



LPG Subsidy Reform in Indonesia:

Lessons learned from
international experience

GSi REPORT



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Liquefied Petroleum Gas Subsidy Reform in Indonesia: Lessons learned from international experience

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Executive Summary

Indonesia's liquefied petroleum gas (LPG) subsidies are not only an increasing drain on the country's budget, but they are also inefficient from a social equity perspective, as most of the subsidies go to the wealthier segment of the society. The Indonesian government is therefore planning to target LPG subsidies through a closed distribution system so that access is limited to the poor segments of society. Several schemes were proposed in the past, including by the National Team for the Acceleration of Poverty Reduction (TNP2K), which successfully piloted a scheme where the eligibility of registered beneficiaries for subsidized LPG cylinders (based on the electricity subsidy database) are verified through biometrics technology. Despite a commitment from the government to change the policy, the implementation of such a closed system was delayed repeatedly over the last few years, justified by, among others, the hardship of the COVID-19 crisis. And indeed, Indonesia's economy contracted by more than 2%, and the budget deficit widened to more than 6%. The outlook of the deficit remains worrisome for 2021.

Yet, other emerging economies have shown that times of crisis do not necessarily need to result in backtracking intended policy reforms—they can also provide an opportunity to reform fossil fuel pricing and strengthen a country's welfare state. Notably, India increased fuel taxes during the COVID-19 crisis to generate extra revenue and also strengthened social protections for the poor by providing up to three LPG cylinders free of charge. In addition, Mexico added an energy component to its conditional cash-transfer program during the Great Recession of 2008/09 to ensure continuous energy access for the poor.

Three case studies and an analysis of the lessons that can be learned from each country's experience are at the heart of this report. Based on that analysis, we have the following four recommendations for Indonesia's LPG subsidy reform:

1. Indonesia should shift LPG subsidies away from the wealthy and use the money to support those who suffer most from the crisis.
2. Indonesia should accompany LPG subsidy reform with a robust data collection process to ensure that all intended beneficiaries retain access to subsidized LPG.
3. Indonesia should accompany LPG subsidy reform with a robust public endorsement plan to proactively engage other political and influential groups, as well as communicate objectives, benefits, and potential compensatory measures.
4. Indonesia should make use of the momentum of the low oil prices, as they can act as a buffer to the potential economic shocks and help limit opposition to reform.



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Abbreviations and Acronyms

DBT	Direct Benefit Transfer
GHG	greenhouse gas
GST	Goods and Services Tax
LPG	liquefied petroleum gas
MEMR	Ministry of Energy and Mineral Resources
OMC	oil marketing companies
PLN	Perusahaan Listrik Negara
PMUY	Pradhan Mantri Ujjwala Yojana
RIC	Road and Infrastructure Cess
SAED	Special Additional Excise Duty
TNP2K	National Team for the Acceleration of Poverty Reduction
VAT	value-added tax



1.0 Introduction

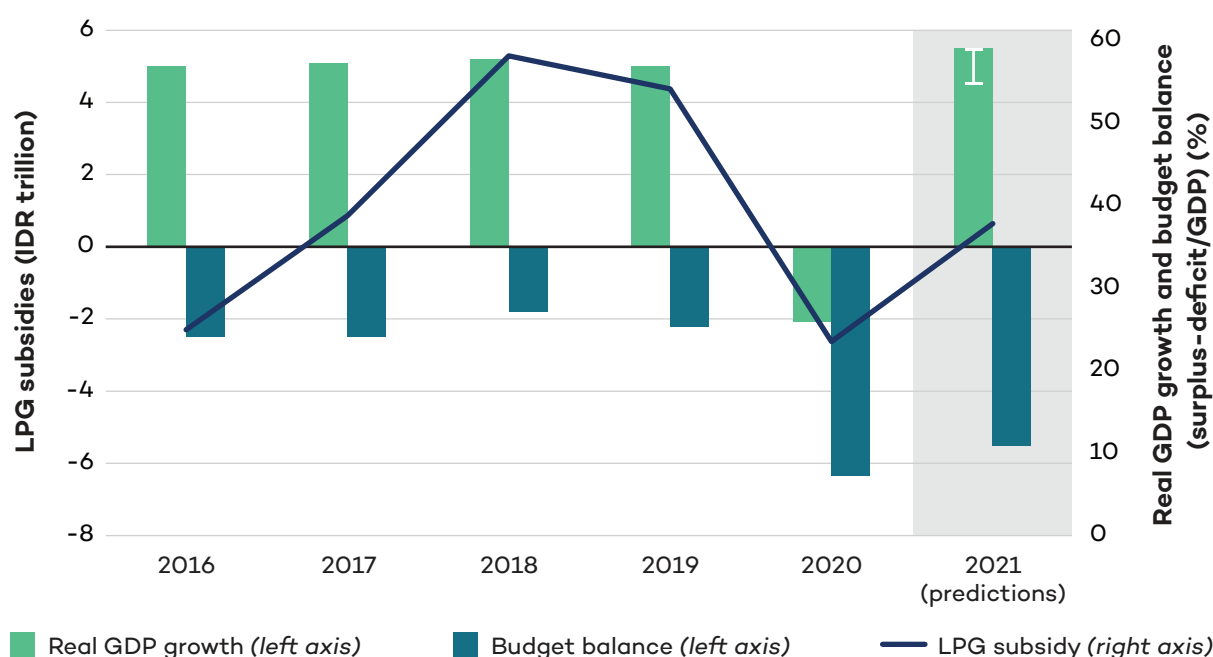
Indonesia's economy was hit hard in 2020 due to the COVID-19 pandemic. In March, the government adopted various measures to contain the disease after the first cases had been confirmed (International Monetary Fund, 2020). This essentially slowed down many economic activities since these measures included travel bans, school closings, and the restriction of public events. Other countries shut down their economies as well, and, consequently, global demand for Indonesian products, particularly energy products, declined. For instance, Indonesian coal exports were about 32% lower in April 2020 and 41% lower in May 2020 compared to one year before (Ministry of Energy and Mineral Resources [MEMR], 2020e).

Both the lower domestic consumption and the decrease in exports had negative implications on the country's GDP growth, which dropped to -2,07% in 2020, down from a stable growth of about 5% between 2016 and 2019 (Ministry of Finance, 2020; Nuryanto, 2021). In addition, Indonesia's budget balance has been severely impacted by lower tax collection and the need for increased spending. According to an official of the finance ministry, tax revenues were expected to contract by almost 20% in 2020 while the government spent at least USD 6.78 billion (until February 2021) to support its energy sector, mostly to support fossil fuels (Energy Policy Tracker, 2020; Nuryanto, 2021). This contributed to the budget deficit widening to -6.34% of GDP in 2020 after it had been around -2% between 2016 and 2019 (Ministry of Finance, 2020; Nuryanto, 2021). As a result, the rating agency Standard and Poor's lowered the stable outlook of Indonesia's BBB-credit rating from stable to a negative outlook in April 2020 (Haroon, 2020).

Energy subsidies have become a significant strain on Indonesia's budget. In 2019, spending on energy subsidies reached IDR 136.9 trillion (USD 9.7 billion) and made up 6% of the total state expenditures (Ministry of Finance, 2020). In particular, LPG subsidies, which represented about 40% of the total cost of total energy subsidies in 2019 at about IDR 54 trillion, have seen an increasing trend in recent years (Figure 1). This made liquefied petroleum gas (LPG) subsidies the single largest component of all energy subsidies ahead of those spent on electricity and fuel. Even though demand for subsidized LPG increased in 2020 (e.g., by 11% in April [Hartomo, 2020]) as a result of increasingly staying at home during the lockdown, the expected government spending on LPG subsidies dropped to IDR 23.5 trillion (USD 1.6 billion) in 2020 due to low oil prices and a change in the exchange rate. However, the projection for 2021 of IDR 37.8 trillion (USD 2.6 billion) shows that these costs will rapidly go back up, in line with recovering oil prices. In addition to the negative impact on the public budget, the distribution of LPG subsidies is also rather inefficient, as there is no targeting mechanism.



Figure 1. Indonesia's GDP growth, deficit, and spending on LPG subsidies between 2016 and 2021



Remarks: Values for 2021 are predictions.

Source: Ministry of Finance, 2020; National Team for the Acceleration of Poverty Reduction (TNP2K), personal communication, 2020.

