Household Energy Transition in India: Is the Recent Expansion in LPG use Inclusive?

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Abstract

The recent expansion in LPG connections has generated curiosity whether it transformed the Indian households towards using clean cooking fuel. This study evaluates the progress in LPG use as a primary source of cooking fuel in India, especially in rural landscapes. Employing the long-term data provided by NSSO, we find that the use of LPG has witnessed an appreciable improvement in rural India after 2014. However, this improvement is limited to the economically well-off section of the society. Households belonging to lower consumption quintile and lower social hierarchy in economically poor states are far from reaping the benefits of this expansion. Interestingly, the use of LPG among the poor households is high in relatively developed states than the non-poor households in relatively underdeveloped states. This suggests that the distributive policy focus should be on the poor and non-poor households in economically backward states to realise the universalisation of LPG use.

Introduction

Each year across the globe, around four million people die prematurely from illnesses attributable to indoor air pollution. Indoor air pollution is caused by inefficient cooking practices using traditional fuel[3]in polluting stoves(World Health Organization [WHO],

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[3]The traditional cooking fuel includes kerosene, biomass (wood, animal dung, and crop residues) and coal. The burning of these fuels emits CO2, and this causes noncommunicable diseases including stroke, ischemic heart disease, chronic obstructive pulmonary disease and lung cancer (WHO, 2018).

2018). The use of traditional fuel and resultant emission within the household causes the loss of around 0.5 million lives in India every year (India State-Level Disease Burden InitiativeAir Pollution Collaborators, 2019). To control indoor air pollution and its associated health hazards, the Union Government of India encouraged the households to transitfrom traditional to clean fuel (mainly, Liquified Petroleum Gas [LPG]) for cooking.[4] Between 1965 and 1970, only a few lakhs registered LPG connections were given in India. After the economic reforms, the number of LPG connections increased to around 60 million in 2001. The number of households connected to LPG further increased to 264.26 million in 2014-15. The gradual expansion of LPG connections, however, has occurred largely among the middle income and an upper-income group of households in urban areas, and there is no real transition to clean cooking fuel among low-income groups in the rural population (Ramji et al., 2012; Aggarwal et al., 2018).[5]

To increase the penetration of LPG among the economically poor and marginalized in rural areas, the central government of India launched a flagship program- Pradhan Mantri Ujjwala Yojana (PMUY) in May 2016. The PMUY,with a focused vision to universalize clean cooking among Indian households, also aims to fulfill its commitment towards Sustainable Development Goals (SDG-7)[6]and the Paris Agreement of Climate Change.[7] To realize its goal, the scheme provides a subsidy and loan to reduce the upfront cost of the LPG connection.[8] The government also provides direct cash subsidy transfer to the consumer's bank account against every LPG cylinder refilled to improve affordability and incentivizes the regular use of clean fuel (Chindarkar et al., 2021). These incentives have increased the number of registered LPG connections and the number of active LPG consumers. In 2016, only 56% of Indian households had access to LPG, which has significantly increased to about 80% at the end of 2018.Similarly, the total number of active LPG consumers has increased by 31%between April 2016 and January 2018 (Dabadge et al., 2018; Chaudhury, 2019). However, there has been a concern whether this increase in the number of connections and the number of active users of LPG is an indication of the actual use of clean cooking fuel among the Indian households as households use alternative fuel for cooking depending on the type of food (Jeuland et al., 2015; Brooks et al., 2016). Therefore, it is crucial to understand the ground reality of the actual usage of LPG as the primary source of cooking fuel in Indian households. Against this, we examine the use of LPG as a primary source of fuel for cooking among Indian households. The analysis will give a clear picture of the actual usage of clean fuel among Indian households. This study assumes a particular significance as PMUY was considered a transformative policy to secure energy efficiency and improve

[4] Using a clean cook stove (mainly LPG) is associated with daily reductions of about 4.5 kg of biomass fuel, 160 fewer minutes cooking on traditional stoves, and 105 fewer minutes collecting biomass fuels (Brooks at el., 2016).

[5] The use of LPG among lower-income households is constant at about 6-8 kg per month between 1999-00 and 2009-10; the medium-income households consume about 7-10 kg per month; and the high-income households consume about 10-11 kg per month (Ramji et al., 2012).

