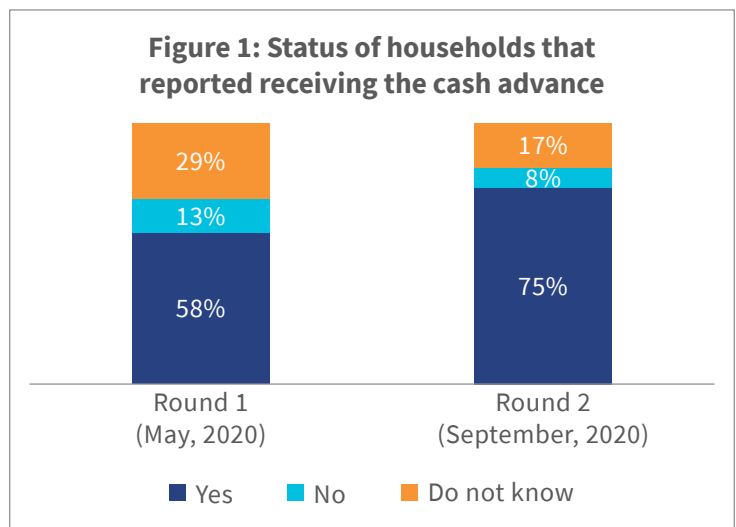


# Beyond the barriers of affordability: An analysis of India’s cooking fuel support program under the COVID-19 assistance package

Anurodh Giri and Arshi Aadil

The Government of India’s flagship program, “*Pradhan Mantri Ujjwala Yojana*” (PMUY), provides low-cost liquefied petroleum gas (LPG) stoves to rural households. PMUY is an exemplary case of technology deployment for better targeting of benefit transfers and redistribution of subsidies. The program has improved LPG penetration in India from 55% in 2014 to more than 99% in 2021. However, 20% of beneficiaries still do not use cooking gas despite getting a connection. Moreover, the average PMUY beneficiary uses only three refills a year, much lower than the seven canisters an average LPG user consumes.

Meanwhile, several questions persist. How can the government improve the affordability of gas canister refills? How can it strengthen infrastructure for the delivery of LPG in rural areas? Lastly, how can the government address the cultural, behavioral, and gender biases that constrain the shift to clean fuel? We seek to answer these questions in this paper and recommend the way forward to improve the effectiveness of PMUY.



The Government of India (GoI) imposed a nationwide lockdown on 24th March, 2020 to curb the spread of the COVID-19 pandemic. Following the lockdown, the GoI announced the *Pradhan Mantri Garib Kalyan Yojana* (PMGKY).<sup>1</sup> With a budget of USD 23.5 billion (INR 1.7 lakh crore), PMGKY’s objective was to empower the poor<sup>2</sup> to buy essential supplies through cash transfers and subsidies on items like food and cooking gas. As part of PMGKY, the government provided cash transfers to 80 million poor women enrolled under the *Pradhan Mantri Ujjwala Yojana* (PMUY). PMUY is the government’s initiative to provide clean cooking fuel to poor households allowing beneficiaries to purchase canisters<sup>3</sup> of LPG. See [Annex 1](#) for an overview of the program. In this paper, we discuss key findings and lessons learned through the experience of PMUY beneficiaries.

<sup>1</sup> PMGKY was announced as a COVID relief package by the government. It included multiple benefits like free grains through India’s Public Distribution System, three free LPG canisters to PMUY beneficiaries, cash transfers into Jan Dhan (PMJDY) accounts of women, and advance cash transfers to farmers, among others.

<sup>2</sup> The government extended PMGKY benefits mostly to households below the poverty line (BPL), which were identified under various programs for food, fuel, and pension support.

