# Do Fuel subsidies reach the poor? Evidence from Rural Nigeria

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**Abstract:** The paper examined whether the enormous fuel subsidy expended by the government reached the rural areas where the majority of the poor dwells or not using available data from the Petroleum Pricing and Regulations Agency (PPRA) and Harmonized Nigerian Living Standard Survey, 2009. The data were analyzed using the benefit incidence and Forster, Greer and Thobecke poverty indices/techniques. Results showed that the fuel subsidies were indeed highly regressive, with the richest quintile benefiting from 77.8% of the fuel subsidies as a whole. Conversely, the poorest quintile received the lowest share of the subsidies in all four fuel products, at just 2.97% in all the geo-political zones. The richest quintile of the population received ₦5.25 per year from the fuel subsidies per capita, while the poorest received just ₦2.23 per annum. In sum, the reform of fuel prices in Nigeria appears to be a welcome policy reform allowing the Government to reduce its growing fiscal deficit and to reduce excessively regressive expenditures. However, the poor and vulnerable would be negatively affected by the reforms and are the least able to cope. The resulting impact of increased fuel prices (both directly from higher prices on fuel products themselves and indirectly from higher prices of products that use fuel in their own production) will reduce household consumption, thereby reducing household welfare initially. However, in the long run, the situation will reverse as resulting competition from the deregulated market will force fuel prices down.
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## 1. Introduction

A subsidy is an assistance paid to a business or economic sector mainly by the government to prevent the decline of that industry (Todaro et al, 2009). On the other hand, the Oxford Advanced Learners Dictionary (2001) defined a subsidy as money that is paid by a government or an organization to reduce the cost of services or of producing goods so that their prices can be kept low. In addition, Bakare (2012) points out that to subsidize is to sell a product below the cost of production. Within the Nigerian context, fuel subsidy means to sell petrol below the cost of importation.

The cost of the fuel subsidy has continued to grow exponentially. This is partly due to the rising cost of fuel—which meant that the government had to spend even more to keep domestic prices low— and also due to Nigeria's increasing population— which resulted in increased fuel consumption; together these pressures made the cost of the fuel subsidy unsustainable. The price of crude oil increased from 30.4 dollars per barrel in 2000 to 94.9 in 2010; by 2016, prices declined to about 40 dollar and rose again to about 100 dollar by 2018. Over the same period Nigeria's population increased from about 123 million to 158 million. By 2011, the fuel subsidy (an estimated $8 billion) accounted for 30 percent of the Nigerian government's expenditure and it was about 4 percent of GDP and 118 percent of the capital budget. In 2012, the values of the subsidy funds as recorded by the various relevant agencies increased to about$10 billion (table 1). Nigeria's fuel subsidy continues to crowd out other development spending. By comparison, Nigeria's total allocation for education is about $2.2 billion and it is not much higher for health care. Infant mortality in Nigeria remains unacceptably high at 90.4 per 1,000 live births. In 2004, it was estimated that only 15 percent of the country's roads were paved. With an estimated 37.2 billion barrels of proven oil reserves, Nigeria is one of the world's largest oil producers. However, the country's mineral riches have not resulted in a significant improvement in the quality of life for the majority of Nigeria's citizens, 54, 69 and 83 percent of who were reported to live below the national poverty line in 2005, 2010 and 2018 respectively. In 2010, Nigeria earned $59 billion from oil exports.

Increasing oil prices since the beginning of the 21st century have challenged the practicality of fuel subsidies, as their burgeoning cost has drawn attention to questions of fiscal sustainability as well as their overall efficiency and effectiveness. According to the 2013 Regional Economic Outlook for Africa from the IMF, African governments are spending about 3% of GDP on average on fuel subsidies; equivalent to the region's average spending on healthcare. This informed the various policies that favour removal of

fuel subsidies since the Military regime in 1992 till the present in Nigeria.