Even though reforming energy subsidies can be a sensitive topic, Indonesia has had a positive experience in the past. Supported by low international oil prices, the Indonesian government almost completely removed gasoline subsidies and fixed diesel subsidies per litre in 2014. This freed up IDR 211 trillion (USD 15.6 billion), which was redirected as additional spending for regional transfers and villages, special programs to boost growth and reduce poverty, and capital injections in state-owned enterprises, largely for investment in infrastructure (Pradipto et al., 2016).

Reforming LPG subsidies could build on this success and help create further fiscal space for supporting other priorities, including health and economic recovery. Considering that the number of people classified as poor went up by 1.63 million to more than 26 million between September 2019 and March 2020, targeting LPG subsidies would result in significant savings, while those in need will continue to be protected (Central Bureau of Statistics, 2020).



2.0 LPG Subsidies in Indonesia

2.1 The Reason for LPG Subsidies

In Indonesia, LPG subsidies were introduced in 2008 as part of the government's Conversion Program from Kerosene to LPG (Toft et al., 2016). The main motivation for implementing this program was reducing subsidies for kerosene, which grew more than fourfold between 2001 and 2008, while switching to a cleaner fuel that results in lower levels of indoor air pollution (Budya & Yasir Arofah, 2011; Government of Indonesia, 2009). Because the price of LPG (per output of energy) was lower and its distribution fairly easy, the Indonesian government encouraged substituting kerosene with this alternative through the provision of free LPG starter packages and subsidized rates for refilling LPG (Budya & Yasir Arofah, 2011). Essentially, this program aimed to reduce the consumption of kerosene while protecting consumers from economic shocks, as previous attempts to reduce consumption through increasing the price of kerosene had resulted in serious riots (Beaton & Lontoh, 2010).

Overall, the program was successful in terms of moving away from kerosene, as consumption went down by more than 93% between 2008 and 2016 (Organisation for Economic Co-operation and Development, 2019). According to data from the National Socioeconomic Survey (SUSENAS), consumption of LPG grew significantly, and it was the main cooking fuel for 69% of the households in 2015, up from 11% in 2007 (Kusumawardhani et al., 2017).

2.2 The Problem of LPG Subsidies

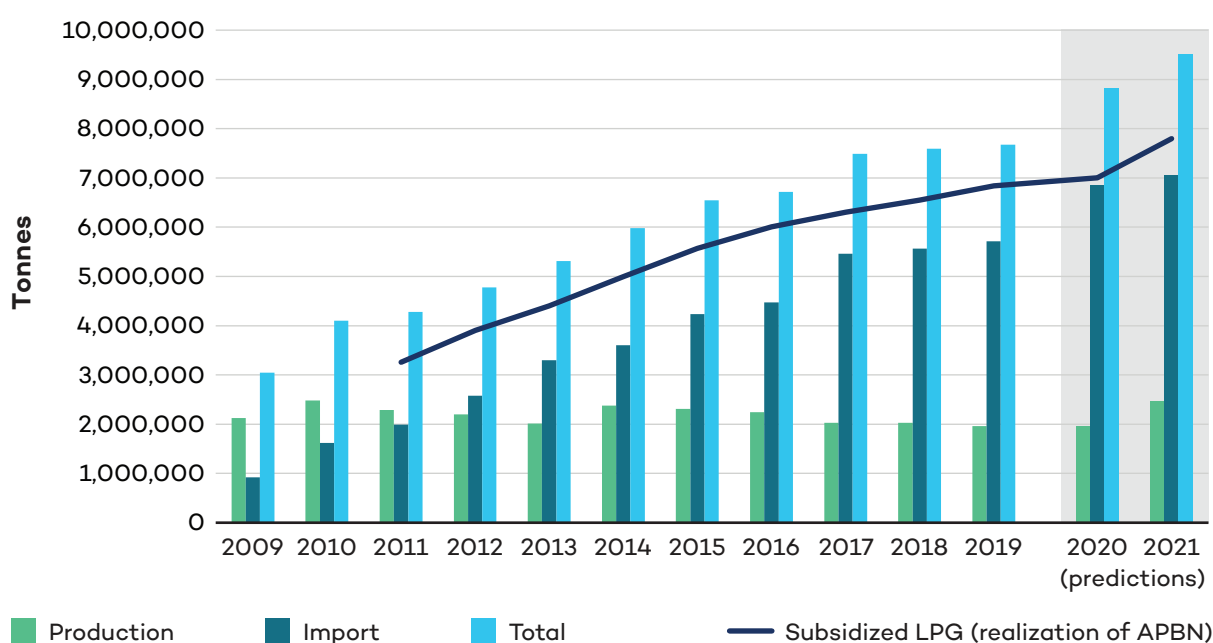
Over the years, spending on LPG subsidies became increasingly costly due to this growing demand. LPG is sold in three different cylinders in Indonesia: 3 kg, 5.5 kg, and 12 kg (TNP2K, personal communication, 2020). While the price of the 3-kg cylinders is subsidized and has remained constant since 2008, LPG sold in 5.5-kg and 12-kg cylinders is not subsidized, and their prices are constantly adjusted over time to follow international market prices (TNP2K, personal communication, 2020). This led to an increasing price disparity between subsidized and non-subsidized LPG, which encouraged more consumers to purchase subsidized 3-kg LPG cylinders. Even though the Indonesian Law on Energy (2007) demands that energy subsidies are provided to poor and vulnerable groups to increase their access to energy, the subsidized 3-kg LPG cylinders are freely available and not limited to only these groups in any way to date. As a result, even large majorities among households that belong to the ones with the highest incomes are purchasing subsidized 3-kg LPG cylinders (TNP2K, personal communication, 2020).

As shown in Figure 2, the volume of subsidized LPG sold has continuously risen since the subsidy's inception in 2009, and LPG subsidies translated into public spending of IDR 54 trillion (USD 3.8 billion) in 2019 (Audit Board of the Republic of Indonesia, 2020). Before the COVID-19 pandemic (and the subsequent changes in the oil price and exchange rate), the consumption of subsidized LPG was projected to further increase to 10 billion kg in 2023,



which would have translated into government spending of IDR 89 trillion¹ (USD 6.1 billion) under the assumption that prices would remain constant (TNP2K, personal communication, 2020). Because LPG demand is increasingly met through imports (Figure 2)—about 75% in 2019—subsidizing the consumption of LPG also increasingly contributes to the deficit of Indonesia’s energy trade balance and exposes the State Budget to additional risks (MEMR, 2020a, 2020c).

Figure 2. Volume of subsidized LPG and share of domestic production and imports in total LPG used between 2009 and 2021



Remarks: Values for 2020 and 2021 are predictions.

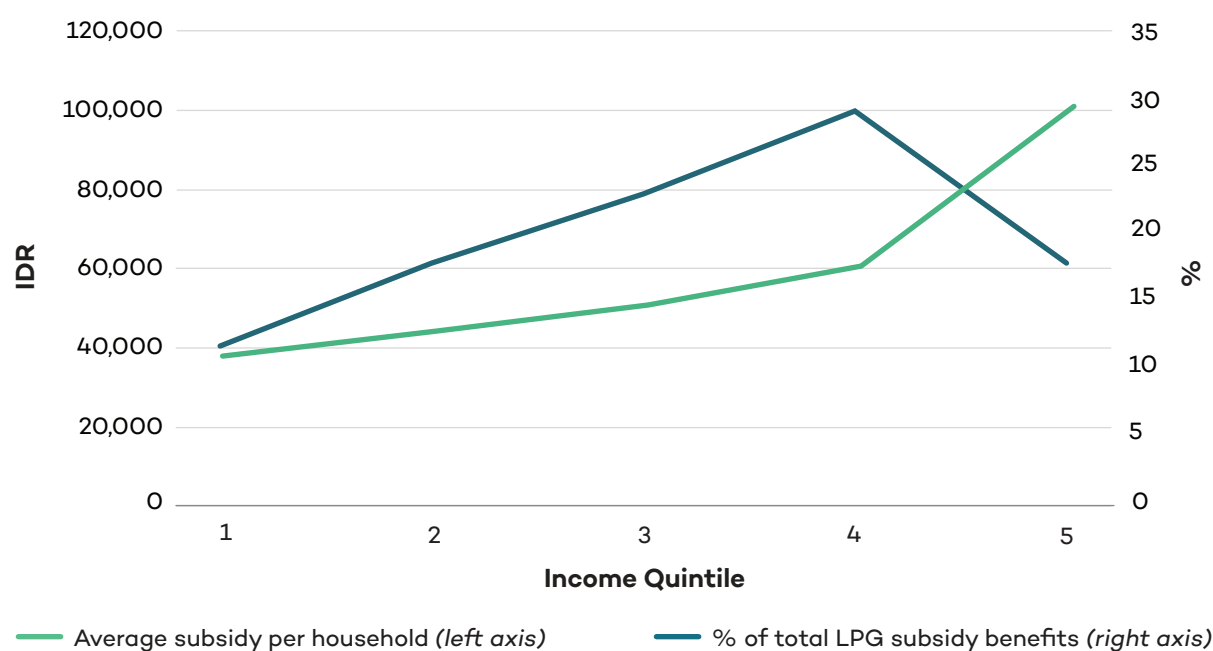
Sources: MEMR, 2020a, 2020c.

