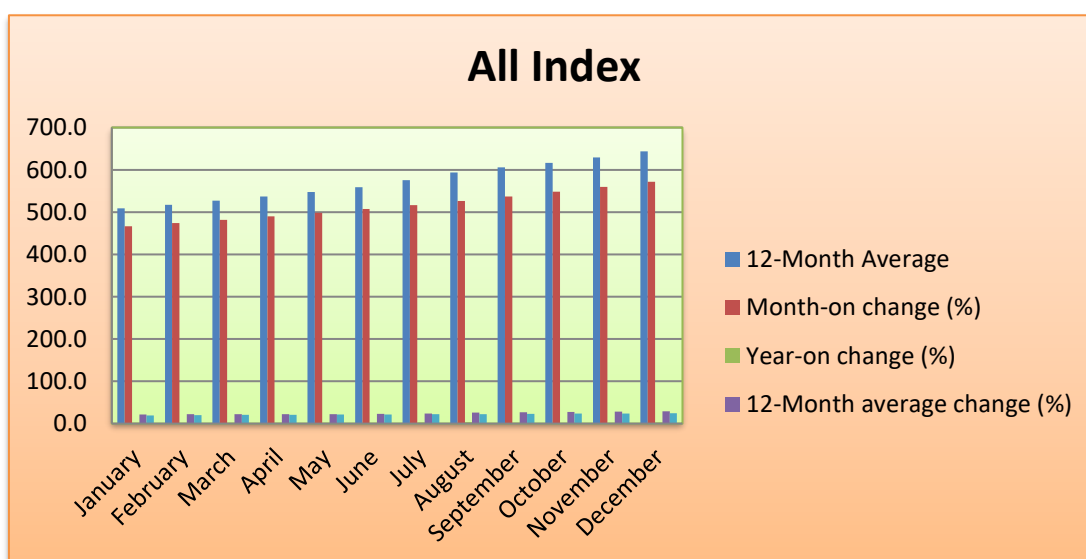


Figure 1: All Index Inflation (Jan, 2023- Dec, 2023)
 IARD – International Institute of Academic Research and Development
 Source: National Bureau of Statistic (NBS, 2023)

Figure 1: from August until December 2023, there was a consistent and upward trajectory observed in the monthly average inflation rates across various indices. This was characterized by significant increases and month-to-month changes of 593.6, 606.0, 629.4, and 643.8, correspondingly. Such a pattern indicated a sustained and continuous rise in inflationary pressures throughout the specified period. In particular, August 2023 saw a noteworthy growth of 3.18% when compared to the previous year, emphasizing the presence of pronounced inflationary pressures. This suggested a temporary alleviation of inflationary pressures. These increases indicated a return to inflationary pressures, albeit at a moderated level in comparison to August 2023. Overall, both the monthly average change expressed as a percentage and the year-on-year change expressed as a percentage in inflation demonstrated upward trends from August to December 2023. This overall trend indicated a general escalation in inflationary pressures during this specific period. These factors contributed to the evolving inflationary landscape throughout the latter portion of 20.

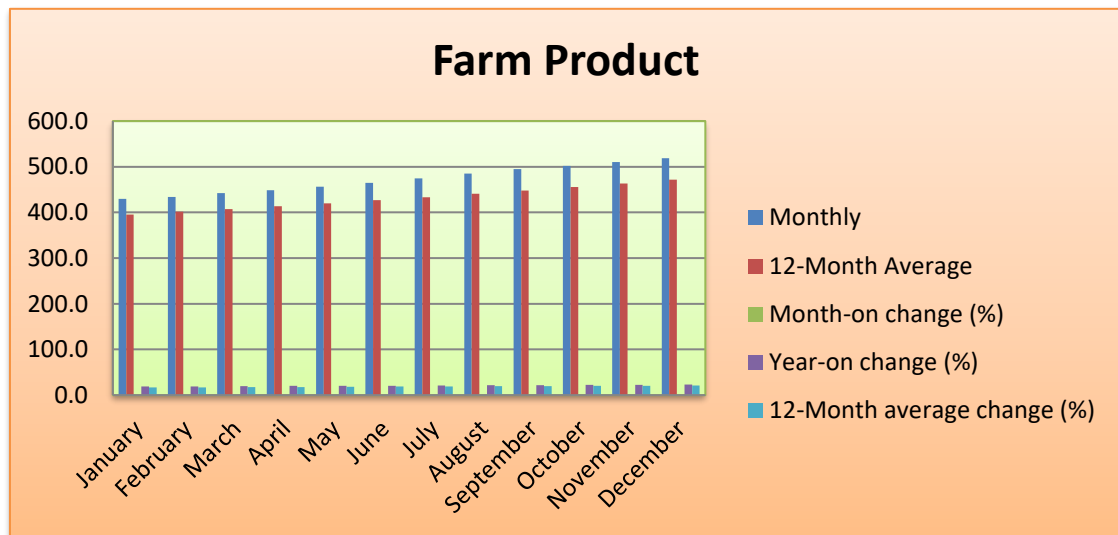


Figure 2: Farm Product (Jan-Dec., 2023)
 Source: National Bureau of Statistic (NBS, 2023)