Aside from their cost, there is also persuasive evidence from a number of countries around the world that subsidies largely benefit the wealthiest groups. IMF (2013) estimated that around 70% of the benefits from subsidies on gasoline in Africa go to the wealthiest quintile, whereas just 2.2% accrue to the poorest quintile, meaning that they are regressive. Even for those fuel products that are supposedly 'pro-poor' such as kerosene, on average in Africa just 16% of the subsidy benefits go to the poorest quintile. The main cited aim of fuel subsidies is to reduce the cost of living for a country's population and to cut domestic production costs. It is therefore relevant to ascertain how the fuel subsidies benefit the country's population, and to determine who the beneficiaries are and to what extent the poorest benefit from the subsidies. Thus, the paper seeks to determine who benefits the most from fuel subsidies in Nigeria, the Rich or the Poor.

The rest of the paper is structured as follows: section 2 presents a brief review of the literature. Section 3 reviews the methodology and data used and section 4summarises the findings. The paper ends with Conclusion.

**Table 1: Subsidy Computation for 2012**

| Agency | Subsidy Sum |
|---|---|
| 2012 Appropriated sum by National assembly | N245 billion |
| Government | N1.3 trillion |
| Accountant-General of the Federation | N1.6 trillion |
| Central Bank of Nigeria (CBN) | N1.7 Trillion |
| Probe Committee | N2,587.087 trillion |

Source: Subsidy Probe Report (2012)

## 2. Literature review on the distributive effects of fuel subsidies

Globally, fuel subsidies have been found to be generally regressive with some variation among products. Evidence in the literature suggests that fuel subsidies benefit the richer quintiles of a country's population significantly more than the poorest (Anand *et al*., 2013; Bacon *et al.,* 2010; Baig *et al*., 2007; Coady and Newhouse, 2006; IMF, 2013). ArzedelGranado *et a*l (2010) estimated that, on average, the top income quintile receives six times more subsidies than the lowest quintile. Bacon and Kojima (2006) argued that subsidy had been a very inefficient policy tool for poverty reduction since the better-off households had usually disproportionally benefited most from petroleum subsidies, thus undermining social equity. The incidence of subsidies varies across fuel products. Kerosene, for example, is mostly consumed by poorer households in developing countries and benefits are more equally distributed between quintile groups. ArzedelGranado et al (2010) showed that the bottom 20% of the population receives 19% of kerosene subsidies, while the richest 20% of the population received 20.1% of kerosene subsidies. Petrol subsidies are the most regressive. The top four quintiles receive approximately 97cents out of every dollar spent on petrol subsidies (ArzedelGranado et al, 2010).

Coady and Newhouse (2006) and Coady et al (2006) show that Ghanaian fuel subsidies are regressive, with the top income quintiles benefiting the most from the subsidies.

Figure 3 summarises spending on fuel subsidies by each income group for Africa, Latin America and other regions. In all three cases, the subsidy is regressive with the top quintiles obtaining around 40% of the subsidies; about 6 times what the poorest receive. To our knowledge, no attempt has been made in literature to examine who benefit most from the so much taunted fuel subsidies in Nigeria much less Rural Nigeria where the Poor are known to reside.

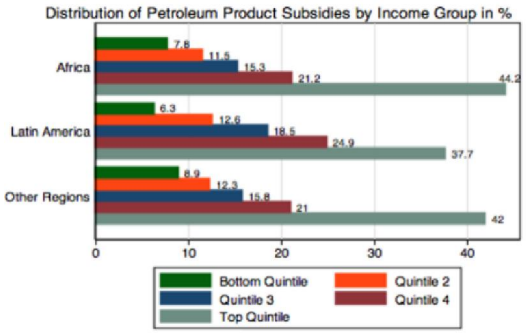


**Figure 1: Energy subsidy spending by income group**

Source: ArzedelGranado et al, 2010

## 3. Methodology

To ascertain how the fuel subsidies benefit the Rural Nigeria's population, and to determine who the beneficiaries are and to what extent the poorest benefit from the subsidies, the study employs the descriptive statistics, benefit incidence and budget share techniques to analyse the expenditure profile of households, determine the level of benefits of fuel

subsidies and the share of households' expenditure on fuel in the following analyses.

