



Effect of petrol subsidy removal on government income, cost of living, consumption patterns, savings and investment, and SMEs performance

 Suleiman Bala
Mohammed¹

 Mohammed
Mahmuda Khalifa²

 Ahmed Abubakar³⁺

¹Department of Sociology, Nasarawa State University Keffi, Nigeria.

Email: sbalamohammed@gmail.com

²Department of Administration, Nasarawa State University Keffi, Nigeria.

Email: mmahmudakhalifa@nsuk.edu.ng

³Faculty of Business, Sohar University, Sultanate of Oman.

Email: ahmedaphd@gmail.com



(+ Corresponding author)

ABSTRACT

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The purpose of this study is to examine the effect of petrol subsidy removal on government income, cost of living, consumption patterns, savings and investment, and SMEs performance. The study adopted a survey research design, and the population comprised government officials, SME operators, and individual households in the state capital metropolis of the North Central states in Nigeria. We used a convenient sampling technique to select the respondents from a sample size of 483. The study used a questionnaire to collect data, and SmartPLS used partial least squares structural equation modeling for analysis. The study found that petroleum subsidies have a negative and significant effect on consumption patterns, the cost of living, savings and investment, and SME performance. However, it has a positive and significant effect on government income. The study also found that government income and SMEs performance have a positive and significant effect on living standards among people in north-central Nigeria. The study emphasises the need for well-calibrated strategies to minimise the socioeconomic effects of the government's petrol subsidy removal policy. Targeted social safety nets, poverty reduction programmes, and alternative energy investment must balance budgetary sustainability and citizen well-being. SMEs must adjust to changing customer behaviour, and individuals must be encouraged to make smart financial decisions to counterbalance petrol subsidy removal.

Contribution/Originality: This study has empirically established that removing petrol subsidies raises government revenue but has adverse effects on people's savings and investment, consumption patterns, the cost of living, and SME performance. The study also found that government income and SME performance positively and significantly affect living standards, showing a mediation effect.

1. INTRODUCTION

In Nigeria, the topic of fuel subsidies and how they affect both the living standards of the population and the competitiveness of Small and Midsize Enterprises (SMEs) has been a major cause of concern. We refer to the governments' decision to discontinue or scale back subsidies on petroleum products, especially petrol, as the withdrawal of petroleum subsidies. This regulation may have an impact on the cost of living in the country, business operations, and overall economic dynamics. Nigeria is a significant producer of oil, and the nation's transportation, manufacturing, and energy sectors depend heavily on petroleum products, particularly fuel, sometimes known as petrol or gasoline. In the past, the government has subsidised petrol in an effort to keep prices

stable and keep gasoline accessible to the general public. However, the subsidy has put pressure on public finances and caused inefficiencies in the petroleum industry.

The considerable financial burden that subsidies place on the government's budget is one of the main justifications for the discussion about getting rid of petrol subsidies in Nigeria. The Nigerian National Petroleum Corporation (NNPC) reported that the government was subsidising petrol at a significant portion of its budget. For instance, the government reportedly spent more than \$10 billion on petrol subsidies in 2020, according to reports. This significant subsidy cost has an impact on the allocation of funds to other crucial areas like healthcare, education, and infrastructure development.

Eliminating petrol subsidies is also seen as a step towards fiscal consolidation and economic transformation. The government will shift subsidy savings to key areas that can boost long-term economic growth. The plan includes improved infrastructure, social program, and economic diversification. Statistics show that subsidies influence market dynamics. With subsidies, petroleum product distribution and pricing can be inefficient. They can boost demand, encourage smuggling to more expensive countries, and promote systemic corruption. Eliminating subsidies can foster market-driven resource allocation and increase competition in the petroleum sector. According to the data from Nigeria Extractive Industries Transparency Initiative (NEITI) the subsidies cost over N21 trillion between 2005 and 2023, a waste of public funds on a policy that has not helped millions of Nigerians. Between 2005 and 2021, we spent N13.7 trillion on subsidies, but between 2022 and first half of 2023, we only paid N8 trillion. However, eliminating petrol subsidies is a complex decision that involves economic, political, and societal factors. Policymakers must consider public sentiment, inflation, and protecting vulnerable people from abrupt price increases.

As a result, the removal of petrol subsidies may have an impact on Nigerian SMEs and individuals' living conditions. It could raise petrol prices, increase business transport costs, and harm competitiveness. SMEs, which often have limited budgets and economies of scale, may struggle to operate and sell competitively. However, macroeconomic effects may include reduced subsidy spending, fiscal consolidation, and resource reallocation. The general cost of living, inflationary pressures, and availability and affordability of goods and services can indirectly affect residents' living standards and SMEs' performance. Although SMEs exist in every developing or established country, they fuel economic development in rural and urban areas. To boost economic growth, governments are continually trying to strengthen the SME sector by providing an enabling environment or incentives.

There's no doubt that the oil business makes a big difference in Nigeria's economy, but the gains that could be made are limited because imports of oil products are heavily subsidised. People see subsidies on petroleum imports as an important way to lower the cost of fuel and, by extension, the cost of life. But because global oil prices aren't stable and the illegal export of subsidized fuel into neighboring countries is on the rise, this is a complex problem that requires international cooperation, effective regulatory measures, and a comprehensive approach to deal with not only the economic but also the social and geopolitical effects of this issue. In Nigeria, the cost of these handouts has skyrocketed. The end of the fuel subsidy is one of the most controversial problems in Nigerian economic policy right now. The removal of petrol subsidies in Nigeria has caused a lot of debate and will have a big effect on the living standards of Nigerians (Ikenga & Oluka, 2023). But the choice to get rid of these subsidies has caused people to worry about how it might affect the living conditions of residents, especially the most vulnerable ones. Fuel prices have significantly increased since the removal of subsidies. In fact, they have gone up in multiple folds, which could have a big effect on transportation costs, product prices, and inflation in general (Gohari, Matori, Yusof, Toloue, & Sholagberu, 2018; Ozili & Obiora, 2023). The quick rise in living costs makes things hard for low-income families and other vulnerable people. This could lead to financial problems and less access to important goods and services.

Also, getting rid of petrol subsidies could make income inequality worse because higher living costs would hurt low-income groups more than they would help the rich (Couharde & Mouhoud, 2020). The most vulnerable people

could have trouble getting access to schooling, health care, and other basic needs if they lose their buying power. This could hurt their overall health and quality of life. The goal of removing petrol subsidies is to improve fiscal sustainability and market efficiency (Bassi, Pallaske, Bridle, & Bajaj, 2023) but it could hurt people's living standards, which raises serious questions about how well the government's social safety nets and support systems will protect vulnerable groups from the bad effects of subsidy removal.

Studies show that getting rid of petrol subsidies can cause fuel prices to go up, which in turn affects transportation costs and the prices of important goods and services (Inegbedion, Inegbedion, Obadiaru, & Asaleye, 2020; Ozili & Obiora, 2023). As a result, low- and middle-income families may have less money to spend and have a higher cost of living. Loo and Harun (2020) concluded that taking away subsidies with no way to make up for it increased the cost of living for households because fuel was a big part of their spending, especially during the transition period. This highlights the necessity for further research in this field.

Most of the theory work on getting rid of petrol subsidies is macroeconomic, meaning it looks at the effects on the economy as a whole. However, research on the microeconomic and sociological impacts of this policy change, including its impact on household spending patterns, the accessibility of basic goods, and the stability of the economy in north-central Nigeria, remains limited. It is important to know how the end of petrol subsidies will affect the living standards of people and families in north-central Nigeria so that policies and actions can be taken to avoid any bad effects.

Also, the existing research often doesn't consider the unique circumstances in north-central Nigeria that could change how the end of petrol subsidies affects living standards. This area has important social and economic traits, like a wide range of income levels, jobs, and access to basic services. If you don't take these things into account, you might come to the erroneous conclusions about how the policy is working, or you might not be able to make personalised solutions to meet the needs of the local people. Against this background, this study aims to investigate the effect of petrol subsidy removal on government income, cost of living, consumption patterns, savings and investment, and SME performance.

