

Fuel pricing and subsidy reforms in Asia after 2014 oil price crash:

a comparative study
of strategies

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Table of Contents

Table of Contents	2
Abbreviations	3
Synopsis.....	4
Deregulation, Tax Hikes and Weaker Currencies Dampen Asia’s Demand Response	8
Governments Finally Get Over the Diesel Subsidy Hump	12
Asia Oil Price Deregulation Index.....	16
India Steals a March Over its Regional Peers	18
The Road to Liberalization.....	21
China	21
India.....	23
Indonesia.....	24
Thailand.....	26
Malaysia	29
Pakistan.....	30
Case Study I	32
The Pitfalls of Price Liberalization	32
Case Study II	35
Targeting Subsidies Through Direct Benefit Transfer	35
Recommendations:	43

Abbreviations

ADB – Asian Development Bank
BPL – Below Poverty Line
BR1M – Bantuan Rakyat 1 Malaysia
B/D – Barrels per day
CEEW-IISD – Council on Energy, Environment and Water – International Institute for Sustainable Development
CNG – Compressed Natural Gas
COP21 – Conference of Parties (2015 Paris Climate Conference)
CSR – Corporate Social Responsibility
E10 – 10% ethanol-blended gasoline
FOB – Free On Board
RON – Research Octane Number
GDP – Gross Domestic Product
GFC – Global Financial Crisis
GSP – Gas Separation Plant
ICE – Intercontinental Exchange
IEA – International Energy Agency
IMF – International Monetary Fund
LPG – Liquefied Petroleum Gas
MT – Metric ton
MTOE – Metric tons of oil equivalent
NGV – Natural Gas for Vehicles
NDRC – National Development and Reform Commission
NOC – National Oil Company
OGRA – Oil and Gas Regulatory Authority (of Pakistan)
OCAC – Oil Companies Advisory Council
OMC – Oil Marketing Company
OPEC – Organization of the Petroleum Exporting Countries
PDS – Public Distribution System
PPAC – Petroleum Planning and Analysis Cell
PSO – Pakistan State Oil
Q1, Q2, Q3, Q4: First, second, third and fourth quarters of a calendar year
Saudi CP – Saudi Contract Price
UPA – United Progressive Alliance
VAT – Value-Added Tax

Synopsis

A sustained plunge in benchmark crude oil prices from a peak of around \$115/barrel in June 2014 to \$30-50/barrel levels through the first half of 2016 provided a major impetus to governments across Asia to resume cutting back their fossil fuel subsidies and accelerating energy pricing reforms, which had been all but suspended in the years following the 2008 Global Financial Crisis.

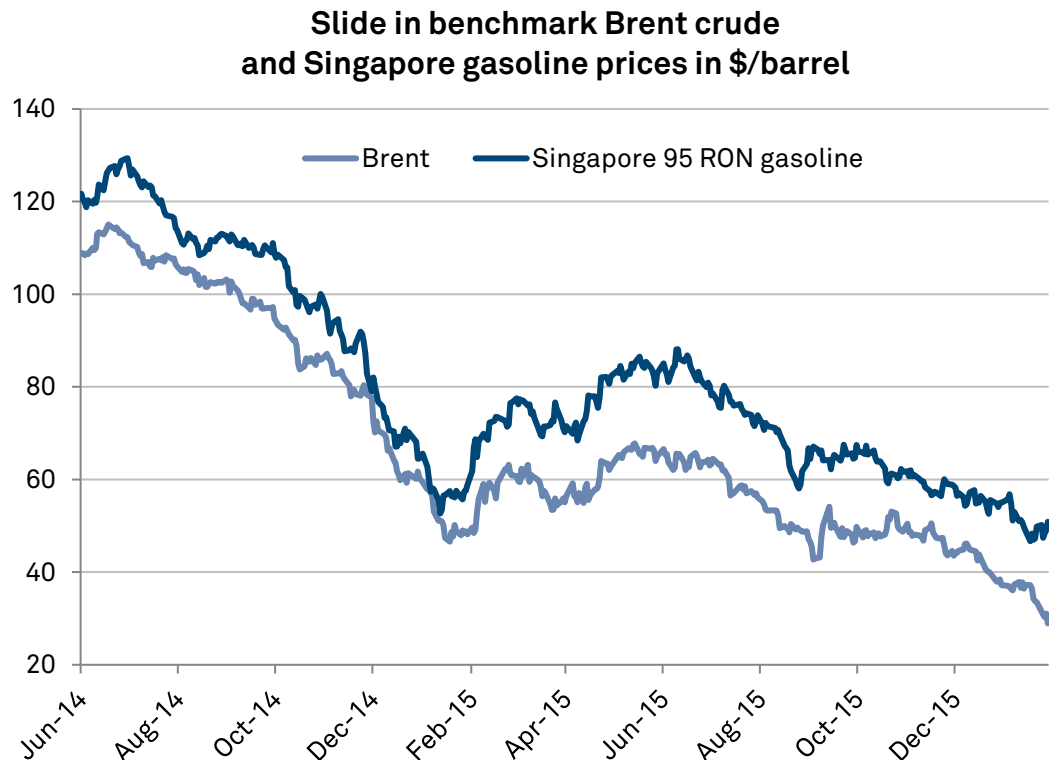
Liberalization of oil products pricing in developing Asia's major consuming countries has occurred in fits and starts over the decades, often dictated by the price cycles in the international markets, with every upswing in prices halting or sometimes even reversing the progress made during a period of low prices. Though GFC had sent Brent crude crashing nearly 74% from its historic high of more than \$146 in July 2008 to a trough of around \$36 by the end of that year, Asian governments, wrapped up in economic woes and concerns over inflation driven by their monetary easing, stood still on fuel subsidies in the months that followed. By the fourth quarter of 2009, crude had climbed back to around \$80/barrel. It then went on to settle in a relatively high band of around \$110-120 over the period of early 2011 to Q3 2014.

Withdrawing fuel subsidies from populations accustomed to cheap oil is especially difficult when international oil prices are high and the gap with subsidized fuel prices in the domestic market is big. The crude price tailspin that began in mid-2014, however, largely eliminated that hurdle.

As declining international prices of fuels converged with their subsidized rates, calling an end to subsidies lost some of its political sensitivity. Besides, this time round, not only were the countries on a more solid economic footing, but the view that crude prices would likely remain depressed for a few more years as the market gradually worked its way out of oversupply and historically high inventory overhang in the absence of an OPEC intervention, encouraged bigger and bolder moves toward liberalization.