<sup>3</sup> The government transferred the amount to buy LPG refills to PMUY beneficiaries on certain conditions. All PMUY beneficiaries received the first installment in advance. The government provided the second and third installments to buy LPG refills only if the beneficiaries purchased LPG with the first installment

# 1 Nudge households to increase LPG usage

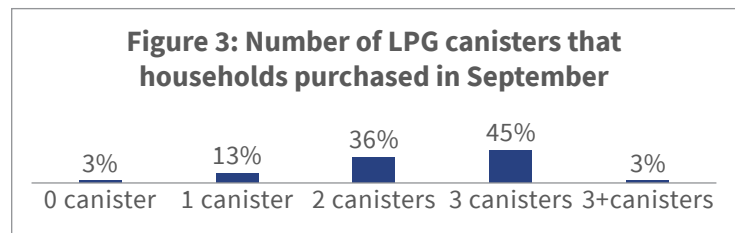
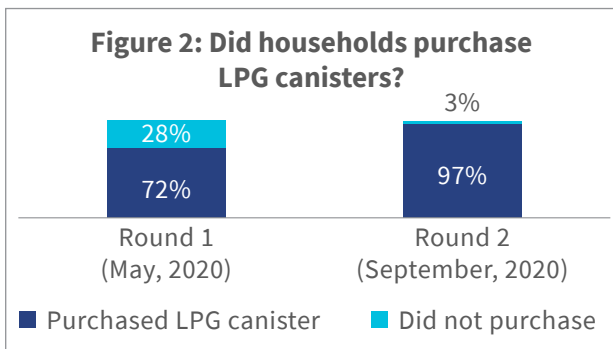
**To increase the adoption of LPG among low-income households, the government must continue to encourage behavioral change, focusing on health. As men are usually involved in purchasing LPG, we suggest triggering behavioral change among both men and women. The government should onboard PMUY beneficiaries who have made a complete shift to LPG in every village as “agents of change.” These agents can run information campaigns by visiting nearby households.**

Our study reports that most beneficiaries acknowledged receiving advance cash transfers and found the financial assistance timely and helpful. Figure 1 highlights that the households receiving cash transfers increased from 58% in round 1 to 75% in round 2. The relaxation in travel restrictions is a significant reason for this increase. It enabled beneficiaries to visit bank branches or agents in September and verify the receipt of cash advances into their accounts. Most surveyed households (63%) learned about the cash advance through messages from their bank or Oil Marketing Companies (OMC). The remaining households reported receiving information from various other sources. These sources included a visit to the bank branch to update their passbook (23%),

through friends, neighbors, or relatives (11%), and mobile applications of the bank (2%) and OMC dealers (1%).

Compared to only 72% of households in the first round of the survey, 97% had purchased at least one LPG canister by September, 2020. Households (3%) that purchased a single LPG canister cited several reasons for the low demand for LPG fuel. These reasons include their inability to withdraw the advance amount and preference for food cooked on traditional fuels.

As seen in figure 3, 81% of households reported purchasing two or more LPG canisters in the second round. However, the use of these canisters varied across urban and rural geographies. Around 58% of households purchased three LPG canisters in urban areas, compared to 40% in rural areas. The low uptake of refills in rural areas may be due to the lack of solid infrastructure for the home delivery of LPG in rural locations. Our [previous survey](#) highlights that PMUY beneficiaries in rural areas had to travel long distances to pick up an LPG cylinder from the dealer location. Often these distances range between 5 km and 10 km.



## Women appreciate the free LPG support

The advance transfers for LPG support were a blessing for women, who did not have to step outside their homes to collect fuel wood during the lockdown. With shrinking household incomes and wage cuts, most households did not prioritize LPG and relied on traditional means for their cooking needs. The announcement of free LPG support to poor households came at the right time. It saved women from drudgery, especially during the peak of the pandemic's first wave. According to government statistics, around 75 million women received the transfers. However, 4% or 3.1 million eligible women could not get the benefit owing to non-operational bank accounts.

According to the 2010 Global Burden of Disease Study,<sup>4</sup> two people die prematurely due to indoor pollution in India each minute. However, most do not realize the detrimental effect of cooking with firewood and other unclean fuels on their health. They continue using polluting fuels primarily due to behavioral and cultural reasons. For instance, most people in rural areas

prefer to cook using fuelwood as they find this food tastier than that cooked using LPG. Moreover, many women feel obligated to cook using fuelwood because they consider it a part of the traditions their mothers and mothers-in-law have continued to follow. The government should initiate programs that educate the target segment on the health hazards of unclean fuels and nudge people to adopt LPG gradually.

