Clean Cooking Transition: Evidence From India

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Agenda

I	*Background*
II	*LPG cooking transition*
III	*Electricity as a cooking solution*

Background

- DBTL scheme: Protecting consumer entitlement by removing the incentive for diversion
- GiveItUp Campaign: Appeal to economically well-off people to surrender their LPG subsidy
- PMUY: Free LPG connection to poor households; given on women name.
- Electricity as an option for clean cooking in India

II	***LPG cooking transition***

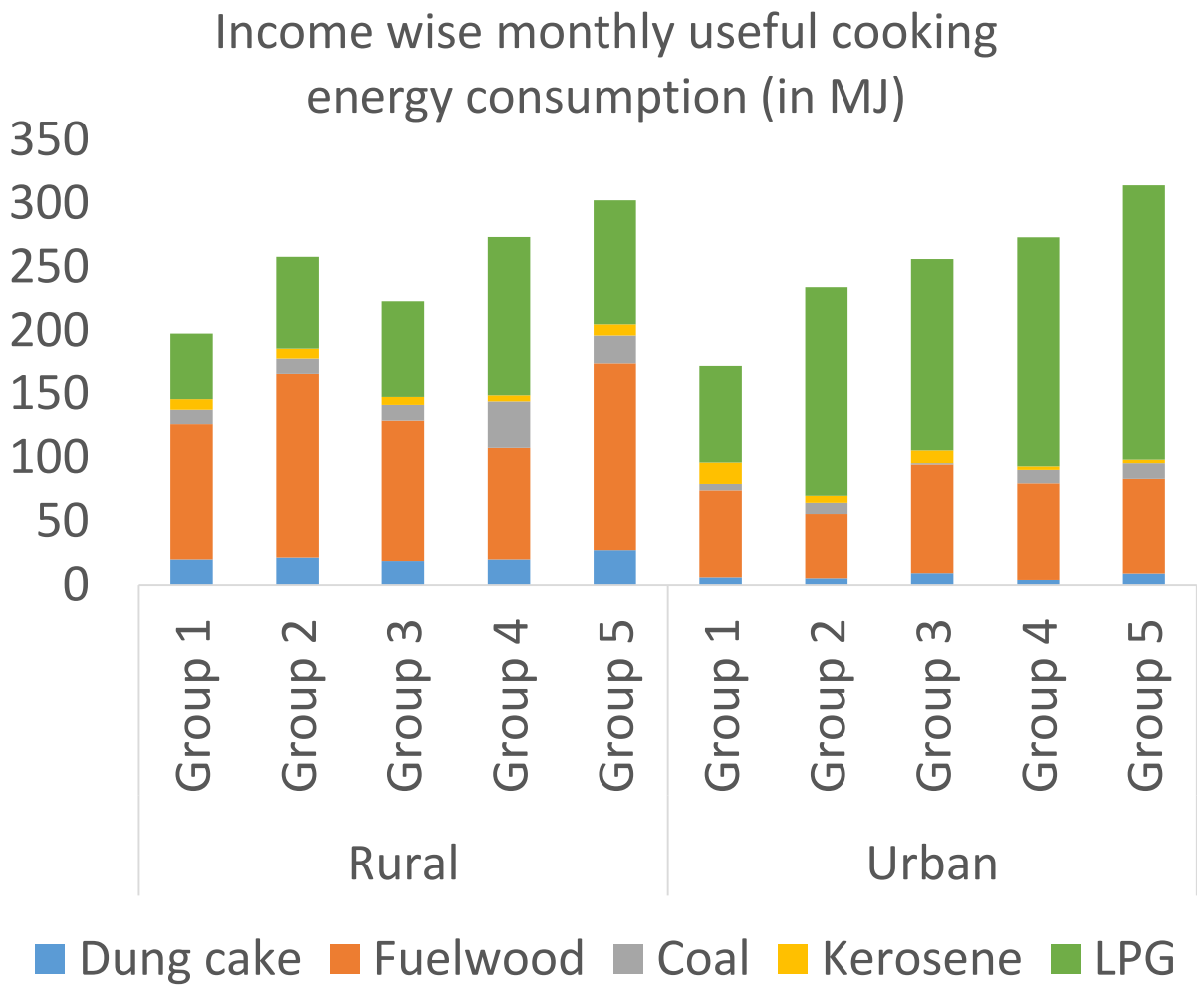
Methodology

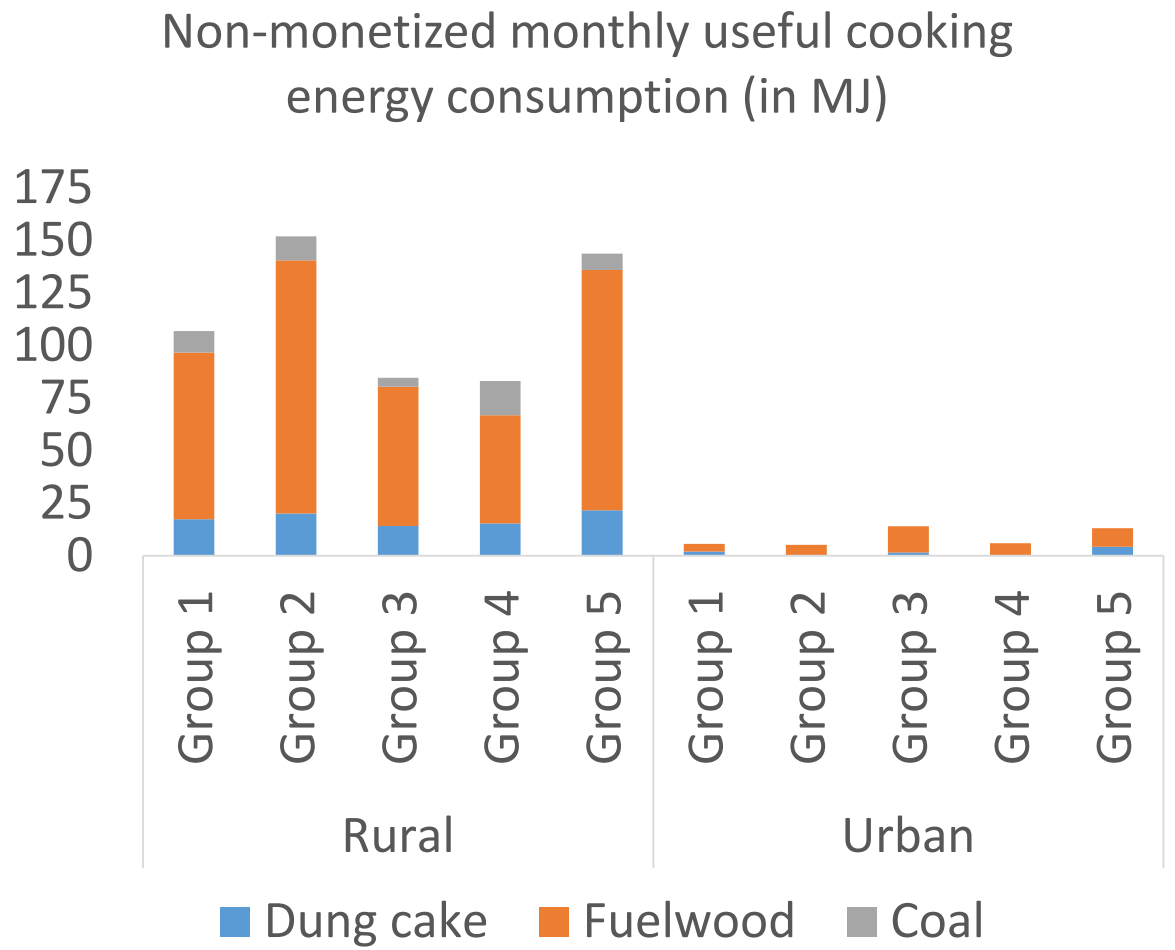
- Socio-demographic survey
- FGDs
- Sample size and sampling:
  - Based on the LPG coverage rate: 510
  - Sample split between rural and urban strata based on population proportion
  - Substrata of villages/wards formed to keep equal population in each
  - Sequence of selection: strata → sub-strata → village/ward → households

Data Description

- Rural sample 300; Urban sample 210
- Female respondent 473; male respondent 37
- No LPG using households: total 249; rural 164; urban 85
- 100 % LPG for cooking: total 158; rural 55; urban 103
- Mix fuel for cooking: total 103; rural 81; urban 22

Cooking energy consumption





O'Sullivan, K., Barnes, D. F., 2006. Energy Policies and Multitopic Household Surveys. World Bank Working Paper, 90. Washington, DC: World Bank.

Data Source: IRADe survey, 2017

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Empirical Result (Marginal Effect)

- Tobit regression to estimate marginal effect on share of LPG use % of cooking energy
- Data is censored from below as many households use 0 percent LPG.