2. THEORETICAL BACKGROUND AND LITERATURE REVIEW

2.1. Literature Review

2.1.1. Petrol Subsidy Removal

A subsidy is a direct payment from the government to a customer or provider of a particular product, in this case, petrol. Some people have even linked the end of subsidies to free trade opening up the downstream oil industry. A subsidy, sometimes called subvention, is basically a sum of money paid by the government to the suppliers (providers or producers) of a product or service so that they can sell their products or services to final consumers at a price set by the government that is less than the true cost of supply to ensure product reaches the target customers at the control price (Encharang, Mansur, & Kogid, 2022). The Organization for Economic Cooperation and Development (OECD) defines a subsidy as a measure implemented by the government to provide producers or consumers with an advantage so that they can increase their revenue or decrease their expenses. Subsidies can take the form of tax breaks, grants, or other financial assistance. According to Sowa and Edpri (2007) subsidies are policies that are enacted by the government in order to keep prices for producers or consumers at a level that is either higher or lower than the market. These actions could be grants, tax breaks, exemptions, or price limits. Subsidies are government programs that help make purchasing goods and services available and affordable to people who are less fortunate (Victor, 2009). It aims to encourage poor individuals, particularly those in developing countries, to engage in business activities.

However, subsidies, even when intended for good reasons, are never a good method to run a government since they might misuse resources, particularly in the event that the selling price falls below the production costs (Yunusa et al., 2023). According to Umeji and Eleanya (2021) carriers have already increased the cost of transport

due to the social isolation resulting from the corona virus pandemic. Food and other related product prices will go up, but some households' incomes will stay the same, while others haven't had a major source of income since the lockdown caused by the pandemic. This will lead to a drop in the real income of poor families, which will increase the level of poverty in the country, make the already tough economic situation even worse, and make people's already low standard of living even worse (Umeji & Eleanya, 2021).

Subsidy elimination is when the government decides to stop or cut back on assistance for certain goods or services. Often, this entails removing funds or price break previously provided to buyers or producers. Eliminating subsidies can have serious effects on the economy. Coady, Parry, Le, and Shang (2019) looked into the economic effects of changing subsidies, focusing on how getting rid of subsidies could save money for the government, make better use of resources, and make the market work better. Removing subsidies raises the prices of the affected goods or services. This could have an impact on prices and what people can buy. Apergis, Babalos, Christou, and Gupta (2019) conducted a study looking at the relationship between subsidy removal and inflation and concluded that subsidy reform could cause inflation.

Furthermore, the elimination of subsidies may influence the treatment of certain groups or parts of the community more than others. Del Granado, Coady, and Gillingham (2012) did research on the distributional effects of energy subsidy reforms. They pointed out how important it is to protect vulnerable groups with focused compensatory measures. Also, removal of subsidies can also hurt the environment, especially when it comes to fossil fuel support. We can remove subsidies to allocate funds to more sustainable and improved energy sources. Nachtigall and Rübhelke (2016) investigated the potential environmental consequences of eliminating fossil fuel subsidies.

2.1.2. Government Income

Government income, also known as government revenue, refers to the numerous sources of funds collected by a government to pay for its operations, provide public goods and services, and manage its fiscal responsibilities (Jeff-Anyeneh, Ananwude, Ezu, & Nnoje, 2020). Government revenue is an important component of a country's overall economic health since it directly affects the government's capacity to meet its responsibilities and support its population's well-being. Government revenue is critical for funding public services, infrastructure development, education, healthcare, social safety nets, defense, and other key state tasks (Jeff-Anyeneh & Ibenta, 2019). Effective government income management necessitates a delicate balance of tax collection, fiscal prudence, and the allocation of funds to address pressing national needs. Government revenue provides the financial underpinning for governments to operate and offer services to their populations. Effective management and utilization of government revenue are critical for establishing economic stability, encouraging equitable development, and meeting a nation's diversified requirements (Jeff-Anyeneh et al., 2020).

2.1.3. Small and Midsize Enterprises (SMEs)

SMEs play an important role in the global economy, acting as engines of innovation, job creation, and economic progress. SMEs are defined differently in different nations and areas, although they are generally defined by their size, revenue, and employment levels. Numerous scenarios classify SMEs as micro, small, or medium enterprises based on these criteria. The Nigerian Ministry of Industry, Trade, and Investments (2015) defines small commercial firms as having between 10 and 50 employees and an asset base of between 5 and 50 million naira (excluding lands and buildings). This definition applies to businesses that fall under the category of "small commercial enterprises." While Small and Medium Enterprises Development Agency of Nigeria SMEDAN (2021) specified small enterprises as having a capital investment of less than five hundred thousand (500,000) naira and an employee complement of fewer than fifty (50), the term "small business" can also refer to businesses that do not meet any of these criteria.

2.1.4. *Living Standard*

Living standards are said to have revolved around the quality of life (McGregor & Goldsmith, 1998) and that is a personal experience that varies from person to person. According to Ringen (1991) the measure of standard of living is equivalent to the disposable income of individuals residing alone and, on average, surpasses the disposable income per capita for individuals residing in larger groupings. The per capita technique is widely utilized as a means of assessing living standards, employing indicators such as Gross Domestic Product (GDP) per capita and family income per individual. McGregor and Goldsmith (1998) refer to the customary manner in which a collective of individuals conducts their lives as their standard of living. According to Fah (2010) the concept of a living standard encompasses the desired commodities and services as well as the customary criteria used to assess their value. This refers to the entirety of the joyfulness, or rather, satisfaction, that individuals perceive as significant for their existence. Discussions pertaining to economic prosperity and objectives related to public welfare frequently employ the term "living standard."

The recent literature also revealed that the living standard is the level of well-being and quality of life that people or families in a certain society or geographic area experience (Shek, 2020). It is a broad measure that looks at many aspects of life, such as material wealth, access to basic needs, schooling, health care, housing, and social and environmental conditions (Tao, Zhi, & Shangkun, 2022). The living standard, also called the standard of living, is a multidimensional concept that includes many things that contribute to the general well-being and quality of life of people and households in a certain culture or geographic area. It involves looking at the cost of living, how people spend their money, how much they save and invest, their material wealth, how easy it is for them to get the things they need, the social and environmental conditions, schooling, health care, and other important parts of their lives. Scholars and academics have spent a lot of time studying the complexities of living standards (Lee, Huang, Wu, Yeh, & Chang, 2023). They have given us useful information about how to measure them and what effects they have on people and societies (Lee et al., 2023).

2.1.5. *Consumption Pattern*

A person's, family's, or society's "consumption pattern" is how they use their money to buy things and services that meet their needs and wants in relation to others. It looks at how much money was spent on different things and services over a certain amount of time (Cao, Meng, & Gao, 2021). Legislators, businesses, and researchers need to understand how people spend their money because it reveals economic trends, human behavior, and resource utilization. Changes in Consumption Habits: Recent academic research (Bounie, Camara, & Galbraith, 2022) has shown that people's habits change because of things like technological advances, the economy, and world events. Scholars and policymakers are interested in how people use fuel, especially in getting rid of subsidies. Many countries have long used petrol subsidies to intentionally keep fuel prices low to benefit consumers and businesses. But getting rid of petrol handouts could cause big changes in how people use petrol. When there are no supports, the way people use petrol is very different.

2.1.6. *Cost of Living*

The cost of living is the amount of money needed to cover basic needs and keep up a certain way of living (Latimaha, Ismal, & Bahari, 2020). This includes housing, food, healthcare, education, and other necessities. Khan et al. (2018) the cost of living is the amount of money required to live at a certain level. This includes spending on food, housing, healthcare, transportation, and other important goods and services. Factors like inflation, changes in consumer prices, and regional differences affect how much it costs to buy all the goods and services needed to maintain a certain quality of life. The subsidy cuts have the most direct effect on source of energy for the household, for example price of gas and fuel. Removing subsidies would lead to an increase in petrol prices at the pump, thereby directly impacting the cost of transportation (Inegbedion et al., 2020; Ozili & Obiora, 2023). Because petrol

is such an important source of energy for transportation, its price going up can cause prices of other goods and services to go up as well, raising the cost of living as a whole.

2.1.7. Savings and Investment Level of People

Saving and investing are important to the economy of a country and to your own financial plans. They are critical for economic growth, wealth building, and financial stability. Savings are the money that people or families put aside instead of spending right away so that they can use it later. People can use their savings as a financial cushion to pay for unexpected costs, invest in their schooling, buy assets, or plan for retirement (Dholakia, Tam, Yoon, & Wong, 2016). Savings behaviour study Adeyemo and Bamire (2005) looks at what makes people more or less likely to save, like their income level, age, work status, cultural norms, and financial knowledge. Removing fuel subsidies leads to an increase in fuel prices, which directly impacts transportation costs and family budgets. Higher fuel costs can affect how much money a family has left over, which can change how they spend and save (Ferdous, Pinjari, Bhat, & Pendyala, 2010).

