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Impact of fuel subsidy removal on transportation system in Nigeria

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ABSTRACT

The study investigated the impact of fuel subsidy removal on transportation system in Nigeria. The study employed a descriptive survey research design. Sample size of 70 commuter transporters gotten from a population of 7 licenced motor parks. An oral interview coupled with structure coded sheet as instrument for data collection. The data collected were analysed using simple percentage, from the analysis, result showed that subsidy plays a positive impact on the transport system and as well enhance the good performance of the system. On the contrary, the removal subsidy has a significant negative impact on the transportation system as it reduces the revenue rate, the number of long journey transport vehicles and also reduces the amount of time vehicles are be maintained to be road worthy. Based on these findings, the study recommends that a comprehensive approach that combines targeted assistance, infrastructure investment, capacity building, and stakeholder collaboration is essential to address the challenges posed by fuel subsidy removal and ensure the sustainability and resilience of the transportation sector. By implementing these recommendations, government can mitigate the adverse effects of subsidy removal on passengers and transporters while fostering a more efficient, inclusive, and sustainable transportation system.

Keyword: Subsidy, subsidy removal, Transport system, Nigeria

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I. Introduction

Fuel subsidy removal has been a contentious issue in Nigeria, eliciting debates and discussions across various sectors of the economy, particularly in relation to its effects on the transportation system. Nigeria, a country heavily reliant on petroleum products for its transportation needs, has historically implemented fuel subsidies as a means to alleviate the economic burden on its citizens. However, the removal of fuel subsidies has far-reaching implications, particularly within the transportation sector, which plays a pivotal role in the country's socio-economic dynamics. Nigeria, being the largest oil producer in Africa, has paradoxically struggled with providing affordable and efficient transportation services to its populace. The transportation system in Nigeria is predominantly road-based, with the majority of its citizens relying on petrol and diesel-powered vehicles for commuting and freight transport. Therefore, any changes in the pricing and availability of fuel directly impact the transportation network, influencing mobility patterns, costs, and overall accessibility.

The decision to remove fuel subsidies in Nigeria stems from various factors, including fiscal pressures, economic reforms, and the need to rationalize government spending. Historically, fuel subsidies have placed a significant strain on the country's finances, diverting funds that could have been channelled into critical infrastructure development and social programs. Consequently, successive Nigerian governments have attempted to address the issue of fuel subsidies, often met with resistance from the populace due to concerns about the potential adverse effects on living standards and inflation. Scholars and policymakers have extensively analyzed the impact of fuel subsidies removal on the transportation system in Nigeria. According to Oni, Folarin, & Ali (2018) the removal of fuel subsidies resulted in an immediate increase in transportation costs, leading to higher fares for commuters and elevated operational expenses for transport operators. This rise in transportation costs disproportionately affects low-income earners, who heavily rely on public transport for their daily activities. Moreover, the increased cost of fuel translates to higher operating costs for commercial vehicles, which may result in reduced profitability for transport businesses. Furthermore, the removal of fuel subsidies has broader implications for the efficiency and reliability of the transportation system. With higher fuel costs, transport operators may resort to cost-saving measures such as reducing vehicle maintenance or overcrowding

vehicles to maximize revenue. This could potentially compromise passenger safety and exacerbate congestion on roads, further impeding the flow of traffic and exacerbating environmental pollution.

In addition to the immediate effects on transportation costs and operational dynamics, the removal of fuel subsidies also stimulates structural changes within the transportation sector. According to Owoeye & Sanusi (2020) there is a shift in consumer preferences towards alternative modes of transportation, such as motorcycles and tricycles, which are perceived as more fuel-efficient and cost-effective options in the absence of subsidized fuel. This shift not only impacts the demand for traditional modes of transport but may also poses regulatory challenges as informal transport services gain prominence in the absence of robust public transportation infrastructure. Therefore, there is a need to ascertain the factual impact of this changes on the economy as respect to the transportation system. It is as a result that, that this study focus on the impact of fuel subsidy removal on transportation system in Nigeria