Variables	Mrginal_effect	Std_Error	t_value	Pr(>|t|)	Sig.
Household income (log)	*8.11*	*3.94*	*2.06*	*0.04*	*
Female in family size, 16 years and above (log)	*-8.76*	*4.39*	*-2.00*	*0.05*	*
Female headed household (Dummy)	*1.62*	*3.77*	*0.43*	*0.67*	
Highest level of male education	*1.17*	*0.49*	*2.38*	*0.02*	*
Highest level of female education	*0.84*	*0.46*	*1.80*	*0.07*	.
Location Urban (Dummy)	*17.51*	*4.77*	*3.67*	*0.00*	***
LPG delivery at doorstep (Dummy)	*16.36*	*5.22*	*3.13*	*0.00*	**
PMUY beneficiaries (Dummy)	*48.00*	*4.86*	*9.87*	*< 2.2e-16*	***
LPG acquisition year	*14.16*	*1.09*	*13.05*	*< 2.2e-16*	***
Square of LPG acquisition year	*-0.52*	*0.05*	*-10.59*	*< 2.2e-16*	***

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III	***Electricity as a cooking solution***

Electric cooking

- Purpose: understand viability of electricity as a cooking solution.
- Geography: Rajasthan and Chhattisgarh
- Study approach:
    - Baseline survey
    - Selection of 40 willing households
    - Demonstration and distribution of induction cooker
    - 15 days cooking use analysis of beneficiaries household.

- **Required infrastructure**: All households had electricity supply both during morning and evening