Finally, LPG subsidies are regressive and therefore do not help in reducing inequality. According to a study on the distribution of LPG subsidies (Kusumawardhani et al., 2017), only about 39% of the users of the subsidized 3-kg LPG cylinders belong to the 40% of the households with the lowest income levels, even though these should be the primary audience according to Indonesian law. In addition, wealthier households consume more LPG on average and therefore benefit from higher total subsidies per household (Figure 3). In addition, in rural areas where many poor households are located, access to the officially prized subsidized LPG cylinders is limited, as informal dealers and additional transport costs need to be paid. As a consequence, only 30% of the total LPG subsidies eventually goes to the people in need (40% of the households with the lowest income levels); the wealthier households, who do not need such subsidies, claim the most, as shown in Figure 3 (Kusumawardhani et al., 2017).

¹ Under the assumption that prices would remain constant.



Figure 3. Distribution of the benefits of subsidies for 3-kg LPG²



Source: Kusumawardhani et al., 2017.

2.3 Past Attempts to Reduce Spending on LPG Subsidies

In the past, Indonesia’s state-owned oil and natural gas company, PT Pertamina, has tried several measures to encourage wealthier consumers to consume non-subsidized LPG. This included selling non-subsidized LPG in 5.5-kg cylinders beginning in 2015 and 3-kg cylinders in 2017, as well as providing special rebates (Maulana, 2018; Prakoso, 2015; Prasongko, 2017). However, these efforts were not effective because they did not address the fundamental problems—the price discrepancy between subsidized and non-subsidized LPG without limiting access to the former—underpinning the mismatched subsidy. The government is also piloting the gasification of coal (Coal DME) and expanding the LNG distribution network through the City Gas program, but these alternatives are far from being scaled and are thus rather long-term solutions (MEMR, 2020d). The government has shown interest in limiting access to subsidized LPG to certain groups only in the last few years, but regulations have not yet been enacted. Most recently, the government was planning to implement a closed system where beneficiaries would receive a limited number of subsidized LPG cylinders by the middle of 2020, but this was postponed because of the COVID-19 crisis (Philemon, 2020).

² The total number of households in income quintile 5 is very low, and therefore its share of total LPG subsidy benefits are smaller than for income quintiles 3 and 4; whereas the average subsidy per household is highest for households in income quintile 5.



3.0 Current LPG Subsidy Reform Plans

3.1 Targeting LPG Subsidies

In 2019, the Fiscal Policy Agency of the Ministry of Finance and PROSPERA assessed the effectiveness of the current subsidy system and proposed removing the current price subsidy and protecting vulnerable groups with a direct transfer of cash assistance. In addition, their study highlighted the need for the following elements:

- Assistance that is sufficient to compensate for the decrease in purchasing power.
- Determination of the target recipients of the cash transfer that is based on a valid data collection process.
- Testing the functioning of facilities and infrastructure that support the policy shift.

Several schemes had been proposed for implementing this direct transfer system for the LPG subsidy. According to the MEMR, one option tested in several places used a card with a barcode that is connected directly to the beneficiary group's bank account (Simatupang, 2020). When purchasing 3-kg LPG cylinders, the barcode is instantly recorded, and the subsidy is transferred directly into the cardholder's bank account.

3.2 The Plan Proposed by TNP2K

Meanwhile, TNP2K developed a scheme where eligibility is verified through a facial biometric mechanism (TNP2K, personal communication, 2020). According to this system, a registered beneficiary can go to an agent or shop, where his/her biometrics can be verified with the LinkAja smartphone application—an Indonesian interbank network—by taking a picture of the beneficiary. Entering the Customs Identification Number opens the personal data and current assistance balance, and, if this balance is sufficient, the payment can be transacted and the empty LPG cylinder replaced.

To limit the subsidies to the families that make up the lowest 40% of the Indonesian population in terms of socio-economic status, TNP2K used government data used for electricity subsidies to identify around 30 million eligible families—approximately 20 million households fewer than those that are currently benefiting from the subsidized 3-kg LPG cylinder (Citra, 2020; TNP2K, personal communication, 2020). Each eligible household would receive transfers worth three 3-kg LPG cylinders per month, each micro business would receive the equivalent of nine, and both family fishers and farmers would receive the equivalent of 12, based on estimates of minimal basic consumption needs (TNP2K, personal communication, 2020).

To test a face or fingerprint biometric system as well as an e-voucher technology, TNP2K conducted the first pilot from December 2018 to May 2019 in seven regions that involved more than 14,000 households (Wicaksono, 2019). The results of that pilot showed that the transaction process could be carried out smoothly and quickly, but some LPG sellers were not ready to serve the transaction process and required additional training. While the face



verification process ran without problems, the fingerprint verification method took longer, and the voucher code verification method was slightly constrained, as some beneficiaries forgot their PIN number, registered their phone numbers incorrectly, or had issues with the cell phone signal. Despite potential issues with regards to the scalability of the technology and usability in remote areas if supporting infrastructure were lacking, TNP2K favours the use of facial biometric technology, which also saves costs such as fees for printing and distribution (TNP2K, personal communication, 2020). Based on the findings of the first pilot, the technology was perfected through a second pilot in three districts between September and November 2019 (Citra, 2020).

3.3 The Benefit of Targeting LPG Subsidies

In their 2019 study, the Fiscal Policy Agency of the Ministry of Finance and PROSPERA also analyzed the impacts of changing the current 3-kg LPG cylinder subsidy scheme and found that removing LPG subsidies without any compensation would increase inflation by 1.32 percentage points, which would increase national poverty by 0.47% to 10.29% and inequality (Gini coefficient) by 0.002 to 0.391 (Fiscal Policy Agency, 2019; Joewono, 2020). In contrast, targeted subsidies to households with the lowest socio-economic status are projected to directly offset the loss of purchasing power and improve poverty and inequality levels compared to the current system, but the extent depends on the amount in subsidies provided: direct assistance of IDR 45,000 per household per month would help reduce the poverty rate by 0.13% to 9.68% and inequality by 0.002 to 0.387, while the provision of direct assistance of IDR 60,000 per household per month would reduce the poverty rate by 0.36% to 9.46% and inequality by 0.003 to 0.386.

At the same time, reforming the 3-kg LPG cylinder subsidy policy in this way would also have a positive impact on the public fiscal burden. According to the plan proposed by TNP2K, the reduction of government spending for LPG subsidies could range between 70% (if only eligible families are included in the scheme) and 40% (if eligible families, micro-businesses, and family fishers and farmers are included)³ (TNP2K, personal communication, 2020). Similar to the reduction of fuel subsidies in 2014/15, such savings could be spent on more productive areas, especially COVID-19 recovery.

Further analysis would be recommended to identify impacts on other households not included in the two lowest deciles, as well as for understanding the people's views on different reform options.

³ This calculation is based on the original budget allocation for 2020 (about IDR 49.4 trillion).



4.0 Reform of LPG Subsidies and Impact on Climate Change

The reform of LPG subsidies would result in increased LPG prices for a large number of households, which provides an incentive to switch to cooking with electric stoves. In addition, the government of Indonesia is considering supporting such a switch from LPG to electric cooking stoves for middle- and high-income families as a way to save government resources spent on LPG subsidies. Since electricity generation in Indonesia is mostly fossil fuel based, with coal playing a very important role, this switch risks having a negative impact on Indonesia's carbon dioxide emissions. In contrast, vulnerable groups will continue receiving subsidized LPG after the reform and therefore can be expected to not look for harmful alternatives, such as biomass, which causes high levels of indoor air pollution.

4.1 Cost Comparison of Cooking With Subsidized LPG, Non-Subsidized LPG, and Electricity

Based on the targeting suggested by TNP2K, around 20 million households will not be able to access subsidized LPG any longer and instead need to purchase LPG at a price that reflects international market prices. Ultimately, the cost of cooking with LPG will increase, which may encourage them to look for alternatives, such as electric induction stoves. For example, households with a wattage of 1,300 VA or more can save IDR 46,204 (USD 3.17) per month when using subsidized LPG compared to cooking with an electric induction stove, but they would need to spend IDR 11,746 (USD 0.80) more if they are required to purchase non-subsidized LPG⁴ (Pranadji et al., 2010).