Statement of the problem

The removal of fuel subsidies in Nigeria has led to increased transportation costs and rates, impacting various sectors like distribution, handling, and production. While subsidy removal may have economic and political merits, its social consequences, including the burden on citizens and lack of alternative energy infrastructure, are severe. Corruption risks persist in subsidy allocation, requiring careful policy implementation. Ultimately, a balanced approach is needed to address both economic concerns and social welfare needs, especially for vulnerable populations and rural communities. However, there are several effects this subsidy removal could have on the level and rate of mobility and as a result affecting economic growth of Nigeria. This is one of the major challenges that subsidy removal could have on the citizen of Nigeria. It is as a result of this challenge that this study is focus on investigating the Impact of fuel subsidy removal on transportation system in Nigeria

Aims and Objectives

The major aim of the study is to ascertain the Impact of fuel subsidy removal on transportation system in Nigeria. Specifically, the objective is to ascertain

- 1. The rate at which passengers travelling flood motor park before and after subsidy removal.
- 2. The Numbers of commuter per day before and after subsidy removal
- 3. The impact of subsidy on the performance of transporters.

II. LITERATURE REVIEW

Concept Of Fuel Subsidy

Subsidy by definition is a measure kept in place that help consumers pay less for good or product (Adebiyi, 2011). According to the Academics Dictionary of Economics (2006), subsidy can be defined as the cash incentive given by the government to an industry with a view to lower the price of the product of the concerned industry and to raise its competitive power. This may be given as a counter balancing measure to the imposition of the custom duty by an importing country government. Fuel subsidy is a government discount on the market price of fossil fuel to make consumers pay less than the prevailing market price of fuel (Ovaga and Okechukwu, 2022).

Adeniran & Adetayo (2016) defined subsidy as any measure that keeps prices consumers pay for a goods or products below market levels for consumers or for producers above market. According to him, Subsidies take different forms. Some subsidies have a direct impact on price. These include grants, tax reductions and exemptions or price controls. According to Smith, (2021) subsidy is a financial assistance provided by the government to individuals or businesses to lower the cost of goods or services, promote specific industries, or achieve social or economic objectives. Subsidy refers to a direct or indirect financial support granted by the government to producers or consumers to encourage the production, consumption, or distribution of certain goods or services deemed to be of public interest (Jones & Lee, 2019).

Theoretical Framework Social welfare state theory

The study is anchored on social welfare state theory propounded by William Beveridge in 1942. Theory posits that the government has a responsibility to provide basic economic security and social services to its citizens. This includes things like unemployment benefits, healthcare, education, and housing assistance. This implies that there is a need for government to make provision of subsidizing products and service for the consumers in other to better social life and living.

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Theoretical studies

Rate Which Passengers Travelling Flood Motor Park Before And After Subsidy Removal