Research shows that taking away subsidies for fuel can change how people save money, and families may need to save more to protect their finances and pay for future costs (Cooke, Hague, Tiberti, Cockburn, & El Lahga, 2016; Siddig, Aguiar, Grethe, Minor, & Walmsley, 2014). When there is more financial instability, people may decide to save more of their income for emergencies or retirement. Higher fuel prices could cause companies to rethink their cost structures, changing their decisions about where to invest in businesses that use a lot of capital. As a result of rising petrol costs, some investors may look into opportunities in the alternative energy industry or invest in technologies that use less energy. In order to create effective financial education programs and incentives for saving, policymakers must understand how people save.

2.2. Empirical Review - Petrol Subsidy Removal, Government Income, SMEs and Living Standard

Umeji and Eleanya (2021) used a descriptive study approach to investigate how the elimination of petrol subsidies would impact the economy of Nigeria as a whole as well as Nigeria's poor population specifically. The study concluded that the economy benefits from eliminating subsidies, as the saved funds can enhance infrastructure services like hospitals, schools, and roads. Despite the fact that the poor will feel the effects of subsidy removal the most because of higher transport fares and increased prices for food and other commodities, the study found that eliminating subsidies is good for the economy. Jeff-Anyeneh et al. (2020) used a test of causation to determine whether the level of government spending on recurrent and capital expenditures affects the standard of living in Nigeria. Using data ranging from 1981 to 2018, an Autoregressive Distributed Lag (ARDL) model was utilised in order to estimate both the long-term and short-term trends. The study's findings indicate that both recurring and one-time expenditures by the government significantly impacted Nigeria's standard of living. However, this does not portray the country's standard of living adequately at all.

Additionally, Anas (2019) conducted research into the effects on the Indonesian economy that might result from modifying fuel subsidies and expenditure on infrastructure. The purpose of the study, which used the Social Accounting Matrix (SAM) as a conceptual framework, was to ascertain how the program influenced the rate of economic growth as well as the distribution of income in Indonesia. In spite of the fact that both types increased sector output and domestic revenue, the results of the simulation showed that the impact of social and human capital infrastructure was significantly greater. Using the Lofgren-based Computable General Equilibrium (CGE) model to model the economy before and after the imposition of fiscal integration, Loo and Harun (2020) discovered that people's spending on necessities such as food and beverages and petrol (for individual vehicle consumption) increased after the government removed fuel subsidies. They discovered this by modeling the economy before and after the imposition of fiscal integration. Raji et al. conducted research in 2018 to investigate how the elimination of fuel subsidies has impacted people living in rural areas of Nigeria. The study gathered its information from

secondary sources. According to the findings of the research, decreasing government subsidies for petrol has a negative impact on the quality of life in rural areas. [Agboje \(2018\)](#) investigated the ways in which various levels of petrol tax credits impacted the financial security of Nigerian families. To investigate the effects that phasing out and eliminating consumer subsidies for fuel and other restriction measures would have on farming and non-farming households in Nigeria, the research used a computational general equilibrium model that was static in nature. The study indicated that changing fuel subsidies while leaving the advantages of subsidies in place led to reduced household consumption, more spending on all commodities, and lower overall societal wellbeing, both in the best and worst-case scenarios.

Also, [Cockburn, Robichaud, and Tiberti \(2018\)](#) conducted research on the relationship between energy subsidy reform and poverty in Arab nations by doing a comparative CGE-microsimulation analysis of Egypt and Jordan. The research led to the development of a dynamic CGE microsimulation model that has the ability to strike a balance between the implications the reform will have on general equilibrium and the specific distributive effects it would have on individuals and households. In spite of the fact that the nature of the proposed reforms is different, the research underlines the necessity for reform in both countries in order to generate fiscal savings, attract private investment, and promote economic growth. According to the facts, the reform would make life more difficult for customers by making goods and services more expensive. However, if the government were to reinvest its savings in cash transfers in a reasonable manner, it would be possible for it to accomplish its aim of reducing poverty without severely compromising the favourable impacts that the reform has had on the economy and GDP. In compared to Jordan, where an increase in intermediate inputs costs leads to a decrease in aggregate demand and consequently, labor demand, Egypt experiences more significant impacts (prices, growth, fiscal savings, and poverty) due to comprehensive nature of the proposed reforms and the direct household consumption of a larger portion of the energy products in question. The greatest repercussions are being felt in the case of Jordan as a result of the fall in aggregate demand and hence, in the demand for labour.

Also, [Cooke et al. \(2016\)](#) model the welfare effects of the early 2013 petrol subsidy removal and the required scaling up of cash transfers to cushion the blow to low-income Ghanaian households caused by the subsidy withdrawal. According to the report, nearly 78 percent of gasoline subsidies went to the wealthiest quintiles, with less than 3 percent going to the poorest quintiles. The study also discovered that eliminating fuel subsidies has a detrimental impact on household wellbeing through increasing costs. The lowest category suffers the most from the negative impact, with a 2.1 percent decrease in total consumption. According to the scenario, the poverty rate will grow by 1.5 percent.

[Siddig et al. \(2014\)](#) conducted a study to investigate the potential socioeconomic effects of removing fuel subsidies on the Nigerian economy, as well as potential alternative policies to achieve this. According to the research, reducing the subsidy could have a negative impact on household income, particularly for low-income households, even if it would likely have a positive impact on Nigeria's GDP as a whole. The local manufacturing of petroleum products or income transfers to low-income households may help mitigate the negative effects on household income. In the same vein, another study was conducted on the indirect welfare effect of the elimination of petrol subsidies on Malaysian households by [Razak, Ismail, and Hakim \(2014\)](#). The study used data from the 2004-2005 household expenditure survey and the input-output table to collect and analyse the data needed for the study and concludes that eliminating fuel subsidies will have a sizable beneficial knock-on effect on people's quality of life. The study also discovered that the removal of fuel subsidies has an indirect welfare effect on a variety of broad categories of products, including food and nonalcoholic drinks, housing, water, electricity, and transportation. [Onyishi, Eme, and Emeh \(2012\)](#) used positive economic analysis to investigate the effects of subsidies and their withdrawal on consumers, the gasoline market, and government spending. He discovered that the government's initial error was paying import subsidies. As a result, he concluded that eliminating subsidies without liberalizing

the downstream oil sector would not solve the problem of supply shortages but would instead cause customers pain through increased prices.

HO1a: Petrol subsidy removal has no significant effect on consumption pattern in North Central, Nigeria.

HO1b: Petrol subsidy removal has no significant effect on cost of living in North Central, Nigeria.

HO1c: Petrol subsidy removal has no significant effect on savings and investment level of the people in North Central, Nigeria.

HO1d: Petrol subsidy removal has no significant effect on government income in North Central, Nigeria.

HO1e: Petrol subsidy removal has no significant effect on SMEs in North Central, Nigeria.

HO2a: Government income has no significant effect on consumption pattern in North Central, Nigeria.

HO2b: Government income has no significant effect on cost of living in North Central, Nigeria.

HO2c: Government income has no significant effect on savings and investment level of the people in North Central, Nigeria.

HO3a: SMEs has no significant effect on consumption pattern in North Central, Nigeria.

HO3b: SMEs has no significant effect on cost of living in North Central, Nigeria.

HO3c: SMEs has no significant effect on savings and investment level of the people in North Central, Nigeria.

2.3. Theoretical Framework

Karl Marx's conflict theory was the basis for this study. Marx (1848) an economist, came up with the idea of conflict theory in 1848. This idea says that life in the real world is full of problems and conflicts. This theory is based on the idea that there are always two classes in a society competing for the same limited resources, such as power, money, and status (Torrance, 1995). Conflicts arise when society's members don't share status, power, and resources equally, and this clash of interests always leads to social change. Bartos and Wehr (2002) say that power in this situation means having control over a society's institutions, its wealth, and its actual resources. This study applies the theory, as the removal of fuel subsidies in Nigeria has sparked significant debate among influential individuals in the country. The higher classes seek to maintain authority and control over the distribution of fuel, while the lower classes seek to obtain it for their enterprises and other endeavours. As a result, Nigeria has a widening wealth and poverty disparity. One extremely evident illustration of this is the disparity in the conditions of the nation's rural and urban areas. Fuel prices have increased as a result of the elimination of fuel subsidies, hurting rural sections of the nation. According to social conflict theorists, the higher class in Nigeria exploited the elimination of fuel subsidies as a pretext to oppress, exploit, and dominate the lower class in order to amass greater wealth, power, and authority. The removal of subsidies caused their economies to suffer, thereby making certain individuals and organizations wealthier at the expense of the general public.