[6] India needs to provide access to affordable, reliable, sustainable, and modern energy (both cooking and lighting) to all households by 2030 (Chaudhury, 2019).

[7] It emphasizes the substitutions towards low-carbon energy sources (Vandyck et al., 2016).

[8] The expenditure increases by 3.6-8.8 folds for transition from traditional fuel to LPG cooking fuel in India (Sankhyayan& Dasgupta, 2019).

the household's health. We use households' energy use information provided by the National Sample Survey (NSS), Ministry of Statistics and Program Implementation, Government of India for the analysis.[9]

Recent Improvements in LPG Benefited Rural Households

The primary source of energy used for cooking by the Indian households has witnessed a massive change during 1983-2018 (Table 1).

Table 1: Primary Source of Energy used for Cooking by the Indian Household

Items	January - December 1983	July 1987 -June 1988	July 1993 -June 1994	July 1999 -June 2000	July 2004 -June 2005	July 2009 -Jun 2010	July 2011 -June 2012	January -June 2014	July 2017 -June 2018	July - December 2018
Rural										
Coke/coal	2.4	1.9	1.4	1.5	0.8	0.8	1.1	1.1	0.5	-
Firewood & chips	77.0	79.0	78.2	75.5	75.0	76.3	67.3	69.9	49.6	44.5
LPG	0.2	0.8	1.9	5.4	8.6	11.5	15.0	18.4	42.7	48.3
Dung cake	14.5	13.8	11.5	10.6	9.1	6.3	9.6	8.1	5.0	5.5
Kerosene	0.8	1.5	2.0	2.7	1.3	0.8	0.9	0.4	0.3	-
No cooking arrangement	5.4	3.1	0.7	1.1	1.3	1.6	1.3	0.1	0.7	0.6
Other sources				3.1	3.8	2.7	4.9	2.0	1.2	1.1
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Urban										
Coke/coal	16.6	10.7	5.7	4.1	2.8	2.3	2.1	2.1	0.6	-
Firewood & chips	46.0	37.0	29.9	22.3	21.7	17.5	14.0	15.6	6.2	5.6
LPG	10.3	22.3	29.6	44.2	57.1	64.5	68.4	75.0	86.4	86.6
Dung cake	2.9	3.1	2.4	2.1	1.7	1.3	1.3	1.4	0.5	0.5
Kerosene	16.7	19.2	23.2	21.7	10.2	6.5	5.7	3.9	0.8	-
No cooking arrangement	7.6	7.3	6.3	4.3	4.9	6.5	6.9	1.2	5.1	4.1
Other sources			3.0	1.3	1.6	1.5	1.5	0.8	0.4	3.2
All	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Authors' computation using various rounds of NSS surveys

[9] The energy use informationis available in 50th (1993-94), 55th (1999-2000), 61st (2004-05), 66th (2009-10), and 68th (2011-12) rounds of consumer expenditure survey of NSSO. The information on the primary energy source for cooking during the last 30 days in the household is also available in 71st (Jan-June 2014) and 75th (July 2017-June 2018) rounds of NSS entitled 'Social Consumption: Health.' The question on the primary source of energy used for cooking by the Indian household is identical across the various rounds of the NSS survey. Therefore, we do not notice a technical barrier in using different rounds of NSS for inter-temporal comparisons.

Among the different types of traditional fuels, firewood and chips were widely used cooking fuels among the rural(77%) and urban (46%) households in the 1980s. Dung cake (14.5%) was another major source of energy for cooking in rural households, while kerosene (16.7%), coal (16.6%), and LPG (10.3%) were employed as other sources of fuel for cooking in urban households. Initially, the use of cooking fuel was highly diversified in urban areas. However, LPG use has increased and substituted traditional cooking fuel in urban areas. A similar expansion in the use of LPG was not experienced in rural areas till 2014, making clean cooking fuel use in India an urban phenomenon as it registered a meager improvement from 0.2% in 1983 to 18.4% in 2014. The use of LPG has witnessed an upsurge by about 30 percentage points in the rural areas after 2014 and reached 48.3% in 2018. This recent expansion in the use of LPG in rural areas after 2014 could be attributed to a concerted effort by the government through its flagship PMUY policy(Dabadge et al., 2018; Chaudhury, 2019; Sharma et al., 2019; Shankyayan & Dasgupta, 2019; Swain & Mishra, 2020; Chindarkar et al., 2021).