Transportation subsidies are a significant tool employed by governments worldwide to influence passenger behavior, alleviate financial burdens, and promote accessibility to public transportation systems. However, the decision to remove subsidies often sparks considerable debate, particularly concerning its impact on various stakeholders, including passengers. In this context, assessing the rate at which passengers travel to flood motor parks before and after the removal of subsidies emerges as a crucial research endeavor. The removal of subsidies on transportation services can trigger notable shifts in passenger behavior, primarily influenced by changes in fare pricing and overall affordability. Studies conducted in diverse socio-economic contexts provide valuable insights into the dynamics of passenger travel patterns in response to subsidy removal. For instance, research conducted has demonstrated that the removal of transportation subsidies can lead to an immediate increase in fare prices, consequently affecting passenger mobility patterns and preferences (Ajide, Ibrahim, & Opeyemi, 2019). Before the removal of subsidies, passengers often enjoy the benefits of reduced fare rates, which may incentivize increased travel frequency and patronage of motor parks. However, the post-subsidy removal scenario presents a starkly different landscape, characterized by heightened fare prices that may deter some passengers from utilizing motor park services. Empirical evidence suggests that such shifts in passenger behavior can significantly impact the operational dynamics of motor parks, leading to fluctuations in passenger volumes and revenue streams (Aina, 2018). Moreover, the removal of subsidies may exacerbate existing disparities in transportation accessibility, particularly among low-income populations. Vulnerable groups, including the economically disadvantaged, may face heightened challenges in accessing affordable transportation options, thereby exacerbating issues of social exclusion and marginalization (Olorunniwo, 2020). Consequently, understanding the rate at which passengers travel to flood motor parks before and after subsidy removal is essential for elucidating the broader socio-economic implications of transportation policy changes. Transportation cost has impact on the economy of the continent. Omotosho (2019) developed Keynesian new model to monitor the effect of global oil price on retail price and found out that under subsidy, the tendency for inflation to decrease and exchange rate depreciates in the short run. According to Obasi et al (2017) their research found out that the large scale of corruption in the oil sector metamorphosed to impoverished average Nigerians. Furthermore, they expressed that unlike Ghana, Nigerian government did not prepare for how to cushion the effect of fuel subsidy before embarking on subsidy removal. Panou and Proios (2015) explained that affordability of transport is crucial to basic needs of life. Transport affordability improves access to medical care, education, socializing, and opportunities. Using affordability index, they noted that, the quality and quantity of mobility options can be affected by price of transportation. Low and medium income people are affected by the charges of transport. Transportation cost increases the cost and charges of all other commodities and the ripple effect will be pronounced on the economy. In spite of transportation cost's tendencies to increase other commodities' cost, it has some advantages. As opined by Panou and Proios (2015) transportation cost forces people to limit their traveling, reduces parking, congestion and environmental pollution. There was a postulation that three component variables are responsible for transportation cost viz: ownership cost, auto use cost and transit use cost. Transportation cost seems to reduce as kilometer covered increases. As noted by Panou and Proios (2015), transportation affordability index showed that disadvantaged people are denied opportunities through transport and it is very important for economic activities. Cost of traveling is increased by fuel wastage and delay attributed to re-routing, the condition of logistics vehicle, number of vehicles on the road, the route space, condition of the road, conflicts of right of way and condition of other vehicles on the road (Somuyiwa and Adepoju, 2018). According to Gao et al (2019) and Rushton et al (2010) transportation costs can be fixed cost (standing), variable cost (running) and overhead cost.

Numbers of Commuter Per Day Before and After Subsidy Removal

The assessment of commuter numbers per day before and after the removal of subsidies on transportation services serves as a pivotal inquiry in understanding the ramifications of such policy changes on passenger mobility patterns and overall transportation dynamics. Subsidies play a crucial role in shaping commuter behavior, influencing factors such as fare affordability, mode choice, and travel frequency. Consequently, the removal of subsidies precipitate significant shifts in commuter numbers, with far-reaching implications for transportation systems, infrastructure utilization, and socio-economic equity. Investigation into the effects of subsidy removal on commuter numbers offer valuable insights into the complex interplay between policy interventions and passenger behavior. Before the removal of subsidies, commuters often benefit from reduced fare rates, which may incentivize increased travel frequency and patronage of public transportation services (Kabir, 2018). However, the post-subsidy removal scenario presents a different landscape, characterized by higher fare prices deter some commuters from utilizing public transportation options (Ayinde & Olanrewaju, 2020). Consequently, commuter numbers may experience fluctuations as passengers reassess their travel choices and adapt to the new economic realities. Empirical evidence suggests that the removal of subsidies can lead to a decline in commuter numbers, particularly among economically vulnerable populations. Low-income

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commuters, who are disproportionately affected by fare increases, may resort to alternative modes of transportation or reduce their travel frequency altogether (Mogaji & Fakoya, 2019). This trend underscores the importance of considering the equity implications of subsidy removal, as it may exacerbate existing disparities in transportation access and affordability. Furthermore, variations in commuter numbers before and after subsidy removal can have ripple effects on transportation infrastructure utilization and service provision. Motor parks, train stations, and bus terminals may experience fluctuations in passenger volumes, leading to challenges in capacity management and resource allocation (Ojo & Ogunleye, 2019). Additionally, transportation operators may face uncertainties regarding revenue streams and operational sustainability in the absence of subsidy support.

The impact of subsidy removal on commuter numbers is not solely determined by fare pricing dynamics but also influenced by broader socio-economic factors and policy contexts. For instance, the availability and accessibility of alternative transportation options, such as private car ownership, ride-hailing services, or informal transport networks, can shape commuters' decisions in response to subsidy removal (Oyedepo & Adewale, 2018). Likewise, the implementation of complementary policies, such as infrastructure improvements, fare subsidies for low-income earners, or incentives for sustainable modes of transportation, can mitigate the adverse effects of subsidy removal on commuter numbers (Olatunji, 2020).

