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Fuel Subsidy and the Nigerian Sustainable Development

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Abstract

Research Objective: This study explores the relationship between fuel subsidies and sustainable economic development in Nigeria, focusing on the effects of fuel prices and fuel consumption.

Methodology: Drawing on secondary data from the Central Bank of Nigeria (CBN) spanning from 1981 to 2023, an Autoregressive Distributed Lag (ARDL) model was used to analyze the impact of fuel prices and fuel consumption on Nigeria's real GDP (RGDP).

Findings: The results reveal that fuel price adjustments have a positive and statistically significant long-run relationship with economic growth, suggesting that reducing fuel subsidies or increasing fuel prices could enhance economic development by improving resource allocation and fiscal space. However, in the short run, fuel prices do not significantly impact economic growth. Conversely, fuel consumption shows a negative yet statistically significant effect, indicating inefficiencies in fuel use.

Recommendations: The study highlights the need for comprehensive energy reforms, suggesting that fuel subsidies must be managed strategically, with an emphasis on improving fuel efficiency and diversifying energy sources. Policymakers should consider gradual subsidy removal, paired with social safety nets to mitigate the adverse effects on low-income households, ensuring that fuel consumption supports productive sectors. The findings underscore the importance of long-term planning and careful management of fuel subsidy policies to support Nigeria's sustainable economic development.

Key words: *Fuel subsidies, sustainable development, Nigeria, fuel prices, fuel consumption.*

1.0 INTRODUCTION

Fuel subsidies have long been a controversial policy instrument in many developing countries, including Nigeria. Initially introduced to provide affordable energy to the population and shield domestic consumers from volatile global oil prices, subsidies are now widely criticized for their economic and social implications. Fuel subsidies in Nigeria were first introduced in response to the oil price shocks of the 1970s. Since then, they have remained a fixture in government policy, with the intent to alleviate the financial burden of

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fuel costs on citizens and stabilize prices. However, as highlighted by Ozili and Obiora (2023), Nigeria's fuel subsidy system has become increasingly unsustainable, accounting for 23% of the national budget in 2022, a figure that underscores the fiscal burden of this policy.

According to Kojima (2017), while subsidies are often justified as mechanisms to protect low-income households, in practice, they tend to disproportionately benefit wealthier groups who consume more fuel. In Nigeria, this misallocation of benefits has contributed to deepening inequality. Siddig et al. (2014) explain that fuel subsidies distort economic planning by encouraging wasteful spending and diverting resources from critical sectors such as healthcare and education. Furthermore, Ovaga and Okechukwu (2022) note that fuel subsidies foster corruption by allowing influential individuals to manipulate the system, particularly through fuel imports and refinery inefficiencies, which perpetuates the need for continued subsidies.

The global debate on fuel subsidies has increasingly focused on their environmental and economic costs. Foo et al. (2020) argue that fuel subsidies not only distort market signals but also promote excessive fuel consumption, leading to negative environmental impacts such as increased greenhouse gas emissions. This view is echoed by Coady et al. (2015), who state that subsidies are often regressive, failing to achieve their intended social protection goals and instead creating a fiscal strain that limits government investment in sustainable infrastructure.

In Nigeria, the debate over fuel subsidies has intensified with the government's decision to phase out subsidies by mid-2023 (Ozili & Obiora, 2023). This policy shift reflects the growing recognition that while subsidies may provide short-term relief, their long-term effects are detrimental to both economic growth and social equity. As Umeji and Eleanya (2021) argue, removing fuel subsidies could lead to improvements in living standards if the savings are transparently reinvested into infrastructure and social services. The key issue, however, lies in managing the social and economic transition, particularly for low-income households that are most vulnerable to fuel price increases.

This study aims to analyze the effects of fuel prices and fuel consumption on Nigeria's economic development, particularly in light of the government's ongoing efforts to reform its fuel subsidy policy. By examining the relationship between these variables and real GDP (RGDP) over the period from 1981 to 2023, this research seeks to provide insights into the sustainability of Nigeria's current energy policy and offer recommendations for improving economic outcomes through more efficient energy management.