Widening Regional Disparity in LPG Use

The recent expansion in the use of LPG in rural areas as a primary source of fuel for cooking varies across the states. In 2018, the use of LPG was highest in Tamil Nadu (83.8%), conversely, the lowest use of LPG was recorded in Jharkhand (21.5%).

This gap of more than 62 percentage points between the best and worse-off state indicates a large development divide in LPG use among the Indian states. In 2018, Tamil Nadu, united Andhra Pradesh, Punjab, Maharashtra, and Jammu & Kashmir had more than 60% households using LPG. In contrast, Jharkhand, Chhattisgarh, Odisha, and West Bengal had less than 30% LPG users. In 2014, some poor-performing states (Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Odisha, and West Bengal) had less than 10% LPG users, which increased up to more than 20% in 2018. Despite this improvement, these states are still among those at the bottom of the LPG use. LPG use among the relatively better performing states (united Andhra Pradesh,Maharashtra, Punjab, Tamil Nadu, and Uttarakhand) was more than 30% in 2014, expanding even faster to achieve more than 60% in the year 2018.

Table 2: LPG as a Primary Source of Energy used for Cooking by Rural Indian Households across the States

State	July 1993 -June 1994	July 1999 -June 2000	July 2004 -June 2005	July 2009 -June 2010	July 2011 -June 2012	January -June 2014	July 2017 -June 2018	July -December 2018
Andhra Pradesh + Telangana	2.3	6.3	14.4	19.4	28.9	35.6	77.2	83.1
Assam	1.1	5.6	6.9	14.2	17.2	23.8	42.9	53.5
Bihar (BH)	-	-	1.7	3.5	5.9	5.5	36.5	44.2
Jharkhand (JH)	-	-	1.4	2.5	2.9	2.8	16.8	21.5

BH+JH	0.3	0.6	1.6	3.3	5.2	4.9	31.9	38.8
Gujarat	4.9	10.2	10.5	10.6	13.9	22.8	54.6	50.1
Haryana	3.6	18.4	19.1	21.4	26.7	22.3	42.9	54.2
Karnataka	1.7	4.3	6.5	10.7	14.7	24.5	62.9	72.2
Kerala	4.1	11.6	18.2	26.5	30.8	24.3	48.0	50.7
Madhya Pradesh (MP)	-	-	3.8	5.5	6.2	5.5	29.7	33.1
Chhattisgarh (CH)	-	-	1.5	2.0	1.5	5.5	26.5	29.4
MP+CH	0.5	1.7	3.1	4.5	4.8	5.5	28.7	32.0
Maharashtra	3.5	9.1	14.9	17	23.1	31.3	57.4	65.8
Odisha	0.3	0.8	2.9	3.7	3.9	5.8	18.1	23.8
Punjab	5.1	14.2	24.2	33.7	30.5	37.5	69.8	77.4
Rajasthan	2.0	2.9	5.1	5.6	8.9	11.4	24.5	33.7
Tamil Nadu	3.1	6.7	13.4	25.4	37.2	46.7	75.1	83.8
Uttar Pradesh (UP)	-	-	4.8	5.8	6.7	11.8	31.9	37.8
Uttarakhand (UK)	-	-	18.3	17.8	28.8	30.6	64.3	58.5
UP+UK	1.2	3.6	5.5	6.5	8.2	12.7	33.7	38.9
West Bengal	0.3	1.7	4.3	4.8	6.6	7.2	20.0	24.5
Himachal Pradesh	5.0	20.6	20.6	26.3	25.2	23.4	36.7	47.5
Jammu and Kashmir	5.2	7.8	14.7	24.6	26.5	26.8	39.0	61.2

Source: Authors' computation using various rounds of NSS surveys

The Social Disparity in LPG Use

Like in many other development indicators, the use of LPG illustrates the social hierarchy in India (Table 3). The LPG use is lowest among under privileged- SCs/STs, followed by OBCs and Others. The difference in the use of clean cooking fuel is the highest between SCs/STs and OBCs. We notice that this social hierarchy is prevalent across all states except in Assam and Jammu & Kashmir. In Assam, LPG use is highest among SCs/STs, while in Jammu & Kashmir, it is highest among OBCs.