## 2

### Continue to extend LPG subsidy to PMUY customers

**The government has nearly eliminated the LPG subsidy by slashing the overall budget allocated for petroleum subsidies. However, the price of subsidized LPG cylinders increased by around 50%, despite a steep fall in crude oil prices in 2020. Because of the higher prices of cylinders, PMUY beneficiaries struggle to use LPG, particularly in rural areas where they have easy access to alternatives like firewood and dung cake. The government should recognize that most PMUY households have volatile incomes that are insufficient to afford LPG regularly. It should continue to extend the subsidy or some form of financial support to the 80 million PMUY beneficiaries to promote a complete shift to clean cooking fuel. The government can consider reducing the number of subsidized LPG canisters available<sup>5</sup> to beneficiary households to fund this expenditure.**

As mentioned previously, our study reports that 97% of households purchased at least one LPG refill. This particular finding is significant for the general uptake of PMUY among poor households. Critics have questioned the sustained use of LPG and PMUY's perceived failure to bring about behavioral change among poor households to switch from solid fuels, such as firewood and dung. Though the program has increased the customer base for LPG, critics lament the high cost of refills that deter households under PMUY from using clean fuel regularly.

Our previous policy brief highlighted that the cost of LPG refills is one of the biggest challenges that PMUY households face. Since most LPG retailers in rural areas do not provide doorstep delivery, these households must also bear the opportunity cost of wages to refill their canisters. Such losses amount to wages for a full day's work or a part of it, which amounts to USD 1.5–2.3 (INR 100–150). Transportation expenses further add to the costs

since beneficiaries generally borrow a vehicle to commute to the dealer point and spend USD 0.77–1.5 (INR 50–100) on petrol or diesel.

Thus, the effective cost to refill an LPG canister for a PMUY household is USD 2.3–3.8 (INR 150–250) more than the actual price. Our policy brief suggested that the government increase the subsidy amount to make refills affordable for PMUY beneficiaries.

This insight proved advantageous during the pandemic when the GoI, under PMGKY, provided an advance amount for three free canisters to PMUY households. A staggering 97% of them seized the opportunity to use clean fuel. Before the pandemic hit, 20% of PMUY households did not return for a second refill a year after obtaining their LPG connection. Another finding from the survey indicated that 23% of households would not purchase LPG canisters after the GoI subsidy ceased. This finding further validates the need for sustained financial assistance to help poor households switch to clean cooking fuel.

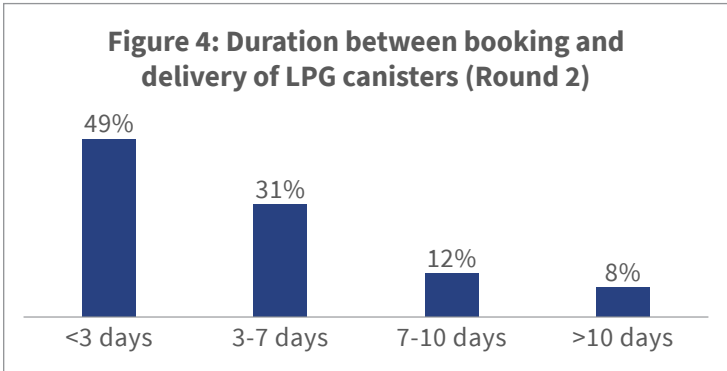
<sup>4</sup> <https://www.downtoearth.org.in/news/air-pollution-killing-620000-indians-every-year-global-burden-of-disease-report--40316>

<sup>5</sup> A PMUY beneficiary is eligible to receive 12 subsidized canisters per year.