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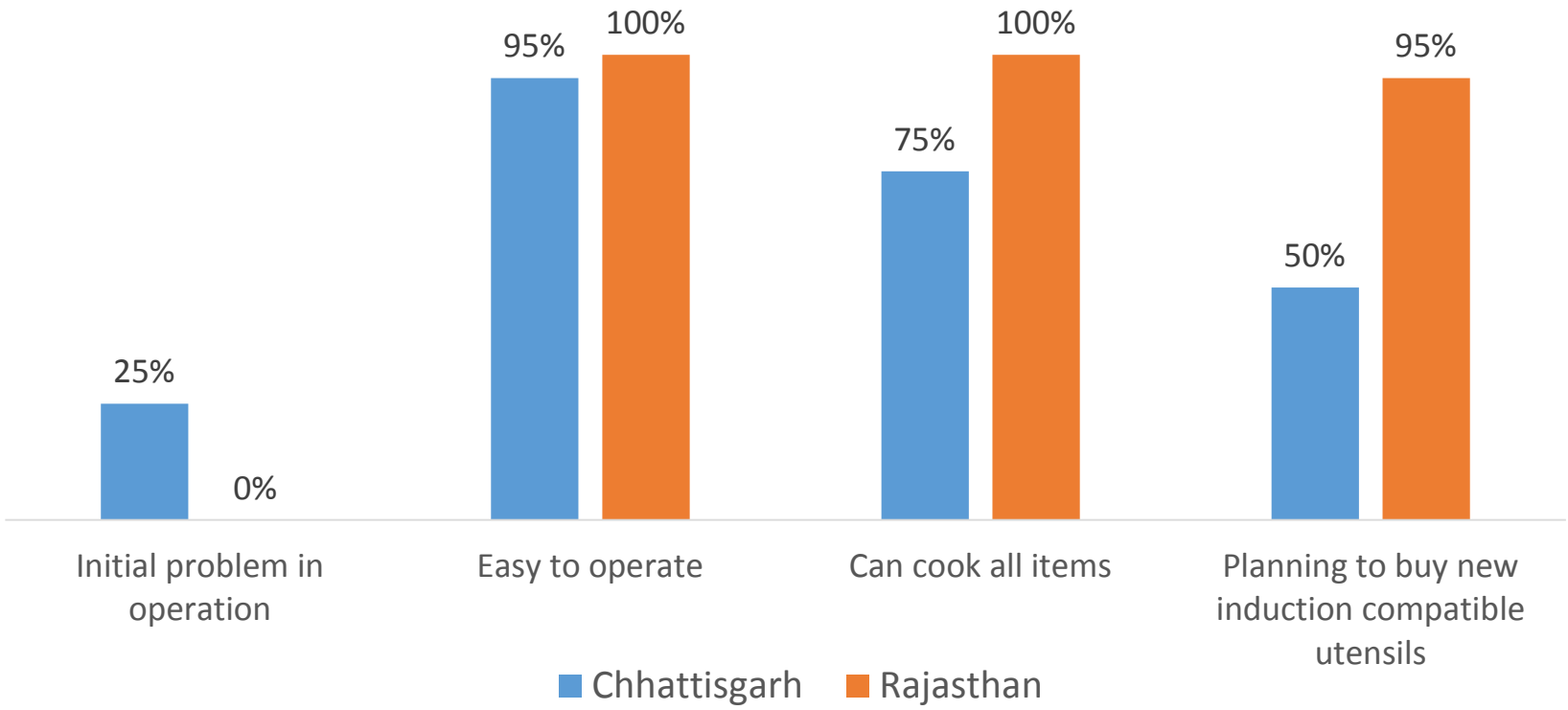
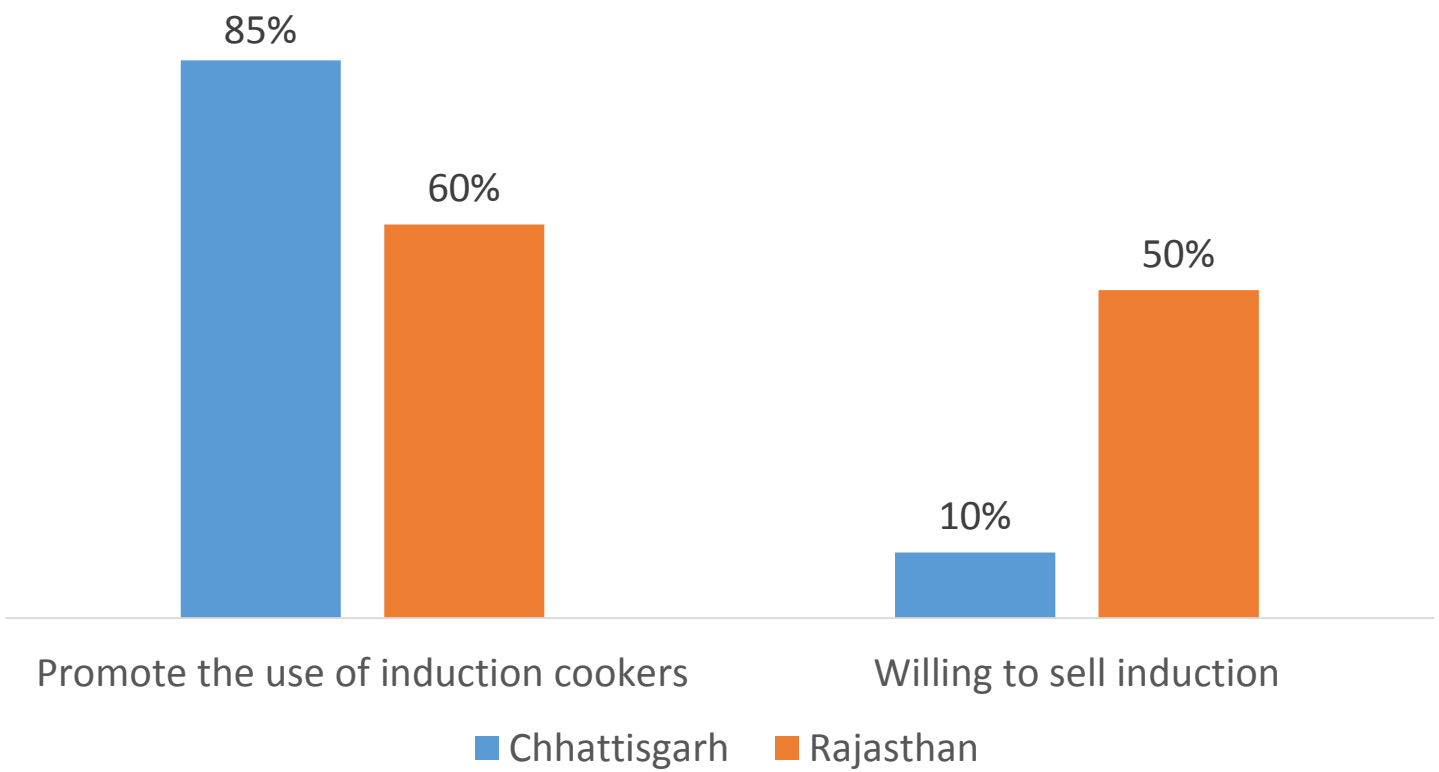
User perception



Willingness to promote



Observations and findings

- India has target of 175 GW renewable energy.
- Induction cooking suitable for electrified villages.
- Reduce dependency on LPG and biomass.
- Women willing to promote induction cooker.
- Induction businesses can be taken up by rural women.

Thank you

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