The Paris agreement on climate change adopted by 195 countries in December 2015 (Conference of Parties or COP21) served as a fresh reminder of the environmental imperative of adopting market pricing for consumer fuels.

Figure 1:



Sources: ICE Brent futures, Platts Singapore gasoline assessments

The reform momentum also engendered gradual deregulation—governments transferring control over setting fuel prices to refiners and marketers, guided by market forces. The transition from fuel prices being set by the government in a somewhat opaque and ad hoc manner, to transparently tracking international markets through periodic adjustments, is a delicate one. Questions such as who decides the consumer price, how frequently it is adjusted, which international benchmark it tracks, and how the price formula is constituted, loom in front of the liberalizing markets.

In developing Asia, diesel, gasoline, kerosene and LPG have been typically underpriced for decades, as a financial aid to consumers. The difference between the market price and the artificially depressed consumer price has been traditionally paid for by the federal governments, even when they are juggling growing budget deficits.

When a product is not officially subsidized from the state budget, but the government exercises control over its retail price adjustments, it is the NOCs or state-owned companies, mandated to supply the country's energy needs, that

are left holding the loss from selling below their production or procurement costs.

The world was expected to spend an estimated \$5.3 trillion in post-tax energy subsidies in 2015, or about 6.5% of global GDP and up from \$4.9 trillion in 2013, an International Monetary Fund working paper projected in May 2015¹. It defined post-tax subsidies as arising when consumer prices are below supply costs plus environmental and consumption taxes.

While post-tax subsidies are pervasive in both advanced and developing economies as well as among oil-producing and non-oil-producing countries alike, they are especially large, at 13-18% of GDP, in emerging and developing Asia, the Middle East, North Africa, and the Commonwealth of Independent States, the IMF paper said.

Given the latest round of reforms, is developing Asia finally finding its way out of the woods?

This research focuses on China, India, Indonesia, Thailand, Malaysia and Pakistan, which are among Asia's 10 largest oil consumers with some combination of subsidies and government control over the pricing of refined oil products in the domestic market. The six collectively consume nearly 19 million b/d of oil, about a fifth of the world's total. The remaining four among Asia's top 10 consumers—Japan, South Korea, Australia and Taiwan—have fully liberalized fuel markets.

The countries with regulated oil markets are also the ones with relatively healthy rates of growth in energy demand compared with the rest of the world, a combined effect of demographics, urbanization, and subsidized fuel. Despite moderating economic growth in the region, the International Energy Agency projects Asia-Pacific countries will together add around 900,000 b/d to world oil demand in 2016, three times as much as the rest of the world.

As a result, even in a low oil price environment, these countries face the prospect of a growing fuel subsidy burden in tandem with rising consumption.

The drawbacks of fuel subsidies and government-regulated fuel prices are well-documented: they are known to benefit the rich disproportionately, as they consume much more energy; lead to wasteful consumption and environmental degradation by dis-incentivizing energy efficiency, conservation and alternatives; distort the price signals that normally balance supply and demand in a market; foster smuggling of the cheaper fuel to higher-paying markets; encourage adulteration of more expensive fuels with the subsidized product, causing environmental damage; and tie up government funds that could be better used in areas such as infrastructure, education and healthcare.

¹ IMF Working Paper, Fiscal Affairs Department. "How Large Are Global Energy Subsidies?" WP/15/105, May 2015. <https://www.imf.org/external/pubs/ft/wp/2015/wp15105.pdf>

At the same time, developing Asia needs to ensure it doesn't leave its poor behind in terms of access to energy resources, and costlier fuel doesn't derail industrial and economic growth. In such circumstances, how permanent are the latest moves toward fuel pricing liberalization? Will they be under threat if and when crude prices start rising? Some of the pricing reforms of the past two years were erased within months by policy flip-flops, as in Indonesia, while others seemed more definitive, such as those in India.

The governments' resolve to rationalize subsidies and end fuel pricing control will be put to the test if oil prices rise above the countries' pain thresholds. In the case of Malaysia, that limit is \$80/barrel—the government has said it may resort to some form of subsidies if oil rises above that level.

The sustainability of the latest round of pricing reforms will hinge on factors such as the completeness of the government's roadmap to full market liberalization, a clear mechanism for the market-determined pricing of fuel, consistency in following the newly introduced pricing conventions, provisions for regulatory oversight, and the level of transparency into the pricing process available to the consumers. The paper evaluates the six countries on a spectrum of policy certainty, clarity, and transparency with regard to their pricing norms for diesel, gasoline, kerosene and LPG.

Though there are commonalities in the sequencing of fuels being deregulated and the new pricing mechanisms being adopted to replace government control, the six countries vary widely on the parameters listed in the previous paragraph.

China and Pakistan, while officially free of fuel subsidies for a few years now, continue to retain government control over pricing, and made relatively little progress toward further market liberalization over the two years.

The other four—India, Indonesia, Malaysia and Thailand—capped or ended certain fuel subsidies and embraced market pricing mechanisms, albeit with varying degrees of transparency. Within this group, India made the most progress in terms of the decisiveness, clarity and transparency of the reform process, with Indonesia at the other end of the spectrum, tentative in its deregulation and back-pedaling on some of the moves, leaving the public as well as the supplier—state-owned oil company Pertamina—wrapped in uncertainty.

Malaysia extended price liberalization within the gasoline market, but with caveats. The Thai government raised the prices of LPG and NGV several times to reduce state-owned PTT's losses from selling these vital cooking and transportation fuels, but stopped short of laying out a clear deregulation strategy.

Deregulating markets also need independent market regulators with clearly defined powers and responsibilities, to ensure price adjustments are reasonable,

in line with international market movements, and not oligopolistic. This is uncharted territory for countries where decades of strong government control over oil prices has precluded the evolution of independent market oversight. A case study of Pakistan's LPG market, which was liberalized 15 years ago but now suffers from chronic supply scarcity and price volatility issues, illustrates the need for checks and balances in a liberalizing system.

Meanwhile, moves to align "sensitive" products such as LPG and kerosene to market pricing also reinvigorated efforts to better target fuel subsidies, by making the discounted product available only to the poor, rather than the entire population. In developing Asia, the need to address the shortage of energy supply among the rural poor and redirect the subsidies to them from the growing, relatively affluent middle class, makes targeted subsidy mechanisms a critical area of policy development. The paper looks at recent innovations in India in the sphere of direct transfer of benefits to the poor as a way to target LPG subsidies, which might be worth emulating.