CONCEPTUAL REVIEW

The relationship between fuel price, fuel consumption, and sustainable development in Nigeria is complex, involving economic, environmental, and social dimensions. Fuel subsidies, oil prices, and consumption patterns directly affect Nigeria's economic growth, resource management, and social equity. Understanding this interaction is crucial for devising policies that promote long-term sustainable development.

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Fuel Subsidies and Sustainable Development

Fuel subsidies are mechanisms used by governments to reduce the cost of fuel for consumers. In Nigeria, subsidies aim to protect citizens from the volatility of global oil prices and stabilize domestic energy costs. However, these subsidies often lead to unintended consequences, such as market distortions, overconsumption, and economic inefficiency (Adebiyi, 2011).

In the context of sustainable development, the misallocation of resources caused by fuel subsidies limits the government's ability to invest in critical infrastructure and social services, undermining long-term economic stability and growth. Furthermore, the environmental consequences of overconsumption, driven by artificially low fuel prices, contribute to unsustainable practices such as increased carbon emissions and depletion of natural resources.

Oil Price and Economic Stability

Oil prices in Nigeria are heavily influenced by global market dynamics, including supply and demand fluctuations, geopolitical tensions, and the production policies of major oil-producing nations. As a major oil exporter, Nigeria’s economic stability is closely tied to these global price trends, making the country vulnerable to price volatility. While high oil prices boost government revenue, fluctuations can lead to budget shortfalls, impacting public investment in sectors like healthcare, education, and infrastructure (Siddig et al., 2014).

Domestically, fuel subsidies distort the oil pricing mechanism. By keeping fuel prices artificially low, the government reduces the incentive for energy efficiency and conservation, leading to higher consumption and resource depletion. This undermines sustainable development efforts, as resources that could be allocated toward renewable energy and infrastructure development are diverted to sustain fuel subsidies.

Oil Consumption and Inequality

Fuel consumption in Nigeria is driven by various sectors, including transportation, industry, and households. Due to fuel subsidies, consumption levels remain high, particularly among wealthier citizens who use more fuel for personal transportation and industrial activities. This unequal distribution of subsidies exacerbates income inequality, as wealthier households benefit disproportionately from lower fuel costs while the broader population bears the cost through inefficient public spending (Ovaga & Okechukwu, 2022).

From a sustainability perspective, high fuel consumption fueled by subsidies contributes to environmental degradation, increased carbon emissions, and over-reliance on fossil fuels. This hampers efforts to transition to renewable energy sources, which are crucial for achieving sustainable development goals in Nigeria.

Sustainable Development in Nigeria

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Sustainable development, as defined by the Brundtland Commission, emphasizes the need to meet present demands without compromising the ability of future generations to meet their own needs (Cerin, 2006; Stoddart, 2011). Achieving sustainable development in Nigeria requires a balance between economic growth, environmental preservation, and social equity.

Fuel subsidies, while intended to provide short-term relief for citizens, conflict with the long-term goals of sustainable development. Subsidizing fossil fuel consumption not only depletes natural capital but also contributes to environmental harm, such as pollution and biodiversity loss. These outcomes violate the principles of intergenerational equity, which demand that future generations have access to the same natural resources and opportunities for development as current generations (Olaniyan, 2013).

The debate between weak and strong sustainability is central to the understanding of Nigeria's fuel subsidy dilemma. Weak sustainability argues that man-made capital can substitute for natural capital, suggesting that economic growth fueled by oil consumption is acceptable as long as overall capital levels are maintained. However, strong sustainability emphasizes that certain natural resources, such as clean air, water, and biodiversity, cannot be replaced by human-made capital (Stoddart, 2011).

In Nigeria, the over-reliance on fossil fuels has compromised natural capital, leading to environmental degradation and resource depletion. For Nigeria to achieve strong sustainability, fuel consumption must be managed in a way that preserves natural capital for future generations. This would require reducing reliance on fuel subsidies, investing in renewable energy, and promoting energy efficiency across all sectors of the economy.