### 3 Incentivize LPG dealers for home delivery in rural areas

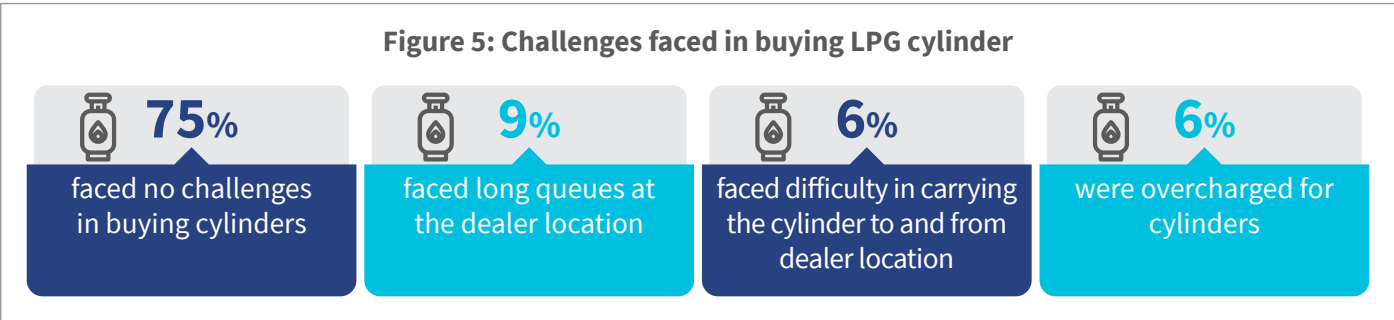
**The government recognized LPG delivery as an essential service at the onset of the pandemic. It directed LPG distributors to take stringent measures to promote the doorstep delivery of LPG, even in rural areas. In the future, the government should incentivize and acknowledge dealers for the doorstep delivery of LPG canisters in rural areas.**

Figure 5<sup>6</sup> highlights that 75% of households purchased LPG canisters quickly and easily. Of these, 92% received the canister within 10 days of placing an order. While 8% of households reported a delay of more than 10 days, as evident from Figure 4, the remaining 25% of households with issues reported various challenges. These included a lack of transparency on advance transfers in their accounts, long queues at dealer locations, difficulty carrying the canister to and from dealer locations, and overcharging by LPG dealers.



Our [previous policy brief](#) highlights a key reason for the low uptake of LPG—canisters cannot be home-delivered in rural areas. As a result, households find it difficult for households to get LPG refills. With the addition of more than 6,000 new LPG dealers in rural areas, the home delivery of LPG refills has undoubtedly improved. PMUY beneficiaries reported that many distributors now deliver LPG

canisters in villages weekly or fortnightly to a common point. The youth and other community members from the village use this opportunity to earn some income by helping people carry the LPG canisters to their homes. Our survey<sup>7</sup> reveals that 75% of PMUY beneficiaries did not face any challenges in purchasing LPG canisters. Despite the progress, LPG delivery infrastructure remains inadequate and needs significant improvements to expand its reach in rural areas.



<sup>6</sup> We analyzed the gap between LPG delivery and booking only in round 2.

<sup>7</sup> We collected this data point in round 2 of the survey (September, 2020).

## 4 Develop effective communications for the target segment

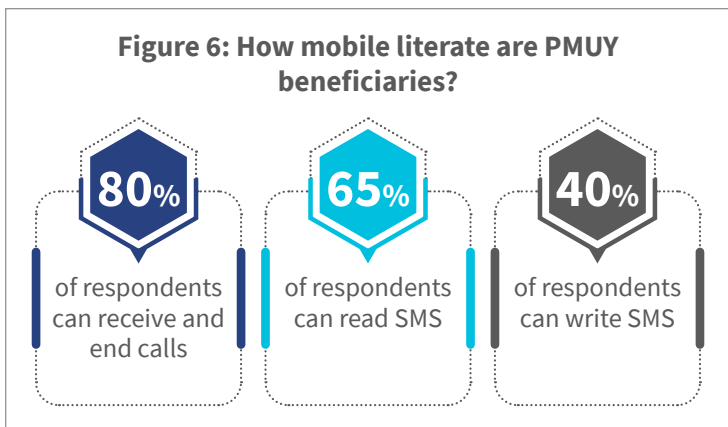
**PMUY’s beneficiary target segment primarily comprises women. Despite having LPG connections in their name,<sup>8</sup> most women do not place orders for LPG refills due to lower mobile literacy rates than men<sup>9</sup>. Many women beneficiaries unknowingly pay extra to intermediaries or skip ordering refills altogether, as they are uncomfortable with the IVR-based<sup>10</sup> LPG booking process. The government needs a robust communication system to ensure more personalized, transparent, and accessible program-related information.**