Deregulation, Tax Hikes and Weaker Currencies Dampen Asia's Demand Response

Fuel subsidies are a tiger by the tail for emerging Asian economies, and with growing consumption and rising oil prices, the tiger has only grown bigger over the years. Yet, governments suffering billions of dollars in fiscal deficit from subsidizing fossil fuels are torn between freeing up prices to market forces and protecting their poor, even as they respond to growing environmental concerns over the indiscriminate use of oil.

Pragmatic, pro-reform decisions are susceptible to being overturned, sometimes within months, for political exigencies. At the same time, there continues to be much hand-wringing among policy makers over illegal diversion of subsidized oil products, cross-fuel adulteration, and smuggling of the cheap barrels to higher-priced overseas markets.

Governments across Asia have also been grappling with challenges of directing fuel subsidies to the needy, instead of discounting product for the well-heeled.

The typical progression of pricing reforms is from gasoline, which is now largely liberalized, to diesel, followed by LPG and kerosene. Gasoline, used by cars and two-wheelers, is not viewed as a poor man's fuel, while kerosene at the other end of the sequence is consumed for home cooking and lighting by those unable to afford or access LPG and electricity.

Meanwhile, the removal or reduction of diesel subsidies, combined with slowing demand from the industrial sector, especially in the economic powerhouse of China, dented demand for the fuel in Asia. Another factor that eroded some of the demand response to the price crash over the past two years was the weakening of the Asian currencies against the greenback (Figure 4).

A weaker home currency means refiners have to shell out more for their dollar-denominated crude purchase, whether they are buying it from domestic producers or importing it. This, coupled with deregulation, saw the prices of certain fuels across Asia sometimes actually rising to find their "market levels", even as crude was moving in the opposite direction.

At the same time, a few governments—prominently in China and India—raised fuel taxes a few times over the period, claiming some of the benefits of cheaper crude for their coffers².

China justified its fuel tax hikes as measures to promote energy conservation and reduce emissions. The country's State Administration of Taxation, acknowledging the wide attention drawn to the question of how the government would use the additional revenues, said they would be used to fund measures to tackle environmental pollution and encourage the development of "new energy" automobiles³.

While raising taxes on fuel free from state subsidies and aligned to market pricing bolsters government revenue directly at the expense of the consumer, the same

²China raised the "consumption tax" on gasoline and diesel—the largest tax component of the retail price of these products—three times between November 2014 and January 2015. The moves raised the consumption tax on gasoline by 52% from Yuan 1/liter to Yuan 1.52/liter (24 cents/liter) and that on diesel by 50% from Yuan 0.80/liter to Yuan 1.2/liter (9.6 cents/liter). China also levies value-added tax, city maintenance tax, construction tax and education surtax on oil products. The Indian government increased the basic excise duty levied on gasoline and diesel nine times between November 2014 and January 2016. The cumulative impact was a Rupees 11.77/liter (18 cents/liter) hike in excise taxes on gasoline and Rupees 13.57/liter (20 cents/liter) in excise taxes on diesel. As of June 16, 2016, taxes made up around 54% of the Rupees 65.65/liter retail price of gasoline and 46% of the Rupees 55.19/liter retail price of diesel in Delhi.

³ "State Administration Of Taxation of The People's Republic of China" Web. 15 July 2016. Xinhuanet.com: Five Questions on Adjusting Consumption Tax on Product Oil: Perspectives on New Consumption Tax Policy Due to Oil Price Dropping <http://www.chinatax.gov.cn/2013/n2925/n2953/c1465648/content.html>.

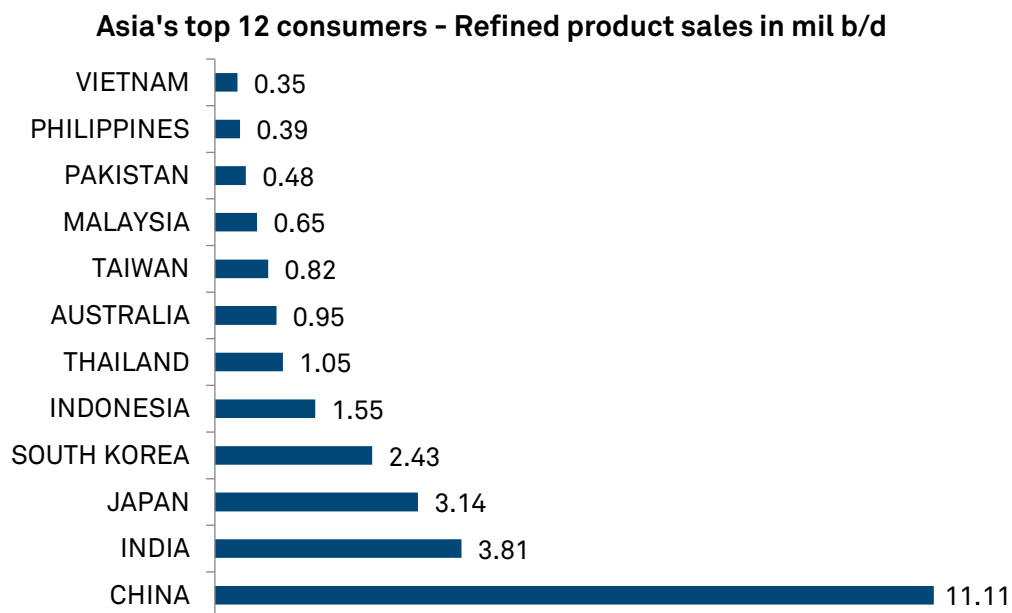
step simply amounts to re-allocation of revenue if the fuel is being subsidized by the government in the first place.

The final fuel price at the pump can include several categories of taxes, levied either as a fixed component (independent of the cost of the fuel) or as a percentage, and the combinations vary from one country to another. In India, diesel and gasoline attract fixed excise duty in rupees per liter, and a value-added tax or VAT calculated as a percentage of the price derived by adding the fuel production costs, dealer commission, and excise duty. China levies a “consumption tax” on oil products, which is fixed in renminbi per liter.

The several rounds of fuel tax hikes in China and India substantially raised the tax component of the final pump price in these countries, which means any further decrease in crude prices, and in turn fuel production costs, will filter through in a smaller proportion to the consumer.