Figure 2: the agricultural produce exhibited a significant rise starting from June 2023 on a monthly basis, with values of 464.5, 474.7, 485.2, 495.2, 502.2, 510.0, and 519.0, respectively. Moreover, the average for the twelve-month period also experienced a rapid increase, particularly from June 2023 to December 2023. During this time, there was a consecutive increase in monthly averages for three months, specifically from July to September 2023, followed by a sharp decline from October to December 2023. Additionally, the year-on change (%) witnessed an increase from September 2023 to December 2023, as did the 12-month average change (%).

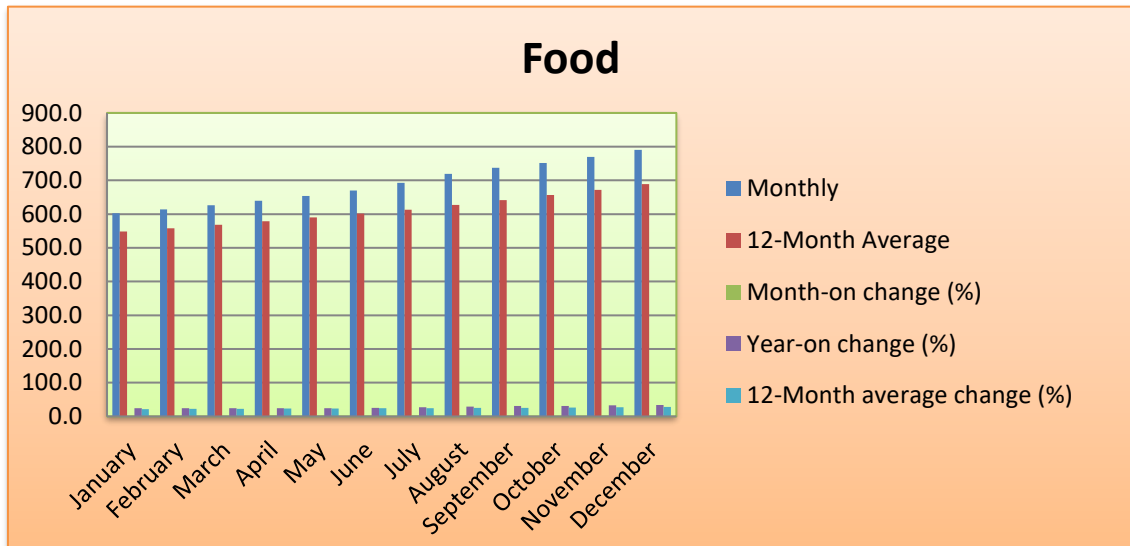


Figure 3: Food Items Inflation (Jan-Dec., 2023)
Source: National Bureau of Statistic (NBS, 2023)

Figure 3: the monthly food increase experienced by Nigerians underwent a rapid surge from August 2023 to December 2023. In January 2023, the monthly food cost stood at 602.5, which escalated to 790.5 in December 2023, marking a 12-month average. The Month-on change (%) demonstrated an augmentation between July and August 2023, followed by a decline in October 2023, and a subsequent increase from November to December 2023. The year change (%) and 12-month average change (%) both witnessed an ascent from September to December 2023 in Nigeria after the removal of fuel subsidies, showcasing a significant rise.