3. METHODS

This study looked at how the withdrawal of petrol subsidies, government income, and SMEs affected living conditions in north-central Nigeria. Petrol subsidy reduction, government income, and SMEs served as independent variables in this study, while living standards were determined by consumption patterns, costs of living, and people's savings and investment levels. This study used a survey research design and a logical approach to develop and test hypotheses. This study employed a quantitative technique based on the deductive strategy to evaluate the relationship between the research variables (Creswell & Creswell, 2017). We collected the quantitative data for this study, using survey instruments, such as questionnaires with closed-ended questions on the variables under investigation. This study's population included selected government officials, SMEs operators, and households (both men and women) in the north-central state capital cities of Benue, Kogi, Kwara, Abuja, Niger, Plateau, and Nasarawa states, Nigeria. The study justified its concentration on literate adults due to their superior suitability for responding to the research instrument. However, due to the difficulties associated with conducting

research among all subjects of a population and the difficulties in obtaining the exact population of all literate adults in North Central Nigeria, the sample size was determined using Cochran (1977) sample size determination formula for calculating an infinite or unknown population. The sample size determination formula proposed by Cochran (1977) is $n = Z^2 \times P(1 - P) / C^2$, where n is the sample size for the study, Z^2 is the Z value at the 95% confidence interval, C is the margin of error (5%), P is the population proportion, 0.6, and $1 - P$ is 0.4. this formula yielded a sample size of 369. However, we applied a 30% attrition rate to the determined sample size, leading to a revised sample size of 480. We used a questionnaire as the data collection instrument and the convenience sampling technique to choose respondents. We distributed the questionnaire evenly across all seven states. To ensure uniform distribution of the questionnaire, the sample size was increased to 483; thus, 69 copies of the questionnaire were distributed to each state. The questionnaire utilised was adapted from Chinedu and Ebele (2012) with a higher Cronbach alpha values greater than 0.7 as recommended (Hair, Risher, Sarstedt, & Ringle, 2019).

323 copies of the questionnaire were valid and useful for data analysis out of 483 copies administered, accounting for 67% of the total questionnaire administered. The collected data was examined using Partial Least Squares Structural Equation Modeling (Smart PLS-SEM) in defining measurement, structural models, and hypothesis testing via SmartPLS 3.0 software as recommended by Hair, Hult, Ringle, and Sarstedt (2021). Smart PLS-SEM is a powerful statistical technique widely used in the social sciences, business, and various other fields for modeling and analyzing complex relationships among variables. Smart PLS is a popular software tool specifically designed for structural equation modeling analysis. It is a variance-based SEM technique that is widely applied in business and social sciences and has gained prominence for several reasons, including its ability to handle complex, non-normally distributed data and its suitability for exploratory and predictive modeling (Hair et al., 2021; Henseler, Ringle, & Sarstedt, 2015; Sarstedt, Hair, & Ringle, 2022; Sarstedt, Hair, Ringle, Thiele, & Gudergan, 2016). The research model for this study is complex in nature and has gone beyond direct relationships like previous studies that examined the direct relationship between petroleum subsidy removal and living standards (Umeji & Eleanya, 2021), GDP and household income (Siddig et al., 2014) government expenditure and living standard (Jeff-Anyeneh et al., 2020) infrastructure (Anas, 2019) government spending (Widodo, Sahadewo, Setiastuti, & Chaerriyah, 2012) and increased overall welfare costs (Greve & Lay, 2023).

The model of this study has introduced a mediation effect with two different variables: government income and SME performance, which mediate the relationship between petroleum subsidy removal and conception patterns, cost of living, and savings and investment. Hence, the justification for Smart PLS-SEM. The measurements' validity and reliability were initially determined before assessing the hypothesized connections with algorithm and bootstrapping procedures (Hair et al., 2021). Figure 1 depicts a visual representation of the PLS-SEM model.

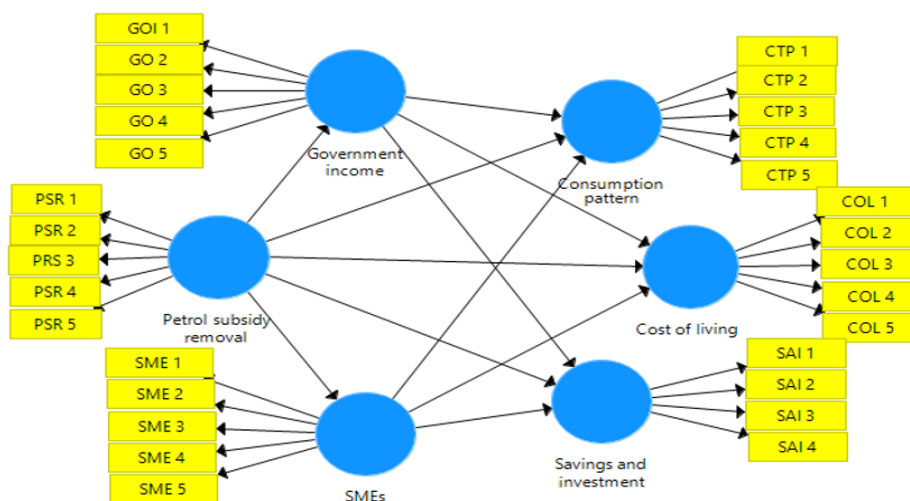


Figure 1. The model of the study.

Table 1 presents the measurement scale of the variables used in the study, along with a unique code developed to differentiate the items for easy and accurate response and analysis. All the variables, with the exception of savings and investment, each had five items for measurement.

Table 1. Measurement scale.

Variables	Code	Items
Fuel subsidy removal	FSR1	Fuel subsidy removal has cause increase on price of petrol
	FSR2	Transportation price has increase as a result of recent fuel subsidy removal
	FSR3	Fuel subsidy removal has cause increase on price of goods and services
	FSR4	Fuel subsidy removal has reduced the scarcity of fuel
	FSR5	Fuel subsidy removal is a government strategy to deregulating the downstream sector of the oil industry
Consumption pattern	CTP1	The increase in fuel price has reduce the general consumption pattern
	CTP2	the removal of fuel subsidy has significantly affected the monthly consumption
	CTP3	the removal of fuel subsidy has significantly affected the daily consumption
	CTP4	Since the removal of fuel subsidy, peoples have reduced their overall fuel consumption
	CTP5	Peoples are now more conscious of fuel usage and try to minimize unnecessary trips
Cost of living	COL1	Increase in fuel price has led to the increase in prices of essential goods
	COL2	The household budget of people is affected after the removal of fuel subsidy
	COL3	increase in fuel prices has affected people overall cost of living in a negative way
	COL4	Peoples have changes in their daily activities and routines to adapt to the impact of fuel subsidy removal
	COL5	The removal of fuel subsidies has put financial strain on people's daily expenses and standard of living
Savings and investment	SAI1	People's savings and investment level has reduced significantly
	SAI2	Since the removal of fuel subsidies, peoples find it more challenging to save money regularly
	SAI3	The increase in fuel prices has reduced the amount of money allocate towards savings and investment
	SAI4	The removal of fuel subsidy has affected people's ability to invest in long-term financial instruments (e.g., stocks, bonds, etc.).
Government income	GOI1	Subsidy removal has led to the increase of government income generation
	GOI2	The increase in government income has increase federation allocation
	GOI3	The increase in government income has increase improved infrastructure development
	GOI4	The increase in government income has improved quality healthcare services in region
	GOI5	The increase in government income has created more job opportunities and employment rates in the region
SMEs	SME1	The level of income of SMEs operators has increase as a result of fuel subsidy removal
	SME2	The level of savings of SMEs operators has increase as a result of fuel subsidy removal
	SME3	The level of consumption of SMEs operators has increase as a result of fuel subsidy removal
	SME4	fuel subsidy removal has boosted the SMEs business in the region
	SME5	with fuel subsidies has SMEs operators have experience increase in sales

4. DATA ANALYSIS AND RESULTS

4.1. Measurement Model Estimation

The measuring model of the study was assessed using the SmartPLS approach. Table 2 and Figure 2 show the findings of the reliability and validity assessments. Cronbach's alpha was used to assess the scales' consistency using a reliability analysis. Cronbach's alpha's dependability coefficient is often between 0 and 1, with a maximum of 1 with an acceptable scale has a coefficient more than or equal to 0.80 (Hair et al., 2019). This study's Cronbach's alpha values are PSR (0.959), CTP (0.962), COL (0.966), SAI (0.953), GOI (0.851), and SMEs (0.884). As a result, these indicators fulfilled all of the requirements. Every one of the scales had a performance that was higher than 0.80, which indicates that they are trustworthy and precise representations of the structural components that are being measured. In the context of a reflective model, the composite reliability test demonstrates superior

performance compared to Cronbach's alpha as a measure of convergent validity. Cronbach's alpha is often favored as a measure of reliability due to its propensity to potentially overestimate or underestimate the dependability of a scale. The measure of composite dependability is denoted by a numerical value ranging from 0 to 1, where a value of 1 indicates complete reliability estimation. According to previous research Chin (1998) and Hock, Ringle, and Sarstedt (2010) it is recommended that composite reliabilities in an exploratory model should be equal to or exceed 0.6. Also, same values should be in a confirmatory model (Henseler et al., 2015). Table 2 and Figure 2 show the composite dependability values for PSR (0.968), CTP (0.970), COL (0.974), SAI (0.966), GOI (0.893), and SMEs (0.915). This demonstrated that the composite reliabilities for all the constructs satisfied the required threshold.