Diesel and gasoline retail prices fall in a wide range across Asia's top 12 consumers (Figure 3).

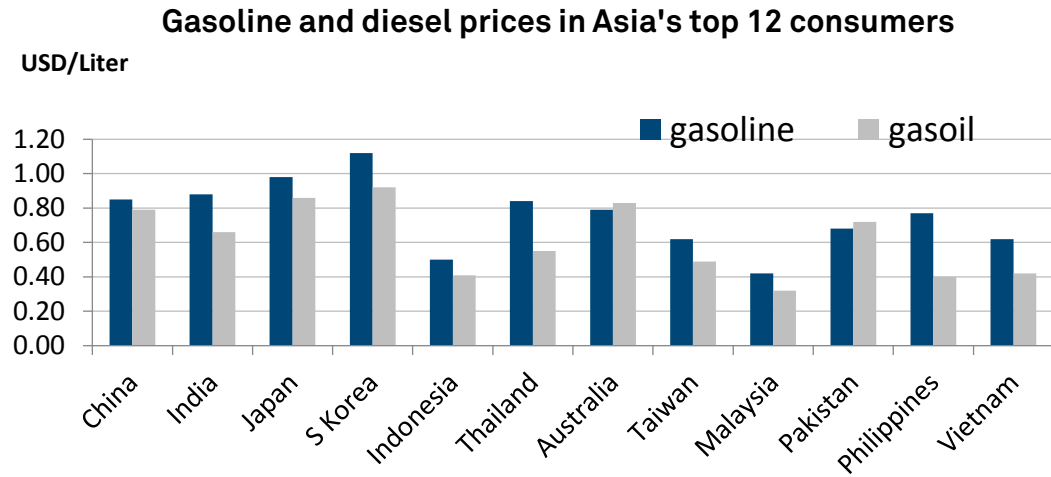
Figure 2



Source: Official data from the countries, average for 2015

Different rates of depreciation of the national currencies against the US dollar over the two years, varying degrees of government price controls, and unique fuel tax rates in each country resulted in the pump prices responding differently to crude's slump (Figures 5 and 6).

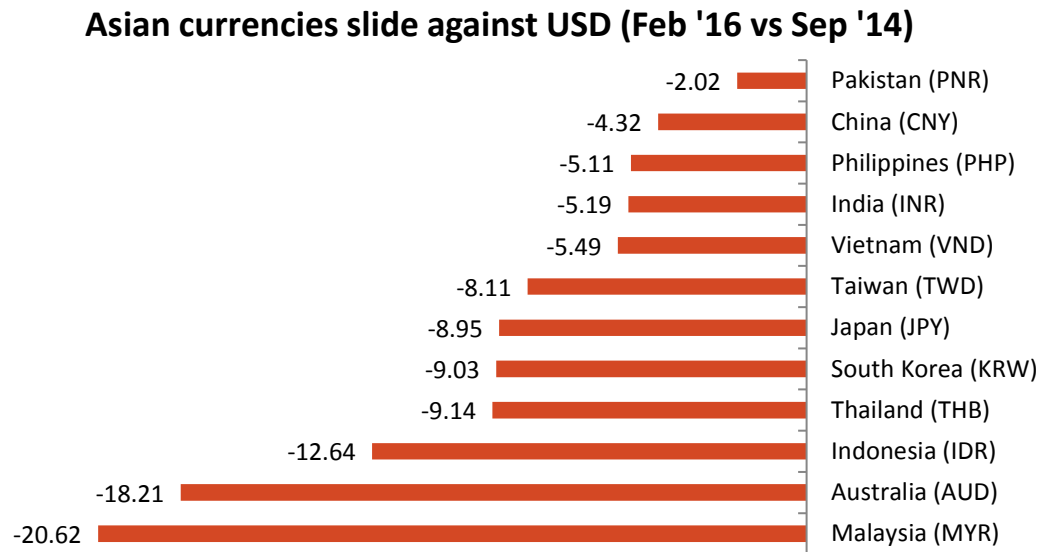
Figure 3



Retail prices, inclusive of taxes, and recorded in February 2016. The gasoline price reflects the most commonly used RON grade in that country.

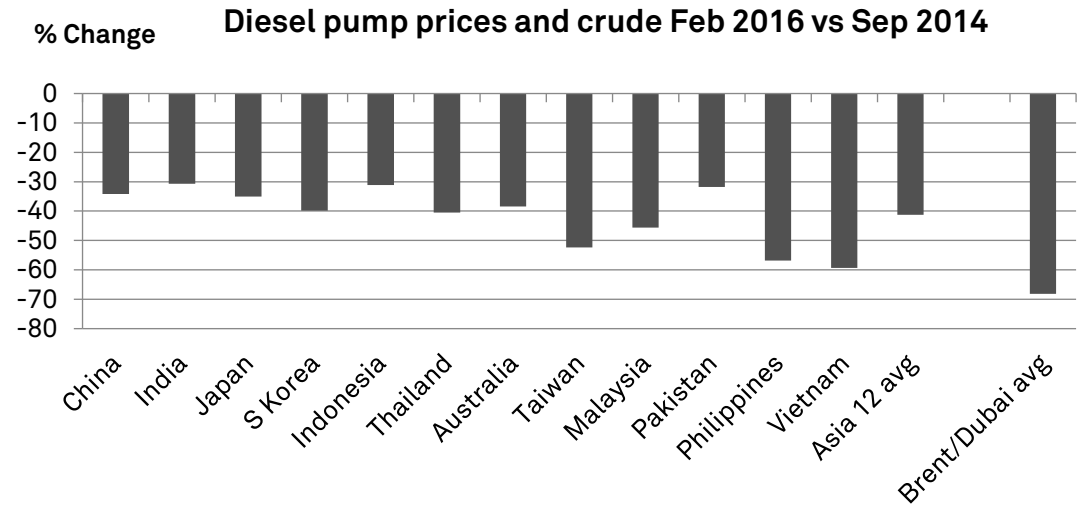
Source: Data from oil company, official and public information websites.