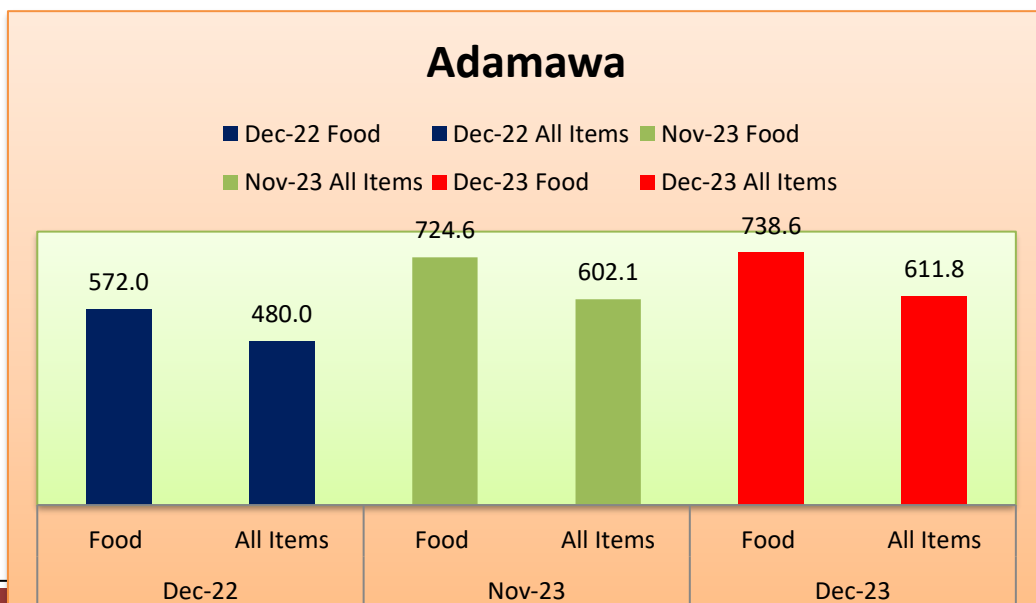


Figure 4: Adamawa State Inflation (Food & All Items: Dec., 2022, Nov., 2023 & Dec., 2023)
Source: National Bureau of Statistic (NBS, 2023)

Figure 4: In Adamawa State during the period of December 2022, November 2023, and December 2023, the CPI is used to measure the average price variation that urban consumers pay for a given amount of goods and services. This trend continued until December 2023, with further increases observed. The CPI for food was 738.6 and for all commodities it was 611.8. Taken together, these figures indicate a steady upward trend in prices in Adamawa over the specified period, reflecting inflationary pressures affecting both food and consumer goods in general. The CPI is used to measure the average price variation that urban consumers pay for a given amount of goods and services. This trend continued until December 2023, with further increases observed. The CPI for food was 738.6, and for all commodities, it was 611.8. Taken together, these figures indicate a steady upward trend in prices in Adamawa over the specified period, reflecting inflationary pressures affecting both food and consumer goods in general.

2.1.6 Long-Term Economic and Social Sustainability after Fuel Subsidy

The long term of fuel subsidies in Nigeria is a multifaceted issue that carries significant implications for the country's economic and social stability. Throughout history, these subsidies have strained government budgets, resulted in inefficient allocation of resources, and posed challenges to environmental sustainability. Onyishi, Eme, and Emeh (2012) emphasize the necessity of considering both domestic and international impacts when eliminating fuel subsidies. The proposed strategies for mitigation and compensation aim to adopt a comprehensive approach in addressing the associated challenges, with particular emphasis on targeted social safety nets for vulnerable populations. As suggested by Rentschler and Bazilian (2017), redirecting subsidies towards sectors such as education, healthcare, and infrastructure development can stimulate long-term economic growth and enhance living standards. The historical context underscores the sensitivity of efforts to reduce subsidies, which must be phased out gradually to mitigate immediate shocks and allow for adjustment. Transparency in budgeting, accountability, and effective communication are crucial in fostering trust among citizens and ensuring efficient allocation of resources. Adeola and Evans (2023) emphasize the importance of dispelling misconceptions and providing accurate information to prevent social unrest. Individual citizens can contribute to addressing these challenges through budgeting, exploring alternative modes of transportation, and adopting energy-saving practices. These actions collectively support the success of subsidy elimination and the promotion of public financial sustainability.

2.1.7 Theoretical Framework

2.1.8 Economic Theory of Subsidies and Welfare

The Economic Theory of Subsidies and Welfare, which was introduced by British economist Arthur Cecil Pigou in his influential work "The Economics of Welfare" that was published in 1920, offers a fundamental comprehension of the effects of subsidies on market dynamics and the overall welfare of society. This theory asserts that subsidies, despite their intention to provide advantages such as affordability for consumers, can also result in distortions and inefficiencies within the market. When examining the repercussions of subsidy removal, a thorough examination of the economic lens enables researchers to evaluate alterations in market prices, resource allocation, and consumer behavior. For instance, subsequent to the elimination of subsidies, there may be shifts in patterns of consumer expenditure as households adapt to increased prices, particularly in vital sectors such as fuel. Furthermore, Pigou's theory emphasizes the significance of assessing the trade-offs associated with subsidy reforms while subsidies may yield short-term benefits, such as reduced costs for consumers, they can also burden governments financially and impede efficient allocation of resources. Policymakers aim to endorse market efficiency and mitigate distortions by discontinuing subsidies; however, they must also take into account potential adverse impacts on vulnerable populations and concerns pertaining to equity.

2.1.9 Empirical Literature

Lawal (2014), examining investment challenges in the Nigerian petroleum industry, the qualitative analysis sheds light on the impact of subsidy removal and deregulation. The study contextualizes the complexities of these policy shifts, drawing on empirical literature and industry insights to illustrate the diverse challenges facing investors. Historically, the Nigerian petroleum sector was subject to complex regulatory frameworks, including subsidies, which played a crucial role in encouraging investment and ensuring market stability. However, the decision to eliminate subsidies and deregulate the industry creates uncertainty and volatility, which has a significant impact on investment dynamics. The qualitative results highlight the far-reaching impact of these changes as investors contend with increased market risks and a lack of regulatory clarity. Such challenges not only discourage both domestic and foreign investment, but also hinder long-term planning and capital allocation. Ultimately, it highlights the need for coordinated efforts by policymakers, industry stakeholders and investors to address these challenges and promote an enabling investment climate that promotes sustainable growth and development in the Nigerian petroleum industry.