The usage of the extracted average variance (AVE) makes it possible to evaluate both the convergent and divergent validity of the findings. Within a reflective model, the communality of each latent factor is denoted by the variable AVE, which stands for "average communality." A acceptable model, in accordance with the proposition made by Chin (1998) should have an Average Variance Extracted (AVE) value that is greater than 0.5. In addition, the AVE should be higher than the cross-loadings, which indicates that the components should account for at least half of the variance in the indicators to which they are related. If the standard deviation of the errors is greater than the variance that can be accounted for by the model and the average error is less than 0.50, then shows that the variability of the mistakes is greater. The AVE values are as follows: PSR (0.857), CTP (0.868), COL (0.882), SAI (0.875), GOI (0.626), and SMEs (0.683), as shown in Table 2 and Figure 2. This demonstrates the constructs' validity.

Table 2. Construct reliability and validity.

Constructs	Factor loading range	Cronbach's α	Composite reliability	Average variance extracted (AVE)
Petrol subsidy removal (PSR)	0.907-0.954	0.959	0.968	0.857
Consumption pattern (CTP)	0.903-0.946	0.962	0.970	0.868
Cost of living (COL)	0.912-0.961	0.966	0.974	0.882
Savings and investment (SAI)	0.917-0.950	0.953	0.966	0.875
Government income (GOI)	0.712-0.888	0.851	0.893	0.626
Small and medium enterprises (SME)	0.767-0.868	0.884	0.915	0.683

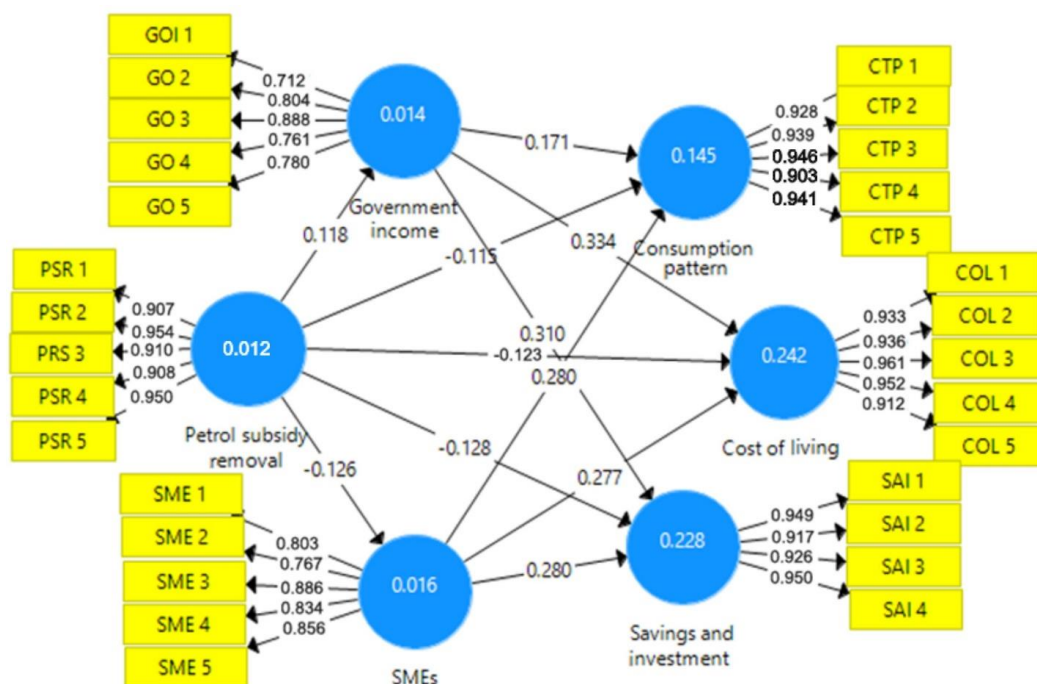


Figure 2. Measurement model of the study constructs and indicators.

4.2. Structural Model Estimation

There were several analyses in the structural model. For example, we calculated path coefficients and used bootstrapping to determine their statistical significance. The current research employed the bootstrapping method to calculate t-values and assess the level of statistical evidence supporting the route coefficient. There were a total of 500 subsamples used in the bootstrapping technique.

For the PSR->CTP relationship, the result presented a beta value of -0.115, a t-value of 2.341, and a p-value of 0.020. PSR->COL has a beta value of -0.123, a t value of 2.965, and a p value of 0.003. Similarly, the PSR->SAI relationship has a beta value of -0.128, a t-statistic of 2.952, and a p-value of 0.003.

The result also shows that the PSR->GOI relationship has a beta value of 0.118, a t-value of 2.112, and a p-value of 0.035, while the PSR->SME relationship has a beta value of -0.126, a t-value of 2.297, and a p-value of 0.022.

Additionally, the result also revealed a GOI->CTP relationship with a beta value of 0.171, a t-value of 3.009, and a p-value of 0.003, while GOI->COL has a beta value of 0.334, a t-value of 6.647, and a p-value of 0.000. Similarly, GOI->SAI has a beta value of 0.319, a t-value of 6.064, and a p-value of 0.000, while SME->CTP has a beta value of 0.280, a t-value of 4.811, and a p-value of 0.000. Finally, SME->COL has a beta value of 0.277, a t-value of 4.839, and a p-value of 0.000, whereas SME->SAI has a beta value of 0.280, a t-value = 5.041, and a p-value of 0.000.

As shown in Table 3 and Figure 3, the elimination of petrol subsidies has a negative and significant influence on consumption patterns, cost of living, savings and investment, and SMEs. Therefore, we accept HO1a, HO1b, HO1c, and HO1e, but reject HO1d, HO2a, HO2b, HO2c, HO3a, HO3b, and HO3c. R2 values of 0.145, 0.242, 0.228, 0.014, and 0.016 were considered adequate for consumption patterns, cost of living, savings and investment, government income, and SMEs, respectively.

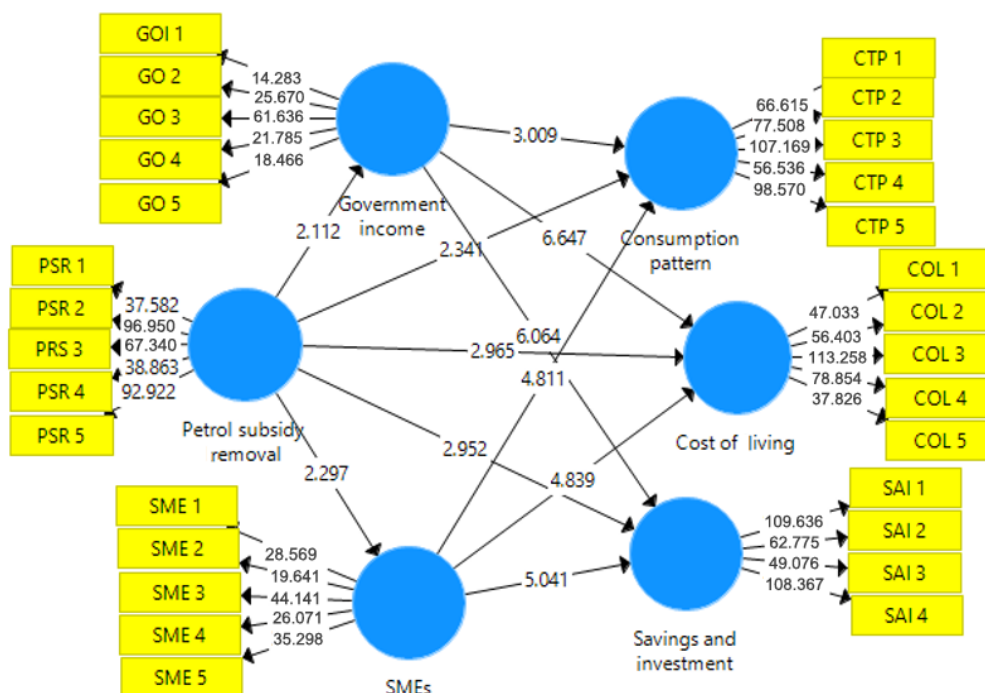


Figure 3. Structural model and hypotheses testing.