Table 3: Percentage of Rural Indian Households using LPG as a Primary Source of Energy for Cooking Across Social Groups

State	SC+ST		OBC		Others		All	
	2014	2018	2014	2018	2014	2018	2014	2018
Andhra Pradesh	21.0	68.2	33.8	81.5	55.2	90.5	35.6	79.2
Assam	19.4	58.0	29.9	57.9	22.8	48.4	23.8	53.6
Bihar	01.8	34.0	04.1	44.8	15.7	61.5	05.5	44.5
Chhattisgarh	01.5	24.6	08.8	34.1	25.6	49.5	05.5	29.4
Gujarat	07.3	35.7	15.2	51.9	58.8	72.4	22.8	50.3
Haryana	10.1	52.6	22.2	53.7	32.5	56.7	22.3	54.4
Himachal Pradesh	20.3	34.7	27.7	47.8	23.5	55.8	23.4	47.5

Jammu & Kashmir	21.4	36.2	07.6	85.1	31.6	62.1	26.8	61.2
Jharkhand	01.6	13.0	01.3	28.1	34.0	38.8	02.8	21.5
Karnataka	13.1	68.5	26.4	71.5	32.3	79.0	24.5	72.2
Kerala	12.3	24.9	23.5	49.7	32.3	63.4	24.3	50.7
Madhya Pradesh	02.9	27.6	06.3	36.2	12.2	45.1	05.5	33.5
Maharashtra	17.3	54.3	33.8	69.8	42.7	71.6	31.3	65.8
Odisha	01.9	12.9	09.1	32.2	09.7	38.8	05.8	23.8
Punjab	26.2	70.9	41.5	82.9	50.0	82.7	37.5	77.4
Rajasthan	05.1	32.3	12.3	30.3	27.6	51.4	11.4	33.7
Tamil Nadu	29.2	80.0	54.9	85.8	17.6	92.3	46.7	83.8
Telangana	19.1	89.7	50.5	89.6	64.2	98.5	44.1	90.6
Uttarakhand	17.0	37.9	10.5	75.2	40.4	62.1	30.6	58.5
Uttar Pradesh	05.4	31.9	11.3	36.1	23.7	55.9	11.8	37.9
West Bengal	05.7	20.4	03.4	21.9	09.2	28.4	07.2	24.5
India	09.7	39.3	20.1	51.7	27.8	56.4	18.4	48.5

Source: Authors' computation using various rounds of NSS surveys

The SCs/STs are the worst-off while the category 'Others' is the best among all social categories in LPG use for the year 2018. However, the difference between these groups widely differs across the states (Table 3). It is observed that this disparity is highest in Kerala (38.5%) and Gujarat (36.7%). Both Kerala and Gujarat have experienced nearly similar mid-level (50%) overall achievements but have high levels of social disparity (refer to Table 4). This disparity among worst-off and best social groups is less in Haryana (4.1%), West Bengal (8%), and Telangana (8.8%). These three states represent different scenarios. Haryana is among the states with mid-level achievement (54.4%) but has low-level social disparity. The overall use of LPG is highest in Telangana (90.6%) among all the states, and therefore the social disparity is not apparent. Though West Bengal has a low level of social disparity, it has the lowest level of overall achievements (24.5%). The achievements and social disparity in LPG use are presented in table 4.

All social groups registered similar levels of progress in LPG use at the national level during 2014 and 2018. However, this pattern is different across states. As a result, the disparity in some states has increased, while it has reduced in some others (Table 3). For example, in Andhra Pradesh, the progress in the use of LPG as a primary source of fuel for cooking among SCs/STs (47.2 percentage points) and OBC (47.7 percentage points) is higher than the Others (35.3 percentage points). Such progress where the underprivileged sections of the society progress faster than the privileged ones reduces the disparity between them. On the other hand, in Odisha, the progress in the use of LPG among SCs/STs (11 percentage points) is much lower than the OBCs (23 percentage points) and Others (29.1 percentage points). This indicates disproportionate progress in clean cooking fuel among the deprived and an increase in disparity among different social categories.