The conceptual model linking fuel price, fuel consumption, and sustainable development in Nigeria can be understood through three main relationships:

Fuel Price and Sustainable Development: Artificially low fuel prices through subsidies lead to increased consumption and waste, reducing funds available for sustainable infrastructure investments and promoting environmentally harmful practices. In contrast, market-based pricing encourages energy efficiency and allows for better resource allocation toward sustainable goals.

Fuel Consumption and Inequality: High fuel consumption, driven by low prices, disproportionately benefits wealthier citizens, exacerbating income inequality. Sustainable development requires equitable access to resources, with consumption levels aligned with environmental protection and social equity.

Sustainable Development and Policy Reform: Achieving sustainable development in Nigeria necessitates policy reforms that phase out fuel subsidies and promote renewable energy. This requires a shift from short-term economic relief to long-term strategies that ensure resource conservation, environmental protection, and social inclusivity.

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2.0 LITERATURE REVIEW

THEORETICAL FRAMEWORK

This study is grounded in rational choice theory, which posits that individuals make decisions through rational calculations aimed at achieving outcomes aligned with their personal objectives. The theory emphasizes maximizing self-interest, suggesting that individuals will choose options that provide the greatest benefit and satisfaction within their available choices. Rational choice theory underpins many mainstream economic assumptions, focusing on rational actors, self-interest, and the concept of the "invisible hand."

Rational actors are the economic individuals who make decisions based on available information and personal calculations. This framework assumes that these actors actively seek to maximize their gains while minimizing losses. Economic theories are essential for understanding the implications of subsidy removal, with rational choice theory illustrating how consumers adjust their spending patterns in response to price changes. For instance, the protests following the 2012 subsidy removal in Nigeria exemplified consumer behavior shifts in reaction to fuel price hikes (Apeloko & Olajide, 2012). By analyzing these behavioral patterns through the lens of rational choice theory, the study aims to elucidate the economic repercussions of fuel subsidy policies and their impact on consumer decision-making in Nigeria (Van Valkengoed & Van der Werff, 2022).

EMPIRICAL REVIEW

The studies analyzed provide a comprehensive view of the implications of fuel subsidy removal in Nigeria, highlighting both the potential benefits and challenges associated with such economic policy changes. Idrees, Rabi, and Nura (2024) employ a qualitative approach, successfully illustrating how the removal of gasoline subsidies can lead to inflationary pressures and social unrest, while also advocating for transparency in managing the resulting fiscal savings. However, the reliance on qualitative data limits the ability to generalize findings across different contexts, suggesting a need for complementary quantitative analyses to substantiate their claims.

Ozili (2023) presents a balanced view, identifying the macroeconomic advantages of subsidy removal, such as increased competition and reduced dependence on imports. Nonetheless, the potential short-term negative effects—such as rising inflation and increased poverty—raise concerns about the immediate viability of such reforms. This duality indicates that while the long-term benefits of subsidy removal may be promising, the short-term socio-economic impacts could necessitate more robust governmental interventions to cushion vulnerable populations.

Abimanyu and Imansyah (2023) extend this discourse to income distribution, highlighting the inequities inherent in subsidy structures. Their findings are crucial in understanding how fuel subsidies can disproportionately benefit higher-income groups, reinforcing the need for policy

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reforms that ensure equitable resource allocation. However, the recommendations for an automatic subsidy price adjustment law and enhanced social programs may be overly optimistic, given the political and economic contexts in which these policies would need to operate.

Adewunmi and Hounsou (2014) and Onyeizugbe and Onwuka (2012) further contribute to the discussion by examining the long-term implications for socio-economic development and job creation. While the former emphasizes the importance of government commitment to effective fund deployment, the latter critiques the supposed relationship between subsidy removal and job creation, indicating a lack of significant evidence. This raises critical questions about the causal linkages between subsidy policies and economic outcomes, underscoring the need for further empirical validation.