According to a study by Adeoti et al. (2016) examine compensation mechanisms aimed at mitigating the impact of the elimination of fuel subsidies in Nigeria, with a particular focus on vulnerable populations. The study uses a policy analysis framework to evaluate existing policies and propose recommendations for more effective remedies. The study draws on empirical data and literature and highlights the disproportionate impact of subsidy reductions on low-income households and transport dependents. Compensation mechanisms such as targeted cash transfers and fuel vouchers are proving to be promising ways to reduce the socio-economic burden on vulnerable groups. However, challenges such as inadequate coverage and bureaucratic inefficiencies hinder the optimal delivery of aid. To address these issues, the study recommends expanding coverage, improving targeting mechanisms, and improving transparency and accountability in the implementation of compensation programs. In addition, the authors emphasize the importance of complementary measures such as investments in public transport and renewable energy to reduce dependence on fossil fuels in the long term.

Through these recommendations; advocate for inclusive and equitable compensation strategies to protect the well-being of vulnerable populations amid subsidy removal policies in Nigeria.

Similarly, Aune et al. (2017) examine the consequences of eliminating oil consumption subsidies in both OPEC and non-OECD countries and use economic modeling and analysis to analyze the impact on oil markets and welfare. The study examines the complex interplay between subsidy policy, market dynamics and socioeconomic outcomes, drawing on empirical data and advanced economic models to unravel the complexity. Through their research, the authors show that the removal of subsidies triggers shifts in consumption patterns, production levels and market equilibria, and subsequently affects global oil prices, production dynamics and trade flows. While producers could benefit from higher prices, consumers, particularly low-income households, face higher energy costs, potentially leading to deadweight losses. This highlights the need for policymakers to carefully design and implement strategies to reduce subsidies, taking into account distributional impacts and ensuring a smooth transition to more sustainable energy practices. By working together to address these challenges, policymakers, industry stakeholders and international organizations can create an environment conducive to both economic efficiency and social well-being in the energy sector.

Harun et al. (2018) focus on analyzing the impact of the elimination of fuel subsidies on the input costs of production using the Leontief input-output model as a guiding framework. With this review, the authors aim to summarize existing research and shed light on the complex dynamics between subsidy policy and input costs in different economic sectors. The conceptual framework of the Leontief input-output model facilitates the quantification of interdependencies between sectors and enables the assessment of ripple effects following policy changes, such as: B. the reduction of subsidies. Previous studies examined as part of the review show that removing fuel subsidies often leads to significant increases in fuel prices, which in turn leads to higher input costs for energy-intensive sectors such as transport and manufacturing. These sectors, which are heavily dependent on fuel inputs, may experience reduced competitiveness and production declines. Conversely, less fuel-dependent sectors could experience minimal impact or even benefit from the removal of subsidies due to lower tax burdens and higher government revenues. Methodologically, studies use input-output tables and econometric techniques to estimate direct and indirect impacts, accounting for variations in input-output coefficients and policy assumptions through sensitivity analyses. The literature review emphasizes the importance of understanding the broader macroeconomic implications of subsidy removal and highlights the policy.

Abd Obaida et al. (2020) focus on examining the moderating influence of subsidy removal on factors affecting tax compliance behavior of small and medium-sized enterprises (SMEs) in Yemen. Using a dual-method approach that includes questionnaire surveys and regression analysis, the study aims to examine the nuanced dynamics between subsidy policies, economic circumstances and tax compliance in Yemen's SME sector. The literature review highlights the challenges that SMEs face in tax compliance, including resource limitations and complicated tax systems, while highlighting the potential impact of subsidy removal on business operations. Building on existing research, the study examines how reducing subsidies can encourage SMEs to improve tax compliance in the face of increasing financial pressure. Using regression analysis, the results show that while factors such as perceived fairness, trust in government institutions and enforcement mechanisms remain crucial factors for tax compliance, reducing

subsidies increases their impact. SMEs facing increased financial burden due to the reduction of subsidies are more likely to prioritize tax compliance in order to avoid penalties and maintain the profitability of their business. However, the effectiveness of subsidy removal as a moderator depends on various contextual factors, including broader economic conditions and SMEs' perceptions of tax fairness and transparency. The study's conclusions underline the need to take the holistic socio-economic aspect into account.

Labeaga et al. (2021) address the complicated relationship between energy taxation, subsidy reduction and poverty in Mexico. Through the lens of econometric modeling, the study attempts to clarify how changes in energy prices and income distribution due to policy interventions impact poverty rates in the country. Review of the existing literature highlights the mixed results regarding the impact of energy policy on poverty rates and highlights the need for a nuanced understanding of contextual factors and policy making. The study's methodology involves the use of advanced econometric techniques to analyze empirical data from household surveys and national statistics, allowing an assessment of the direct and indirect effects of energy policy on household well-being and poverty rates. The results suggest that while energy taxation may increase the cost of living for low-income households, eliminating subsidies could potentially lead to tax savings that could be channeled toward anti-poverty measures. However, the overall impact on poverty rates depends on various factors, including the specifics of policy implementation and the effectiveness of accompanying anti-poverty programs. Finally, we provide valuable insights into the complex interplay between energy policy and poverty dynamics in Mexico, emphasizing the importance of developing targeted interventions to mitigate adverse impacts on vulnerable populations while harnessing the potential.