Impact of Subsidy on the Performance of Transporter

The impact of subsidies on the performance of transporters represents a multifaceted aspect of transportation economics that encompasses various dimensions, including operational efficiency, financial sustainability, and service quality. Subsidies, as financial incentives provided by governments or other entities, can significantly influence the operating environment for transporters, affecting their revenue streams, cost structures, and overall business viability.

Transporter performance encompasses a range of metrics, including but not limited to, revenue generation, cost efficiency, service reliability, customer satisfaction, and environmental sustainability (Amoako-Tuffour, 2020). The influence of subsidies on these performance indicators varies depending on factors such as subsidy design, implementation mechanisms, and market dynamics.

One key aspect of the impact of subsidies on transporter performance is their role in bolstering financial viability and operational stability. Subsidies can serve as a crucial source of revenue for transporters, particularly in industries characterized by thin profit margins and high operating costs (Adeyemi & Aderanti, 2019). By offsetting operating expenses or providing direct financial support, subsidies enable transporters to maintain service levels, invest in fleet modernization, and expand route networks, thereby enhancing overall performance and competitiveness.

Moreover, subsidies can exert a profound influence on the pricing dynamics within the transportation market, thereby shaping demand patterns and revenue generation for transporters. Subsidy-induced fare reductions or fare stabilization measures can stimulate passenger demand, leading to increased ridership and revenue for transporters (Ogunleye & Adebola, 2018). Conversely, the removal or reduction of subsidies result in fare hikes, which deter some passengers and potentially reduce transporter revenues. Consequently, the design and implementation of subsidy policies play a crucial role in mediating the impact on transporter performance. However, the relationship between subsidies and transporter performance is not solely determined by financial considerations. Subsidies can also affect service quality and operational efficiency, thereby influencing customer satisfaction and market competitiveness. For instance, subsidies earmarked for infrastructure investment or fleet modernization initiatives can enhance service reliability, reduce travel times, and improve passenger comfort, thereby bolstering transporter performance (Nwosu & Igwe, 2019). Similarly, subsidies aimed at promoting environmentally sustainable practices, such as the adoption of cleaner technologies or modal shifts, enhance the long-term viability of transporters by reducing operating costs and regulatory compliance burdens (Owoeye & Adewale, 2020).

Furthermore, the impact of subsidies on transporter performance extends beyond immediate financial and operational considerations to encompass broader socio-economic and environmental outcomes. Subsidies play a pivotal role in promoting inclusive access to transportation services, particularly for underserved communities and marginalized populations (Ajayi & Adebayo, 2020). By ensuring affordable and accessible transportation options, subsidies contribute to social equity objectives while supporting economic development and mobility enhancement initiatives. The impact of subsidies on the performance of transporters is a complex and multifaceted phenomenon that encompasses various dimensions, including financial viability, operational efficiency, service quality, and socio-economic equity.

Empirical Studies

It's interesting to note that there have been several empirical works conducted by researchers on the effects of gasoline prices on the Nigerian economy. For instance, Nwosa (2012) carried out a study that explored the relationship between domestic fuel price and various macroeconomic variables in Nigeria from 1986 to

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2011. The study used vector auto-regressive (VAR) and vector error correction (VEC) models to analyze the data. The results showed that there is a unidirectional causation from domestic fuel price to short-term interest rate for pairs of variables that are integrated of the same order but not co-integrated. The VEC model also revealed the existence of causality from domestic fuel price to inflation rate in the long and short run for pairs of variables that are integrated of the same order and are co-integrated. Based on these findings, it is important for the government to exercise caution when considering the removal of fuel subsidies and the liberalization of the downstream sector of the petroleum industry, especially with respect to the increase in gasoline prices (Nwosa & Ajibola, 2013).

Another study by Hui-Siang *et al.* (2011) investigated the relationship between domestic petrol price and the 10 principal economic sectors in Malaysia using quarterly data from 1990 to 2007. The study employed a vector error correction model and found that only the agriculture, trade, and services sectors had a comovement with fuel prices. Additionally, the study revealed that beyond the short run, fuel price remained the principal variable for these three economic sectors based on the significant coefficient for error correction term (ECT) in the sectoral equations. The study also discovered a unidirectional causality running from the mining sector to fuel price through the standard Granger causality test. Finally, the generalized variance decomposition (GVDCs) test showed that some of these sectors over a longer period are influenced by the fuel price.