4.2 Greenhouse Gas Emissions of Cooking with LPG and Electricity

Given that Indonesia's energy mix is still dominated by coal⁵ (MEMR, 2020b) and is unlikely to change in the near future (Perusahaan Listrik Negara [PLN], 2020), a switch to electric induction stoves could present a challenge in terms of greenhouse gas (GHG) emissions, which potentially interferes with Indonesia's plan to achieve the 2030 reduction target stated in its Nationally Determined Contribution. Even though the efficiency of LPG stoves is lower (55% compared to induction stoves⁶) (National Energy Council & MEMR, 2020), cooking with LPG results in annual carbon dioxide emissions of 0.408 tonnes of carbon dioxide equivalent (tCO₂e) per household, whereas cooking with an electric induction stove causes

⁴ This is based on monthly average consumption for cooking of 11.4 kg per LPG and 87.2 kWh per household.

⁵ In June 2020, Indonesia's electricity fuel mix based on installed capacity is as follows: coal (49.63%), gas and hybrid (29%), fuel oil (6.74%), and renewable energy (14.7%).

⁶ MEMR estimates that LPG stoves and induction stoves have an average thermal efficiency of 40% and 85%, respectively. The National Energy Council and MEMR (2020) use a ratio of LPG stove to induction stove efficiency of 0.55.



more than double this amount (0.855 tCO₂e per year).⁷ Switching from LPG to an electric induction stove would therefore result in an annual increase of 0.447 tCO₂e per household. As coal will remain Indonesia’s dominant source for generating electricity, and the country is on track to miss its renewable energy target, the difference between the GHG emissions when cooking with LPG and electricity can be expected to remain constant over the next decade, as the emission grid factor will likely remain constant or even soar (PLN, 2019). If all of the roughly 20 million households that lose access to subsidized LPG switched to using electricity for cooking immediately, this would result in an additional 0.0089 GtCO₂e, which could be considered minor compared to Indonesia’s estimated total GHG emission of 1.8 GtCO₂e in 2020 (Climate Analytics & Climate Action Tracker, 2020).

4.3 Additional Costs Associated With the Switch to Electric Induction Stoves

Households that switch to cooking with electric induction stoves have to pay relatively high upfront costs, including the purchase of the stove unit and ferromagnetic cooking utensils, cable, and also administrative costs for certification. Currently, only about 4.5 million households have a wattage that is sufficient to use an electric induction stove (more than 2,200 VA). About 11.5 million households are one level below (1,300 VA) (National Energy Council & MEMR, 2020) and would therefore also need to pay the cost of upgrading to a higher tariff class if they want to cook with electricity. The detailed cost breakdown presented in Table 1 amounts to almost IDR 5 million (USD 342). As the monthly income of the lower middle class stands below IDR 7.5 million (USD 514) and for the middle class below IDR 25 million (USD 1,714) per family (Miranda, 2020), these costs would be a comparably high burden and may essentially limit households that belong to these income groups from switching to electricity for cooking.

Table 1. Additional costs as part of switching to electric induction stoves

Upfront purchase for induction stove installation	Cost (IDR)
Induction stove unit (2,000 W)	2,000,000
Ferromagnetic cooking utensils	800,000
Upgrade of PLN tariff class ⁸	843,300
Certificate of operational feasibility (SLO)	105,000
High-watt cable	1,100,000
Total upfront cost	4,848,300

Source: Own calculation using data from various sources

⁷ Based on the author’s own calculations, assuming LPG consumption of 11.4 kg per month per household (Pranadji et al., 2010) and assuming it will not be affected by the switch to induction stoves.

⁸ This is the cost of upgrading from a wattage of 1,300 VA to 2,200 VA, although this cost might be lower considering PLN’s program to support the upgrade (see Section 4.4).



4.4 Promotion of Cooking With Electricity by the Indonesian Government and PLN

An accelerated switch to cooking with electricity will not only be incentivized by LPG subsidy reform, but the Indonesian government is planning to actively promote it to reduce its spending for LPG subsidies, as per the country's Medium-Term National Development Plan (RPJMN) 2020–2024 (Government of Indonesia, 2020). Therefore, PLN—Indonesia's state utility company—has announced a program to support this goal through rebates on upgrading the wattage. It is cooperating with the state-owned bank, Bank Tabungan Negara, which offers loans for the purchase of electric induction stoves, to promote the use of 1 million electric induction stoves per year starting from 2021 and achieve a total adoption of 10 million units by 2030 (Andi & Perwitasari, 2020; Safitri & Setiawan, 2020). However, such plans would require massive investments in upgrading the country's electricity capacity as well as distribution infrastructure, as it is questionable whether PLN could currently cope with such increased demand.



5.0 International Case Studies

Despite plans for reforming LPG subsidies, the Indonesian government did not carry out further action to implement the reform plans due to the COVID-19 crisis. Yet other emerging economies have used times of crises to carry out fossil fuel pricing reforms and implement new social protection measures to ensure the poor can still meet their energy needs. The following is a compilation of case studies in India and Mexico that provide useful lessons for Indonesia on the benefits of fossil fuel pricing reforms during a time of crisis and the likely obstacles to navigate.

5.1 India Case Study: Increasing fuel taxes as a response to the COVID-19 crisis

5.1.1 The Impact of the COVID-19 Crisis on India's Public Budget

India's economy contracted by 23.9% year-on-year in the second quarter of 2020 (PIB, 2020e). This economic downturn squeezed the country's income from taxes, while spending on welfare programs for the poor and migrant workers went up (M. Sharma, 2020). In the first quarter of the 2020/21 fiscal year, the revenues from the Goods and Services Tax (GST) were 41% lower compared to the same period one year before (The Hindu, 2020). In addition, the total sales of gasoline were down 60% in April 2020 and 36% in May 2020 year-on-year, while diesel sales fell 56% in April 2020 and 29% in May 2020 compared to the same months in 2019 (Petroleum Planning and Analysis Cell, 2020a).

In the 2018/19 fiscal year, excise duties on petrol and diesel contributed nearly 11% to the total central tax revenue (Varadhan, 2020). However, the sudden drop in demand meant that revenues from these taxes were lower than expected in spring 2020 due to lower demand as a result of the lockdown, and the COVID-19-induced recession was predicted to cut the total government revenue by 2%–3% of GDP (Ayar, 2020).

5.1.2 The Composition of Indian Fuel Prices

The deregulation of India's gasoline and diesel prices in 2010 and 2014, respectively, allowed oil marketing companies (OMCs) to adjust prices based on international crude oil prices bi-weekly (Surabhi, 2018). Since 2017, OMCs have revised fuel prices daily to reflect fluctuating international crude oil prices and currency conversion rates in retail prices. Gasoline and diesel prices have the following four components (Manduva, 2018):

- **Base price:** The OMCs charge a base price to the dealers based on the global crude oil price, the exchange rate, costs for freight and refining, and other costs.
- **Central excise duties:** The Central Government levies three types of excise duties (fixed amount per litre): Basic Excise Duty, Special Additional Excise Duty (SAED), and Additional Excise Duty.
- **Dealer commission:** The OMCs pay a commission to the petrol pump dealers.



- State-specific value-added tax (VAT)/sales tax: The state governments levy a VAT or sales tax on the price that includes the base price, central excise duties, and dealer commission.

5.1.3 Increasing Fuel Taxes to Secure Fiscal Spending

As a result of a collapse in the global oil price due to initial price wars between the Organization of the Petroleum Exporting Countries and Russia and lower demand due to the global COVID-19 crisis, the average monthly price of the Indian Crude Basket⁹ fell from USD 65.50 per barrel in January 2020 to USD 19.90 in April 2020 (Petroleum Planning and Analysis Cell, 2020b). Instead of passing lower prices on to the consumers, the Indian Central Government increased the excise duty on fuel products twice to generate additional funding to cover the revenue shortfall and support the INR 1.7 trillion (USD 22.6 billion) COVID-19 relief package for the poor and the INR 20 trillion COVID-19 economic recovery package that especially targets micro, small and medium-sized enterprises (Press Information Bureau [PIB], 2020c, 2020d). In March, the SAED was increased from INR 8 to INR 10 per litre for gasoline and from INR 2 to INR 4 per litre for diesel (Central Board of Indirect Taxes and Customs [CBIC], 2020a), and the Road and Infrastructure Cess (RIC), collected as additional excise duty, increased from INR 9 to INR 10 per litre for both gasoline and diesel (CBIC, 2020b). In early May, the SAED was further increased by INR 3 per litre for gasoline and INR 5 per litre for diesel (CBIC, 2020c), while the RIC was raised by an additional INR 8 per litre for both gasoline and diesel (CBIC, 2020d). These changes increased the excise duty of gasoline by INR 13 (USD 0.18) to INR 32.98 (USD 0.45) per litre and of diesel by INR 16 (USD 0.22) to INR 31.83 (USD 0.43) per litre. Since March 2020, 23 of 28 Indian states have also announced a hike in their VATs (own calculation). Because both the central and state governments can adopt these tax increases alone (in contrast to changes to the GST where they have to take collective decisions), these are quick measures to collect large revenues (Daniyal, 2020).