Table 4:Association between Achievement and Disparity in LPG use, 2018

Achievements→ Gaps ↓	Less than 30%	30-45%	45-60%	More than 60%
Lowest Less than 10 percentage points	West Bengal (24.5) [8]	--	Assam (53.6)[-9.6] Haryana (54.4)[4.1]	Telangana (90.6) [8.8]
10-20 percentage points	--	Madhya Pradesh (33.5) [17.5] Rajasthan (33.7) [19.1]	--	Karnataka (72.2) [10.5] Punjab (77.4) [11.8] Tamil Nadu (83.8) [12.3] Maharashtra (65.8) [17.3]
20-30 percentage points	Chhattisgarh (29.4)[24.9] Jharkhand (21.5)[25.8] Odisha (23.8)[25.9]	Uttar Pradesh (37.9) [24] Bihar (44.5) [27.5]	Himachal Pradesh (47.5) [21.1] Uttarakhand (58.5) [24.2]	Andhra Pradesh (79.2) [22.3] Jammu & Kashmir (61.2) [25.9]
More than 30 percentage points	--	--	Gujarat (50.3)[36.7] Kerala (50.7)[38.5]	--

Notes: *Achievements refer to proportion of households using LPG. Gaps refers to percentage point difference in LPG use between worst-off (SC/STs) and best-off (Others) households. Figures in round brackets are achievements while figures in box brackets are gaps.*
Source:*Authors'computation using NSS data*

The Higher Disparity among the Lower-performing States

The use of LPG is higher among the high-income groups than their counterparts in lower-income (Table 5). At the national level, the use of LPG among the upper consumption quintile is about 2.5 times larger than the lower consumption quintile in 2018. This means that the lower quintile households are not able to reap the benefits of the recent expansion in clean cooking fuel. This pattern of LPG use is observed across all the states. However, the disparity between the lower and upper quintile varies widely. It is observed that the disparity is highest in Odisha, whereas it is lowest in Telangana. The states with a high level of LPG use (Telangana, Andhra Pradesh, Tamil Nadu, and Punjab) witness a low disparity. In contrast, the states (West Bengal, Jharkhand, Chhattisgarh, Uttarakhand, and Kerala) with low LPG use experience a high level of disparity.

Table 5:Percentage of Rural Indian Households using LPG as a Primary Source of Energy for Cooking across the Consumption Quintiles Class, July-December 2018

State	00-20	20-40	40-60	60-80	80-100	All	Disparity
Andhra Pradesh	65.7	70.5	80.6	84.6	89.5	79.2	01.36
Assam	32.0	42.3	50.9	58.8	73.8	53.6	02.31
Bihar	33.8	35.1	38.1	46.1	59.9	44.5	01.77
Chhattisgarh	19.4	22.7	23.1	33.1	44.5	29.4	02.29
Gujarat	41.3	48.5	44.7	48.6	62.0	50.3	01.50
Haryana	36.6	41.6	49.4	55.8	76.2	54.4	02.08
Himachal Pradesh	24.1	38.3	45.1	41.7	75.1	47.5	03.12
Jammu & Kashmir	59.3	47.4	67.5	45.3	83.4	61.2	01.41
Jharkhand	11.5	14.0	16.5	23.7	35.7	21.5	03.10
Karnataka	56.5	65.7	70.2	79.8	80.4	72.2	01.42
Kerala	27.6	41.2	45.7	58.1	67.8	50.7	02.46
Madhya Pradesh	27.2	27.5	29.3	35.7	42.7	33.5	01.57
Maharashtra	43.3	59.1	66.8	70.8	82.1	65.8	01.90
Odisha	10.8	14.5	20.4	24.8	44.6	23.8	04.13
Punjab	52.7	77.4	82.0	81.7	86.8	77.4	01.65
Rajasthan	24.1	26.7	35.6	33.7	44	33.7	01.83
Tamil Nadu	72.8	82.2	85.8	87.6	88.4	83.8	01.21
Telangana	87.8	85.3	91.7	90.8	95.8	90.6	01.09
Uttarakhand	25.9	51.7	65.7	63.1	72.8	58.5	02.81
Uttar Pradesh	26.5	33.4	34.5	39.4	49.6	37.9	01.87
West Bengal	12.2	16.9	17.1	26.1	43.8	24.5	03.59
India	28.3	35.8	43.7	54.3	69.2	48.5	02.45