Finally, Ehinomen and Adeleke (2012) conducted a study on the distribution of petroleum products in Nigeria between 1960 and 2007. The study revealed that the distribution of petroleum products in the country is burdened with complex problems, which sometimes lead to petroleum products outages, hiked prices of products, and conflicts on the pump price of products. The authors suggested that the downstream activities of the oil industry should be completely deregulated to allow private sector and entrepreneurs' full participation in the distribution of the products so as to drive effectiveness in the sector. As effectiveness is enhanced, operational cost will be cut down with a resultant reduction in the price of petroleum products that will be beneficial to all stakeholders in the industry.

Research methodology: The descriptive survey research design was used for this study. This research design is one in which a group of people or items are studied by collecting and analysing data from only a few people or items considered to be representative of the entire group (Nworgu, 2015). The survey design specify how such data will be collected and analysed.

Area of the Study: The study is conducted in Awka, Anambra State, Nigeria.

Population of the Study: The population of the study consisted seven (7) licenced commuters park in Awka south and North L.G.A. of Anambra State. The list of the parks are as follows, GUO, Peace, Good is Good, River Joy, Anambra Express, Mass transit, Transport company of Anambra state (TRACAS).

Sample size and sampling techniques: A random sampling technique was used to select 10 commuter transports each from the 7 licenced commuter parks, given a total of 70 sample size of transporters.

Instrument for Data collection: A structured coded sheet captioned Impact of fuel subsidy removal on transportation system in Nigeria", coupled with an oral interview, was used to collect data from the respondents. The coded sheet was divided into two sections A and B.

Section 'A' sought personal information about the respondents while Section B reflects on the grading of respondent's responses based on the oral interview.

Method of Data Collection: A coded sheet and oral interview was used to collect information from the respondents. The instrument for data collection was administered by the researcher with the help of two research assistants. A period of 3 days was used for the data collection.

Method of Data Analysis: Data collected were analysed using simple percentage.

III. Result

Table 1: The rate at which passengers travelling flood motor parks before and after subsidy removal

Variable	Responses Before subsidy	Responses After subsidy (%)
Ver high	80(24%)	55(16.8%)
High	60(18.4%)	46(14.1%)
Medium	30(9.2%)	15(4.6%)
Low	25 (7.6%)	5(1.5%)
Very low	5(1.5%)	5(1.5%)
Grand Sum total	326	
	Ver high High Medium Low Very low	Ver high 80(24%) High 60(18.4%) Medium 30(9.2%) Low 25 (7.6%) Very low 5(1.5%)

Table 1 shows that respondents agree that before the subsidy there were very high number of passengers travellers flooding the park which accounted for 80(24%) traffic inflow. Some of the respondent agree that the traffic inflow was 60(18.4%), some said that passengers inflow was on a medium level(30(9.2%) while some others agree that the traffic flux was low 25(7.6%) and as very low(5(1.5%)) respectively. Looking the responses it is evident that the number of those who said that passengers traffic inflow is much higher as compare those that agreed its very low.

On the other hand, after the subsidy remover, the level of passengers traffic influx reduced drastically to 55(16.8%) as responded by the respondent. Some f the respondents also said that the reduction was 46(14.1%), some said it went down to 15(4,6%), 5(1.5%) and 5(1.5%) which is indicative of medium reduction, low and very low respectively. The drastic reduction was could be attribute to the removal of fuel subsidy which makes it difficult for passengers to travel as compared to when there was subsidy. This implies that there is a significant impact of subsidy removal on passenger behavior at motor parks.

Table 2. The Numbers of commuter per day before and after subsidy removal

S/N	Variable	Responses Before subsidy (%)	Responses After subsidy (%)
1	Number of commuters per day was Very High	95(25.6%)	60(16.2%
2	Number of commuters per day was High	79(21.3%)	43(11.5%)
3	Number of commuters per day was not to high Medium	67(18.1%)	27(7.2%)
	Grand sum Total	371	

Table 2 shows that before the subsidy remover, the number of passenger influx was 95(25.6%), 79(21.3%) and 67(18.1%) respectively. But after the fuel subsidy removal, there was a drastic decline to 60(16.2%), 43(11.5%) and 27(7.2%) respectively. This is indicative of the high negative effect of fuel subsidy removal.

