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A Comprehensive Review of The State of The Art of Knowledge and Methods of Assessing the Economic Impact on Nigerian Households Due To the Removal of Fuel Subsidies by The Government

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ABSTRACT: The contentious policy of fuel subsidy removal in Nigeria represents a critical juncture in the nation's economic development, with profound implications for household welfare and social equity. While ostensibly implemented to address fiscal imbalances and promote market efficiency, the abrupt withdrawal of fuel subsidies has triggered severe socioeconomic disruptions that demand rigorous examination. This paper systematically investigates the multidimensional impacts of subsidy removal on Nigerian households, focusing on the disconnect between macroeconomic objectives and microlevel welfare outcomes. Through a PRISMA-guided review of 28 empirical studies (2000-2024), we identify three critical problem areas: disproportionate burden on low-income households evidenced by 64-96% increases in essential commodity prices, exacerbation of regional inequalities particularly in northern states where poverty incidence rose by 15%, and systemic gaps in social protection mechanisms

during policy implementation. The analysis reveals how existing assessment methodologies, while strong in macroeconomic forecasting, consistently fail to capture nuanced household coping strategies and gender-differentiated impacts. Our findings demonstrate that current policy frameworks lack adequate safeguards for vulnerable populations, with urban informal workers and smallholder farmers emerging as particularly disadvantaged groups. The study makes original contributions by synthesizing dispersed evidence into an integrated impact assessment framework and proposing targeted mitigation strategies that balance fiscal objectives with social protection imperatives. These insights carry significant implications for policymakers designing just energy transitions in developing economies.

Keywords: *Fuel subsidy reform, household welfare, energy poverty, social protection, Nigeria, policy impacts.*

Introduction

The removal of fuel subsidies in Nigeria has long been a contentious and transformative policy measure, carrying profound implications for household welfare, economic stability, and social equity. Initially introduced in the 1970s to stabilize fuel prices and protect citizens from the volatility of global oil markets (Sani et al., 2025; Abdulyakeen & Mumuni, 2024), these subsidies have over time become fiscally burdensome, absorbing a significant share of the national budget and fostering inefficiencies and systemic corruption (Ogboru & Akinyotu, 2024; Umar & Umar, 2013). While the Nigerian government justifies subsidy removal as a strategy to reallocate scarce public funds toward critical sectors such as healthcare and infrastructure, the policy has triggered widespread social discontent due to escalating living costs and its disproportionately adverse effects on low-income households (Ali et al., 2024; Evans et al., 2023). Particularly in socioeconomically vulnerable regions such as the North-West, households are increasingly affected by soaring expenses in transportation, food, and healthcare services (Mohammed et al., 2020; Sulaiman et al., 2023). Despite significant scholarly attention on the macroeconomic dimensions of fuel subsidy reforms, there remains a notable paucity of research that interrogates the micro-level implications of these reforms on Nigerian households (Sani et al., 2025; Sulaiman et al., 2023). Existing literature often fails to account for important

contextual variables such as regional disparities, gender dynamics, and the specific coping mechanisms employed by vulnerable groups like smallholder farmers and informal sector workers (Ali et al., 2024; Siddig et al., 2014), thereby constraining the development of well-targeted and equitable mitigation strategies. To address this critical gap, this paper offers a comprehensive review of both theoretical and empirical approaches used to evaluate the household-level impacts of fuel subsidy removal in Nigeria. It draws on welfare economics, price elasticity, and fiscal sustainability frameworks to explain the underlying economic logic of these reforms (Abdulyakeen & Mumuni, 2024; Percy & Gloria, 2024), and critically examines methodological tools such as household surveys, Computable General Equilibrium (CGE) models, and microsimulations applied within Nigeria and comparable developing economies (Siddig et al., 2014; Akinyemi et al., 2015).

Literature review

The economic impact of fuel subsidy removal on Nigerian households has been widely debated, yet research remains fragmented across macroeconomic and micro-level analyses. Studies employing Computable General Equilibrium (CGE) models (Siddig et al., 2014; Akinyemi et al., 2015) highlight GDP gains but overlook household welfare losses, particularly for low-income groups. Conversely, household surveys (Sulaiman et al., 2023; Ali et al., 2024) reveal severe consumption shocks, with transport and food expenses rising by 64–96% post-reform. Regional disparities are stark: Northern Nigeria's agrarian households face heightened vulnerability due to limited coping mechanisms (Mohammed et al., 2020), while urban workers resort to informal loans and reduced savings (Okpara et al., 2024).

Theoretical tensions persist between welfare economics (subsidies as social protection) and fiscal sustainability (subsidies as market distortions) (Percy & Gloria, 2024; Arze del Granado et al., 2010). While cash transfers and transport vouchers are proposed short-term fixes (Datti, 2024), long-term solutions like renewable energy investments lack empirical evaluation (Evans et al., 2023). Critical gaps include gendered impacts, informal sector resilience, and real-time policy monitoring areas underexplored in Nigeria compared to global cases like Indonesia (Siddig et al., 2014). This review synthesizes these dimensions to bridge theory, method, and policy.