Figure 4



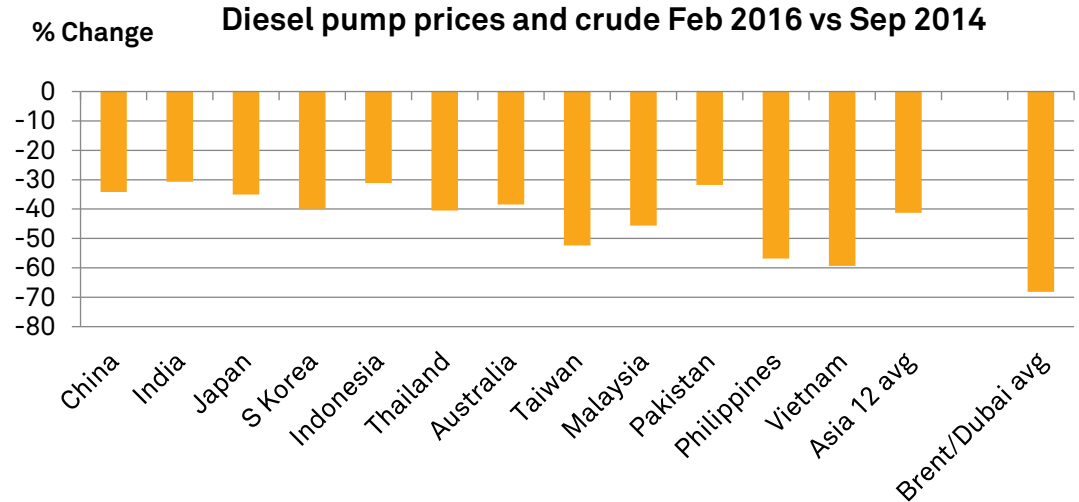
Source: www.xe.com

Figure 5



Sources: Gasoline prices from oil company, official and public information websites. Crude is average of Platts Dated Brent and Platts Dubai assessments, a proxy for Asian refiners' feedstock costs

Figure 6



Sources: Diesel prices from oil company, official and public information websites. Crude is average of Platts Dated Brent and Platts Dubai, a proxy for Asian refiners' feedstock costs

Governments Finally Get Over the

Diesel Subsidy Hump

The most noteworthy oil pricing reforms in Asia since mid-2014 have occurred in diesel. The distillate, also known as gasoil, is the biggest part of the barrel consumed in the region. It powers public transportation and the movement of goods on land, fuels the industrial, agricultural and mining sectors, and is also used for electricity generation in areas not connected to the grid or experiencing a shortage in power supply.

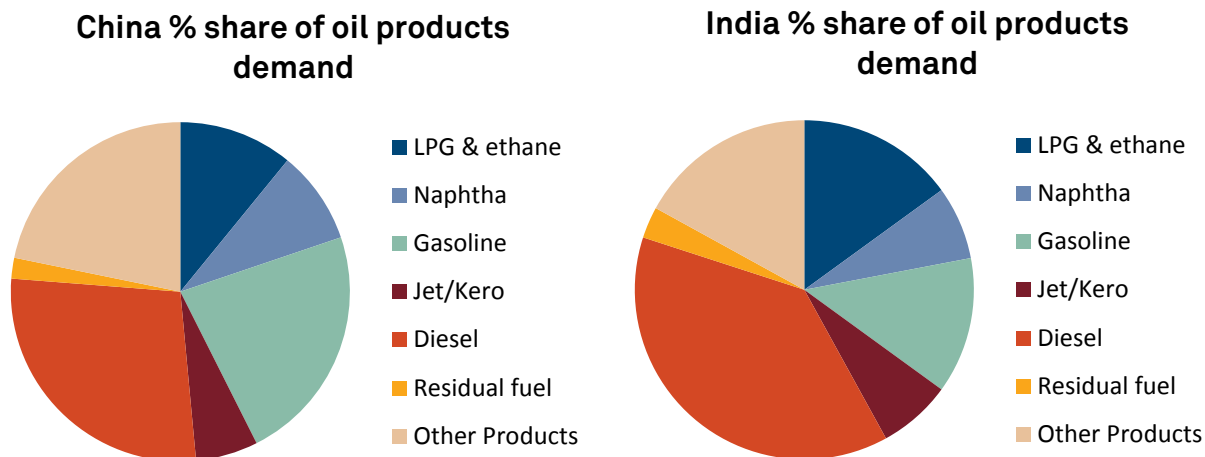
Diesel is thus regarded as the most vital fuel for the national economies, resulting in its price having been capped historically for fear of stoking inflation and derailing economic growth, not to mention avoiding the unpalatable and unpopular hikes in public transportation costs for the poor.

Diesel, gasoline, kerosene and LPG together account for around 70% of the overall refined oil products demand profile in Asia (Figure 7). The kerosene discussed in this report, though similar in specifications to the jet fuel that powers airplanes, is used for home cooking and lighting needs.

Jet fuel, along with other refined products such as naphtha and fuel oil, are “industrial” rather than consumer fuels, and not subsidized or regulated, with the exception of sales to small businesses, such as the fisheries sector, in some countries. In the case of Thailand, natural gas for vehicles or NGV (also called compressed natural gas or CNG in other countries) was included in the analysis, as it is a widely used transportation fuel in the country.

The energy needs of the countries analyzed in this paper are served by monolithic and sometimes monopolistic national oil companies, such as in Malaysia, Indonesia, Thailand and Pakistan, or by a handful of state-owned giants as in China and India. This system makes subsidies and government price controls easy to implement and sustain. Fuel subsidies in these countries, many of which were introduced during the oil price shock of the 1970s, started out as allocations from government budgets, but in recent years have been increasingly shoveled on to the oil companies.

Figure 7



Source: IEA data

Though the burden has not dented the credit profiles of the oil companies, which track the respective sovereign ratings because of the assumed strong government support, some of them have nonetheless struggled with their finances over the years. A few have suffered occasionally, like the Indian oil marketers in 2012, when the government was late with its subsidy reimbursements and their borrowings hit record highs. Some have endured pain periodically, like Indonesia’s Pertamina, which last ran out of cash to pay for its oil imports in 2005, as it waited for dues from the government. Yet others have been perennially distressed, such as the government-owned Pakistan State Oil (PSO), which has been trapped in “circular debt”⁴ for decades.

Financial stress, whether periodic or chronic, can rob the public sector oil companies of the drive to grow or become more efficient. Their lack of investment in expanding and upgrading the country’s oil and gas facilities variously leads to supply shortages, failure to advance on cleaner fuel specifications, distribution bottlenecks, and rising dependence on imports, among other problems. Indonesia’s Pertamina has struggled for years to attract investment partners to upgrade and expand its refining facilities.