Table 3: The Impact of Subsidy on the Performance of Transporters

S/N	Variable	Responses Before subsidy (%)	Responses After subsidy (%)
1	The rate at which we maintain our vehicle to be road worthy has per weekly has reduced	90(19.6%)	55(12.0%)
2	The cost of transportation has also increased massively	70(15.3%)	37(8.1%)
3	The level of revenue we make per day as also reduced drastically	80(17.5%)	23(5.0%)
4	The number of vehicles that travel long distance journey per day has reduced	85(18.5%)	17(3.7%)
	Grand sum Total	457	

When it comes to the performance level of the transporter as result of fuel subsidy removal, Table 3 indicates that before fuel subsidy removal 90(19.6%) of transporter respondent agree on constantly ensure they maintain their vehicles to be road worthy, 70(15.3%) said that the cost of transportation did not affect their performance negatively rather there were positive level of performance, 80(17.5%) said that their revenue generation was enough to care for the vehicle maintenance and 85(18.5%) agree that the number of vehicles that travel long distance journey per day from their park increased. On the contrary, after the removal of fuel subsidy, there were massively 55(12%) decline in their rate of vehicle maintenance, the cost of transportation increased massively and their revenue generation reduced to 23(5.0%) which as also affected the number of long distance vehicle travel from their park to 17(3.7%).

IV. Discussion of Finding

Before the subsidy removal it was noted that there was a high volume of passenger traffic, influx. This indicates a substantial influx of passengers utilizing motor park services at a varying degrees of frequency. However, following the subsidy removal, there was a noticeable reduction in passenger traffic across all categories. The decrease was particularly striking as there were Very high dropping to 16.8%. This decline in passenger traffic is attributed to the removal of fuel subsidies, which likely increased the cost of travel for passengers, thereby influencing their behavior and reducing demand for transportation services.

The findings suggest a significant impact of subsidy removal on passenger mobility patterns, indicating a shift in travel behavior in response to changes in fuel prices. Such insights are crucial for understanding the broader implications of policy changes on transportation demand and for devising strategies to address potential challenges arising from these changes. This highlights the negative effects of fuel subsidy removal on passenger influx at motor parks. Before the subsidy removal, there were relatively high numbers of passengers, but these numbers declined drastically afterward. This decline underscores the challenges faced by passengers in accessing transportation services following the removal of subsidies. This finding agree with the finding of Owoeye & Adewale, (2020) who said that subsidies aimed at promoting environmentally sustainable practices, such as the adoption of cleaner technologies or modal shifts, enhance the long-term viability of transporters by reducing operating costs and regulatory compliance burdens.

The performance level of transporters in response to fuel subsidy removal was also negatively impacted. Before the removal, transporters expressed confidence in maintaining their vehicles, with a significant proportion reporting positive revenue generation and an increase in the number of vehicles traveling long distances. However, after the subsidy removal, there was a decline in vehicle maintenance rates, an increase in transportation costs, and a reduction in revenue generation, leading to a decrease in the number of long-distance journeys undertaken by vehicles from motor parks. This finding of is in consonance with the finding of Adeyemi & Aderanti, (2019) who said that Subsidies can serve as a crucial source of revenue for transporters, particularly in industries characterized by thin profit margins and high operating costs.

Overall, these findings underscore the complex interplay between subsidy policies, passenger behavior, and transporter performance in the transportation sector. They highlight the need for policymakers and stakeholders to carefully consider the ramifications of subsidy removal and to implement measures to mitigate negative impacts on both passengers and transporters.

Recommendation

Based on the findings of the study it is recommended that a comprehensive approach that combines targeted assistance, infrastructure investment, capacity building, and stakeholder collaboration is essential to address the challenges posed by fuel subsidy removal and ensure the sustainability and resilience of the transportation sector. By implementing these recommendations, governments can mitigate the adverse effects of subsidy removal on passengers and transporters while fostering a more efficient, inclusive, and sustainable transportation system.

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