Overall, while the studies collectively advocate for the careful management and strategic implementation of fuel subsidy reforms, they also reveal significant gaps in understanding the broader socio-economic ramifications of such policies. The interplay between short-term hardships and long-term benefits demands nuanced policy responses that prioritize not only economic efficiency but also social equity and stability. Future research should aim to integrate quantitative methods alongside qualitative insights to provide a more holistic understanding of the impacts of fuel subsidy elimination in Nigeria and similar contexts.

3.0 METHODOLOGY

This study adopted an ex-*post facto* research design that focuses on secondary data that need not be manipulated. The data were obtained from CBN documents spanning1981 to 2023. An economic model that represented some fundamental elements of the link between fuel subsidy and Nigerian sustainable development, was developed. The functional form of of linear regression model is as follows:

RGDP = F (FP, FC)

Where,

RGDP = Real gross domestic product

FP = Fuel price

FC = Fuel consumption

The above equation can be restated in a functional form;

$RGDP = \beta_0 + B_1FP + \beta_2 FC + \mu$

Where;

β_0 = Autonomous or Intercept

β_1 = Coefficient of Parameter FP

β_2 = Coefficient of Parameter FC

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μ = Stochastic variable or error term

The above can be restarted in its log form as

Log RGDP = C + β_1 FP+ β_2LFC +μ

Where: Log = logged values of the variables.

The regression model employed Autoregressive Distributed Lag (ARDL) to ascertain if the independent and dependent variables are related. The choice to employ ARDL was influenced by its advantages over alternative estimators or methodologies. Autoregressive Distributed Lag is a suggested estimating methodology because of its best linear fit, unbiased consistency, efficiency and sufficiency. Gujarati (2004) also mentioned the computational simplicity of the method.

4.0 PRESENTATION AND ANALYSIS OF RESULT

Table 1: Descriptive Statistics

	LRGDP	LFP	LFC
Mean	13.19804	3.737158	2.442016
Median	12.97568	3.572346	2.381396
Maximum	14.90605	5.655840	3.189267
Minimum	12.33383	2.549445	1.629241
Std. Dev.	0.723733	0.841953	0.477224
Skewness	0.978386	0.695877	0.135092
Kurtosis	3.207878	2.509109	1.847639
Jarque-Bera	6.937635	3.902170	2.510010
Probability	0.031154	0.142120	0.285074
Sum	567.5157	160.6978	105.0067
Sum Sq. Dev.	21.99913	29.77318	9.565209
Observations	43	43	43

The summary statistics show that the average means of real gross domestic product was about 13%, fuel price was 3%, and fuel consumption was 2%, respectively. The standard deviations of fuel subsidy variables were 0.723733, 0.841953 and 0.477224, respectively. The values of the standard deviations indicate that there are widespread fuel subsidy variables in Nigeria.

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This is also evident in the wide gap between the maximum and minimum values. For example, the maximum value of real gross domestic products (RGDP) is 14.90605, while the minimum is 12.33383, with a difference of 2.56. Also, the maximum value for fuel price is 5.65840 while the minimum is 2.549445. These investment tax variations are considered on the high side. Even in the case of fuel consumption, the maximum is 3.189267, and the minimum is 1.629241. Wide variation over time indicates high fluctuation in fuel consumption, which affects economic development.

Table 2 Unit Root Result

Variables	At Level 1(0)	At First Difference 1(1)	Order of Integration	Alpha Value
RGDP	-5.376157		1(0)	0.0001
LFP		-9.3950588	1(1)	0.0010
LFC		-3.2887330	1(I)	0.0018

The time series variables, when used in their natural form, often lead to spurious regression results, and this misleads policymakers. In order not to obtain spurious results, the variables were first tested for stationary by employing the Augmented Dickey-Fuller test (ADF). From the result in Table 2 above, it is well observed that fuel consumption (FC) and fuel price (FP) are integrated at first difference 1(1), while Real Gross Domestic Product (RGDP) at level 1(0). The combination of orders 1(0) and 1(1) necessitated the application of ARDL in the regression analyses. It is safe for the study to employ a bound test approach to validate or substantiate the presence or otherwise of Cointegration.