According to IISD calculations, hiking the excise duties has resulted in estimated additional earnings for the Central Government of INR 1.4 trillion (USD 19.2 billion) in the 9 months between April and December 2020.

5.1.4 The Effect of the Fuel Tax Increases on Retail Prices

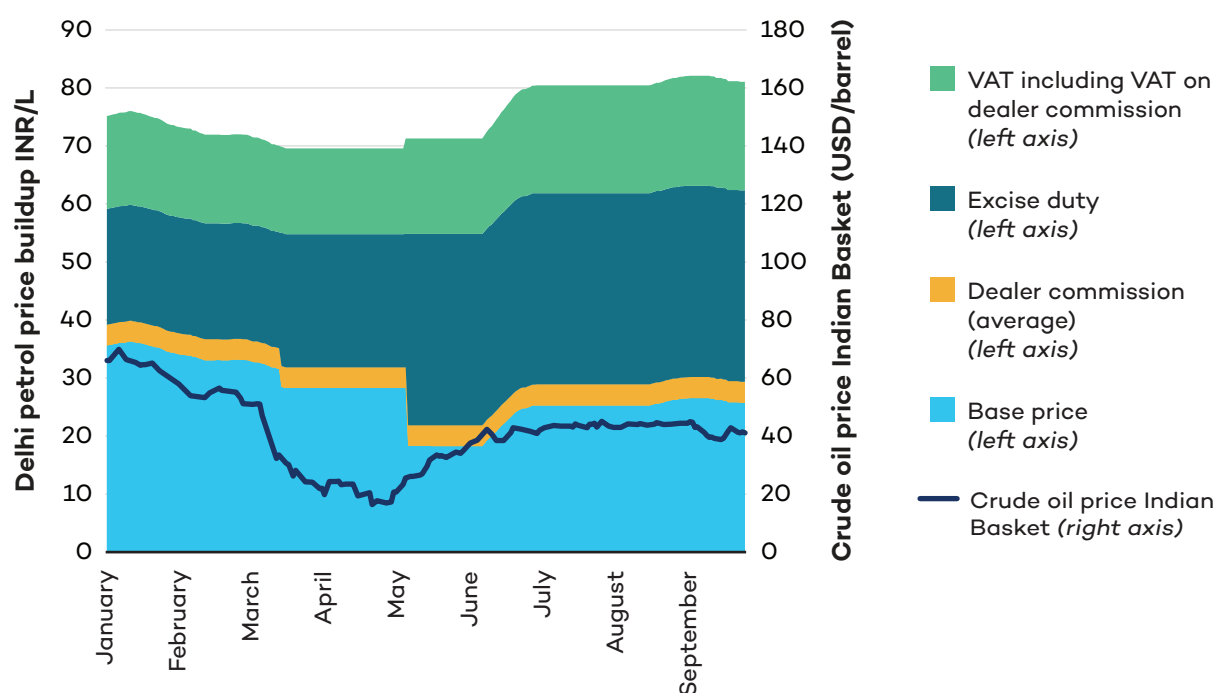
When the Central Government first increased the excise duty, the Indian Ministry of Finance affirmed that this would not result in any increase in gasoline and diesel retail prices (Magazine, 2020; Shine & Dhasmana, 2020). Because the OMCs adjusted the tax increases against the low oil prices, there were no substantial increases in the retail prices between March and the beginning of June. While this first caused the margins of OMCs to shoot up (from the usual INR 3 to INR 17–19 per litre sold), because the tax increase was lower than their savings from lower oil prices, the rebound of the crude oil prices (to around USD 40) in late spring brought down the OMCs' margins to INR 2 per litre and pressured them to start

⁹ The Indian Crude Basket represents a derived basket comprising of sour grade (Oman & Dubai average) and sweet grade (Brent Dated) of crude oil processed in Indian refineries in the ratio of 75.50:24.50 during 2018/19.



increasing retail prices (Ananda & Shukla, 2020). As a result, prices of petrol and diesel rose throughout India (e.g., by 13% and 16% in Delhi, 11% and 16% in Mumbai, and 11% in Chennai) until the end of June (Petroleum Planning and Analysis Cell, 2020c). Throughout the rest of 2020, the retail prices for gasoline and diesel remained stable overall, along with the stabilization of the crude oil prices. The full gasoline and diesel price development from January to September 2020 is presented in figures 4 and 5.

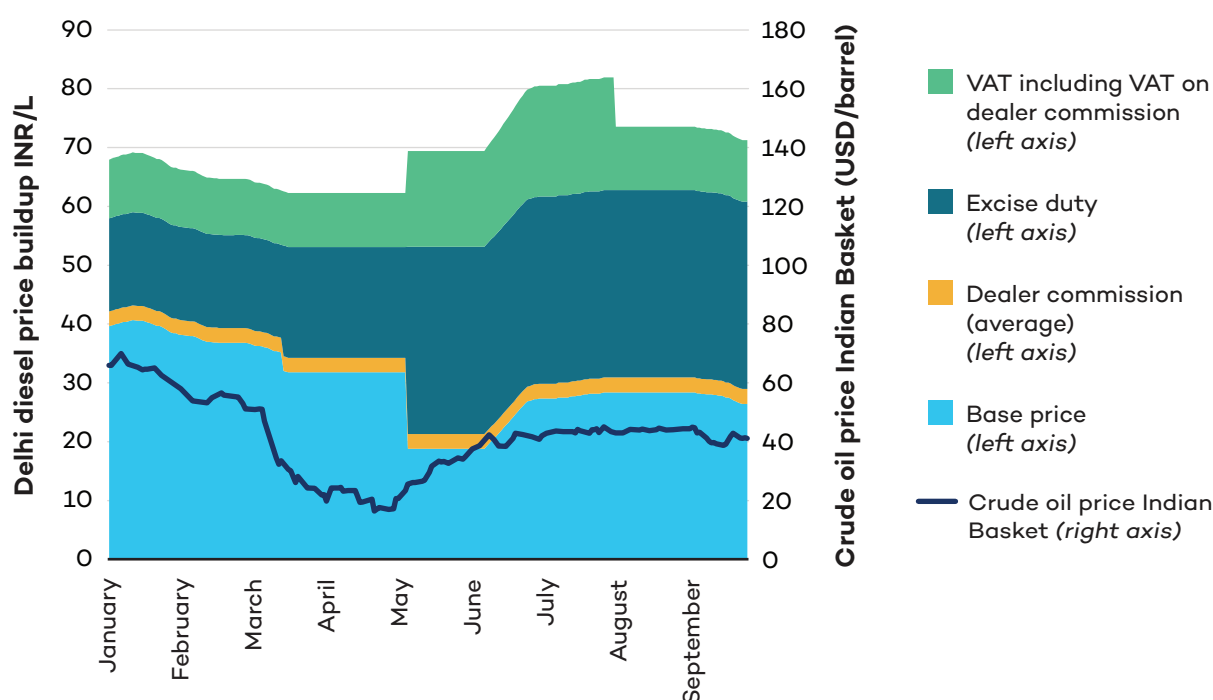
Figure 4. Evolution of the components of gasoline prices in Delhi between January and September 2020



Source: Own calculation based on information provided by Petroleum Planning and Analysis Cell



Figure 5. Evolution of the components of diesel prices in Delhi between January and September 2020



Source: Own calculation based on information provided by Petroleum Planning and Analysis Cell

5.1.5 The Impact of Fuel Tax Increases on Society

As most private cars are owned by the richest households in India, wealthier parts of society were overwhelmingly more directly affected by the increase in the excise duty and state VATs on fuels (Bhattacharya, 2016). However, diesel is primarily used for commercial transportation, especially trucks, and to a lesser extent in the industrial and agricultural sectors (U.S. Energy Information Administration, 2020). This pushed inflation to more than 6% in July and August 2020, above the target of 4% (plus or minus 2%) prescribed by the Reserve Bank of India (Arun, 2020). Higher inflation disproportionately affects poorer segments of society who spend a higher share of their income for basic needs, such as food.