**3.1. Benefit Incidence Analysis**

Benefit-Incidence was used to examine the level of benefits derived from fuel subsidies by households in rural Nigeria. This was done after grouping the respondents into respective poverty groups. The procedure involved allocating per unit subsidies according to individual utilization of the different categories of fuel. The model is specified as;

$$X_{ij} = H_{ij}\left(\frac{S_i}{H_i}\right)$$

Where

$X_{ij}$=Value of total subsidy on petroleum products to expenditure groups

$S_{ij}$=Government net spending on Petroleum Product

$H_i$=Households size

$H_{ij}$=Population of households in group j that purchase petroleum products

$S_i/H_i$=Unit subsidy on different categories of petroleum products

i = Level of petroleum product supply

j = Expenditure groups

The FGT (Foster, Greer and Thorbecke) headcount index was applied to real incomes (expenditure). The FGT index is:

$$P\alpha = \frac{\sum_{i=1}^{N}\left(1-\frac{y_i}{z}\right)^{\alpha}}{N}$$

Where $y_i$ is real income, z is the poverty line, N is the number of households, and I (.) is an indicator function taking the value 1 if households are below the poverty line and zero otherwise. When α=0 the poverty head count index is obtained, while α=1 and α=2 capture the poverty gap (depth) and severity of poverty, respectively.

Sequel to determining the poverty status, the respondents were categorized into poverty groups based on their mean per capita household expenditure on the basic needs using relative poverty measure. The categories were core poor (quintile 1), poor (quintile 2) moderately poor (quintile 3), non-poor (quintile 4), very rich or richest (quintile 5).

**3.2. The Budget Share Technique**

Let $w_i = \frac{piqi}{y}$ be share of expenditure devoted to good I (=1,…,k) in the total budget y, and pi and $q_i$ represent price and quantity consumed of good *i* respectively. The budget share provides the direct impact of any price changes on household welfare. This is a "first-order" estimate of the direct real income effect of a price increase. It is also a "short-run" estimate since it is assumed that households do not switch from fuel consumption to the consumption of other products. Alternatively, it provides the upper bound for the impact on the households in the long-run (Granado et al., 2010). The budget share is expressed as:

$$W_i = \frac{\partial \log y}{\partial \log p_i}$$

Where, $W_i$=budget share

$Y_i$=income

$P_i$=Price

The above relationship shows the budget share as the price elasticity of real income or total consumption given that, the volume of demand is constant.

Household per capital expenditure =
Total household expenditure/Household size

**3.3. Data**

For this study, the data on the subsidies per unit available from the Petroleum Pricing and Regulatory Agency (PPRA) were used.

The Harmonised Nigerian Living Standards Survey (HNLSS, 2009) provides the required information at the household level to perform this analysis. HNLSS was carried out between September 2009 and August 2010. The Enumeration Areas (EAs) demarcation with 10 EAs per Local Government Area (LGA) and 5 Households per EA produced 50 households per LGA and culminate in 38,700 households nationally. Data on Expenditure categories and household size of 20,265 households in rural Nigeria were extracted and used in this study.

**4. Results and Discussion**

**4.1. Incidence of fuel subsidy benefits across quintile groups Among Geo-Political zones**

Benefit-Incidence was used to examine the level of benefits derived from petroleum subsidies by households in the study area. This was done after grouping the respondents into respective poverty groups. The central idea is to gain a better insight into how subsidies on petroleum products are benefitted across the different income/expenditure groups (CSEA, 2010). This informs the classification of payments as progressive (when targeted towards poor households) and regressive (when benefits are extracted by better-off households).

How each income group benefited from the fuel subsidies across the six geo-political zones is shown in table 2. The results of our analysis show that subsidies across all fuel products are regressive. Similar to evidence in literature, the richest quintiles