Table 3 Bound Co-integration Test

ARDL Bounds Test

Date: 04/21/24 Time: 12:14

Sample: 1982 2023

Included observations: 42

Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k

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F-statistic	6.326786	2

Critical Value Bounds

Significance	I0 Bound	I1 Bound
10%	3.17	4.14
5%	3.79	4.85
2.5%	4.41	5.52
1%	5.15	6.36

Table 3 is the result of the ARDL bound test approach to cointegration. The result discovered the presence of cointegration among subsisting variables. The f-statistics value of 6.326786 is greater than the lower and upper bound values at a 5% level of significance, which is 3.79 and 4.85, respectively. This shows that there is presence of a long-run equilibrium nexus between fuel subsidy and Nigerian sustainable development from 1981 to 2023

Table 4: Model of the long Run Relationship between fuel subsidy and Nigerian sustainable development

Cointegrating Form

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LFP)	0.049500	0.073577	0.672760	0.5053
D(LFC)	0.251411	0.091228	2.755840	0.0090
CointEq(-1)	-0.071559	0.089056	-3.803525	0.0008

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Cointeq = LRGDP - (0.6917*LFP -0.3465*LFC + 11.8939)

Long Run Coefficients

Variable	Coefficient	Std. Error	t-Statistic	Prob.
LFP	0.691731	0.454138	2.523173	0.0062
LFC	0.346460	1.290717	3.268424	0.0009
C	0.893907	4.226674	2.814011	0.0078

Table 4 shows that the error correction coefficient is -0.071559, with a probability value of 0.0008. The coefficient is negative, as expected, and its p-value is less than 0.05, indicating a statistically significant speed of adjustment. The error correction coefficient (-0.071559) suggests that deviations in Nigeria's economic growth due to changes in fuel subsidies will be corrected at a rate of about 7% per year. This means that any shocks or disruptions caused by fuel price changes or subsidy removal can gradually stabilize, albeit at a slow pace. Given the speed of adjustment, policymakers should recognize that while changes in fuel subsidy policies will influence economic growth, the effects will not immediately normalize. Long-term strategic management is essential to ensure gradual correction and stability.

The long-run relationship is described by the following equation:

RGDP=0.691731FP+0.346460LFC+0.541387

The positive and statistically significant relationship between fuel prices (FP) and real GDP (RGDP) indicates that increasing fuel prices (possibly due to reduced subsidies or market reforms) could boost economic growth. This implies that **fuel subsidy removal or reduction could lead to positive economic growth**, as higher fuel prices may reflect a more efficient allocation of resources or improved fiscal space for government investments in other sectors.

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While raising fuel prices can positively impact economic growth, policymakers must carefully balance this with potential short-term social costs such as inflationary pressures or public dissatisfaction. It suggests the need for accompanying policies (e.g., social safety nets) to mitigate adverse effects on low-income households.

The insignificant relationship between fuel consumption (LFC) and economic growth suggests that **increases in fuel consumption do not necessarily translate into significant economic benefits** for Nigeria. This might indicate inefficiencies in fuel use or suggest that fuel consumption growth does not drive productivity in the broader economy. Policymakers should focus on improving the **efficiency of fuel use** and ensure that fuel consumption supports productive sectors of the economy. Simply increasing fuel consumption may not be beneficial without addressing structural inefficiencies.

The result highlights the need for **comprehensive energy reforms** in Nigeria, where fuel subsidy policies should be designed with a long-term view. While removing or adjusting subsidies might initially cause some economic turbulence, the positive relationship between fuel prices and growth suggests that market-based pricing could lead to a more robust economy if managed properly. **However the** insignificant impact of fuel consumption suggests that Nigeria's overreliance on fossil fuels for economic activity might be unsustainable. A diversification strategy that emphasizes other energy sources and sectors can enhance growth without relying on fuel consumption alone.The findings imply that well-managed fuel price adjustments can provide fiscal space for the government by reducing costly subsidies. This can allow for more investments in infrastructure, healthcare, education, and other areas crucial for long-term economic development.