Prabowo et al. (2022) address the economic impact of liquefied petroleum gas (LPG) prices, poverty rates and compensation for subsidy removal in Indonesia, using econometric analysis as a methodological approach. With a focus on the potential impact of subsidy removal scenarios, particularly on low-income households, the study aims to shed light on the complex dynamics between energy pricing policies, poverty levels and government compensation strategies. Based on a review of existing literature, the study recognizes the challenges associated with energy subsidy reform and its impact on poverty rates in developing countries. Using econometric techniques and empirical data from household surveys and government reports, the analysis examines the relationship between LPG prices, poverty levels and the effectiveness of compensatory measures to reduce subsidies. The results highlight the significant economic impact of subsidy removal scenarios, as higher LPG prices potentially increase the cost of living for vulnerable populations and contribute to increases in poverty. However, effective compensation mechanisms have the potential to mitigate these impacts by providing targeted support to affected households.

Harring et al. (2023), cross-national investigation into attitudes surrounding the removal of fossil fuel subsidies, employing a survey-based methodology coupled with rigorous analysis. Their research aimed to discern the sentiments, perceptions, and socio-economic factors influencing opinions on subsidy removal across diverse nations. By utilizing a survey instrument and gathering data from regions with varied energy transition contexts, the study ensured a comprehensive understanding of global attitudes. Results unveiled that socio-

economic factors such as income, education, and employment status significantly shaped attitudes towards subsidy removal, with higher-income and educated individuals generally supporting removal efforts, while those with lower socio-economic status exhibited greater resistance. Furthermore, the study illuminated the pivotal role of a country's energy transition stage in molding attitudes towards subsidy removal; nations further along in transitioning to renewable energy sources tended to favor removal, contrasting with those heavily reliant on fossil fuels. Additionally, effective government communication emerged as a key facilitator in garnering public acceptance, with transparent communication strategies instrumental in dispelling misconceptions and fostering trust. Ultimately, the study's insights underscored the importance of considering socio-economic dynamics and energy transition contexts in shaping subsidy removal policies, while also emphasizing the necessity of transparent communication strategies to navigate public sentiment effectively.

Lastly, Taghvaei et al. (2023), comparative analysis aiming to discern the contrasting impacts of subsidy removal and energy efficiency strategies on diesel demand and sustainable development pillars. Utilizing econometric analysis and modeling techniques, the researchers delved into the intricate dynamics surrounding these policy interventions. Their findings illuminated distinct effects: while subsidy removal tended to decrease diesel demand owing to resultant price increases, energy efficiency measures exhibited more nuanced impacts contingent upon specific implementations. Moreover, their analysis shed light on the differential consequences on sustainable development pillars. Subsidy removal, despite posing short-term economic challenges, displayed less pronounced long-term effects on aspects such as environmental quality and social equity. Conversely, energy efficiency initiatives were found to positively contribute to various dimensions of sustainable development, including emission reduction, resource conservation, and economic growth. These insights bear significant implications for policymakers, advocating for a comprehensive understanding of the trade-offs and synergies between subsidy removal and energy efficiency strategies in crafting effective policies. By integrating multiple policy instruments and considering broader socio-economic contexts, policymakers can better navigate the complexities of diesel demand management while advancing long-term sustainability objectives.

2.1.10 Research Gap

A research gap that is evident in the empirical literature on subsidy removal and its effects is the lack of comprehensive studies that focus on the long-term effects of compensation mechanisms on vulnerable populations. While several studies, such as those by Adeoti et al. (2016) and Prabowo et al. (2022) have examined compensation strategies aimed at alleviating the socioeconomic burdens of subsidy removal, a gap remains in understanding the sustained effectiveness of these measures over time. In particular, there is a need for longitudinal studies that assess the durability and scalability of compensation programs as well as their ability to address evolving socioeconomic dynamics and vulnerabilities in affected populations. Such research would provide valuable insights into the long-term effectiveness of compensation mechanisms and inform the design of more resilient and adaptive policy interventions to support vulnerable groups within subsidy reforms.

3.0 Methodology

3.1 Research Design: This investigation will utilize a research design that combines both quantitative and qualitative methodologies. The selection of this mixed-method approach is motivated by the aim to capture a comprehensive comprehension of the effects of fuel subsidy elimination on households. This methodology allows for the examination of both intricate individual encounters and broader trends and patterns.