**Though the IVRS allows consumers to order LPG refills around the clock through a call or SMS, most beneficiaries find it challenging to navigate the system. To make consumers more comfortable with the system, LPG distributors should spread awareness about the ease of use and convenience of IVRS. They can use self-help groups and cooperative societies to disseminate information about the process to book LPG refills and other program-related information. Further, the government should equip LPG delivery staff to take orders for LPG refills. This step will help consumers who require assistance or handholding support to order LPG refills.**

We captured data on how respondents use mobile phones during the survey. Surprisingly, 20% of them cannot pick up or end calls, while 35% cannot read SMSs and 60% cannot compose SMSs. Low mobile literacy levels present a challenge, as refill procedures under PMUY are entirely mobile-based. People must book refills through SMS or the Interactive Voice Response System (IVRS). Moreover, beneficiaries also receive the booking details and service completion code through mobile communication.

Hence, people find it difficult to order or receive LPG canisters due to low mobile literacy<sup>11</sup> rates. Moreover, banks and OMCs used SMS to share information about the deposit of subsidy amounts under PMGKY, which added to the woes of households with low mobile or digital literacy.

The survey results also indicate a significant difference in mobile literacy between male and female respondents, particularly in reading and writing SMSs. PMUY is a gender-intentional program with women as primary beneficiaries. However, lower literacy rates among women hinder the widespread adoption of a program that relies primarily on SMS for its processes and communications. The low levels of mobile literacy also excluded a significant proportion of women from our telephonic survey.

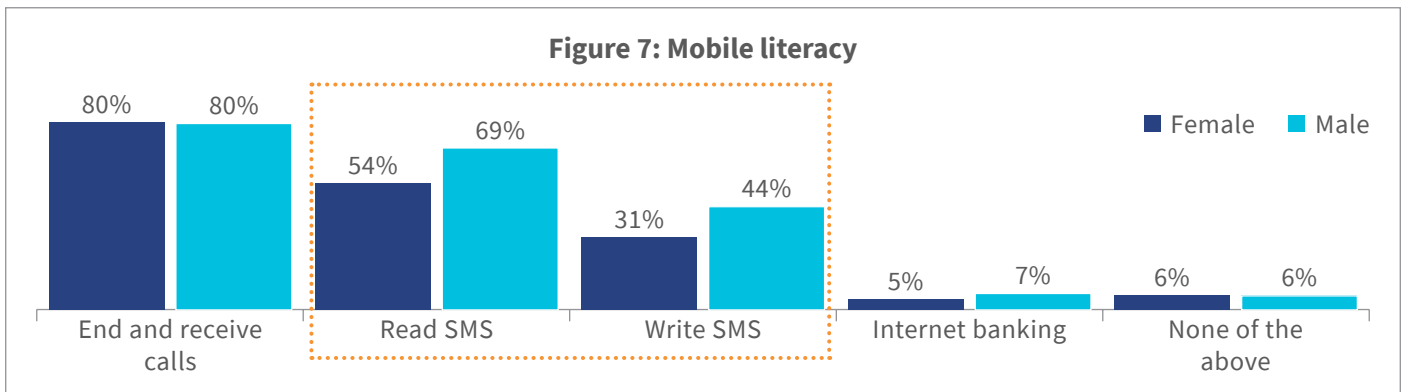


<sup>8</sup> <https://www.ceew.in/publications/realising-ujjwala-dream>

<sup>9</sup> The process for booking LPG refills is completely digital and mobile-based.

<sup>10</sup> <https://my.ebharatgas.com/BookCylinder/IVRS>

<sup>11</sup> <https://www.microsave.net/2017/05/09/digital-wallet-adoption-for-the-oral-segment-in-india-concept-development-for-mowo-mobile-wallet-for-oral-2/>



### Informal method of LPG booking

Malti, a domestic worker in Uttar Pradesh, has a PMUY connection under her name. Malti is not comfortable with the IVR-based process to order refills so she requests the LPG delivery staff verbally to deliver a refill. Using this informal method makes it impossible to identify her LPG consumer number. Consequently, Malti cannot receive the cash advance for the refill. As she remains unaware of the market price of LPG, the delivery staff takes advantage and charges more for the refill. Numerous others like Malti use similar methods to avail refills and bear the resulting monetary loss due to a lack of information.