Figure 3 depicts the research’s structural model, from which we extracted the t-values and presented them in Table 3 for interpretation. It is the output of the bootstrapping techniques of the smartPLS. It actually shows the basis for the acceptance, or otherwise, of the predefined hypotheses of the research.

Table 3. Results of the structural model analysis (Hypotheses testing).

Hypotheses	Relationship	Beta (β)	STDEV	T statistics	P value	Decision	R ²	Adj. R ²
HO1a	PSR->CTP	-0.115	0.049	2.341	0.020	Accepted	0.145	0.136
HO1b	PSR->COL	-0.123	0.041	2.965	0.003	Accepted	0.242	0.234
HO1c	PSR->SAI	-0.128	0.043	2.952	0.003	Accepted	0.228	0.220
HO1d	PSR->GOI	0.118	0.056	2.112	0.035	Rejected	0.014	0.011
HO1e	PSR->SME	-0.126	0.055	2.297	0.022	Accepted	0.016	0.013
HO2a	GOI ->CTP	0.171	0.057	3.009	0.003	Rejected		
HO2b	GOI ->COL	0.334	0.050	6.647	0.000	Rejected		
O2c	GOI ->SAI	0.319	0.051	6.064	0.000	Rejected		
HO3a	SME->CTP	0.280	0.058	4.811	0.000	Rejected		
HO3b	SME->COL	0.277	0.057	4.839	0.000	Rejected		
HO3c	SME->SAI	0.280	0.054	5.041	0.000	Rejected		

Note: The small letters a,b,c,d, or e were used to differentiate hypotheses formulated by a single variable with three or more variables, as presented in Section 2.

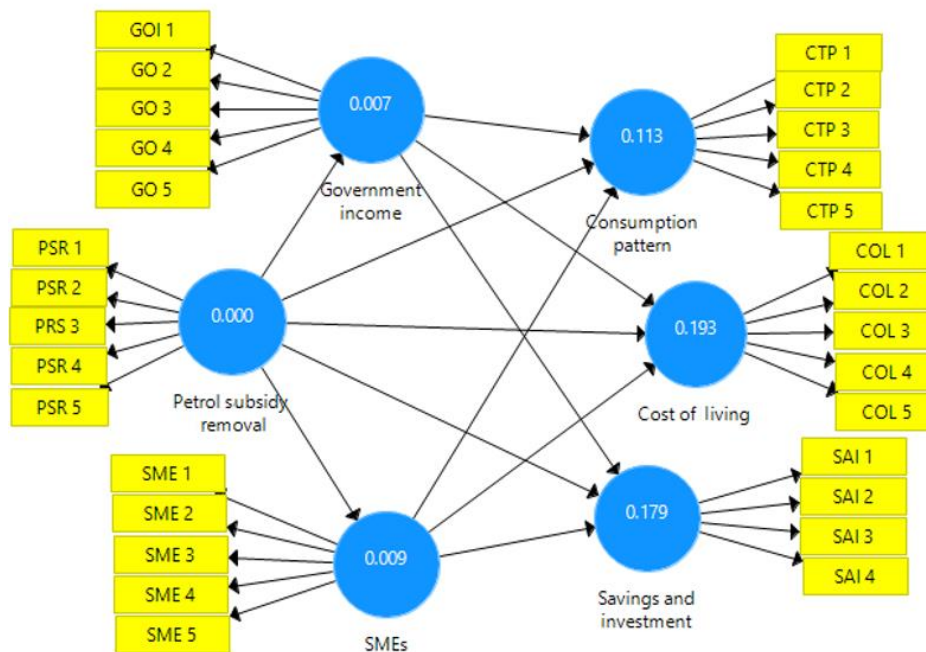


Figure 4. Blindfolding graph.

In terms of predictive relevance and impact size, Q² values of 0.35, 0.15, and 0.02 as high, mid, and small, respectively, are considered predictive (Cohen, Manion, & Morrison, 2017). As a result, Figure 4 demonstrates that they fall into the tiny range of predictive relevance with Q² values of 0.0113, 0.193, 0.179, 0.007, and 0.009 for consumption pattern, cost of living, savings and investment, government income, and SMEs. f² indicates if external variables have a considerable impact on the endogenous variable, according to Götz, Liehr-Gobbers, and Krafft (2009). According to Lorah (2022) the f² values fall into three categories: tiny, medium, and large, with f² values of 0.02, 0.15, and 0.35, respectively. As a result, Table 4 indicates that the elimination of petrol subsidies has a significant impact on consumption patterns, savings and investments, and SMEs. Petrol subsidy withdrawal has a high impact on government income but has a modest influence on the cost of living.

Table 4. The effect size of the model.

Constructs	F ²	Effect size
Consumption pattern	0.356	Large
Cost of living	0.152	Medium
Savings and investment	0.381	Large
Government income	0.363	Large
SMEs	0.373	Large

5. FINDINGS AND DISCUSSION

This study looked at how the elimination of petrol subsidies, government income, and SMEs affected people's living standards in North Central Nigeria, as assessed by consumption patterns, cost of living, savings, and investment. For this study, three null hypotheses (HO1a to HO1e, HO2a to HO2c, and HO3a to HO3c) were developed and tested to see how the elimination of petrol subsidies, government income, and SMEs as independent factors affected the dependent variables of consumption pattern, cost of living, savings, and investment. We accepted the study's findings, which showed a negative and significant impact of petrol subsidy elimination on consumption patterns, cost of living, savings and investment, and SMEs in North Central Nigeria. This shows that the elimination of fuel subsidies has a negative and considerable impact on people's and SMEs' living standards (consumption patterns, cost of living, savings, and investment) in North-Central Nigeria. This study filled a gap in the literature by demonstrating the detrimental consequences of the elimination of petrol subsidies on living standards (consumption patterns, cost of living, savings, and investment) and SME operations in northern Nigeria.

Furthermore, the study rejected the HO1d, demonstrating a positive and significant effect of petrol subsidy withdrawal on government income in northern Nigeria. We developed and rejected HO2a, HO2b, and HO2c, indicating a positive and significant impact of government income on consumption, cost of living, savings, and investment. This implies that eliminating petrol subsidies has a favorable influence on government revenue. Furthermore, the created HO3a, HO3b, and HO3c were rejected, showing that SMEs practices have a favorable and significant effect on consumption patterns, cost of living, savings, and investment. This means that the consumption patterns, cost of living, savings, and investment of SMEs operators in North Central Nigeria have improved favorably and significantly; this could be due to rises in the pricing of products and services as a result of the withdrawal of petrol subsidies.

6. CONCLUSIONS

The study found significant and negative implications on consumption patterns, cost of living, savings, and investment as a result of the withdrawal of petrol subsidies, government income, and SMEs practices in North Central Nigeria. According to the analysis, the withdrawal of petrol subsidies had a negative impact on the region's general economic well-being and financial stability. According to the study's findings, the removal of petrol subsidies resulted in higher fuel prices, which had a direct impact on the consumption patterns of households in north-central Nigeria. People had to allocate more of their money to travel expenses as gasoline prices rose, leaving less discretionary income for other vital products and services. As a result, the shift in purchasing patterns had a negative influence on their quality of life and access to basic necessities.

Furthermore, the elimination of subsidies led to an inflationary effect on fuel prices, which in turn increased the overall cost of living. Basic goods and services grew more expensive, diminishing consumers' purchasing power and worsening the economic stress on households. As a result, many families, particularly those in lower-income groups, struggled to satisfy their basic demands. Additionally, the withdrawal of subsidies had a negative impact on savings and investment habits. People had less finances available for saving or investing in productive companies since a larger proportion of their income was spent on necessities. This diminished capacity for savings and investment stifles economic growth and limits the region's potential for wealth generation and poverty eradication.