benefit the most from fuel subsidies - the more a household spends on the product, the more subsidy benefits it receives. Across Geo-Political Zones (GPZs), about 94.8%,92.9%, 98.8%, 93.8%, 96.3% and 96.5% of diesel; 81.1%, 91.6%, 95.7%, 93.2%, 95.1% and 92.8% of petrol; 86.4%, 97%, 98.3%, 95.5%, 98.7% and 85.6% of LPG subsidies, accrued to the richest quintile in North-Central (NC), North-East (NE), North-West (NW), South-East (SE), South-South (SS) and South-West (SW) respectively (see table 2). Far less proportion of these subsidies accrued to the poorest quintile, which ranged between less than 1% and 5%. For kerosene, the share of subsidies accruing to the richest quintile is lower in NC (19.86%), SS (12.58%) and SW (16.4%) but higher in NE (96.7%), (97.43%) and SE (35.3%). The reason richest quintile received less of kerosene subsidies in NC, SS and SW is not far-fetched. Kerosene is mostly used by the poor who mostly resides in the rural areas, the cosmopolitan nature of these GPZs (e.g. NC comprises states such as Abuja, Kaduna, Plateau etc.; SS comprises states such as Rivers, Delta, Cross-River etc.), large Elite population and presence of many industries, makes the use of kerosene to be less in proportion as the rich/working class will rather prefer the use of LPG in domestic activities. The remoteness of states that comprise NE and NW and the activities of greedy merchant men/marketers who divert this product to the neighbouring countries is the reason subsidies on kerosene accrued majorly to the richest in these regions. Subsidies on available quantity of kerosene in these regions are already eroded as citizens are subjected to unhealthy long queues at petrol stations which sell the product at between ₦150 and ₦200 per Litre. Consequently, the poor are reap-off and subsidies go into the pocket of the rich.

**Table 2: Benefit incidence of fuel subsidies accruing to each quintile in the six Geo-Political Zones (in %)**

| Geo-Political Zones / Quintile Product | Q1 (Poorest) | Q2 | Q3 | Q4 | Q5 (Richest) |
|---|---|---|---|---|---|
| **North Central** | | | | | |
| Diesel | 1.05 | 1.04 | 1.09 | 2.02 | 94.80 |
| Petrol | 4.03 | 4.45 | 4.65 | 5.76 | 81.11 |
| LPG | 2.03 | 2.54 | 3.43 | 5.65 | 86.35 |
| Kerosene | 19.67 | 20.01 | 22.12 | 18.34 | 19.86 |
| **Total** | **5.87** | **5.98** | **5.96** | **6.87** | **75.32** |
| **North East** | | | | | |
| Diesel | 0.91 | 0.94 | 1.87 | 3.36 | 92.92 |
| Petrol | 1.13 | 1.32 | 1.67 | 4.31 | 91.57 |
| LPG | 0.00 | 0.00 | 0.00 | 2.98 | 97.02 |
| Kerosene | 0.06 | 0.07 | 0.09 | 3.12 | 96.66 |
| **Total** | **1.05** | **1.41** | **2.78** | **3.57** | **91.19** |
| **North West** | | | | | |
| Diesel | 0.01 | 0.04 | 0.07 | 1.07 | 98.81 |
| Petrol | 0.98 | 0.89 | 1.03 | 1.37 | 95.73 |
| LPG | 0.00 | 0.02 | 0.01 | 1.67 | 98.30 |
| Kerosene | 0.44 | 0.14 | 0.12 | 1.87 | 97.43 |
| **Total** | **3.03** | **3.07** | **2.89** | **6.78** | **84.23** |
| **South East** | | | | | |
| Diesel | 0.08 | 0.63 | 1.39 | 4.12 | 93.78 |
| Petrol | 0.88 | 0.93 | 1.98 | 3.01 | 93.2 |
| LPG | 0.66 | 0.76 | 1.03 | 2.02 | 95.53 |
| Kerosene | 11.04 | 13.56 | 17.45 | 22.67 | 35.28 |
| **Total** | **4.06** | **5.87** | **6.19** | **12.86** | **71.02** |
| **South South** | | | | | |
| Diesel | 0.13 | 0.75 | 1.55 | 1.31 | 96.26 |
| Petrol | 0.69 | 0.90 | 1.15 | 2.13 | 95.13 |
| LPG | 0.00 | 0.01 | 0.33 | 0.91 | 98.75 |
| Kerosene | 19.51 | 15.87 | 21.03 | 31.01 | 12.58 |
| **Total** | **4.91** | **6.95** | **6.12** | **11.03** | **70.99** |
| **South West** | | | | | |
| Diesel | 0.12 | 0.63 | 1.45 | 1.33 | 96.46 |
| Petrol | 0.90 | 1.35 | 1.62 | 3.35 | 92.78 |
| LPG | 0.16 | 0.69 | 2.17 | 11.43 | 85.55 |
| Kerosene | 20.69 | 23.88 | 18.06 | 20.96 | 16.42 |
| **Total** | **5.97** | **7.14** | **5.83** | **9.27** | **71.80** |

Source: Own calculations based on HNLSS 2009. Incidence calculated is the share of subsidy received by each quintile in the total subsidies received by all households (based on individual sample weights).

