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Gender Impacts and Opportunities From Kerosene Subsidies & Reform in Nigeria



Friends of Fossil Fuel Subsidy Reform Webinar

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July 8, 2019

Nigerian Energy Sector: An Overview

Strong strategic positioning

1

- 7th largest crude oil exporter
- 8th largest natural gas reserves
- Regional economic heavyweight
- Enough mineral deposits to power Nigeria and West Africa

Hugely underserved market

2

- As of 2016, 59.3% of 180m population has access to grid electricity
- Demand massively exceeds available power supply of ~4.5 MW
- One of the largest markets for kerosene/diesel/petrol power generators.
- Energy alternatively sourced from firewood, liquefied petroleum gas (LPG) gas stoves, charcoal, sawdust, rechargeable lanterns, animal & plant wastes, etc

High subsidy spending on kerosene (and petrol)

3

- USD 3.38 billion spent on kerosene alone between 2012-2013 (PWC)
- USD5.5B on petrol in 2014
- N10Trillion Naira spent on kero and petrol between 2006 and 2018: BudgIT
- Subsidies partially removed in 2012, but fully withdrawn on both PMS and household kerosene in 2016.
- Subsidy back as under-recovery: 623B spent in 2018 (NNPC)

Adverse economic impact on businesses, men and women

4

- Power represents 40% of cost of operations to business owners (WB)
- 83% of Nigerian business owners consider power to be the biggest obstacle to business growth (WB)
- Mothers and daughters bear primarily responsibility for cooking, house chores, including sourcing for energy used in the home (S4C)
- High energy costs increasing dependence on traditional fuels and less clean cooking options, with implications for welfare, productivity and empowermt.

Energy Use: An x-ray of local context

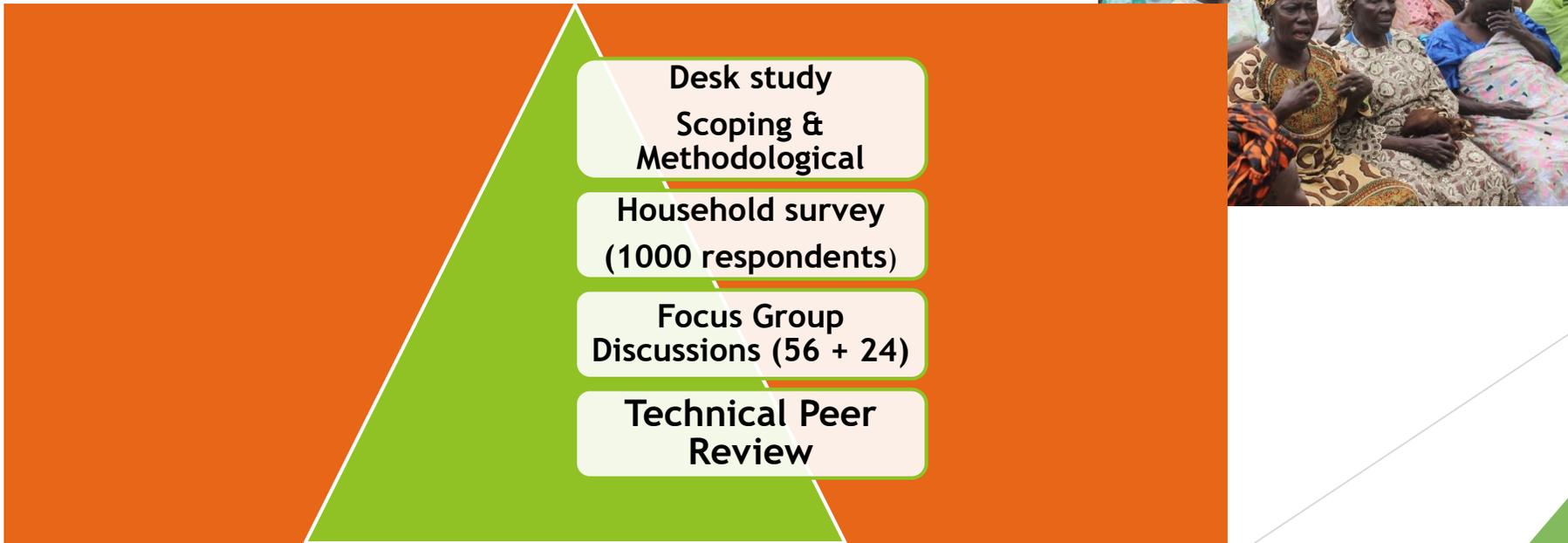
- ▶ **Kerosene is a primary energy source for cooking, cooling and lighting among low-income women in Nigeria.**
- ▶ Retailing kerosene in jerry cans and bottles is also commonplace across all parts of the country.
- ▶ Kerosene mainly accessed from informal vendors. Reasons for preference include proximity to their homes and businesses; accessibility and availability of products. In Lagos, the majority of respondents live close to the vendors of cooking fuel. 62% of respondents who buy from formal vendors and 81% of respondents who buy from informal vendors live within 10 minutes' walk from the vendors.
- ▶ Although average kerosene prices paid were higher at informal than at formal vendors, preference for informal vendors remained high. In Imo, average kerosene prices from formal and informal vendors are N207 and N250 respectively. Informal vendors sell fuels according to the financial means and preferences of the consumer, i.e. in small quantities and a variety of containers.
- ▶ In Lagos, 30% of respondents that buy from formal vendors like filling stations reported to pay extra charges, compared to 13% that buy from informal vendors. This effect was not found in Imo area.
- ▶ Formal vendors and distribution points are further away from homes in rural areas. Households in rural areas were found to spend more time to reach sales points for kerosene or LPG. In Lagos, 62% live within 10 minutes' walk to a formal dealer (92% of households within 20 minutes), and 81% within 10% walk to an informal dealer (95% within 20 minutes). In rural areas, only 10% of households live within 10 minutes' walk from a formal, and 18.5% from an informal dealer. 36% have to walk more than 30 minutes to a formal dealer, and 40% to an informal dealer.

