

HIRE PURCHASE SCHEMES AND ADOPTION OF LPG COOKSTOVES: EXPERIMENTAL EVIDENCE FROM UGANDA

POLICY BRIEF



Highlights:

- *Hire purchase schemes increase vendor's likelihood of buying a LPG cookstove.*
- *Hire purchase schemes with a learning opportunity have greater effect on vendor's likelihood of buying a LPG cookstove.*

Introduction: Households and food vendors in Sub-Saharan African rely on biomass for their energy needs. Besides negative health effects and burden on women, these cooking technologies encourage depletion of forests. In Uganda for instance, biomass constitutes 94% of energy consumed (UBOS, 2018). Tree biomass estimated at 44 million tonnes is used each year (NEMA, 2014). This exploitation rate is high, to the extent that 60% of forest cover in 1990 was lost by 2015 (UBOS, 2019). Related to health effects of biomass, in Uganda respiratory infections are rated second to malaria as a cause of illness (UBOS, 2018). Promoting use of clean and environmentally friendly energy sources is necessary to ameliorate the adverse health, socio-economic and environmental effects of relying on biomass. Various interventions have been undertaken. Recent evidence suggest that biomass stove models deliver marginal gains in air quality to support achievement of climate action and health related SDGs (Johnson et al., 2019; Rosenthal et al., 2018). Liquified Petroleum Gas (LPG) is efficient in emissions and cooking

performance (Johnson et al., 2019; Shen et al., 2017). Studies focusing on LPG, mainly assess barriers to adoption. High initial cost is among the main hindrances to adoption. (Asante et al., 2018; Gould & Urpelainen, 2018; Pillarisetti et al., 2019). Purchase schemes are appropriate interventions considering the high initial cost of changing to LPG, and can improve perceptions on LPG use.

Objectives: This study makes novel contributions to the energy transition literature by assessing the impact of purchase schemes on adoption and use of LPG cookstoves by food vendors. Specifically, this research assesses the impact of hire purchase schemes and options that allow for pre-amortisation use (learning) on use of LPG cookstoves by chapati vendors.

Methods: To establish the impact of hire purchase schemes on adoption and use of LPG, we conducted a field experiment with three groups of chapatti vendors in Kampala, Uganda.

The first group (the control group) were given information on benefits of LPG stoves and option of buying a LPG cookstove kit with a once-off full cost payment.

The second group were provided with information on benefits of LPG stoves but had the option to buy a LPG cookstove kit on a hire purchase basis within 3 (or 4) instalments over 6 (or 8) weeks.

The third group were also given information on benefits of LPG stoves but were given the option of using LPG stoves for 2 weeks before deciding to buy the stove (on either a once-off or hire purchase basis) or return the stove and pay for any gas used.

Results and Discussion: We find that hire purchase schemes positively impact on vendor's likelihood of buying a LPG cookstove. However, the hire purchase option that included a learning opportunity had larger effect on vendor's likelihood of buying a LPG cookstove. The schemes had no impact on vendor's demand for charcoal, because vendors suspended use of LPG stoves because of the high unit costs.

Policy Implications: These results suggest the need to enhance LPG energy efficiency for business users. Interventions can support longer amortisation periods to facilitate vendors to acquire bigger Liquefied Petroleum Gas cookstove kits that are more efficient in terms of output per unit cost of refills, or pay-as-you-go Liquefied Petroleum Gas technology that discounts high cost refills.

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