Several recommendations can be made based on the study's findings to alleviate the detrimental effects of the elimination of petrol subsidies on the living conditions of people in north-central Nigeria:

Recognizing the negative and considerable impact of the withdrawal of petrol subsidies on consumption patterns, the cost of living, savings, and investment, the government should explore a slow and phased approach to subsidy reform. This can help households deal with unexpected shocks while also giving them time to modify their spending habits and economic behavior.

Given the probable negative consequences of subsidy elimination on vulnerable people, the government should develop tailored social safety nets to assist those most impacted by increased fuel prices. Direct cash transfers, food assistance programs, and subsidized transit options can help low-income households deal with the immediate impact.

The government should conduct extensive public awareness initiatives to moderate public expectations and gain support for subsidy reform. These efforts can educate citizens about the reasons for subsidy elimination, the long-term advantages, and the accompanying steps to mitigate the effects on the population.

Because the study discovered a positive and significant effect of removing petroleum subsidies on government revenues, the government can take advantage of this chance to investigate alternative revenue streams. Diversifying revenue sources, such as taxation, non-oil sector growth, and enhanced revenue collection procedures, can help to reduce reliance on fluctuating oil prices.

Recognizing the positive and considerable impact that SMEs have on living standards, the government should focus on policies and programs that encourage the growth and sustainability of SMEs. Simplified business registration processes, access to capital, training and skill development initiatives, and enhanced market access for SMEs might all be part of this.

Infrastructure investments are critical to enhancing the positive effects of SMEs and government income on living standards. Adequate transport, energy, and digital infrastructure may help SMEs grow, improve market access, and boost overall economic activity.

It is critical to continuously monitor and evaluate the consequences of policy changes such as subsidy elimination and SME assistance. Data collection and analysis on economic indicators, social well-being, and corporate operations can help guide evidence-based policy decisions and ensure that necessary modifications are made.

Engaging with multiple stakeholders, such as business organizations, civil society organizations, and local communities, helps build a sense of ownership and collaboration in the subsidy reform and economic development processes. Involving stakeholders in policy debates can result in more effective and comprehensive solutions.

To lessen reliance on fossil fuels like petrol and adapt to people's consumption patterns, the government should stimulate the adoption and development of alternative energy sources. This could include investing in renewable energy projects and encouraging energy-efficient practices to reduce the impact of fluctuating fuel prices on the cost of living.

7. IMPLICATION OF THE STUDY

The study's conclusions on the effect of petrol subsidy withdrawal, government income, and SMEs on living standards in North Central Nigeria highlight the necessity for well-calibrated strategies to mitigate the negative socioeconomic repercussions. Policymakers must achieve a balance between budgetary sustainability and citizen well-being, considering targeted social safety nets, poverty reduction programs, and investment in alternative energy sources. Businesses must adapt to shifting customer behavior, while individuals must be encouraged to make sound financial decisions in order to weather the economic storm. It is possible to offset the negative effects and develop a more inclusive and resilient economy in North-Central Nigeria through deliberate and comprehensive policies.

8. DIRECTION FOR FURTHER STUDY

Future research in the following areas could help provide a more comprehensive analysis of the problem: As a result, undertaking long-term studies would provide a better understanding of the long-term consequences of the removal of petrol subsidies on living standards. Tracking changes in consumption habits, living costs, savings, and investment over time would illustrate how the influence evolves and adapts in response to diverse economic and

policy issues. Future studies should also look into how the reduction of petrol subsidies affects different aspects of businesses in Nigeria and beyond. Analysing changes due to the recent government policy on subsidies in production, employment, and investment decisions will aid in assessing the overall economic impact and identifying future growth and adaptation prospects.

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Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.

Data Availability Statement: The corresponding author can provide the supporting data of this study upon a reasonable request.

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REFERENCES

- Adeyemo, R., & Bamire, A. (2005). Saving and investment patterns of cooperative farmers in Southwestern Nigeria. *Journal of Social Sciences*, 11(3), 183-192. <https://doi.org/10.1080/09718923.2005.11892512>
- Agboje, I. (2018). *Implication of switching fuel subsidy on households welfare in Nigeria*. International Association of Agricultural Economists. No. 275938.
- Anas, M. (2019). Reforming spending policy and its impact on Indonesia's economy: The case of fuel subsidy and infrastructure. *Jurnal Ekonomi Pembangunan: Kajian Masalah Ekonomi dan Pembangunan*, 20(1), 12-27. <https://doi.org/10.23917/jep.v20i1.7733>
- Apergis, N., Babalos, V., Christou, C., & Gupta, R. (2019). Are there really long-run diversification benefits from sustainable investments? *International Journal of Business and Economics*, 18(2), 141-163.
- Bartos, O. J., & Wehr, P. (2002). *Using conflict theory*. Cambridge: Cambridge University Press.
- Bassi, A. M., Pallaske, G., Bridle, R., & Bajaj, K. (2023). Emission reduction via fossil fuel subsidy removal and carbon pricing, creating synergies with revenue recycling. *World*, 4(2), 225-240. <https://doi.org/10.3390/world4020016>
- Bounie, D., Camara, Y., & Galbraith, J. W. (2022). Consumers' mobility, expenditure and online-offline substitution response to COVID-19: Evidence from French transaction data. *Available at SSRN* 3588373. <https://doi.org/10.2139/ssrn.3588373>
- Cao, Z., Meng, Q., & Gao, B. (2021). The consumption patterns and determining factors of rural household energy: A case study of Henan Province in China. *Renewable and Sustainable Energy Reviews*, 146, 111142. <https://doi.org/10.1016/j.rser.2021.111142>
- Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, 295(2), 295-336.
- Chinedu, U. O., & Ebele, M., O. (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.
- Coady, M. D., Parry, I., Le, N.-P., & Shang, B. (2019). *Global fossil fuel subsidies remain large: An update based on country-level estimates* (1484393171). International Monetary Fund. No. 2019/089.
- Cochran, W. G. (1977). *Sampling techniques*. New York: John Wiley & Sons.
- Cockburn, J., Robichaud, V., & Tiberti, L. (2018). Energy subsidy reform and poverty in Arab countries: A comparative CGE-microsimulation analysis of Egypt and Jordan. *Review of Income and Wealth*, 64, S249-S273. <https://doi.org/10.1111/roiw.12309>
- Cohen, L., Manion, L., & Morrison, K. (2017). *Research methods in education* (8th ed.). London: Routledge.

- Cooke, E. F., Hague, S., Tiberti, L., Cockburn, J., & El Lahga, A. R. (2016). Estimating the impact on poverty of Ghana's fuel subsidy reform and a mitigating response. *Journal of Development Effectiveness*, 8(1), 105-128. <https://doi.org/10.1080/19439342.2015.1064148>
- Couharde, C., & Mouhoud, S. (2020). Fossil fuel subsidies, income inequality, and poverty: Evidence from developing countries. *Journal of Economic Surveys*, 34(5), 981-1006. <https://doi.org/10.1111/joes.12384>
- Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches* (4th ed.). Newbury Park: Sage Publications.
- Del Granado, F. J. A., Coady, D., & Gillingham, R. (2012). The unequal benefits of fuel subsidies: A review of evidence for developing countries. *World Development*, 40(11), 2234-2248. <https://doi.org/10.5089/9781455205325.001>
- Dholakia, U., Tam, L., Yoon, S., & Wong, N. (2016). The ant and the grasshopper: Understanding personal saving orientation of consumers. *Journal of Consumer Research*, 43(1), 134-155. <https://doi.org/10.1093/jcr/ucw004>
- Encharang, L., Mansur, K., & Kogid, M. (2022). The impact of selected subsidy program on household poverty in rural area in Sabah. *International Journal of Advanced Research in Economics and Finance*, 4(3), 230-240. <https://doi.org/10.55057/ijaref.2022.4.3.20>
- Fah, B. C. Y. (2010). Living standard, living level and economic wellbeing of older persons: Similarity and differences in measuring these concepts. *Canadian Social Science*, 6(5), 145-150.
- Ferdous, N., Pinjari, A. R., Bhat, C. R., & Pendyala, R. M. (2010). A comprehensive analysis of household transportation expenditures relative to other goods and services: An application to United States consumer expenditure data. *Transportation*, 37, 363-390. <https://doi.org/10.1007/s11116-010-9264-2>
- Gohari, A., Matori, A. N., Yusof, K. W., Toloue, I., & Sholagberu, A. T. (2018). The effect of fuel price increase on transport cost of container transport vehicles. *GEOMATE Journal*, 15(50), 174-181. <https://doi.org/10.21660/2018.50.30814>
- Götz, O., Liehr-Gobbers, K., & Krafft, M. (2009). Evaluation of structural equation models using the partial least squares (PLS) approach. In *Handbook of partial least squares: Concepts, methods and applications*. In (pp. 691-711). Berlin, Heidelberg: Springer.
- Greve, H., & Lay, J. (2023). Stepping down the ladder: The impacts of fossil fuel subsidy removal in a developing country. *Journal of the Association of Environmental and Resource Economists*, 10(1), 121-158. <https://doi.org/10.1086/721375>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2-24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Hair, J. J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)* (2nd ed.). Thousand Oaks, CA: SAGE Publications.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43, 115-135. <https://doi.org/10.1007/s11747-014-0403-8>
- Hock, C., Ringle, C. M., & Sarstedt, M. (2010). Management of multi-purpose stadiums: Importance and performance measurement of service interfaces. *International Journal of Services Technology and Management*, 14(2-3), 188-207. <https://doi.org/10.1504/IJSTM.2010.034327>
- Ikenga, A. F., & Oluka, N. L. (2023). An examination of the benefits and challenges of the fuel subsidy removal on the Nigerian economy in the fourth republic. *International Journal of Applied Research in Social Sciences*, 5(6), 128-142. <https://doi.org/10.51594/ijarss.v5i6.522>
- Inegbedion, H. E., Inegbedion, E., Obadiaru, E., & Asaley, A. J. (2020). Petroleum subsidy withdrawal, fuel price hikes and the Nigerian economy. *International Journal of Energy Economics and Policy*, 10(4), 258-265. <http://orcid.org/0000-0003-1941-0715>
- Jeff-Anyeneh, S. E., Ananwude, A. C., Ezu, G. K., & Nnoje, A. I. (2020). Government expenditure and standard of living in an emerging market in Africa-Nigeria. *Economic Journal of Emerging Markets*, 167-178. <https://doi.org/10.20885/ejem.vol12.iss2.art4>