▶ How do the changes in kerosene (and petrol) subsidy policies affect the **welfare, productivity and empowerment** of women in low-income households in urban slums and rural areas, in different geographical zones in Nigeria, taking into account:

- ▶ *The extent to which changes in kerosene subsidy policy*
- ▶ *Impacts of the subsidy on kerosene distribution?*
- ▶ *Impacts the kerosene retail prices paid by consumers?*
- ▶ *The extent to which higher or lower kerosene retail prices influence household choice of cooking fuels?*

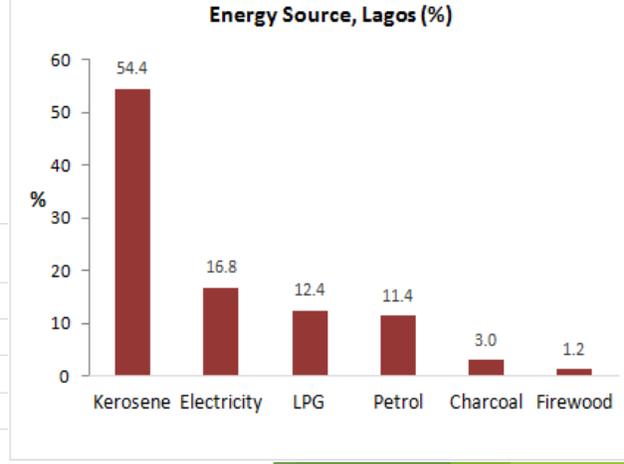
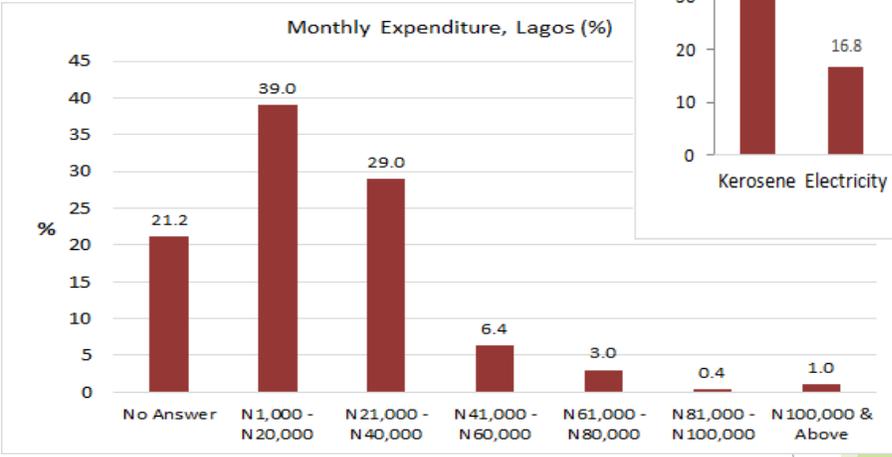
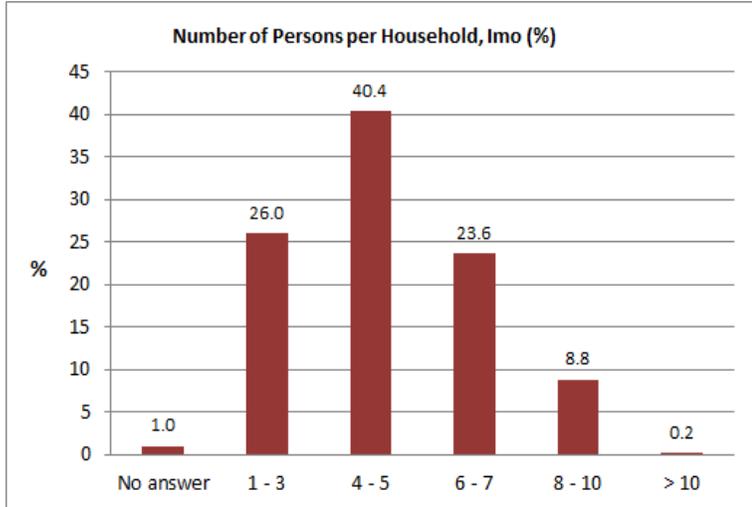
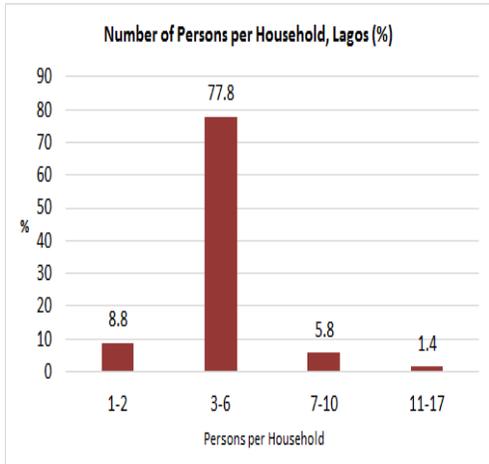
▶ How might the welfare, productivity and empowerment of women and girls in low-income households change as a result of the following policy reforms:

- ▶ *Policy interventions intended to promote renewable energy?*
- ▶ *Policy interventions intended to promote LPG?*



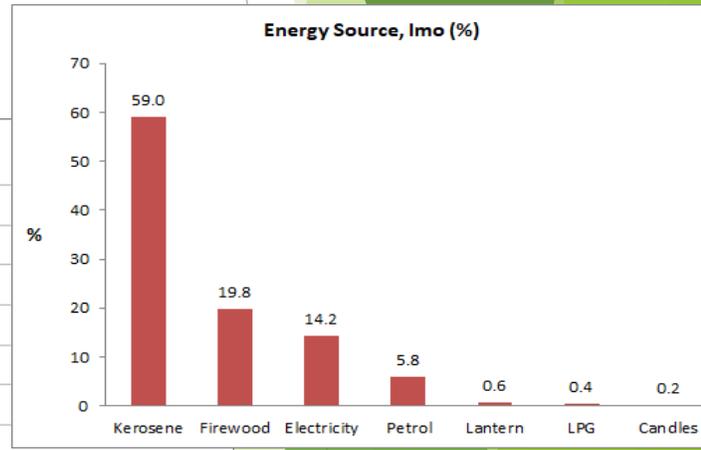
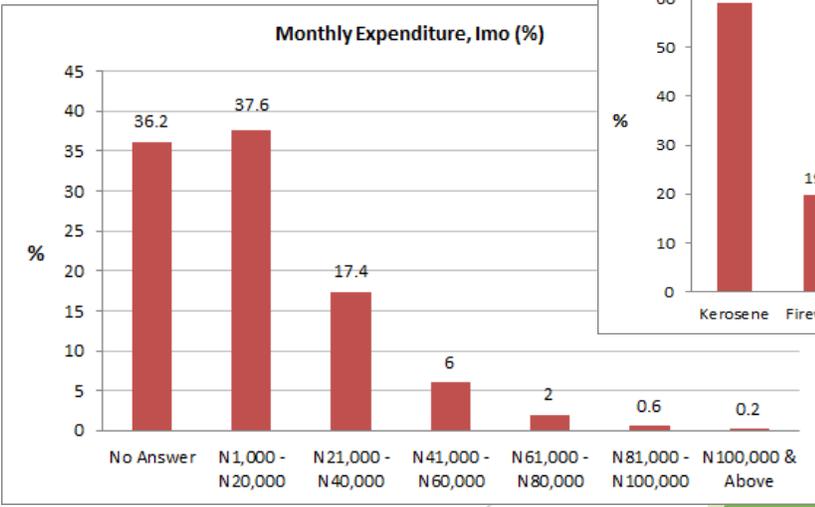
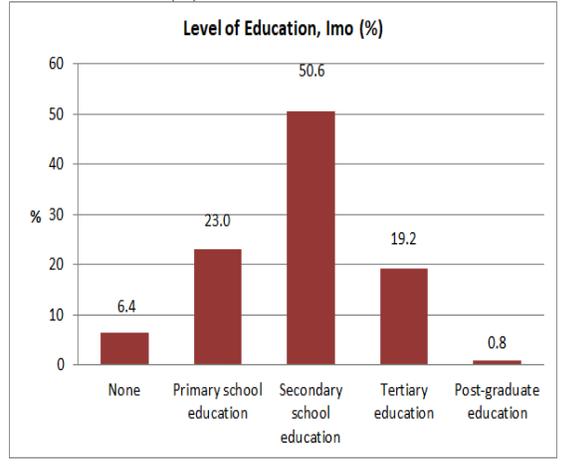
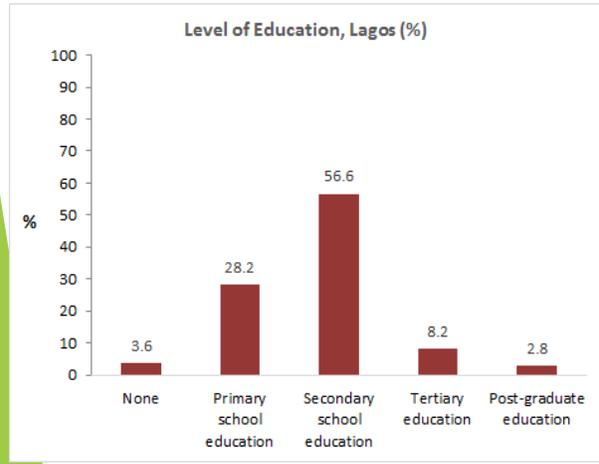
Survey Findings in Lagos and Imo states: Demography of Respondents