3.1.1 Sampling Strategy

To achieve a comprehensive sample for the current inquiry, we will employ a stratified cluster sampling method. The stratification will be based on the three senatorial districts in Adamawa State. Each senatorial district represents a distinct geographical area within the state, from which two local government areas (LGAs) will be selected randomly in each district.

3.1.2 Selection of Senatorial Districts in Adamawa State

- i. **Senatorial District:** This district includes the northern region of Adamawa State (Mubi North & Mubi South).
- ii. **Senatorial District:** This district covers the central part of the State (Yola North & Yola South).
- iii. **Senatorial District:** This district encompasses the southern region of Adamawa State (Demsu & Numan).

3.1.3 Selection of Local Government Areas (LGAs)

- i. Two Local Government Areas (LGAs) will be randomly chosen from each senatorial district. The process of selection will guarantee equitable representation from different geographical regions within the district.

3.1.4 Selection of Households

- i. Within each chosen LGA, households will be chosen employing a systematic random sampling approach. The sampling framework will be established on households residing in both urban and rural areas, thus ensuring a standardized representation.

3.1.5 Sample Size

- i. The determination of the sample size for each LGA will be contingent upon the estimated number of households, the desired confidence level, and the margin of error.

3.1.6 In-Depth Interviews and Focus Group Discussions

- i. For the qualitative dimension of the investigation, comprehensive interviews and discussions in focus groups will be executed within the designated Local Government Areas. The selection of participants will be done purposively in order to guarantee a diverse set of experiences and perspectives.

This methodological approach of stratified cluster sampling will provide a valuable opportunity for the research team to effectively obtain a balanced and even distribution

of households across various geographic regions and settings within the boundaries of Adamawa State. This approach will guarantee that the selected sample is not only diverse but also representative, thereby facilitating a comprehensive and thorough analysis of the consequences resulting from the removal of fuel subsidy on the living standards of households in the aforementioned state.

3.1.7 Data Collection

Data will be gathered from the residences within the designated Local Government Areas (LGAs). The collection of data will encompass both urban and rural locales, as well as a multitude of communities within each LGA, thereby guaranteeing a comprehensive representation of diversity.

3.1.8 Quantitative Data:

- i. **Household Surveys:** A comprehensive set of inquiries shall be conducted, in the form of structured questionnaires distributed to a selected group of households residing in Adamawa State. This survey shall encompass the collection of information pertaining to the financial resources of households, their expenditures, the availability of fundamental commodities and services, as well as demographic particulars.
- ii. **Secondary Data:** Economic and demographic data, such as poverty rates and employment statistics, will be obtained from official sources and research publications.

3.1.9 Qualitative Data

- i. **In-Depth Interviews:** Qualitative data will be collected via in-depth interviews conducted with specific households in order to acquire a comprehensive understanding. The aforementioned interviews will facilitate a profound perception of the coping strategies adopted by households as well as their interpretations of the consequences associated with the withdrawal of subsidies.
- ii. **Focus Group Discussions:** Focus group discussions will be conducted to explore regional disparities and community-level effects. Several focus groups will be formed, representing different communities and regions within Adamawa State.

3.1.10 Data Analysis

- i. **Quantitative Data:** Quantitative data from household surveys will be analysed using statistical software. Descriptive statistics, including means, standard deviations, and frequency distributions, will be used to summarize household characteristics and assess immediate and long-term economic effects. Inferential statistics, such as regression analysis, will be employed to identify significant relationships between variables.
- ii. **Qualitative Data:** Qualitative data from interviews and focus group discussions will be transcribed and thematically analysed. Thematic coding will allow for the identification of key themes related to coping mechanisms, regional disparities, and perceptions of subsidy removal.

3.1.11 Ethical Considerations

This research will adhere to ethical guidelines, including informed consent from all participants. Confidentiality and anonymity will be maintained for all respondents, and their rights and well-being will be protected throughout the research process.

4.0 Result and Presentation

The study conducted an empirical analysis to examine the long-term socio-economic consequences of removing fuel subsidies on the living conditions of households in Adamawa State. The individuals involved in the study were assessed utilizing descriptive statistics. The subsequent outcomes were then exhibited in tabular form and communicated in position with the study objective.

Table 1: Demographic Information of the Respondents		
Age:	Frequency	Percent
18-24	22	5.50
25-34	85	21.25
35-44	218	54.50
35-45	1	0.25
45-54	59	14.75
55 and above	15	3.75
Total	400	100.00
Gender:	Frequency	Percent
Female	168	42.00
Male	232	58.00
Total	400	100.00
Marital Status:	Frequency	Percent
Divorced	42	10.50
Married	234	58.50
Single	113	28.25
Widowed	11	2.75
Total	400	100.00
Household Membership Status:	Frequency	Percent
Head	319	79.75
Member	81	20.25
Total	400	100.00
Education:	Frequency	Percent
BSc/HND/PGD	42	10.50
Diploma/NCE	107	26.75
MSc/MPA/MBA	11	2.75
No formal education	29	7.25
Ph.D/MPhil	4	1.00