“LPG is comes in handy during the rainy season. We refill cooking gas before it rains every year, as we find it difficult to use firewood during the monsoon. The cylinder lasts for around three months, and we switch back to firewood for daily cooking after it runs out.

- Shyama,  
a PMUY Beneficiary from Uttar Pradesh

## Conclusion

With the government's recent announcement to distribute 10 million new LPG connections under PMUY, nearly all Indian households are expected to have access<sup>12</sup> to clean cooking fuel. India must now work to promote and sustain LPG usage, which remains a significant challenge. People have still not shifted entirely to modern

and clean cooking fuels despite the expansion of LPG coverage across the country. MSC believes targeted communication, continued financial support, and nudges driven by the implications of unclean fuel on health would contribute to the program's success.

## About MSC's study

MSC conducted two rounds<sup>13</sup> of demand-side research to gauge the effectiveness of PMGKY and support measures<sup>14</sup> announced by the Indian government using a mixed-method approach. [See this link for the research approach in detail.](#) We conducted the first round during the three-month lockdown in May, 2020 and the second after the lockdown<sup>15</sup> in September, 2020. The study's objective was to assess various social protection interventions of the central and state governments during COVID-19 and suggest improvements to the programs.

We designed the research as a panel study with respondents selected using a multi-stage sampling approach from the BPL (below poverty line) database. The study is nationally representative and provides both national and state-level estimates for critical indicators.<sup>16</sup> MSC covered beneficiaries who received benefits from at least one cash transfer program under PMGKY and benefited from the [Public Distribution System](#). The study covered a total sample<sup>17</sup> of 5,081 respondents in both rounds across 18 states and union territories. Both rounds (the panel) had 4,082 respondents in common.

This note is part of a series of publications from MSC's "Evaluation of the Indian government's response to COVID-19." The complete list of publications is as follows:

- 1 India's gender-responsive policies during COVID-19
- 2 A review of the effectiveness of India's Direct Benefit Transfer (DBT) system during COVID-19: Lessons for India and the world
- 3 Efficacy of India's food security response during COVID-19
- 4 Beyond the barriers of affordability: An analysis of India's cooking fuel support program under the COVID-19 assistance package
- 5 Efficacy of MGNREGA in mitigating the loss in income and unemployment caused by the COVID-19 pandemic

<sup>12</sup> The total number of LPG consumers are estimated to be almost 300 million by March, 2022.

<sup>13</sup> The first study was conducted in May, 2020 and the second in September, 2020.

<sup>14</sup> The [Public Distribution System](#), [Midday Meal program](#), [PM Ujjwala Yojana](#), [National Social Assistance Programme](#), [PM Kisan](#), [PM Jan Dhan Yojana](#), and [Mahatma Gandhi National Rural Employment Act](#)

<sup>15</sup> India remained in lockdown from 24th March, 2020 to 31st May, 2020. The country started to relax restrictions from June, 2020, except those imposed in containment zones.

<sup>16</sup> A sample size of 270 households was estimated for each state with a 95% confidence level and a 6% margin of error. The quantitative data was collected using Computer Aided Telephonic Interviews (CATI) system and MSC staff conducted the qualitative research over the telephone.

<sup>17</sup> In Round 2, some respondents could not participate in interviews while we could not reach others over the phone. This led to the attrition of 999 respondents between rounds 1 and 2. We replaced this missing sample with 999 new respondents with similar profiles to ensure we had the required sample size to provide state- and national level-point estimates.