**4.2. Budget Share Analysis**

The table 3 provides information on the budget shares of each fuel product across the six GPZs.

The budget shares analysis of fuel expenditure show that the poorest households spend less than 1% of their budget on petrol, diesel and LPG. Wood and charcoal fuel are cheaper sources of same energy derived from these petroleum products for these quintile groups. However, they spend the largest share (54% of their total spending) of all the quintile groups on kerosene. In contrast, the richest quintiles spend the largest share of their budget on diesel, petrol and LPG. For diesel, the budget share is largest among the non-poor (quintile 4) in the NE and lowest in NC, NW, SE, SS and SW among the poorest with zero value (0.00). Similarly, the budget shares for petrol (1.87%) and LPG (0.55%) is largest in the SE among the non –poor and lowest (0.00) in NC, NE, NW and SS among the core poor. Although more than a third of the kerosene subsidy accrues to the richest group (Quintiles 4 & 5) in all the GPZs (Table 2), they spent the lowest share (less than 1%) of their budget on kerosene. The highest budget share is seen within the domain of the poor (Quintiles 1, 2 and 3), pin-pointedly, in the SE (5.45%) followed by NE (5.35%) among the poor (quintile 1) and lowest in the NE (0.05%) among the richest quintile.

**Table 3: Budget Shares for Fuel (in %)**

| Geo-Political Zones | Quintile Product | Q1 (Poorest) | Q2 | Q3 | Q4 | Q5 (Richest) |
|---|---|---|---|---|---|---|
| **North Central** | Diesel | 0.00 | 0.01 | 0.05 | 0.07 | 0.67 |
| | Petrol | 0.31 | 0.23 | 0.41 | 1.23 | 0.91 |
| | LPG | 0.00 | 0.02 | 0.01 | 0.09 | 0.54 |
| | Kerosene | 5.13 | 2.87 | 1.43 | 0.89 | 0.09 |
| | **Total** | **5.44** | **3.13** | **1.90** | **2.28** | **2.21** |
| **North East** | Diesel | 0.00 | 0.00 | 0.01 | 0.03 | 0.34 |
| | Petrol | 0.01 | 0.00 | 0.03 | 0.06 | 0.87 |
| | LPG | 0.00 | 0.00 | 0.01 | 0.03 | 0.02 |
| | Kerosene | 5.35 | 4.25 | 2.87 | 0.34 | 0.05 |
| | **Total** | **5.36** | **4.25** | **2.92** | **0.46** | **1.28** |
| **North West** | Diesel | 0.00 | 0.00 | 0.08 | 1.67 | 0.31 |
| | Petrol | 0.01 | 0.02 | 0.00 | 0.57 | 1.33 |
| | LPG | 0.00 | 0.00 | 0.01 | 0.31 | 0.54 |
| | Kerosene | 4.32 | 3.74 | 2.01 | 0.75 | 0.40 |
| | **Total** | **4.33** | **3.76** | **2.10** | **3.30** | **2.58** |
| **South East** | Diesel | 0.00 | 0.00 | 0.18 | 0.01 | 0.25 |
| | Petrol | 0.35 | 0.26 | 0.26 | 0.32 | 1.87 |
| | LPG | 0.00 | 0.01 | 0.08 | 0.09 | 0.55 |
| | Kerosene | 5.45 | 3.34 | 2.15 | 2.01 | 0.88 |
| | **Total** | **5.80** | **3.61** | **2.67** | **2.43** | **3.55** |
| **South South** | Diesel | 0.00 | 0.01 | 0.07 | 0.02 | 0.35 |
| | Petrol | 0.40 | 0.29 | 0.19 | 0.34 | 1.22 |
| | LPG | 0.01 | 0.02 | 0.05 | 0.15 | 0.33 |
| | Kerosene | 4.37 | 2.97 | 2.31 | 1.62 | 0.96 |
| | **Total** | **4.79** | **3.29** | **2.62** | **2.12** | **2.87** |
| **South West** | Diesel | 0.01 | 0.02 | 0.09 | 0.01 | 0.28 |
| | Petrol | 0.08 | 0.40 | 0.68 | 0.23 | 1.25 |
| | LPG | 0.01 | 0.02 | 0.05 | 0.16 | 0.38 |
| | Kerosene | 4.67 | 3.51 | 2.09 | 1.02 | 0.73 |
| | **Total** | **4.77** | **3.95** | **2.91** | **1.42** | **2.64** |