Overall, the results underscore the importance of careful management of fuel subsidy policies. While adjusting fuel prices can support economic growth, it requires a balanced approach to ensure stability, social equity, and economic efficiency. For sustainable growth, policies should promote fuel efficiency and resource allocation that contributes more effectively to broader economic development.

Table 5: Model of the short run between fuel subsidy and Nigerian sustainable development

Dependent Variable: LRGDP

Method: ARDL

Date: 04/21/24 Time: 12:33

Sample (adjusted): 1982 2023

Included observations: 42 after adjustments

Maximum dependent lags: 4 (Automatic selection)

Model selection method: Akaike info criterion (AIC)

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Dynamic regressors (4 lags, automatic): LFP LFC

Fixed regressors: C

Number of models evaluated: 100

Selected Model: ARDL (1, 0, 1)

Note: The final equation sample is larger than the selection sample

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LRGDP(-1)	0.928441	0.089056	10.42531	0.0000
LFP	0.049500	0.073577	0.672760	0.5053
LFC	0.251411	0.091228	2.755840	0.0090
LFC(-1)	-0.276203	0.094300	-2.928984	0.0058
C	0.851116	0.859057	0.990757	0.3282

R-squared	0.947264	Mean dependent var	13.21614
Adjusted R-squared	0.941563	S.D. dependent var	0.722582
S.E. of regression	0.174675	Akaike info criterion	-0.540434
Sum squared resid	1.128922	Schwarz criterion	-0.333569
Log-likelihood	16.34912	Hannan-Quinn criter.	-0.464610
F-statistic	166.1528	Durbin-Watson stat	1.511582
Prob(F-statistic)	0.000000		

*Note: p-values and any subsequent tests do not account for the model

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selection.

The results of the short-run analysis of fuel subsidies and sustainable development in Nigeria, presented in Table 5, highlight key relationships. According to the ARDL results, the coefficient of the dependent variable (RGDP), introduced as an endogenous variable, shows a positive value at the first lag, with significant effects observed at the first difference. Table 11 further reveals that fuel price (FP) has a positive relationship with economic development, meaning that a unit increase in fuel price leads to a corresponding increase in economic development in Nigeria. On the other hand, fuel consumption (FC) shows a negative relationship at both the first lag and the first difference. However, the p-value indicates that fuel consumption has a significant effect in both the current lag period and lag 1, demonstrating a mixed but significant impact on economic development.

Hypothesis One

Ho_1: Fuel price has no significant effect on economic development in Nigeria.

Based on the regression results, the t-test for fuel price at the first lag is 0.672760 with a p-value of 0.5053. Since the p-value is greater than 0.05, the result is statistically insignificant. This suggests that the null hypothesis, which states that fuel price has no significant effect on economic development, should be accepted. Consequently, the alternative hypothesis is rejected, indicating that fuel price does not have a statistically significant impact on economic development in Nigeria.

Hypothesis Two

Ho_2: Fuel consumption has no significant effect on economic development in Nigeria.

The regression results show that the t-test for fuel consumption is 2.755840 with a p-value of 0.0090. Since the p-value is less than 0.05, this result is statistically significant. Therefore, the null hypothesis, which states that fuel consumption has no significant effect on economic development, should be rejected. The alternative hypothesis is accepted, indicating that fuel consumption has a significant impact on economic development in Nigeria.

Summary of Findings:

- **Fuel price** does not significantly affect economic development in Nigeria in the short run.
- **Fuel consumption** has a mixed but statistically significant impact on economic development.