Yet most people seemed to accept that the rising prices and taxes are justified to survive the crisis (Ayar, 2020). Larger public opposition only picked up after the OMCs started increasing gasoline and diesel retail prices in June. Some protests were organized throughout the country, including a nationwide protest on June 29, 2020, held by the Congress Party, India's largest opposition party (The Times of India, 2020). It was followed by other protests—for example, from a farmer's association in the state Punjab on July 22, 2020 (ANI, 2020a), a fisher's association in the state Tamil Nadu on July 25, 2020 (ANI, 2020b), and a trucker's association in the state Madhya Pradesh from August 10 to 13, 2020 (Sachdev, 2020).

The government responded to this public backlash rather reactively. The petroleum minister came out publicly only at the end of June—after fuel prices had been increased drastically—claiming that the price increases had not impacted the common people much due to low



fuel demand and saying that the government must prepare for future challenges (ET Bureau, 2020). He added that the extra revenues from increasing the fuel taxes helped the Indian government generate funds for welfare programs—earmarked for health and employment priorities—while also stabilizing its public budget (The New Indian Express, 2020).

Overall, support for the Modi-led government remained fairly stable. For instance, private vehicle owners (a rather small group but with a disproportionate voice in social and mainstream media) who are directly affected by rising fuel prices are usually committed voters of the governing BJP (Daniyal, 2020). A poll conducted over summer 2020 showed that 72% were satisfied with the Modi-led government, 74% were satisfied with how the COVID-19 crisis was being handled, and 79% rated Modi's work as "good" or even "outstanding" (Kumar, 2020). Despite signs of growing opposition, partly also caused by the issue of high fuel prices, as of spring 2021, the government is holding strong.

5.1.6 Lessons

The Indian example of raising the taxes on transportation fuels can draw the following lessons for Indonesia:

1. **Take advantage of low oil prices:** India increased its excise tax on gasoline and diesel fuels when the global oil price had collapsed. This helped smooth the impact of the price hike for customers, as these tax increases were adjusted against the low oil prices, and retail prices remained fairly stable for a time. The government affirmed that the excise tax increases would not result in higher fuel retail prices but missed the opportunity to develop communication strategies explaining the reason for the tax increases to the population. Hence, there was some public discontent after the retail prices started going up in June.
2. **Revenues generated helped protect the poor and vulnerable groups:** India's economy was hit hard by the COVID-19 crisis, which had especially detrimental impacts on poor and vulnerable groups. On the other hand, wealthier households would have overwhelmingly benefited from lower fuel retail prices. Increasing the fuel excise taxes and using the generated revenue to invest in the protection of the poor therefore resulted in important redistributive gains.
3. **Strong government endorsement helped implement the tax increase:** Despite rising prices throughout the summer and some signs of public discontent, public acceptance of the tax increase and support for the government generally remained high due to the high political capital of the ruling government. Without the strong endorsement of the government, cooperation with the opposition and other stakeholders is key to the successful implementation of such reforms.



5.2 India Case Study: New social protection schemes for LPG as a response to the COVID-19 crisis

5.2.1 The Impact of the COVID-19 Crisis on Poor and Other Vulnerable People in India

The COVID-19 pandemic not only negatively affected India's economy and public budget (Section 5.1), it also had severe impacts on poor and vulnerable groups in Indian society. Between March and early April 2020, unemployment increased threefold, from 8.7% to 26% (Centre for Monitoring Indian Economy, 2020). The most affected were low-income groups such as farmers, domestic workers, small business owners, and daily wage earners, whose informal employment is often coupled with low job security. In addition, about 100 million migrant workers in cities were rendered unemployed and had to return to their homes in rural areas, where they created additional pressure on the local economies (Sanghera, 2020; Singh, 2020). According to a study of 47,000 low-income households in 15 Indian states between April and June, over half of the primary income earners had lost their jobs, and household incomes dropped on average to 40% of pre-lockdown levels (Dalberg, 2020). India's extreme income inequality, with little financial protection for low-income and socially marginalized groups, only exacerbated this tension (Ahmed et al., 2020; Carswell et al., 2015). The pandemic may dampen India's gains from previous efforts to eradicate poverty (World Bank, 2020).

5.2.2 India's Social Protection Programs for Using LPG

India has various social protection programs implemented at different jurisdictional levels. Subsidies for domestic use of LPG are distributed through two schemes. The first is called the Direct Benefit Transfer for LPG (DBT-L), a consumption subsidy launched in 2014. Under this scheme, beneficiaries—all rural households (even though these subsidies were only intended for households below the poverty line)—buy LPG cylinders at full market price and receive a benefit deposited directly into their bank accounts. Eleven 14.2-kg LPG cylinders can be purchased annually at a subsidized rate, plus one cylinder is offered for free (Ministry of Petroleum and Natural Gas [MoPNG], 2020a). The second scheme is the Pradhan Mantri Ujjwala Yojana (PMUY), a connection subsidy that was launched in 2016 with the goal to provide 50 million LPG connections for free¹⁰ over the course of three years to women below the poverty line, or those that belong to backward communities targeted through India's Socio Economic and Caste Census 2011 (MoPNG, 2016). As of September 2019, over 80 million LPG connections had been provided, with the subsidy differing due to price differences among the country's states (MoPNG, 2020b). In February 2021, the government announced a fresh target of an additional 10 million LPG connections under this scheme (PIB, 2021).

The Indian government has been working on improving the targeting of both connection and consumption LPG subsidies through different means—volumetric targeting, income targeting, and a voluntary opt-out scheme (Sharma et al., 2019). These approaches have improved the

¹⁰ One connection costs INR 1,600 (USD 22.72) (Comptroller and Auditor General of India, 2019).



targeting of LPG subsidies toward poor households, but more needs to be done. A study in the Indian state of Jharkhand found that more than half of the LPG subsidies benefited the top 40% of the richest households (Sharma et al., 2021).

5.2.3 New LPG Social Protection Measure as a Response to COVID-19

In response to the COVID-19 crisis, the Indian government leveraged the public distribution system and DBT platforms for new social protection measures under programs that had already been in place before the pandemic. Announced in late March 2020, this package, with a total value of INR 1.7 trillion (USD 22.94 billion), included providing free LPG cylinders as well as other measures (distributing food grains to the poor, transferring cash to farmers, increasing wages in a national rural public works scheme, transferring cash to households that were recently targeted for financial inclusion, and transferring cash to widows and disabled people) (PIB, 2020d).

Between April and June 2020, the 83 million PMUY beneficiaries were entitled to three free LPG refills delivered directly to their homes (PIB, 2020a). The beneficiaries received an advance payment equal to the retail price of one LPG cylinder refill to their bank account and two subsequent ones each if the advance payment had been used to purchase an LPG cylinder (Abdi, 2020). The program was extended until September for some beneficiaries who could not spend their advance payment by June and later extended to March 2021 (Johari, 2021; PIB, 2020b). A total of 141.3 million free cylinders were distributed and around INR 109.9 billion¹¹ (USD 1.48 billion) was transferred to 75 million PMUY beneficiaries between April and November (PIB, 2020f).

This free LPG program has helped the beneficiary group meet their energy needs in a time of crisis (Petroleum Planning and Analysis Cell, 2020a). However, only about 60% of the targeted amount of free cylinders were distributed in the period until November 2021, which indicates a possible overestimation of LPG consumption among the PMUY beneficiaries and questionable coverage of the policy measure. A survey revealed that 36% of beneficiaries used the advance payment for other purposes, 40% did not have empty cylinders at home for refilling, and the rest faced technical errors related to banking and Aadhar, India's unified, but incomplete, identification database (Choudhary, 2020). These technical issues affected 3.1 million to 7.6 million eligible beneficiaries who, by August, had not received their first advance payment (N. Sharma, 2020).