Source: Own calculation based on HNLSS, 2009. Budget shares are the mean shares for each quintile.

**4.3 Household size and Per capita Expenditure**

Tables 4, 5 and 6 provide information on expenditure per capita and subsidies per capita and household size for each quintile. Subsidy per capita is the subsidy times the quantity of fuel consumed normalised by household size. The amount of the subsidy received per capita by quintile shows a similar pattern (Table 6). For all fuels, the amount of subsidy received per capita is higher for the richest households than the poor across all GPZs. For kerosene, the core poor in NC (₦2.54) received the highest amount, followed by SW (₦2.45) while the lowest in NW ₦0.40) by the richest per person per year. For petrol, the richest households receive almost forty-three times as much subsidy per capita than the poor – ₦3.22 per year compared to just ₦ 0.17 for the poorest group. Even for kerosene, used so much more by the poor, the richest households receive ₦3.40 per capita compared to the poor's ₦ 2.05. This supports the findings of Adenegan *et. al.* (2002) and Yusuf *et. al.* (2003) that the more the use of government provided facilities, the greater the benefit incidence of government unit subsidies accruing to the group. Overall, the provision of a universal subsidy to fuel products has primarily served to subsidise the consumption of the richest quintile.

**Table 4: Household size**

| Geo-Political Zones | Q1 | Q2 | Q3 | Q4 | Q5 |
|---|---|---|---|---|---|
| **North Central** | 6.2 | 6.1 | 5.6 | 4.1 | 3.4 |
| **North East** | 6.1 | 6.5 | 6.3 | 4.4 | 3.3 |
| **North West** | 6.3 | 6.1 | 5.0 | 3.3 | 3.1 |
| **South East** | 5.2 | 5.0 | 4.5 | 3.1 | 2.1 |
| **South South** | 6.4 | 5.1 | 4.4 | 3.7 | 2.5 |
| **South West** | 4.4 | 3.2 | 2.3 | 2.1 | 2.0 |
| **Rural Nigeria** | 7.2 | 6.7 | 5.3 | 4.2 | 3.1 |

**Table 5: Expenditure per Capita (₦per year)**

| Geo-Political Zones | Q1 | Q2 | Q3 | Q4 | Q5 |
|---|---|---|---|---|---|
| **North Central** | 899.78 | 1,541.21 | 2,214.09 | 2,809.10 | 4,564.23 |
| **North East** | 523.12 | 1,123.54 | 1,888.76 | 2,234.75 | 3,876.34 |
| **North West** | 565.10 | 1,154.12 | 1,891.54 | 2,213.65 | 3,776.45 |
| **South East** | 765.23 | 1218.32 | 1,998,11 | 2,289.23 | 4,011.56 |
| **South-South** | 995.92 | 1550.96 | 2,313.17 | 2604.33 | 4242.89 |
| **South West** | 998.55 | 1643.09 | 2,467.44 | 2,756.23 | 4,675.46 |
| **Rural Nigeria** | **703.32** | **1371.87** | **2,128.86** | **2484.55** | **4191.16** |

Source: Own calculation based on HNLSS, 2009.