## Annex 1

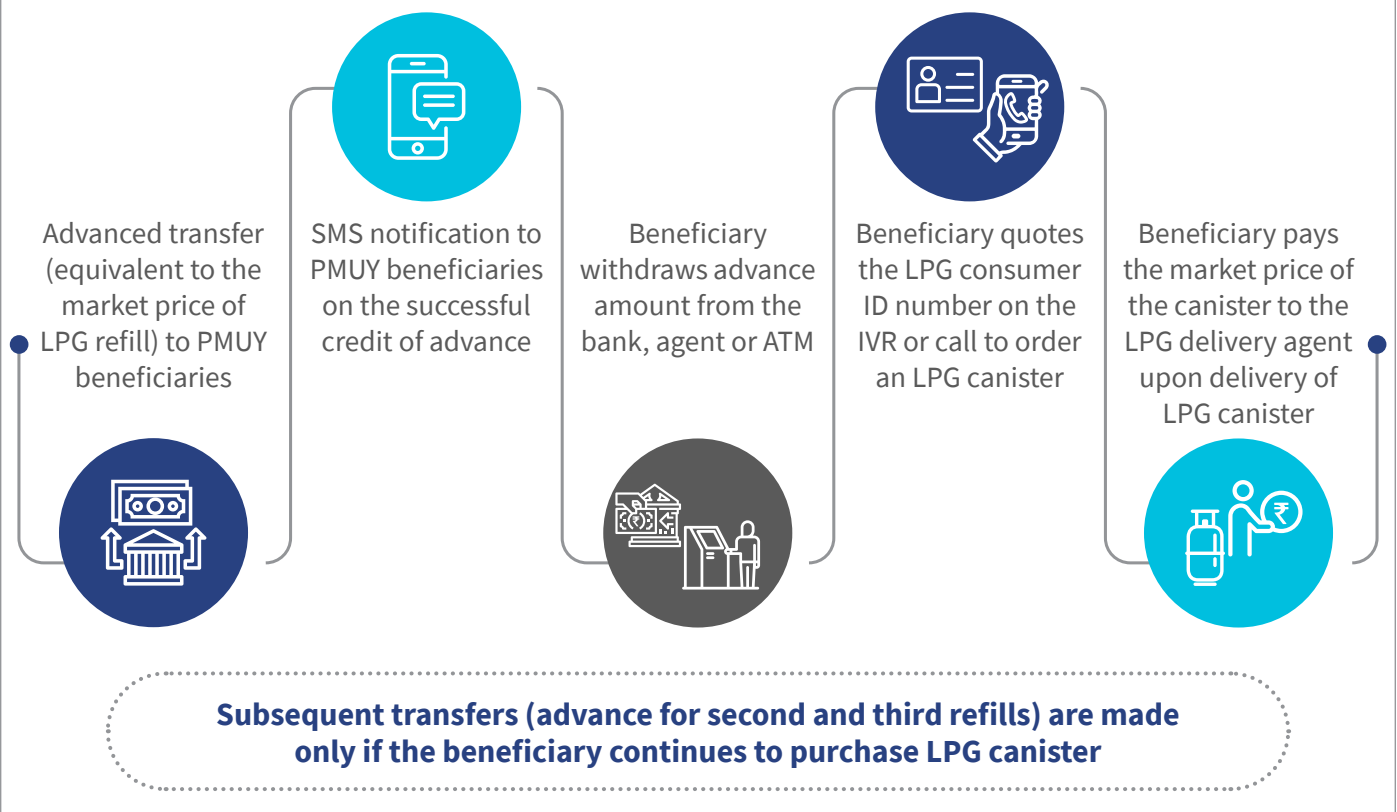
### Details and performance of the program

The Pradhan Mantri Ujjwala Yojana (PMUY), launched in May, 2016, eliminates the most significant impediment to using LPG by poor households in India—the high cost of the initial investment. PMUY provides women of poor households with financial support worth USD 22 (INR 1,600)—50% of the total cost to purchase an LPG connection, including an LPG canister and stove.

During the COVID-19 pandemic, the government used PMUY as a platform to transfer advances to women under PMGKY, its COVID-19 assistance package, effective from 1st April, 2020. The women could use the advances—provided in three installments to purchase three LPG refills at the market price—over the following six months<sup>20</sup> to cope with the economic disruption. The process of delivering advance amounts to PMUY households was relatively straightforward.