The disconnect with the international market movements caused by fuel subsidies and price controls also distorts price signals at home, making financial or supply planning difficult and hedging impossible for the oil refiners and marketers.

⁴ Electricity is subsidized in Pakistan, but the government doesn’t compensate the power distribution companies fully for the difference between the cost of producing electricity and the tariff charged to consumers. In addition, the distribution companies are also owed arrears by private sector customers, as well as by local, provincial and federal government customers. As a result, the distribution companies fall short on their payments to the Central Power Purchasing Agency, which is in chronic debt to the power generation companies. The latter in turn fail to pay fully and in time for their fuel purchases.

GOVERNMENTS FINALLY GET OVER THE DIESEL SUBSIDY HUMP

Table 1: How Asia's top 10 oil consumers stack up

Country	Demand* Mil b/d	Products universally subsidized [A]	Targeted subsidies [B]	Government-controlled prices [C]	Market pricing with government control [D]
CHINA	11.11				Diesel, Gasoline ¹
INDIA	3.81	LPG ²	Kerosene	Kerosene	
JAPAN	3.14				
SOUTH KOREA	2.43	FULLY LIBERALIZED			
INDONESIA	1.55	Diesel ³ , Kerosene	Gasoline (88 RON), LPG	Diesel, Gasoline (88 RON), LPG, Kerosene	
THAILAND	1.05	Diesel, NGV, Gasohol	NGV, LPG	NGV, Gasohol	LPG
AUSTRALIA	0.95	FULLY LIBERALIZED			
TAIWAN	0.82				
MALAYSIA	0.65	LPG	Diesel		Diesel, Gasoline ⁴
PAKISTAN	0.48	Kerosene, E10		Kerosene, E10	Diesel, Gasoline

Sources: Official statistics, oil companies' reports, S&P Global Platts and other media reports

Notes

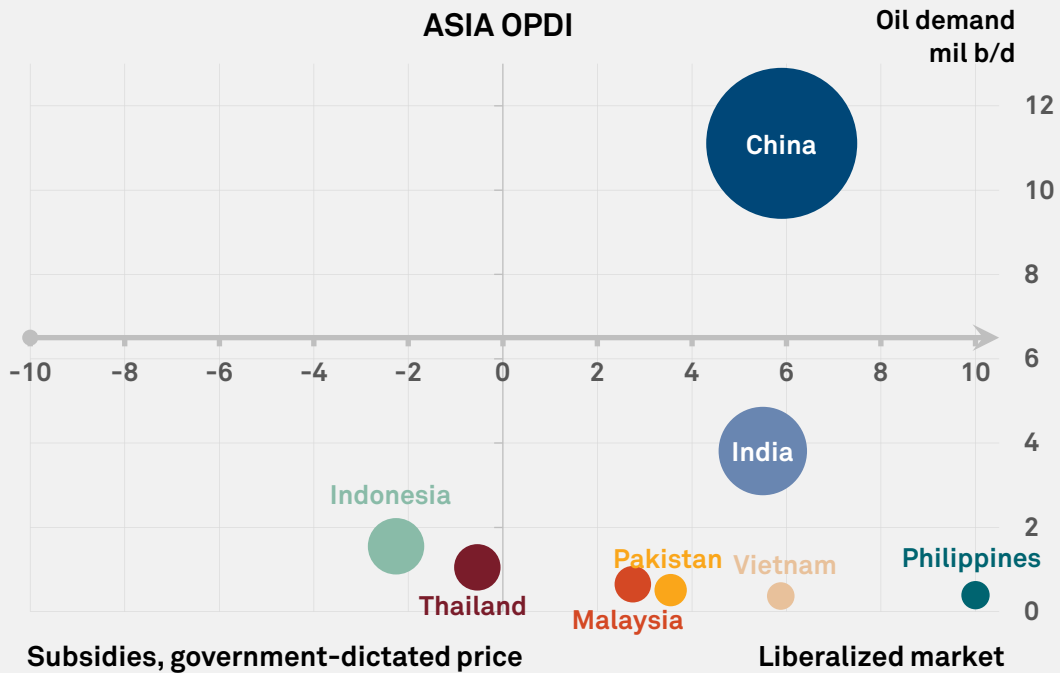
Average annual consumption as of 2015 based on official figures and reliable estimates where official data was unavailable.

Products may be subsidized either by the government or the NOCs/state-run oil companies

1. A "floor" of \$40/barrel for crude, below which product prices will not be adjusted
2. LPG cylinders for household cooking are subsidized but limited to 12 per family annually
3. Diesel subsidy amount is capped at Rupiah 1,000/l
4. Diesel and gasoline track global market pricing as long as crude is below \$80/barrel

Asia Oil Price Deregulation Index

Figure 8:



Sources: Official statistics, S&P Global Platts reports, media reports

The chart shows the degree of evolution in fuel pricing policies taking into account the four key products—diesel, gasoline, LPG and kerosene—on a scale of -10 to +10, going from an environment of across-the-board subsidies and government price controls to one of full liberalization, where the marketing companies set retail prices competitively, based on market forces, without any interference from the government.

Methodology:

- Maximum points were accorded for full liberalization, weighted by the fuel's typical share in the region's overall consumption: Diesel (4.7), gasoline (2.6), LPG (1.8) and kerosene (0.9). The points were halved if the country follows market pricing, but with government controls on price adjustments. Negative points were assigned for universal or substantial subsidies on each product (-4 for diesel, -2.6 for gasoline, -1.8 for LPG and -0.9 for kerosene), with half those for partial or targeted subsidies. For the purpose of this exercise, whether a product price is discounted by the government or by the NOCs/state-owned oil and gas companies, it was treated as subsidized.

as it is a mainstream transportation fuel. Also, while the 95 RON gasoline market is liberalized, the ethanol-

- In the case of Thailand, NGV subsidies were factored in,

blended grades gasohol 95 and gasohol 91 are subsidized and this was taken into account.