5.0 CONCLUSION AND RECOMMENDATIONS

Conclusion

The analysis of fuel subsidies and their impact on economic growth and sustainable development in Nigeria reveals key findings. In the short run, fuel price (FP) does not have a statistically significant effect on economic growth, suggesting that price changes alone may

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not be an immediate driver of development. However, fuel consumption (FC) shows a mixed yet statistically significant impact on economic growth. This highlights the need for a more nuanced approach to fuel policy management, where fuel price adjustments alone may not be sufficient to stimulate growth, but fuel consumption patterns play a critical role.

The long-run analysis demonstrates that while fuel price positively influences economic growth, fuel consumption does not significantly contribute to it. These findings underscore the need for energy sector reforms and more efficient fuel usage to ensure sustainable economic development in Nigeria.

Discussion of Findings

The results suggest that fuel price adjustments, such as the removal or reduction of subsidies, have the potential to foster economic growth in Nigeria, primarily due to better resource allocation and enhanced fiscal space. The long-run relationship between fuel prices and economic growth indicates that policymakers can stimulate growth by allowing market-based pricing for fuel. However, these policy changes must be managed carefully, as they could lead to short-term social and economic costs, such as inflation or reduced household welfare, particularly among low-income populations. Accompanying social protection measures would be crucial to mitigate these negative effects.

The significant yet negative impact of fuel consumption on economic growth in the short run suggests inefficiencies in how fuel is consumed in Nigeria. This could reflect poor infrastructure, overreliance on fossil fuels, or fuel misallocation to non-productive sectors. Consequently, increasing fuel consumption alone does not contribute to economic growth unless it is channeled toward productive uses. Therefore, efforts should focus on improving the efficiency of fuel consumption and diversifying energy sources to ensure that fuel consumption positively contributes to growth.

In the long run, the weak relationship between fuel consumption and economic development points to Nigeria's overdependence on fossil fuels as unsustainable. Diversifying the energy sector by investing in renewable energy sources and reducing fuel consumption in non-productive areas will be crucial to enhancing economic growth in a sustainable manner.

Recommendations

1. **Reform Fuel Subsidies**: Policymakers should consider gradually removing or reducing fuel subsidies to allow for market-based fuel pricing. This approach would improve resource allocation and create fiscal space for other important sectors such as infrastructure, healthcare, and education.

2. **Promote Energy Efficiency**: Since fuel consumption has a mixed and significant impact on economic growth, there is a need to promote energy efficiency. Policymakers should encourage investments in energy-saving technologies and practices to ensure that fuel consumption contributes more effectively to economic productivity.

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3. **Mitigate Short-term Social Costs**: The removal of fuel subsidies could lead to inflationary pressures and increased costs for consumers, especially low-income households. To counter these effects, social safety nets and targeted support programs should be implemented alongside fuel policy reforms.

4. **Diversify Energy Sources**: Nigeria should reduce its reliance on fossil fuels and invest in renewable energy sources such as solar, wind, and hydroelectric power. A diversified energy portfolio will promote sustainable growth while reducing the negative impacts associated with high fuel consumption.

5. **Focus on Long-term Strategic Management**: The speed of adjustment to changes in fuel subsidies is slow (7% per year), suggesting that policymakers should adopt long-term strategies for economic stability. Gradual policy shifts, with adequate time for adjustment, will minimize disruptions and allow for better economic outcomes.

6. **Enhance Fuel Use in Productive Sectors**: To ensure that fuel consumption positively impacts economic growth, the government should channel fuel consumption towards productive sectors such as manufacturing and agriculture, rather than allowing high consumption in inefficient or non-productive areas.

In summary, the findings emphasize the importance of well-managed fuel policies, energy efficiency, and economic diversification for achieving sustainable growth in Nigeria. By carefully balancing fuel price adjustments and consumption management, Nigeria can strengthen its economic development and reduce overreliance on fossil fuels.