Note: Disparity is measured as a ratio of high quintile to low quintile

Source: *Authors' computation using various rounds of NSS surveys*

Income is one of the crucial factors determining the demand for LPG in Indian households (Sankhyayan& Dasgupta, 2019; Sharma et al., 2019; Chindarkar et al., 2021). However, a threshold level of income of the household is required to access and use LPG. Therefore, to provide the poor with the threshold level of income and meet the upfront cost of LPG, the government initiated the PMUY. The welfare impact of this policy on the poor is evaluated by comparing the use of LPG between poor and non-poor households[10](Table 6). It is observed that there is a sizable difference between the poor and non-poor in LPG use. At the national level, 32.1% of poor

[10] Poor and non-poor households are classified on the basis of state specific poverty line suggested by Rangarajan Report (2014). Estimation of Rangarajan Poverty line is based on Consumer Expenditure Survey, NSS 68th round (July 2011- June 2012). Poverty line for 2014 and 2018 is obtained by deflating Rangarajan poverty line with state specific Consumer Price Index of agricultural labour.

households and 56.3% of non-poor households used LPG in 2018. In Andhra Pradesh, Jammu & Kashmir, Karnataka, Tamil Nadu, Telangana, Maharashtra, and Punjab, more than 50% of poor households use LPG as a primary source of energy for cooking. In contrast, less than 40% of the non-poor households use LPG in Jharkhand, Odisha, Rajasthan, West Bengal, and Chhattisgarh. The poor households perform better in the former group of states (which are relatively developed) than the non-poor in the latter group of states (which are relatively underdeveloped). It is surprising that despite the concerted effort in implementing the PMUYto expand the use of LPG among the poor in rural areas, the actual use of LPG is still less among these categories, especially in relatively underdeveloped states.

Table 6: Use of LPG Among the Poor and Non-poor Household in Rural India

States	Percentage of poor household using LPG		Percentage of non-poor household using LPG	
	2014	2018	2014	2018
Andhra Pradesh	24.7	64.7	44.3	81.6
Assam	20.0	35.8	28.0	60.2
Bihar	3.1	35.1	10.8	51.1
Chhattisgarh	5.7	22.0	5.0	37.0
Gujarat	13.6	43.4	28.5	51.9
Haryana	4.9	35.5	32.5	57.5
Himachal Pradesh	5.4	25.3	31.2	50.3
Jammu & Kashmir	14.7	62.5	40.9	61.0
Jharkhand	0.2	14.0	9.5	26.7
Karnataka	15.0	59.6	32.1	76.2
Kerala	7.9	21.4	27.0	52.8
Madhya Pradesh	3.9	27.7	7.4	37.0
Maharashtra	20.5	51.9	41.0	74.2
Orissa	0.9	14.5	18.2	33.3
Punjab	15.6	54.8	45.8	78.3
Rajasthan	4.1	24.9	17.1	36.1
Tamil Nadu	37.5	76.9	52.5	87.1
Uttar Pradesh	4.1	30.1	20.5	41.7
Uttarakhand	6.9	23.5	60.7	63.2
West Bengal	2.5	11.6	11.4	26.8
All India	7.8	32.1	28.7	56.3

Source: *Authors' computation using from70th and 76th rounds of NSS surveys*

Conclusion and Implications

Using the long-term data provided by NSS surveys, it has been observed that LPG as a primary source of cooking fuel has continuously increased in urban India from 1983-2018. However, this expansion in the use of LPG is relatively less in rural areas. The use of LPG in a rural areas, nevertheless, has witnessed an appreciable improvement after 2016 and these recent improvements in LPG use have replaced the traditional fuels in urban and rural areas. This remarkable transition towards clean cooking fuel use in rural areas after 2016 could be attributed to the flagship initiative- PMUY. However, this improvement is limited to the economically well-off section of the society. Households belonging to lower consumption quintile and lower social hierarchy in economically poor states are far from reaping the benefits of the recent expansion in LPG use. Interestingly, the use of LPG among the poor household is high in relatively developed states than the non-poor households in relatively underdeveloped states. These findings raise pertinent questions about the objective and outcome of a centrally sponsored scheme that aimed for universal benefit across all households across the states. Therefore, we if India aims to realize universal use to LPG, the focus of the policy should be on both the poor and non-poor households in economically backward states.

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