5.2.4 Financing the New LPG Social Protection Measure

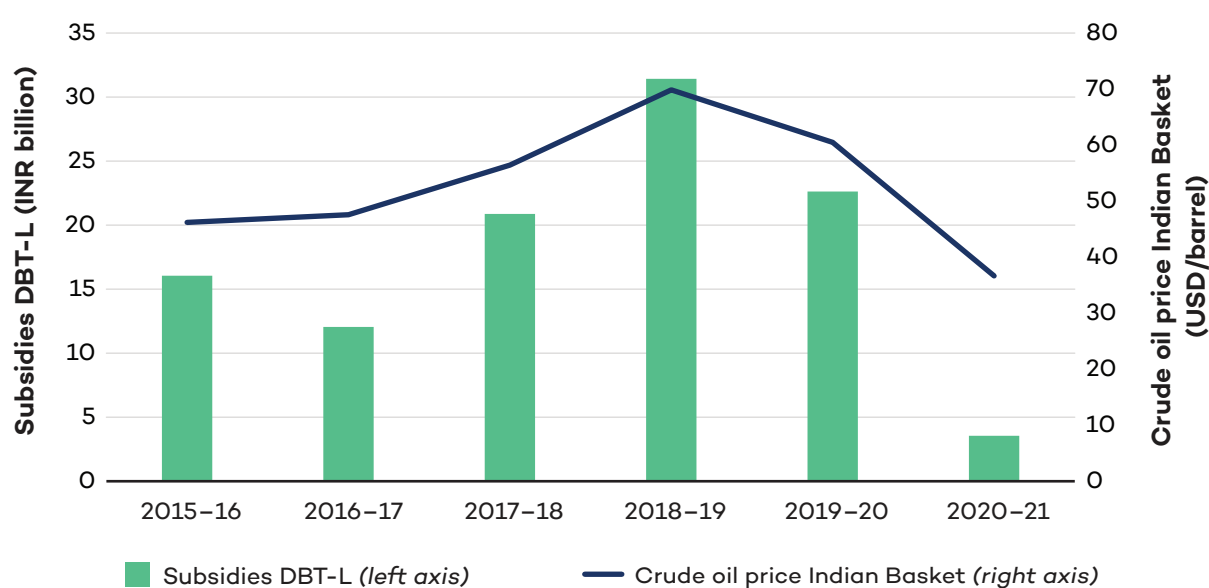
The decline of the market price of a 14.2-kg LPG cylinder due to lower international oil prices diminished the gap between subsidized and market rates and effectively removed

¹¹ According to the government, INR 97.09 billion (USD 1.31 billion) was transferred between April and June. For July to September, the average price of a cylinder (INR 594) is multiplied by the difference between 141.3 million (total number of cylinders deployed) and 119.7 million (number of cylinders deployed between April and June 2020). This figure (INR 12.83 billion) is then added to the INR 97.09 billion to estimate the total expenditure by the government for this measure.



subsidies by May 2020 (IANS, 2020). Compared to previous years, spending for subsidized LPG was much lower in the 2020/21 fiscal year (Figure 6). This provided the government with a fiscal saving that could be used for other welfare measures, including the provision of free LPG deliveries. The LPG price has rebounded since December 2020, but the government has not reintroduced LPG subsidies, making LPG cylinders unaffordable for poor households that do not receive the free refills (Johari, 2021).

Figure 6. India's spending on DBT-L and the evolution of the crude oil price in the India Basket between 2015 and 2021



Source: Petroleum Planning and Analysis Cell, 2020b, 2021.

5.2.5 Lessons

The Indian example of providing free LPG to the poor during the COVID-19 crisis can draw the following lessons for Indonesia:

1. **Particular support for vulnerable groups in times of crisis:** India used a cash transfer to subsidize LPG consumption (under DBT-L), but the low oil prices allowed the Indian government to eliminate these subsidies without increasing the price. Moreover, the particularly vulnerable groups received additional support through free delivery of up to three LPG cylinders for poor women between April and September 2020, in addition to a broader COVID-19 package that allowed them to meet their basic needs. Yet, the government has not announced a clear plan to reintroduce LPG subsidies to make LPG cylinders affordable after the deadline for free LPG refills passed in March 2021.
2. **Building on an existing scheme:** The beneficiaries of the free refills were the same beneficiaries that benefited from another social protection scheme that aimed to distribute new LPG connections. Therefore, this was a robust database, and the measure could be implemented in a timely manner.



- 3. Closer monitoring and planning of the measure would have resulted in higher efficiency:** Overall, only about 140 million free refills of LPG cylinders were provided through the policy— about 100 million fewer than possible. This points to the possibility that the government overestimated the actual need of the beneficiaries, as most seem not to have used the three free LPG cylinders in the given time. In addition, these free LPG cylinders went to only 75 million PMUY beneficiaries, which means that about 8 million women were left out of this social protection measure completely. While some chose to use the first advance payment for other spending or did not use enough LPG to benefit from a free refill, some beneficiaries never actually received the advance payment that could essentially be used for the refill due to technical reasons.

5.3 Mexico Case Study: Expanding existing social protection programs as a response to the 2008/09 global economic crisis

5.3.1 The Impact of the 2008/09 Global Economic Crisis on Mexico's Economy

The Great Recession in the late 2000s caused Mexico's economy to contract by more than 5% in 2009 (Sistema de Información Energética, n.d.). This financial crisis led to a sharp decline in public sector revenues, a steep currency depreciation of 25%, and a significant drop in foreign direct investment of 42.5% in 2009 (Villarreal, 2010). It also had big implications for Mexico's labour market, which saw the highest unemployment rate in a decade, reaching 7.6% in cities and 3.7% in small communities. Between 2006 and 2010, the country's total population in poverty¹² increased from 42.87% to 51.08% (Consejo Nacional de Evaluación de la Política de Desarrollo Social [CONEVAL], 2016). Back then, LPG, gasoline, and diesel were still subsidized, but reforms started shortly after, with the first price increase seen in 2010 (Sanchez et al., 2018). While LPG prices—determined on an ad hoc basis at a level below the international market price—and gasoline and diesel national prices—which followed a price-smoothing formula—were fully liberalized in 2017, electricity prices are also subsidized for most of the household and agriculture consumer categories. Despite several reform attempts, 99% of residential users benefited from a subsidized electricity tariff in 2016.

5.3.2 Federal Cash Transfer (Oportunidades) as a Means of Social Protection

Mexico had a conditional cash-transfer program (Oportunidades) to protect vulnerable societal groups that ran from 1997 to 2019;¹³ its scope expanded to urban areas in 2002

¹² This includes food and income poverty. A new calculation method (called “extreme” respective to “moderate”) was introduced in 2006, and both methods were used until 2016. Data for this new method is only available from 2008 onwards, and therefore food and income poverty is used. For more information: <https://www.coneval.org.mx/Medicion/EDP/Paginas/Medicion-por-ingresos-1990-2012.aspx>

¹³ The conditional cash-transfer social protection program was replaced by the Benito Juárez Scholarship Coordination in 2019. For more information: <https://www.jornada.com.mx/2019/01/30/sociedad/032n1soc>



(Dávila Lárraga, 2016). Registration for Oportunidades was initially only available to households in communities selected by a geographically based targeting mechanism that considered literacy rate, education, access to health services, electricity access, piped water access, level of overcrowding, existence of concrete floors in houses, and household income (Sanchez et al., 2020). The benefits were distributed at facilities in the communities that took part in the scheme, such as schools and hospitals.

5.3.3 Extending the Federal Cash-Transfer Program With an Energy Component to Protect the Poor From High Oil Prices

In 2007, Oportunidades was extended by a component to support household energy costs (Oportunidades Energéticas) at a rate of MXN 50 (USD 4.57) per month, which increased to MXN 55 (USD 4.91) in 2008 and to MXN 60 (USD 4.74) in 2010 (Laan et al., 2012; Ordóñez-Barba & Silva Hernández, 2019). Spending for this energy component made up about 9.5% in 2008 and 7% in 2010, for an annual total of between USD 200 million and 300 million from 2007 to 2009 (Sanchez et al., 2020; SEGOB, 2008, 2010a). Oportunidades Energéticas was implemented in addition to existing fossil fuel subsidies (blanket gasoline, diesel, and LPG) as a result of high oil prices, but spending for such general subsidies was much higher (e.g., USD 25 billion for fuel subsidies in 2008) (Global Subsidies Initiative, 2008; Kitson et al., 2016; SEGOB, 2010b). It also aimed to promote access to modern energy and reduce the use of pollutive fuels (Sanchez et al., 2020). Yet it only compensated the beneficiaries for the recent price increases (of LPG and electricity), and the total amount transferred to beneficiaries under this scheme amounted to 21%–25% of a household's energy spending. As the benefit was a cash transfer, households could spend it for any purpose, not necessarily on energy. Even though every household enrolled in Oportunidades was, in theory, allowed to register for Oportunidades Energéticas, the requirement to present an electricity bill prevented about 10% of them from receiving the additional transfer (Sanchez et al., 2020).