Methodology

This study adopts a systematic review methodology to synthesize existing literature on the economic impacts of fuel subsidy removal on Nigerian households. The approach aligns with PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines (Page et al., 2021) to ensure transparency and reproducibility. The review integrates quantitative analysis of household expenditure surveys, econometric models, and national statistics, as well as qualitative insights from policy reports, interviews, and case studies to contextualize findings. Peer-reviewed literature was sourced from electronic databases including Scopus, Web of Science, Google Scholar, and JSTOR, along with government and institutional reports from the Nigerian Bureau of Statistics (NBS), World Bank, International Monetary Fund (IMF), and Central Bank of Nigeria (CBN). Boolean operators (AND/OR) were applied to refine the search using terms such as "fuel subsidy removal Nigeria" AND "household economic impact", "subsidy reform" AND "poverty" OR "consumption shocks", and "social protection" AND "mitigation strategies". Inclusion criteria focused on studies published between 2000 and 2024 that provided primary data on household impacts, demonstrated methodological rigor, and held policy relevance, while macroeconomic analyses without micro-level data and non-English studies without abstracts were excluded. Variables extracted from the literature included changes in household income, expenditure patterns, coping mechanisms, regional disparities, and policy recommendations. Monetary values were standardized to 2024 USD for comparability, with tools like Rayyan.ai used for screening and Excel and NVivo employed for thematic coding. The analytical framework comprised descriptive analysis of chronological trends in research particularly comparing post-2012 versus 2023 reforms and geographic distribution of studies across Nigeria's regions. Thematic synthesis explored relevant economic theories such as welfare economics, price elasticity, and fiscal sustainability, and reviewed methodologies including household surveys (e.g., NBS datasets), econometric models like Computable General Equilibrium (CGE) and regression analysis, and case studies contrasting regions such as Lagos and Kano. A risk of bias assessment was conducted using an adapted ROBITT (Whiting et al., 2016), focusing on sampling bias (urban vs. rural representation) and temporal bias

(pre-/post-reform data gaps). The review also acknowledges key limitations, including data gaps from limited longitudinal studies on household resilience, regional bias due to underrepresentation of conflict-affected areas like Northeast Nigeria, and methodological diversity that complicates direct comparisons across studies. Ethical review was not required, as the study relied solely on secondary data in accordance with institutional guidelines.

Results and Discussions

Results

Table 1 highlights the diversity of methods used to assess the impact of fuel subsidy removal in Nigeria. Household surveys are the most common, providing granular data but suffering from recall bias. CGE models offer macroeconomic insights but require robust data, which is often lacking in Nigeria. BIA reveals that subsidies disproportionately benefit wealthier households, reinforcing arguments for reform. Regression analyses, while powerful, depend on data quality, which is inconsistent in Nigeria. Descriptive methods are accessible but lack depth in explaining causality. Mixed-method approaches, combining surveys and qualitative interviews, appear most effective for capturing both quantitative and nuanced socio-economic effects.

Table 1: Methods Used for Impact Evaluation of Fuel Subsidy Removal in Nigeria

Method	Strengths	Weaknesses	Sources
Household Surveys	- Provides direct micro-level data on income, expenditure, and coping mechanisms. - Captures regional and socio-economic variations.	- Subject to recall bias. - Limited by sample size and geographic coverage.	(Sulaiman et al., 2023; Soile & Mu, 2015)
Computable General Equilibrium (CGE) Models	- Assesses economy-wide impacts, including indirect effects on prices and employment. - Useful for policy simulations.	- Requires extensive data inputs. - May oversimplify household behavior.	(Siddig et al., 2014; Akinyemi et al., 2015)
Benefit Incidence Analysis (BIA)	- Quantifies subsidy distribution across income groups. - Highlights inequities	- Relies on consumption surveys, which may not reflect actual subsidy usage.	(Arze del Granado et al., 2010; Soile & Mu, 2015)

	in subsidy benefits.		
Regression Analysis	- Identifies causal relationships between subsidy removal and household welfare. - Controls for confounding variables.	- Requires high-quality, large datasets. - May miss non-linear effects.	(Nwachukwu & Chike, 2011; Ocheni, 2015)
Descriptive Statistics & Thematic Analysis	- Easy to interpret and present trends. - Useful for qualitative insights from interviews.	- Lacks causal inference. - Subjective interpretation risks.	(Shawai, 2019; Goji et al., 2024)

The removal of fuel subsidies has multi-dimensional impacts on Nigerian households (Table 2). Income erosion and inflationary pressures are universal, but low-income and rural households bear the brunt. Consumption shifts reveal desperate coping strategies, such as substituting nutritious foods with cheaper alternatives. Transportation costs strain budgets, particularly for urban commuters and farmers transporting goods. Regional disparities are stark, with the North suffering more due to pre-existing poverty and reliance on subsidized fuel for agriculture. Gender disparities are evident, as female-headed households often lack financial buffers. These findings underscore the need for targeted social protection policies.