- China's points for a liberalized LPG market were partially discounted because more than half the country's household cooking needs are met by piped natural gas, which has been under strict government price controls, and which has often been priced well below the benchmark natural gas or LNG prices.
- Pakistan's points for a liberalized LPG market were partially discounted because over the years the government has intervened to dictate the pricing mechanisms, and in a draft policy unveiled in 2015, has proposed bringing domestically produced LPG back under regulation, with a fixed price

India Steals a March Over its Regional Peers

In terms of the magnitude and decisiveness of fuel pricing reforms over the past two years, India has marched ahead of its Asian neighbors. The strong mandate that swept the National Democratic Alliance into power in May 2014, undoubtedly helped the process, alongside the crash in world oil prices in the months that followed. Fuel price hikes, or the removal of subsidies, often viewed as two sides of the same coin, are a political minefield in India, as in several other Asian countries. Governments are typically torn between their wish to embrace market pricing for fuels and their desire to remain in power. By removing fuel subsidies, they risk electoral defeat, or worse, public backlash.

The differences between the countries with regard to how the four refined products are priced, including varying degrees of government control and the presence of partial and targeted subsidies, makes comparing them on an aggregate scale difficult. Not only do their consumption levels range between a high of more than 11 million b/d for China and a low of less than 400,000 b/d for Vietnam, but their political and demographic environments are also vastly different, as are the size of their GDP and economic growth rates.

For the purpose of this report, the countries were evaluated on the metrics of fuel market pricing, as it has evolved from state subsidies and strict government price controls, to a fully liberalized market, in which the oil marketers independently set and adjust retail prices in a transparent manner.

The Philippines and Vietnam have been included in the index for reference. The Philippines, with an average oil consumption of around 400,000 b/d, was the first emerging economy in Asia to fully liberalize its downstream oil markets and along with it, fuel pricing, by passing the Oil Deregulation Law in 1998. A major impetus for this landmark legislation was the government's desire to no longer

carry the burden of the Oil Price Stabilization Fund, which had been established to smooth price fluctuations, but threatened to balloon to a deficit of more than Peso 8 billion (about \$196 million at the time) in 1998.

The government said it wanted to direct its spending instead to things like building vital infrastructure facilities in the country. That turning point not only demonstrated political vision and will, but was also an important lesson in communicating major policy decisions on sensitive matters to the public—in this case not only at the time of the change, but repeatedly and persistently over the years, especially every time Filipinos were up in arms over spikes in local pump prices that were tracking international markets.

With the slide in global prices filtering through to its domestic fuel prices in 2015, the Philippines saw a 15% year-on-year rise in its gasoline consumption, 11% in diesel use and 14% in LPG demand, according to figures from the local oil major Petron. The corresponding year-on-year increases had been in the 3-6% range in 2014.

Vietnam is just behind the Philippines in its oil consumption, and also scored well on the fuel price liberalization index, having fully liberalized LPG pricing and pegged its diesel, gasoline and kerosene retail prices to the Singapore spot refined product benchmarks⁵, albeit with the oil marketers needing the approval of the Ministry of Industry and Trade for their fortnightly price adjustments if they entail an increase of 3-7%. Price hikes of more than 7% need the prime minister's approval before they can be implemented.

The security of political power, however, did not work the same way in Thailand, where a military junta-led government that took the helm in May 2014 following a coup, initiated fuel pricing reforms at a far more cautious pace and offered little communication regarding the roadmap to full liberalization.

Indonesia, where President Joko Widodo took office in October 2014 with the promise of a strong economic reforms agenda, had the most fuels still under subsidies and government price controls as of mid-2016. The Jokowi administration backpedaled on reforms and moved goalposts along the way, on a convoluted and slow path to liberalization.

The sequencing of the liberalization process, though broadly similar across the countries, has had its national nuances. Though gasoline was the obvious first candidate for deregulation over the years, countries such as Indonesia and Malaysia made a distinction between premium material like 97 or 98 RON, which is typically used in newer cars, and lower octane gasoline, which is presumed to be used by the millions of two-wheelers on the countries' roads. Malaysia in December 2014 put 95 RON under a "managed float"

⁵ Vietnam uses the monthly average of Mean of Platts Singapore or MOPS assessments.

pricing system alongside 97 RON, which had been deregulated in 2010. Indonesia ended government subsidy on 88 RON in most of the country from January 2015, though the price remained far from being fully deregulated.

India fully deregulated diesel used in the transportation sector in October 2014, while the Indonesian government capped its diesel subsidy at Rupiah 1,000/liter (6.4 cents/liter). Equivalent moves in Thailand would have applied to LPG and NGV as the widely used transportation fuels, but these continue to be priced below market levels, while diesel price remains firmly capped.

The two products still lagging on the path to full liberalization in a few countries are kerosene and LPG. Kerosene is commonly used for home cooking and lighting by the poor across the region, with the exception of China, while LPG is widely used as cooking fuel by the middle- and higher-income families. Several governments intend to push through with pricing reforms in both these fuels, even as they strive to get the poor to switch from kerosene and biomass to the cleaner-burning LPG. This needs refinement of existing modes of targeting subsidies, which range from direct cash transfers and smart cards, to the provision of smaller cylinders that require less cash outlay. Section 3 looks at India's success with refining and implementing a "direct benefit transfer" scheme for subsidized household LPG cylinders.

Meanwhile, price deregulation has thrown up new questions around who makes the fuel price adjustments, how, and when. The countries vary in the clarity and transparency established around the build-up of the final retail price of fuels. India provides full information on the retail price formation of each fuel, including the constituent components of the price formula, to the public, along with every price adjustment. None of the other countries have this level of transparency, though the governments of Indonesia, Malaysia, Pakistan and Vietnam have all made public their formulae for determining fuel price adjustments.

A pricing benchmark that is clearly identified and adhered to, not only engenders trust among the consumers, but makes price movements easier for the governments, regulators and oil marketers to explain. Equally importantly, it enables the country's oil importers, refiners and marketers to hedge their physical positions in the derivatives markets and use the available forward price curves around the physical benchmarks for financial and trade planning. Case Study I takes a look at Pakistan's LPG market liberalization 15 years ago gone awry in the absence of a clearly established pricing mechanism and effective regulatory oversight, prompting the government to contemplate a return to regulation.

As the remaining regulated products move from universal to targeted subsidies (from column A to B in Table 1), honing the mechanics to ensure that the subsidies reach the intended recipients instead of being diverted through corruption and market malpractices, is becoming increasingly crucial. The importance of establishing

independent market regulators with clearly defined powers and responsibilities to ensure the efficient working of liberalized markets can hardly be over-stated. Regulators could also help oversee the smooth operation of targeted subsidy schemes.