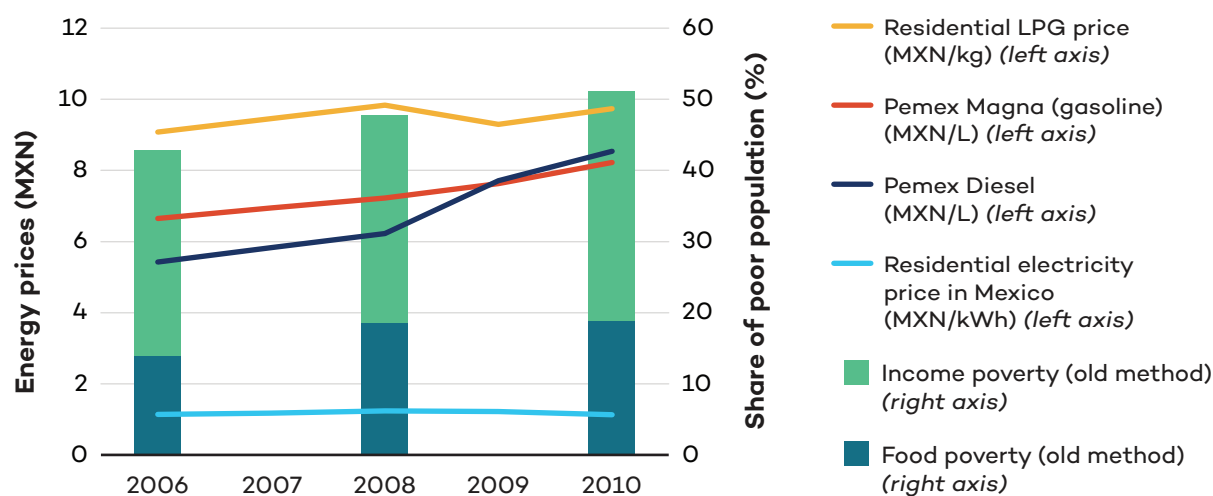
5.3.4 The Impact of the Energy Component

Despite several shortcomings, an external ex-ante impact evaluation of Oportunidades Energéticas by the Ministry of Social Development (Sedesol) found that the appropriate targeting mechanism of the program reduced the regressive nature of subsidies (Sanchez et al., 2020). Indeed, around 85% of the subsidies channelled to the population went to the poorest 40% of the households in the first year of its inception, nearly 75% to the poorest 30% (Komives et al., 2009). Furthermore, the transfers had a significant impact on household asset accumulation, driving an increase in the adoption of electricity appliances (Gertler et al., 2013).

However, between 2006 and 2010, the poverty rate went up from 43% to 51% due to rising prices for transport fuels, LPG, and electricity, among other factors (Figure 9). The impacts of the crisis would nevertheless have been much more severe in the absence of government programs that support social protection. As such, CONEVAL found that, without Oportunidades, almost 2 million more people would have suffered from food poverty in 2008 (CONEVAL, 2009).



Figure 7. Changes in poverty and energy prices between 2006 and 2010



Source: Based on data from CONEVAL, 2016; Secretaría de Energía, 2017; Sistema de Información Energética, 2010a, 2010b.

5.3.5 Lessons

The Mexican example of expanding the country's conditional cash transfer with an energy component during the Great Recession can offer the following lessons for Indonesia:

1. **Targeted energy cash transfer had positive socio-economic implications:** The Mexican government implemented an energy component as part of its cash-transfer program for the poor in response to rising energy prices in the late 2000s. In terms of social protection, the energy component was considered efficient, as most of the funds actually went to the segments of the population that were benefiting from a social protection program and could demonstrate having access to electricity. The highly progressive nature of the energy safety nets helped limit an increase in poverty during the 2008/09 economic crisis.
2. **Cost efficiency of the measure was limited, as targeted energy cash transfer was implemented in addition to general energy subsidies:** The implementation of the energy cash transfer was in parallel to general subsidies for fuels (gasoline, diesel, LPG) and electricity. Therefore, it did not result in budget savings that could have been spent on more productive areas.
3. **Energy cash transfer could be used for non-energy-related spending:** The energy cash transfer was distributed as part of a larger transfer to entitled beneficiaries without the obligation of actually spending it on energy-related expenditures. This poses the risk that beneficiaries actually did not spend this money on energy, and therefore impaired important governmental objectives, such as increasing energy access. The government could have conducted preliminary work to identify the actual needs of the population so that subsidies better satisfied those needs. This would have resulted in a more highly efficient subsidy.



6.0 Conclusion

The Indonesian government adopted a transformative conversion program to reduce public spending for kerosene and to improve the state of indoor air pollution in 2007 by switching to LPG. As a result, LPG is the dominating cooking fuel in Indonesia today. However, it comes with rising costs for the Indonesian government, as subsidized LPG is freely accessible for anyone. This measure is a large financial burden that is also highly regressive, as most of the spending goes to the wealthier parts of society who have higher spending levels and generally better access to LPG.

Preceded by unsuccessful attempts to reduce spending on LPG subsidies, the Indonesian government started to consider a targeted LPG subsidy system. A targeted system would not only reduce the public expenditure for LPG subsidies and imports significantly, but it would also make the distribution fairer as the subsidy will only be given to those that are actually in need of support.

TNP2K has come up with a plan to limit the beneficiaries of LPG subsidies in the future based on data from the electricity subsidy database. It has also tested biometric technology for safe and smooth provision in several pilots. However, this new approach, initially scheduled to roll out in 2020, was postponed due to the COVID-19 crisis.

Nevertheless, several examples in other emerging economies have shown that a crisis can provide an opportunity for fossil fuel pricing reforms as well as for strengthening a country's welfare state. Based on the lessons learned from the case studies, several recommendations can be made for Indonesia with regards to its LPG subsidy reform.

SUGGESTIONS:

1. **Indonesia could shift LPG subsidies away from the wealthy and use the money to support those who suffer most from the crisis:** Poorer groups in society are more vulnerable to economic shocks because they are more likely to lose their jobs and have fewer savings to maintain their standard of living. Special government support has proven to be essential to protect these groups. Strengthening social welfare—paid for, among other sources, through savings of inefficient subsidies or taxing of fossil fuels, as the India example shows—is a way forward to keep protecting vulnerable groups when public finances are scarce. At the same time, concerns that this would lead to significantly higher GHG emissions due to switching to electricity are rather low.
2. **Indonesia should accompany LPG subsidy reform with a robust data collection process:** Targeting government support poses the risk that certain intended beneficiaries are left out if the data collection process has flaws. This needs to be avoided by any means, so the Indonesian government should ideally start broadly with regard to targeting support (e.g., by using the electricity subsidy dataset) and adjust the targeted beneficiaries over time when better data collection evolves. The government can conduct surveys, public census, or analyses of impacts on purchase power or inflation to define corresponding measures to determine if the reform would



also impact other population groups in middle-income deciles. Any hurdles that prevent intended beneficiaries from accessing subsidies should be removed and access provided as easily as possible. In addition, the government needs to understand the actual needs of the population (for example, by avoiding distributing more LPG than what is needed, as happened in India) and alternative benefits they could offer instead of LPG to better cover their population's most urgent needs (for example, access to public health, public transport, education, etc.).

3. **Indonesia should accompany LPG subsidy reform with a robust public endorsement plan:** This plan should include engaging with other political and influential groups to gain broad political buy-in, communicating the objectives and benefits of the LPG subsidy reform and compensatory measures in a proactive manner, and timing the rollout well in advance. These elements will be key determinants for the success of the reform. Such an approach can limit public protests against price increases (as happened in India with the fuel taxes), helps people to prepare (for example, by subscribing to related compensation mechanisms), and shows that the government is transparent and open in its action. Designing such a plan is by no means an easy task and requires frequent dialogues with key stakeholders. High political capital and positive experiences with fuel subsidy reform in the past can be leveraged for the current LPG subsidy reform.
4. **Indonesia could make use of the momentum of the low oil prices:** The COVID-19 crisis initially caused international oil prices to collapse, and the ongoing lockdown in many countries kept the prices fairly low. The decline in the oil price should moderate the political barriers to subsidy reform. It provides a buffer to potential shocks due to price increases—similar to Indonesia's experience of gasoline and diesel subsidy reform in 2014/15. As a result, opposition to the reform can be limited and public acceptance increased. Reform is still valid when prices are back up, but a well-prepared reform and compensation plan becomes even more important to protect vulnerable groups from price shocks (Beaton et al., 2013).



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