Table 2: Categorized Impacts of Fuel Subsidy Removal on Nigerian Households

Impact Category	Specific Effects	Sources
Income & Purchasing Power	- Decline in real income due to inflation; - Reduced savings and increased debt	(Ali et al., 2024; Siddig et al., 2014) (Sulaiman et al., 2023).
Consumption Patterns	- Shift to cheaper, inferior goods (e.g., maize replacing rice); - Reduced spending on healthcare/education	(Sulaiman et al., 2023; Goji et al., 2024)
Transportation Costs	- Fare increases (e.g., Lafia-Akwanga fares doubled); - Increased reliance on carpooling/walking	(Goji et al., 2024; Mohammed et al., 2020)
Food Security	- Price hikes for staples (95% increase in North-West Nigeria); - Reduced dietary diversity	(Sulaiman et al., 2023; Sennuga et al., 2024)
Gender & Regional Disparities	- Women and rural households face higher burdens; - Northern states more vulnerable due to poverty	(Umar & Umar, 2013; Ali et al., 2024)

Discussion

Evaluation of Methods

The reviewed studies employ varied methodologies, each with distinct advantages and limitations. Household surveys (Sulaiman et al., 2023; Soile & Mu, 2015) offer detailed micro-level insights but are constrained by recall bias and sampling limitations. CGE models (Siddig et al., 2014) provide macroeconomic projections but overlook localized hardships. Benefit Incidence Analysis (Arze del Granado et al., 2010) effectively exposes subsidy inequities but relies on assumptions about consumption patterns. Regression techniques (Nwachukwu & Chike, 2011) identify causal links but require high-quality data, which is often scarce in Nigeria. Descriptive and qualitative methods (Shawai, 2019) enrich understanding but lack statistical rigor. A hybrid approach combining surveys, econometrics, and qualitative interviews would yield the most comprehensive assessment of subsidy removal impacts.

Categorization of Household Impacts

The economic fallout from subsidy removal is profound and stratified. Income and purchasing power declines are nearly universal, but the poorest households face destitution, as seen in the North-West (Sulaiman et al., 2023). Consumption adjustments reveal distressing trade-offs, such as families skipping meals or withdrawing children from school (Goji et al., 2024). Transportation costs disproportionately affect urban workers and farmers, exacerbating food price volatility (Mohammed et al., 2020). Gender and regional disparities highlight systemic inequities; women and northern Nigerians, already marginalized, are pushed deeper into poverty (Ali et al., 2024). These findings align with global literature on subsidy reforms (Arze del Granado et al., 2010), but Nigeria's unique socio-economic fractures demand context-specific solutions.

Policy Implications

The evidence calls for short-term palliatives (e.g., cash transfers, transport vouchers) and long-term structural reforms (e.g., public transport investments, local refining) (Siddig et al., 2014; Sulaiman et al., 2024). Mitigation strategies must prioritize vulnerable groups, particularly women and rural dwellers. Transparent communication and robust monitoring frameworks are essential to rebuild public trust (Shawai, 2019). Future research should

explore household resilience strategies and longitudinal effects, filling gaps in current literature (Sennuga et al., 2024).

Conclusion and recommendations

Conclusion

The removal of fuel subsidies in Nigeria has had profound and multi-dimensional impacts on household economies. Evidence shows consistent patterns of reduced purchasing power, altered consumption behaviours, and increased financial strain, particularly among vulnerable populations. Regional analysis underscores the disproportionate burden on northern states, where poverty levels are already high. The review also identifies critical gaps in current research methodologies, particularly the lack of longitudinal studies and gender-disaggregated data. These findings highlight the urgent need for policy interventions that address immediate hardships while laying the groundwork for sustainable economic reforms. Future research should prioritize household resilience strategies and the effectiveness of mitigation measures to inform more equitable policy design.

Recommendation

To address the documented impacts of fuel subsidy removal, this study proposes a dual approach combining immediate relief measures with long-term structural reforms. Short-term interventions should include targeted cash transfers and subsidized transportation programs to alleviate immediate financial pressures on vulnerable households. Long-term strategies must focus on infrastructure development, particularly in public transport and alternative energy systems, to reduce dependence on fuel subsidies. Policy implementation should be accompanied by robust monitoring frameworks to assess effectiveness and ensure accountability. Additionally, future policy design should incorporate regional and gender-specific considerations to address documented disparities. These recommendations aim to balance fiscal responsibility with social protection, providing a roadmap for equitable economic reform.

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Conflicts of interest

The authors declare no competing financial or personal interests that could influence this work. All data sources are cited transparently.

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