Demography Respondents: Lagos



Number of Persons per Household in Lagos (%)

Number of Persons per Household in Imo (%)



Level of Education for Lagos Respondents (%)

Level of Education for Imo Respondents (%)



FINDINGS: Rural-urban dichotomy in energy use

- ▶ Depending on their location in an urban or rural setting, households in Nigeria, use a range of fuels for their energy needs. (Location matters).
- ▶ In the urban areas, energy sources according to their order of usage are electricity, LPG and petrol respectively. **In the rural areas, kerosene is the primary energy source for cooking, cooling and lighting, followed by firewood and electricity respectively.**
- ▶ **For cooking, wood dominates the energy mix (64%), especially in rural areas. Kerosene and LPG dominates in urban areas.** In Lagos, kerosene (66%) and LPG (27%) were clearly the preferred fuels for cooking. In rural areas, households preferred wood stoves, (44.6%), followed by kerosene (30%) and LPG (24%).
- ▶ **For lighting**, electricity dominates in urban areas, while in rural areas, where electricity access is lower, households rely much more on kerosene and batteries, but also firewood for lighting

Factors Influencing Choice of Fuels

- ▶ Age, level of education, marital status, income level, household size, housing type, food taste etc.
- ▶ Affordability, referring both to the cost of the fuel and cooker.
- ▶ Availability, particularly kerosene supply affected by scarcity.
- ▶ Preference of electricity is low given the instability of supply.
- ▶ Firewood preference >>> tastiness of food cooked with firewood, ease of collection, free, affordable, faster burning and ease of cooking.
- ▶ LPG usage low >>> safety concerns, unfounded myths, landlord prohibitions and costs (for cylinder and content)
- ▶ Willingness to change fuel, with affordability being stated as the major obstacle. However, firewood is often used as a back-up fuel in case of emergency or scarcity of other fuels.

Assessing the Impact of Subsidies on Gender:

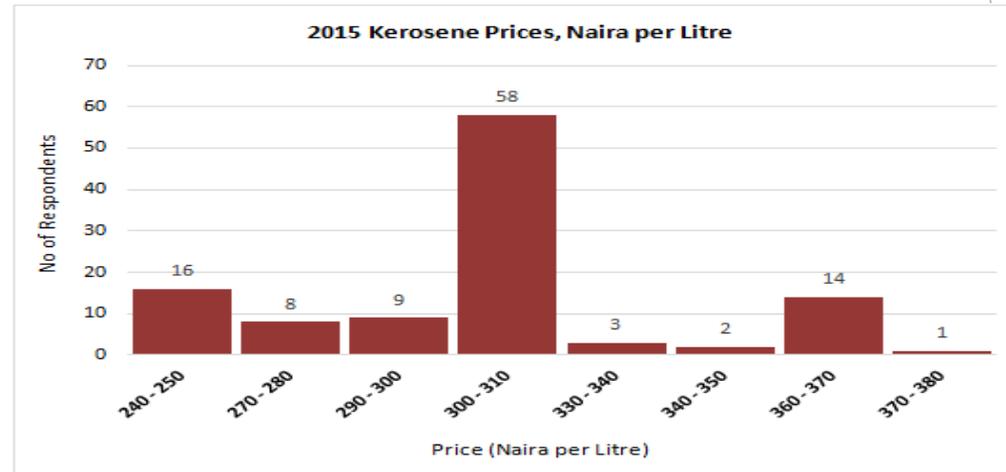
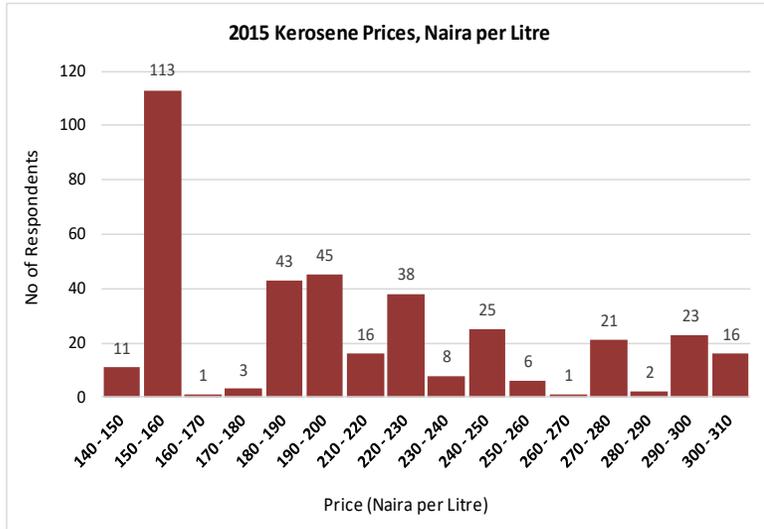
- ▶ **Subsidy reform often accompanied by high energy prices**
- ▶ **Three (3) indicators developed for assessing the effect of kerosene subsidies and their reform**
 - ▶ 1. Income effect connotes that higher prices reduce households' effective incomes.
 - ▶ 2. Energy use effect implies that higher energy prices may drive households to consume cheaper energy alternatives: for petroleum, using more efficient transport services or using less transport; for kerosene, using more biomass for lighting and cooking.
 - ▶ 3. Energy supply effect shows how fixed prices and quotas have caused energy supply problems in Nigeria.