Primary school	20	5.00
Secondary school	110	27.50
Vocational/technical	77	19.25
Total	400	100.00
Household Size:	Frequency	Percent
11_14	45	11.19
13_14	9	2.24
1_4	3	0.75
3_4	43	10.70
5_6	55	13.68
7_8	105	26.12
9_10	130	32.34
15 or more	10	2.5
Total	400	100.00
Local Government Area:	Frequency	Percent
Demsa	65	16.17
Mubi North	69	17.16
Mubi South	63	15.67
Numan	79	19.65
Yola North	70	17.41
Yola South	54	13.5
Total	400	100.00
Employment Status	Frequency	Percent
Employed	70	17.50
Student	91	22.75
Unemployed	239	59.75
Total	400	100.00

Source: *Field Survey, 2024*

Table 1: The data provides a comprehensive analysis of the demographic and socio-economic traits observed among the participants. With regard to age distribution, the largest proportion falls within the 35-44 age group, constituting 54.50% of the total participants. Interestingly, the 25-34 age category accounts for 21.25% of the overall respondents, while individuals aged 55 and above represent the smallest segment at 3.75%. In terms of gender, males surpass females, comprising 58% of the participants, while females make up 42%, the marital status data reveals that a significant majority, amounting to 58.50%, are married, followed by unmarried individuals at 28.25%. Regarding household membership, the majority of participants are the heads of their households, constituting 79.75%, whereas the remaining 20.25% are household members. In terms of education, secondary school graduates form the largest group at 27.50%, followed by diploma/NCE holders at 26.75%. Remarkably, individuals with Ph D./MPhil degrees represent the smallest segment at 1%. Household size exhibits variation, with the most prevalent size being 9-10 members, accounting for 32.34%. With regard to local government distribution, Numan emerges as the most represented area, comprising 19.65% of the participants, while Yola South has the fewest respondents at 13.5%. Finally, the employment status data reveals that a significant proportion of respondents,

59.75%, are unemployed, whereas students make up 22.75% and employed individuals account for 17.50%. Overall, the tabulated information provides valuable insights into the diverse characteristics of the respondent population across various demographic and socio-economic parameters.

Table 2: Long Term Socio-economic impact to Access Essential services After Subsidy Removal		
Your employment status is likely to be changed over the next 3 years.	Frequency	Percent
Agree	64	15.9
Disagree	51	12.75
Neutral	251	62.4
Strongly Disagree	31	7.7
Total	400	100.0
You will likely experience significant decrease in your income over the next 3 years.	Frequency	Percent
Agree	70	17.4
Disagree	92	23
Neutral	104	25.9
Strongly Disagree	131	32.6
Total	400	100.0
You or your family members will likely start new businesses in the next 3 years.	Frequency	Percent
Agree	78	19.4
Disagree	115	28.6
Neutral	158	39.3
Strongly Disagree	46	11.5
Total	400	100.0
Entrepreneurship will likely influence your economic situation in the next 3 years	Frequency	Percent
Agree	103	25.6
Disagree	106	26.4
Neutral	153	38.1
Strongly Disagree	35	8.75
Total	400	100.0
Education will impact your employment and income opportunities in the next 3 years	Frequency	Percent
Agree	110	27.5
Disagree	99	24.6

Neutral	121	30.1
Strongly Disagree	67	16.7
Total	400	100.0
You have acquired new skills that have positively affected your socioeconomic status	Frequency	Percent
Agree	86	21.4
Disagree	97	24.1
Neutral	150	37.5
Strongly Disagree	64	15.9
Total	402	100.0
I believe there are adequate opportunities for skill development in my community	Frequency	Percent
Agree	100	24.9
Disagree	114	28.4
Neutral	137	34.1
Strongly Disagree	45	11.25
Total	400	100.0
How have these changes affected your daily life and economic activities?	Frequency	Percent
Agree	112	27.9
Disagree	100	24.9
Neutral	121	30.1
Strongly Disagree	64	16
Total	400	100.0
Have improvements in access to healthcare, education and other essential services positively impacted your life?	Frequency	Percent
Agree	73	18.2
Disagree	119	29.6
Neutral	155	38.6
Strongly Disagree	50	12.5
Total	400	100.0
Total	400	100.0
How do you perceive your overall quality of life compared to 3 years ago?	Frequency	Percent
Agree	109	27.1
Disagree	93	23.1
Neutral	123	30.6
Strongly Disagree	71	17.75
Total	400	100.0