| Geo-Political Zones | Quintile Product | Q1 (Poorest) | Q2 | Q3 | Q4 | Q5 (Richest) |
|---|---|---|---|---|---|---|
| **North Central** | Diesel | 0.00 | 0.00 | 0.05 | 0.07 | 0.07 |
| | Petrol | 0.05 | 0.23 | 0.01 | 1.23 | 1.11 |
| | LPG | 0.00 | 0.02 | 0.01 | 0.09 | 0.54 |
| | Kerosene | 2.54 | 1.87 | 0.40 | 0.89 | 1.09 |
| | **Total** | **2.59** | **2.12** | **0.47** | **2.28** | **2.81** |
| **North East** | Diesel | 0.00 | 0.00 | 0.01 | 0.03 | 0.34 |
| | Petrol | 0.01 | 0.00 | 0.03 | 0.06 | 1.87 |
| | LPG | 0.00 | 0.00 | 0.01 | 0.03 | 0.03 |
| | Kerosene | 2.35 | 1.25 | 0.97 | 0.34 | 0.85 |
| | **Total** | **2.36** | **1.25** | **1.02** | **0.46** | **3.09** |
| **North West** | Diesel | 0.00 | 0.00 | 0.03 | 1.67 | 0.31 |
| | Petrol | 0.01 | 0.02 | 0.00 | 1.57 | 2.33 |
| | LPG | 0.00 | 0.00 | 0.01 | 0.31 | 1.54 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | Kerosene | 1.32 | 1.74 | 2.01 | 0.75 | 0.40 |
| | **Total** | **1.33** | **1.76** | **2.05** | **4.30** | **4.58** |
| **South East** | Diesel | 0.00 | 0.00 | 0.18 | 0.01 | 0.25 |
| | Petrol | 0.35 | 0.26 | 0.26 | 0.62 | 2.97 |
| | LPG | 0.00 | 0.01 | 0.08 | 0.89 | 0.95 |
| | Kerosene | 2.25 | 3.34 | 2.15 | 2.01 | 1.08 |
| | **Total** | **3.60** | **3.61** | **2.67** | **3.53** | **5.25** |
| **South South** | Diesel | 0.00 | 0.01 | 0.07 | 0.02 | 0.43 |
| | Petrol | 0.40 | 0.29 | 0.19 | 0.34 | 2.22 |
| | LPG | 0.01 | 0.02 | 0.05 | 0.15 | 0.33 |
| | Kerosene | 2.37 | 1.95 | 2.31 | 1.62 | 0.96 |
| | **Total** | **2.79** | **2.27** | **2.62** | **2.12** | **3.94** |
| **South West** | Diesel | 0.01 | 0.02 | 0.09 | 0.01 | 0.28 |
| | Petrol | 0.08 | 0.40 | 0.68 | 0.23 | 3.22 |
| | LPG | 0.01 | 0.02 | 0.05 | 0.16 | 0.38 |
| | Kerosene | 2.45 | 1.31 | 2.09 | 1.02 | 0.73 |
| | **Total** | **2.55** | **1.75** | **2.91** | **1.42** | **4.62** |

Source: Own calculation based on HNLSS, 2009. Subsidy per capita is the subsidy times the quantity of fuel consumed normalised by household size.

## 5. Conclusions

We show that the fuel subsidies were indeed highly regressive, with the richest quintile benefiting from 77.8% of the fuel subsidies as a whole. Conversely, the poorest quintile received the lowest share of the subsidies in all four fuel products, at just 22.2%. The richest quintile of the population received ₦5.25 per year from the fuel subsidies per capita, while the poorest receivedjust₦2.23 per capita. In summary, the reform of fuel prices in Nigeria appears to be a welcome policy reform allowing the Government to reduce its growing fiscal deficit and to reduce excessively regressive expenditures. However, the poor and vulnerable would be negatively affected by the reforms and are the least able to cope. The impact of increased fuel prices (both directly from higher prices on fuel products themselves and indirectly from higher prices of products that use fuel in their own production) will reduce household consumption, thereby reducing household welfare. This is because poor and vulnerable households are unable to accommodate easily sudden higher prices. As their costs rise, such households are typically forced to spend less on education, health, and nutrition. However, in the long run, the situation will reverse as resulting competition from the deregulated market will force fuel prices down.

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