Findings: What are the effects of subsidy reform on energy prices?

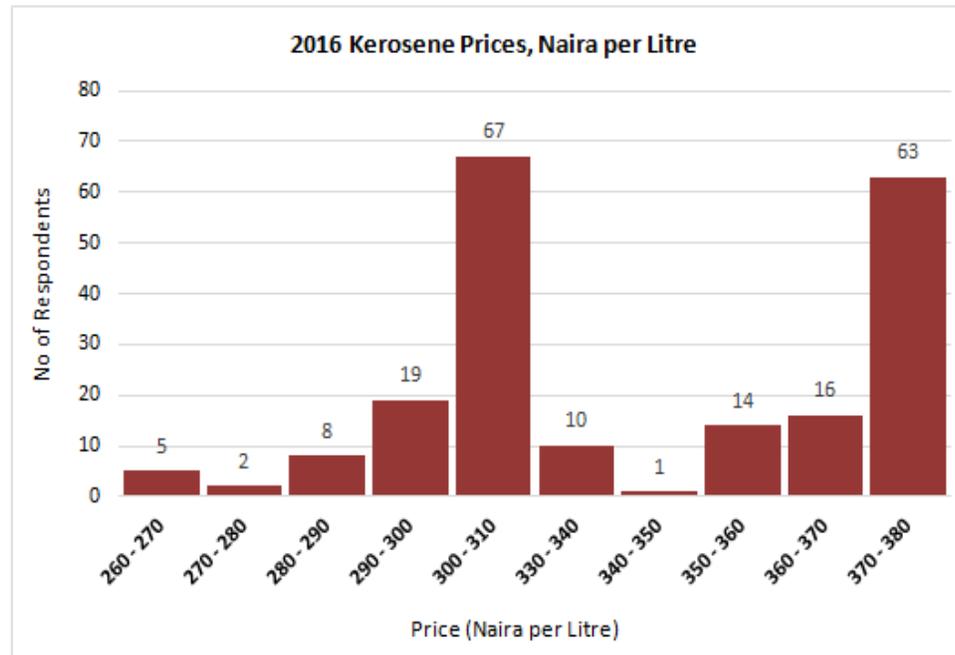
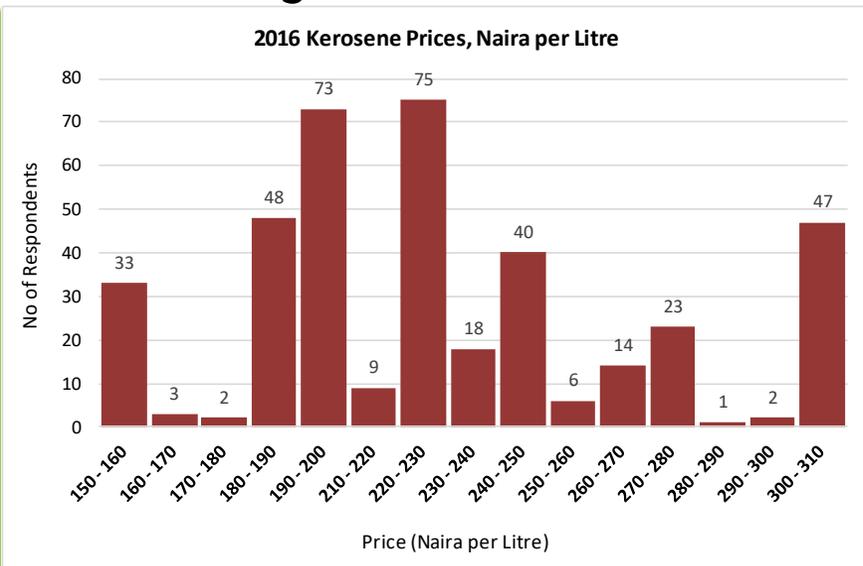
- ▶ January 2016: Withdrawal of subsidy on kerosene.
- ▶ Hikes in official kerosene prices: N50 > N83 > ~~N~~150 (USD 0.46) per litre, but the average prices paid by consumers remained significantly higher than the official pump price.
- ▶ Surveys investigated the prices households were paying before and after the reforms in 2016. In Lagos and in Imo, none of the households reported paying the official sales price of 50 Naira per litre in 2015. In Imo, kerosene prices averaged between N260 and N420 per litre compared to N200 and N380 per litre in Lagos.
- ▶ Average kerosene prices were found to be higher in the rural sampling areas in Imo than in the urban areas in Lagos