Source: *Field Survey, 2024*

Table 2: The introduced information envelops an assortment of reviews that mirror the impression of people on many subjects, including their business status, possibilities for money, open doors for business venture, schooling, expertise improvement, and changes in their

regular routines, admittance to fundamental administrations, and their general personal satisfaction contrasted with quite a while back. Across these studies, respondents have communicated assorted points of view, with various degrees of understanding, conflict, lack of bias, areas of strength for and. Concerning possible changes in their business status throughout the following three years, 15.9% of the respondents concurred with the idea of a looming shift, while 12.75% deviated, 62.4% stayed nonpartisan, and 7.7% unequivocally clashed. As far as pay possibilities, 17.4% concurred with the chance of a critical decline, 23% dissented, 25.9% stayed impartial, and 32.6% emphatically clashed. With regards to the probability of starting new organizations inside the following three years, 19.4% concurred, 28.6% dissented, 39.3% stayed unbiased, and 11.5% unequivocally clashed. Concerning the effect of business on financial circumstances, 25.6% concurred with its positive impact, 26.4% deviated, 38.1% stayed impartial and 8.75% emphatically clashed. Regarding the effect of instruction on business and pay potential open doors, 27.5% concurred with its importance, 24.6% dissented, 30.1% stayed impartial, and 16.7% emphatically clashed. Because of obtaining new abilities on financial status, 21.4% concurred with the positive effect, 24.1% dissented, 37.5% stayed unbiased, and 15.9% firmly clashed. As to accessibility of ability advancement open doors locally, 24.9% concurred with their ampleness, 28.4% deviated, 34.1% stayed nonpartisan, and 11.25% unequivocally conflicted. Concerning changes influencing day to day existence and monetary exercises, 27.9% concurred with their effect, 24.9% dissented, 30.1% stayed nonpartisan, and 16% firmly conflicted. Regarding enhancements in admittance to fundamental administrations, 18.2% concurred with the positive effect, 29.6% dissented, 38.6% stayed unbiased, and 12.5% emphatically conflicted. At last, in regards to the general personal satisfaction contrasted with quite a while back, 27.1% concurred with progress, 23.1% dissented, 30.6% stayed impartial, and 17.75% emphatically clashed. These overviews by and large show the great many mentalities, insights, and assumptions among the respondents with respect to different parts of their lives, demonstrating a nuanced viewpoint on business, pay, business, training, abilities, day to day existence, admittance to administrations, and generally prosperity after the fuel subsidy removal.

Table 3: Household Total Monthly Income after Fuel subsidy Removal

Monthly Income	Frequency	Percent
Above ₦500,000	3	0.75
Below ₦ 20,000	6	1.51
₦ 100,001 - ₦ 150,000	117	29.40
₦ 150,001 - ₦ 200,000	100	25.13
₦ 20,001 - ₦ 40,000	17	4.27
₦ 200,001 - ₦ 300,000	37	9.30
₦ 300,001 - ₦ 500,000	10	2.51
₦ 40,001 - ₦ 60,000	13	3.27
₦ 60,001 - ₦ 80,000	37	9.25
₦ 80,001 - ₦ 100,000	60	15.08
Total	400	100.00

Source: Field Survey, 2024

Table 3: The data provides a comprehensive analysis of the monthly salary ranges among survey participants, offering valuable insights into the income diversity within the surveyed

population after the removal of fuel subsidies. The majority of respondents (29.40% of the sample) fall within the income bracket of N100,001 to N150,000, indicating a significant portion of individuals earning within this range. Additionally, a substantial group falls within the N150,001 to N200,000 income bracket, accounting for 25.13% of respondents, suggesting slightly higher income levels for this segment. Furthermore, the distribution includes respondents across various income levels, ranging from those earning below N20,000 to those earning above N500,000, although these represent smaller proportions of the sample. Intermediate income levels, such as N20,001 to N40,000, N40,001 to N60,000, N60,001 to N80,000, and N80,001 to N100,000, collectively encompass a significant portion of the population, highlighting a diverse range of income levels. Overall, this data provides a comprehensive overview of income distribution among respondents, offering valuable insights into the economic landscape and income variation within the surveyed population.

5.0 Conclusion and Recommendations

The information presented in the provided tables offers an extensive analysis of various aspects of the surveyed participants' demographic, financial, and attitudinal characteristics following the removal of fuel subsidy. This indicates a varied and heterogeneous sample population. Transitioning to Table 2, a comprehensive examination of respondents' perspectives and perceptions unfolds, showcasing a range of views on employment status, income prospects, entrepreneurial opportunities, education, skill development, lifestyle changes, access to basic services, and overall quality of life. The diversity of perspectives highlights the impact of the fuel subsidy removal on individuals' lives and viewpoints. Lastly, Table 3 offers valuable insights into the income distribution among respondents, highlighting the economic diversity post-subsidy removal. It demonstrates a significant portion of individuals across various income levels, with moderate levels of income dominating the distribution. Overall, the comprehensive analysis provided by these tables depicts a complex landscape characterized by diverse demographic profiles, economic backgrounds, attitudes, and income levels. Based on the conclusion the following recommendations were made; these recommendations aim to address challenges post-subsidy removal and promote sustainable development in Adamawa State. The long term socioeconomic impact on fuel subsidy removal on household living standards in Adamawa State, Nigeria, policymakers should prioritize targeted social safety nets, such as cash transfers or food subsidies, to assist vulnerable households.

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