- Jeff-Anyeneh, S. E., & Ibenta, S. N. (2019). Government expenditure and economic growth: Evidence from the Nigeria economy (1981–2016). *Advances in Research*, 19(4), 1–14. <https://doi.org/10.9734/JSRR/2019/v23i630136>
- Khan, S. J. M., Abdullah, N., Mat, S. H. C., Bakar, A. S. A., Ali, J., & Abdullah, H. (2018). The effectiveness of 1Malaysia people's aid program to the B40 group in the rising cost of living: An exploratory case study in rural district of Kedah. *The Journal of Social Sciences Research*, 958–964. <https://doi.org/10.32861/jssr.spi6.958.964>
- Latimaha, R., Ismal, N. A., & Bahari, Z. (2020). Cost of living and standard of living nexus: The determinants of cost of living. *Jurnal Ekonomi Malaysia*, 54(3), 1–14. <http://dx.doi.org/10.17576/JEM-2020-5403-1>
- Lee, C. C., Huang, R. Y., Wu, Y. L., Yeh, W. C., & Chang, H. C. (2023). The impact of living arrangements and social capital on the well-being of the elderly. In *Healthcare*. In (Vol. 11, pp. 2050): MDPI. <https://doi.org/10.3390/healthcare11142050>.
- Loo, S. Y., & Harun, M. (2020). The assessment of direct agricultural investment and cash transfer on households in Malaysia: An evidence of compensation mechanisms for fuel subsidy removal. *International Journal of Business and Society*, 21(1), 300–312. <https://doi.org/10.33736/ijbs.3253.2020>
- Lorah, J. (2022). Effect size for a multilevel model random slope effect: Change in variance accounted for with likelihood-based versus variance partition measures. *Practical Assessment, Research, and Evaluation*, 27(1), 9. <https://doi.org/10.7275/ec1f-j130>
- Marx, K. (1848). *Manifesto of the communist party*. *Marxists.org*. Retrieved from <http://www.marxists.org/archive/marx/works/1848/communist-manifesto/>
- McGregor, S. L., & Goldsmith, E. B. (1998). Expanding our understanding of quality of life, standard of living, and well-being. *Journal of Family and Consumer Sciences*, 90(2), 2–6.
- Ministry of Industry, Trade, & Investments. (2015). *National policy on micro, small and medium enterprises*. Abuja, Nigeria: Agency of Nigeria.
- Nachtigall, D., & Rübhelke, D. (2016). The green paradox and learning-by-doing in the renewable energy sector. *Resource and Energy Economics*, 43, 74–92. <https://doi.org/10.1016/j.reseneeco.2015.11.003>
- Onyishi, A. O., Eme, O. I., & Emeh, I. E. J. (2012). The domestic and international implications of fuel subsidy removal crisis in Nigeria. *Kuwait Chapter of Arabian Journal of Business and Management Review*, 1(6), 57–80.
- Ozili, P. K., & Obiora, K. (2023). Implications of fuel subsidy removal on the Nigerian economy. In *Public Policy's Role in Achieving Sustainable Development Goals*. In (pp. 115–130): IGI Global. <https://doi.org/10.4018/978-1-6684-8903-1.ch007>.
- Razak, N. A. A., Ismail, R., & Hakim, R. A. (2014). Is there a case for fuel subsidy removal in Malaysia? *Journal of Economic & Financial Studies*, 2(4), 01–13. <https://doi.org/10.18533/jefs.v2i03.54>
- Ringen, S. (1991). Households, standard of living, and inequality. *Review of Income and Wealth*, 37(1), 1–13. <https://doi.org/10.1111/j.1475-4991.1991.tb00335.x>
- Sarstedt, M., Hair, J. F., & Ringle, C. M. (2022). PLS-SEM: Indeed a silver bullet—retrospective observations and recent advances. *Journal of Marketing Theory and Practice*, 1–15. <https://doi.org/10.1080/10696679.2022.2056488>
- Sarstedt, M., Hair, J. F., Ringle, C. M., Thiele, K. O., & Gudergan, S. P. (2016). Estimation issues with PLS and CBSEM: Where the bias lies! *Journal of Business Research*, 69(10), 3998–4010. <https://doi.org/10.1016/j.jbusres.2016.06.007>
- Shek, D. T. (2020). Protests in Hong Kong (2019–2020): A perspective based on quality of life and well-being. *Applied Research in Quality of Life*, 15, 619–635. <https://doi.org/10.1007/s11482-020-09825-2>
- Siddig, K., Aguiar, A., Grethe, H., Minor, P., & Walmsley, T. (2014). Impacts of removing fuel import subsidies in Nigeria on poverty. *Energy Policy*, 69, 165–178. <https://doi.org/10.1016/j.enpol.2014.02.006>
- SMEDAN. (2021). *The small and medium enterprises development agency of Nigeria (SMEDAN) report on SMEs in Nigeria*. Retrieved from <http://www.smedan.gov.ng/images/collaborative%20survey%20report.smedannbs.pdf>
- Sowa, N., & Edpri, A. (2007). *The role of subsidies as a means to increase welfare*. *WWF Roundtable*. Retrieved from https://wwfeu.awsassets.panda.org/downloads/role_subsidies_increase_welfare_2.pdf

- Tao, Z., Zhi, Z., & Shangkun, L. (2022). Digital economy, entrepreneurship, and high quality economic development: Empirical evidence from urban China. *Frontiers of Economics in China*, 17(3), 393-426.
- Torrance, J. (1995). *Karl Marx's theory of ideas*. Cambridge: Cambridge University Press.
- Umeji, G., & Eleanya, E. (2021). Assessing the impact of fuel subsidy removal in Nigeria on the poor in the COVID-19 Era. *SERBD-International Journal of Multidisciplinary Sciences*, 2(4), 2581-8376.
- Victor, D. G. (2009). The politics of fossil-fuel subsidies. Available at SSRN 1520984. <http://dx.doi.org/10.2139/ssrn.1520984>
- Widodo, T., Sahadewo, G. A., Setiastuti, S. U., & Chaerriyah, M. (2012). *Impact of fuel subsidy removal on government spending. Energy market integration in East Asia: Theories, electricity sector and subsidies, 2011-17*. Retrieved from <https://www.eria.org/Chapter%208-Impact%20of%20Fuel%20Subsidy%20Removal%20on%20Government%20Spending.pdf>
- Yunusa, E., Yakubu, y., Emeje, Y. A., Ibrahim, Y. B., Stephen, E., & Egbunu, D. A. (2023). Fuel subsidy removal and poverty in nigeria: A literature review. *GPH-International Journal of Applied Management Science*, 4(9), 14-27. <https://doi.org/10.5281/zenodo.8409907>

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