Kerosene prices before and after subsidy reform

Lagos and Imo Kero Price before and after subsidy reform



Lagos LPG Prices 2016



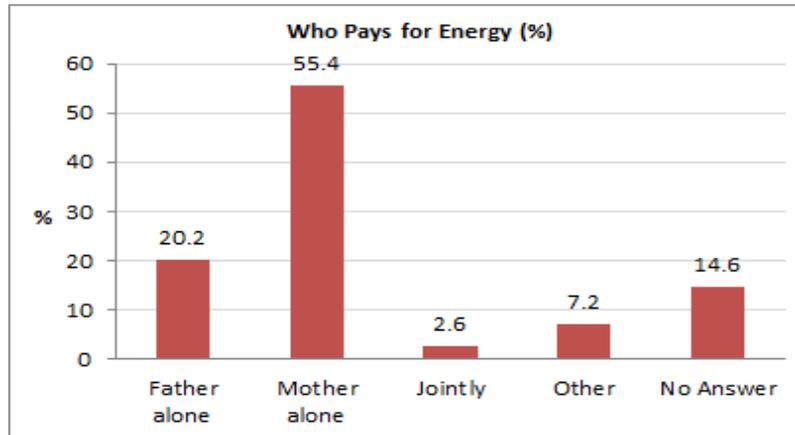
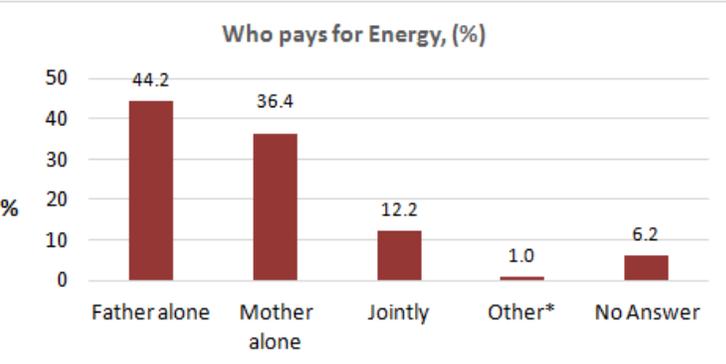
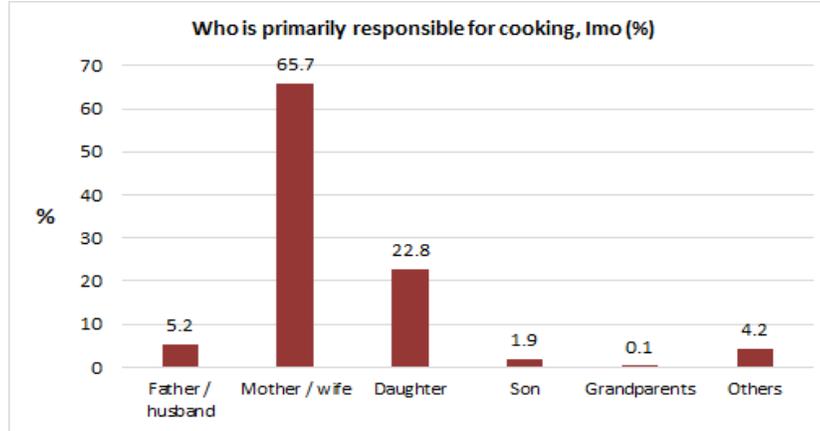
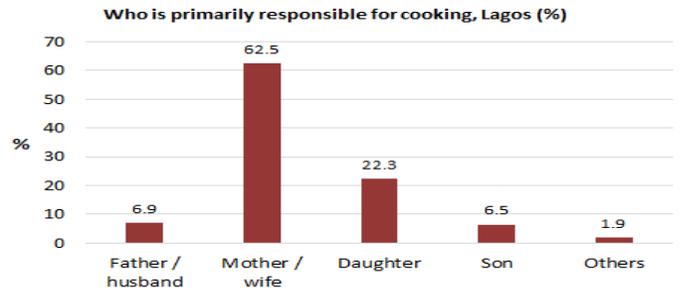
Findings: Determining income effect on women

(Parameters: Monthly income, responsibility for energy-consuming chores like cooking, payment for energy and decision-making power)