All women enrolled under PMUY received the equivalent of the market price of an LPG canister in advance into their registered bank accounts. An SMS was then sent to their registered mobile phones to confirm the deposit. The beneficiaries could use this amount to purchase the LPG canister. They could order subsequent LPG canisters 15 days after the delivery of the first refill, with only one canister available in a calendar month. The government only transferred the advance amount for the second month if the beneficiary purchased an LPG canister in the previous month. The average uptake of free LPG canisters per PMUY household was approximately 1.76 until December, 2020, with a total of 142 million refills purchased under the program.<sup>21</sup>

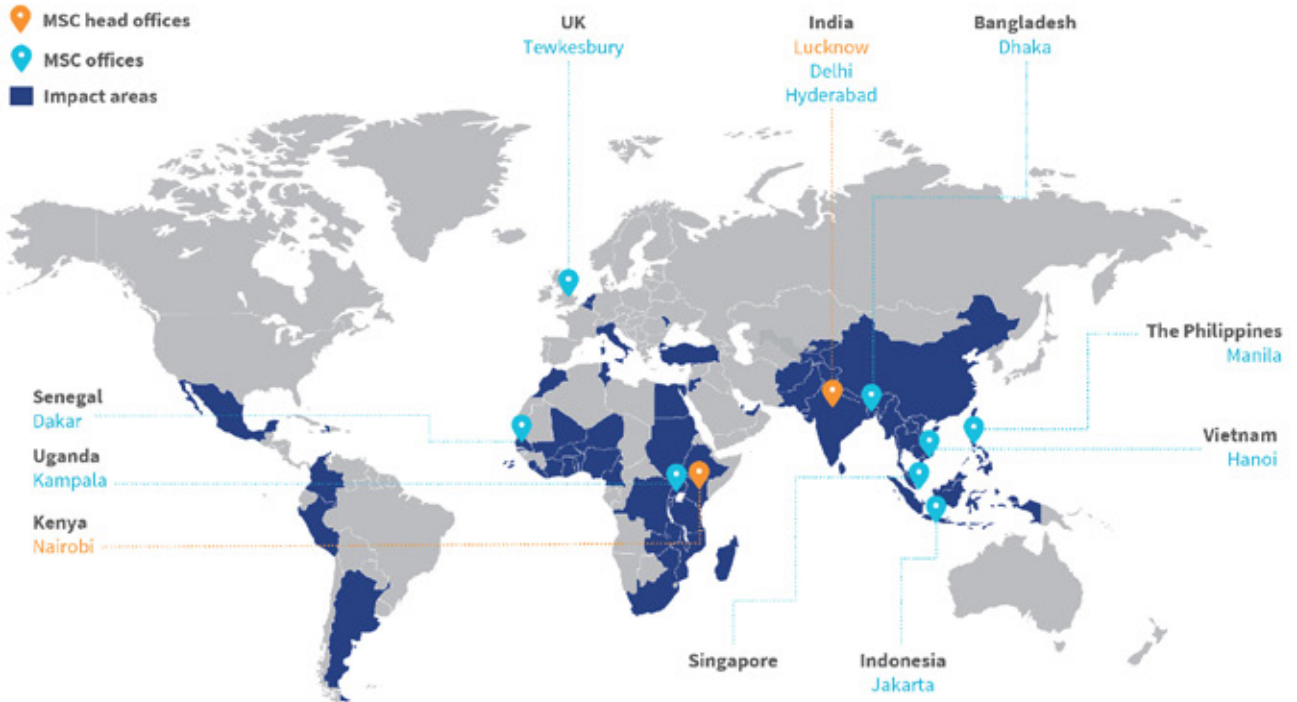
**Figure 8: Advance credit and purchase of LPG canisters under PMGKY-PMUY**



<sup>20</sup> The SOP circular stated that in case a PMUY beneficiary does not take refills in the stipulated three-month period, the beneficiary can utilize the advance to take refills up to 31st March, 2021.

<sup>21</sup> The 80 million PMUY beneficiaries availed 142 million free LPG refills. Per household usage of LPG = 142/80





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