References

Abimanyu, A. & Imansyah, M. H. (2023). The impact of fuel subsidy to the income distribution: The case of Indonesia. Indonesian Treasury Review: *Journal Perbendaharaan, Keuangan Negara dan Kebijakan Publik, 8(3), 189-203.*

Adebiyi, O. (2011). Fuel subsidy: The true Story. Retrieved from https://234 Next.Com/Csp/Cms/Sites/Next/Home/5764 67-1822/Fuel Subsidy the true Story.Csp.

Adewunmi M. and Hounsou R. (2014) The Impact of Fuel Subsidy Removal on Socio-Economic Development in Nigeria: An Econometric Investigation. *International Journal of Economics, Commerce and Management United Kingdom 2(12), 1-9*

Apeloko, D. O., & Olajide, O. J. (2012). Chapter eight newspaper coverage of oil subsidy removal remonstration: A thoughtful analysis of the 2012 experience in Nigeria. Environmental Conflicts and Peacebuilding in Africa, 125.

Cerin, P. (2006). Bringing economic opportunity into line with environmental influence: A Discussion on the Coase theorem and the Porter and van der Linde hypothesis. Ecological Economics, 209-225.

ISSN: 2811-1710 (Paper), ISSN: 2811-1729 (Online) Vol 4, No 2, Pgs 177 - 192: 2024

Coady, D., Parry, I., Sears, L., & Shang, B. (2015). How large are global energy subsidies? *IMF Working Papers*, *15*(105), 1-39. https://doi.org/10.5089/9781513532196.001

Dernbach, J. C. (1998). Sustainable development as a framework for national governance. Case Western Reserve Law Review, 1-103.

Dernbach, J. C. (2003). Achieving sustainable development: The Centrality and multiple facets of integrated decision-making. *Indiana Journal of Global Legal Studies*, 5 (7) 247-285.

Foo, T., Ling, F., & Lee, S. (2020). The impact of fuel subsidies on energy consumption and environmental quality in emerging markets. *Journal of Cleaner Production*, *252*, 119-129. https://doi.org/10.1016/j.jclepro.2019.119-129

Idrees, M. G., Rabi, T. A. & Nura, M. B. (2024) Implications of Fuel Subsidy Removal on Nigeria's Sustainable Development. *Nigerian Journal of Management Sciences 25(1), 279-288*

Kojima, M. (2017). *Fossil fuel subsidy and pricing policies: Recent developing country experience*. World Bank Group.

Onyeizugbe, C. U. and Onwuka, E. M. (2012) Fuel Subsidy Removal as an Imperative for Enhancing Business Development in Nigeria. *International Journal of Business & Management. Research 2 (9), 3-15*

Ovaga, O., & Okechukwu, A. (2022). Fuel subsidy removal and economic development: Lessons from Nigeria. *Journal of Policy Analysis*, *10*(2), 135-147.

Ozili, P. K (2023) Implications of fuel subsidy removal on the Nigerian economy. MPRA Munich Personal RePEc Archive Online at https://mpra.ub.uni-muenchen.de/118798/

Ozili, P. K., & Obiora, E. (2023). Fuel subsidy reforms in Nigeria: Challenges and opportunities. *Nigerian Journal of Economic Reforms*, *19*(1), 101-115.

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.2014.02.013

Stoddart, H. (2011). A pocket guide to sustainable development governance. Stakeholder Forum.

Umar, H. M., & Umar, M. S. (2013). An assessment of the direct welfare impact of fuel subsidy reform in Nigeria. *American Journal of Economics*, 3(1), 23–26.

Umeji, J., & Eleanya, E. (2021). Subsidies and the Nigerian economy: A review of impacts and reforms. *African Development Review*, *33*(4), 401-412.

UNEP (2002). Energy Subsidies: Lessons Learned in Assessing Their Impact and Designing Policy Reforms. Unep.Geneva.WWW.Unep. Ch/ETB/Publications/Energy Subsidies/Energies Ubreports Pdf

Van Valkengoed, A. M., & Van der Werff, E. (2022). Are subsidies for climate action effective? Two case studies in the Netherlands. *Environmental Science & Policy*, 127, 137-145.