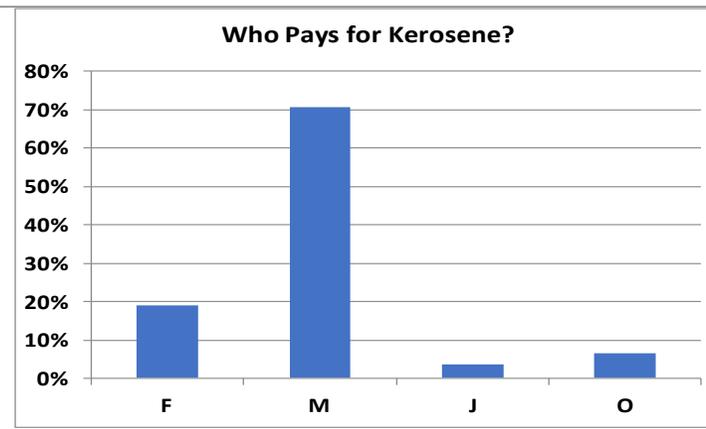
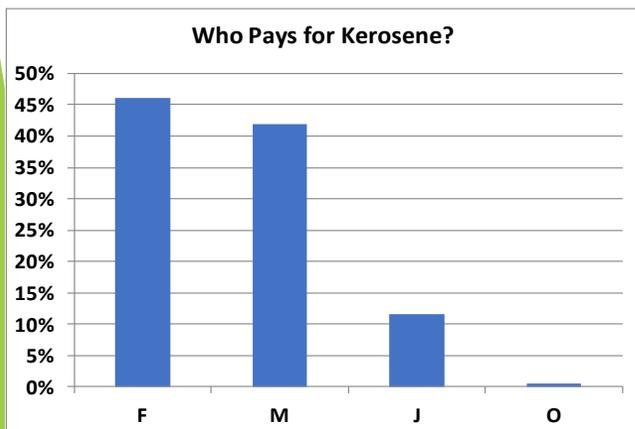
- ▶ As of 2017, the official minimum wage in Nigeria is N18,000 (\$49.58) per month. Lagos respondents (55%) have household earnings between N1,000 (USD 2.75) and N20,000 (USD 55) per month, while Imo (44.6%) respondents earn between N1,000 (\$3) and N20,000 (\$55.00) monthly.
- ▶ **Survey results also showed that the highest proportional use of kerosene (75%) is found among the lowest earning respondents**
- ▶ Women predominantly pay for kerosene and firewood.
- ▶ 41% of respondents (Lagos) who buy kerosene in bottles spend a total of N150 - N200 per month, while 42% of those who buy in litres spend a total of N1,000 - N1,500 per month.
- ▶ A significant portion of household income was expended on energy bills alone, providing further support for the conclusion of previous studies which established that African households dedicate a significant portion of their expenditures (7% on average) to lighting and cooking energy, with the largest economic impact falling on the urban poor, who spend 15-20% of their monthly incomes on high-cost cooking fuels. (World Bank, 2014, 2nd Edition, p.22.)
- ▶ **With the exception of kerosene, subsidies not targeted to fuels women primarily use and pay for by themselves: HHK, fuelwood, charcoal etc**

What is the income effect of subsidy reform on women?

Who is primarily responsible for cooking in Lagos



Who pays for Energy in Lagos



Findings: How women cope with effects of subsidy reforms?

- ▶ When prices increase, HHs in urban areas did not switch to other fuels, but rather reduced their kerosene consumption, increased the expenditure on fuels, or saved money by reducing other expenditure.
- ▶ In rural areas, households seem not to be able or willing to increase their financial expenditure on fuel. They reduced their kerosene consumption, or switched to other fuels, most likely firewood. In Imo, 41% of respondent used less cooking fuel and switch to or use more biomass (25%) whenever there is increase in fuel prices
- ▶ **The household surveys reported a reduction in fuel use as the major coping strategy.** These findings are in line with the findings of previous studies showing how high kerosene prices have forced users to resort to firewood and traditional biomass to cook.

Do reforms improve supply or the opposite? Who's impacted most?

- ▶ Respondents who use kerosene and petrol report that they experience fuel scarcity, especially the scarcity of kerosene and petrol in the wake of reforms. Scarcity usually lasts between a few days and one week.
- ▶ During periods of fuel scarcity women mostly queue at the filling stations to buy cooking fuel, because of the following reasons:
 - ▶ absence of the man from home due to work reasons
 - ▶ cultural belief that cooking is primarily a woman's job, and
 - ▶ women having primary responsibilities for house chores
- ▶ When women shift back to biomass or firewood in response to price increases, women's health suffers particularly from impact to smoke from woodfires, and also the toxic fumes (WHO: 2014)
- ▶ Merem et al., (2018) cite fire hazards from kerosene explosions, destruction of properties, burns, compromised vision, indoor air pollution, asthma that affects particularly women and children.
- ▶ This is aggravated if the cooking takes place inside with insufficient ventilation. The survey indicated that in Lagos most of the cooking takes place indoors (41.2% inside the house, 28% inside the house and this has implication for indoor pollution.

Subsidy Reform: Implications for Women's Productivity and Empowerment

- ▶ Most low-income women in Lagos and Imo are self-employed and are involved in catering, hairdressing, tailoring, beadmaking, fashion designing and sales of Ankara Accessories. All these business activities are heavily-dependent on energy supply. In other words, increased access to energy supply will boost women's economic opportunities and empowerment.
- ▶ Drudgery involved in collection and preparation of firewood. Firewood in rural areas is collected, whereas in Lagos a large amount is purchased. Both in Lagos and Imo, mothers are mostly responsible for biomass collection and purchase. In rural areas, a third of respondents need over 30 minutes to collect the firewood, while a third of respondents says that it takes only up to 10 minutes.
- ▶ Firewood collection happens several times per month, with 75% of respondents collecting it more than three times per month.
- ▶ Awareness of social protections plans (SURE-P, N-POWER, N5000 scheme) for low-income households and women is extremely low in the sampling areas, with only 10.6% of women in Lagos and 9.2% in the rural areas being aware of the existence of such programmes.

Alternatives to Kerosene: Renewables and LPG

- ▶ The awareness of renewable energy as an alternative energy source for lighting and cooking is limited in Lagos, where only 27 % of respondents are aware.
- ▶ Awareness of renewable energy is better in rural areas, where 40% claim to be aware.
- ▶ 54% of respondents in Lagos and 63% of respondents in Imo say they would use renewable energy appliances if subsidised by the government.
- ▶ For LPG, 59% of respondents in Lagos and Imo say they will use them, if there was government subsidy on LPG and cylinders.
- ▶ The research found strong links between education, income level and access to (cleaner) energy.
- ▶ Preference for a clean cooking fuel (LPG) increases as the level of income and education increases. Proportional use of biomass fuel declines as the level of education increases, while the proportional use of clean energy (LPG) increases as the level of education increases. Energy preferences for cooking and lighting are also seen to vary with the level of education.

Conclusions and recommendations

▶ Context matters.

- ▶ Impact of subsidy reforms differs significantly on consumers living in urban or rural areas, and between men and women in those areas
- ▶ Impact of reforms also vary according to fuel type: kerosene, PMS, LPG, fuelwood, etc
- ▶ Both location and fuel type inform the coping strategies to reform and ability to switch.
- ▶ Fossil fuel subsidies were not working well for women:
- ▶ Subsidies are not directly targeted to low-income households, with women making up the majority of those on low incomes.
- ▶ Women paid and continue to pay much higher prices than the official sales price, especially for HHK.
- ▶ Availability of fuels over time and in rural areas was
- ▶ Low-income women not benefitting from subsidies as they depend heavily on informal vendors and therefore, not procuring their fuels at the subsidized rates)

▶ Rapid fossil fuel subsidy reform without mitigation measures can have a negative impact on women

- ▶ High prices associated with reforms place high demands on household income, especially women's income.
- ▶ Women cope with price increases by reducing fuel use, paying more, switching to old fuels with implications for health, safety and time.
- ▶ Women predominantly pay for the cheaper, less clean fuels.
- ▶ Reforms not effectively addressing the price differential between official pump price and retail prices of energy products, widening gaps in access to energy.
- ▶ Women bear the brunt of supply disruptions, including shortages, losing enormous of time at queues.
- ▶ A large percentage of low-income and poor women are still not aware (of subsidies)
- ▶ **Subsidy not the only element that leads to fuel switching and better access:**
 - ▶ Affordability - also distribution
 - ▶ Men who take the decision
 - ▶ Taste and culture
 - ▶ Freely available wood

▶ Way forward to benefit women/girls

- ▶ Reallocate or reinvest subsidy savings on the education of women and girls, maternal care, education (for women and girls) or loans for women-led businesses
- ▶ Better targeting of fuel subsidies to poor women through investments in appliances or renewable energy lighting that enable women spend less time on drudgery and have more time for productive economic activities which will more disposable income for advancing their families' priorities
- ▶ Develop transition strategy for moving from cooking on kerosene towards LPG, and other cleaner cooking fuels.
- ▶ Strengthen distribution systems especially in rural areas to improve access to subsidized fuels
- ▶ Making fuel available and accessible in quantities preferred by low-income. This is one single factor heightening preference for informal vendors where fuels can be purchased according to size and means of the consumer.

Conclusions and recommendations

- ▶ Better targeting of subsidies to empower women ...
- ▶ Via cash transfers to reduce upfront connection costs for LPG in particular.
- ▶ Via solar or grid electrification (to replace kerosene subsidies) #
- ▶ Subsidy reform needs to be undertaken with care (social protection)
- ▶ Taking into account the local context and traditional gender roles.
- ▶ If not taken with care, high energy prices associated with reforms increase dependence and switching back to old fuels, defeating official efforts to heighten transition to cleaner fuels, including renewable energy
- ▶ Improve awareness of subsidy reforms

‘I think that Nigeria's experiences with kerosene subsidies in particular provides a classic example that just removing a policy isn't enough - you have to think about consequences and prepare for them’

- Beaton, 2018