Finally, several governments have still to find a way out of “conditional deregulation” —officially ending fuel subsidies and embracing market-pricing, but retaining the final say on price adjustments. This simply pushes the burden of under-recoveries from the state budget to the country’s refiners and fuel retailers, exposing them to uncertainty and financial strain.

Table 2:

Country	Main Refiners and Oil Marketers
China	China National Petroleum Corp., Sinopec, CNOOC
India	Indian Oil Corp., Bharat Petroleum corp., Hindustan Petroleum Corp.
Indonesia	Pertamina
Thailand	PTT
Malaysia	Petronas
Pakistan	Pakistan State Oil

The Road to Liberalization

China

Current pricing mechanism: The government sets retail diesel and gasoline prices for the public and for military and other special uses, based on the movement of a basket of unspecified crudes, said to be reflective of Chinese crude import costs, over a period of 10 working days. The National Development and Reform Commission, China’s de facto energy policy-maker and regulator, adjusts prices based on changes in the value of the crude basket, unless the cumulative movement is less than Yuan 50/mt (about \$1/barrel), in which case it is rolled over to the next adjustment, or in “exceptional circumstances”, when prices are not adjusted. The Yuan 50/mt threshold is meant to minimize price volatility in the domestic market, while conditions for making exceptions—either by way of not reflecting the entire movement in the crude basket or suspending an adjustment altogether—include controlling inflation, cushioning domestic consumers from the impact of major spikes in the world market, and emergency situations. LPG and kerosene prices in

the domestic market are fully liberalized.

Oil price reforms since mid-2014:

March 2015: NDRC ends the practice of setting a cap on jet fuel prices on a monthly basis, freeing state-owned oil suppliers to set their own prices. For three years prior to this, NDRC was issuing the price at the start of each month, calculated transparently from a formula using the average of Platts FOB Singapore jet fuel assessments, freight from Singapore to China, insurance cost factored in at \$2/barrel, 17% VAT, and port dues totaling Yuan 50/mt (\$8/mt). So this was largely a symbolic move.

January 2016: Government puts a \$40/barrel floor under the international crude basket reference price it uses, saying any declines below that will not be passed on to retail diesel and gasoline prices. This is aimed at protecting the domestic refiners. The country has had a ceiling of \$130/b in place since March 2013, when the current product pricing mechanism was introduced.

The government also says it plans to set up a fund to absorb the surplus generated from suspending price reductions, which will be used to strengthen oil supply security, upgrade oil products, and improve emission standards.

January 2016: Ex-refinery LPG price is fully liberalized. NDRC ends the practice of setting a ceiling price for LPG at the refinery gate, which was calculated as 89% of the price of 90 RON gasoline for military use. In actual practice, though, the ex-refinery LPG price seldom reached the ceiling as refiners aimed to remain competitive with imported LPG.

Pros and cons of the current system: While consumers are protected in the event of international prices climbing above \$130/b, refiners would still need to procure their crude at those prices, and their inability to pass through the higher costs would cut into their margins. Refiners are cushioned from any drop in product prices below those corresponding to \$40/barrel crude, but that prevents demand from responding to price signals from the global market. Chinese oil companies complain that the one-size-fits-all national prices issued by the government do not reflect local supply-demand balance, neither do they take into account the regional and seasonal differences within China. Industry experts also point out that a viable alternative needs to be in place before the government can give up its role of setting guidance retail prices—in the absence of any competition, it is feared that the state-owned oil companies would be able to monopolize and withhold supply to drive up prices.

Future plans: On January 4, 2015, the NDRC removed government controls on the

price of 24 commodities and services including tobacco, railway cargo and port service fees. But it did not touch diesel and gasoline. In May 2015, it launched public consultation on a plan to further slash the list of commodities and services for which it dictates domestic market prices. Refined oil products did not feature in

that list either, but an NDRC statement said the government would keep the current pricing mechanism for oil products intact until the time is right for liberalization, keeping China's overall structural reform agenda in view.

Level of transparency: Low

The composition of the crude basket that determines the NDRC's price adjustments has not been specified. The value of the crude basket or the fluctuation from the previous 10-day monitoring period is not disclosed either. Other components of the formula, if any, are not known.

India

Current pricing mechanism: Retail prices of diesel, gasoline and unsubsidized kerosene sold outside the public distribution system (PDS) are set by the three oil marketing companies: Indian Oil Corp., Bharat Petroleum Corp., and Hindustan Petroleum Corp. The changes are notified on their websites, with the price build-up detailed by the value of each component in the formula, including taxes, dealer commission, and the applicable rupee-US dollar exchange rate. The base cost-and-freight value of the product is derived from the monthly average of physical spot market price assessments in Singapore and the Middle East by price reporting agencies Platts and Argus. The price adjustments of LPG cylinders and kerosene for household use, both of which are subsidized and controlled, are also indicated on the OMC websites. Information on the price build-up of the two products as well as the subsidy component in LPG and "under-recovery" on kerosene is published on the website of the government's Petroleum Planning and Analysis Cell. The discount on kerosene below the market price is a loss the OMCs take on their books, and is tagged as "under-recovery".

Oil price reforms since mid-2014:

October 2014: Diesel is fully liberalized, with no more subsidies and no government price controls.

February 2015: Unsubsidized kerosene (sold outside the PDS) is freed from government price controls to improve availability in the open market for

legitimate industry and individual consumption needs. PDS kerosene is colored blue, while the unsubsidized product is colorless.

Pros and cons of the current system: The OMCs have been able to put the under-recoveries from selling subsidized diesel behind them, as have the state-owned oil and gas production companies such as Oil and Natural Gas Corp. and GAIL, which were earlier made to share some of that burden. The companies are also able to manage their finances better as they do not have to wait for the government to pay the subsidies, or accept government “oil bonds” in lieu, which they received as compensation in previous years. But the OMCs still have to bear the losses from selling subsidized kerosene and wait for government reimbursement of LPG subsidies. In previous years, delays in subsidy reimbursements from the government forced the OMCs into the debt market, adding to their borrowing costs. The two-tier pricing of kerosene and LPG leaves the door open for illegal diversion of the subsidized product.

Future plans: The government has capped the annual provision of subsidized LPG cylinders for household use at 12 per family and plans to gradually reduce this number. Through its new LPG direct benefit transfer scheme that prices cylinders at market rates at the point of sale and transfers the subsidy amount directly into the consumer’s bank account, the government has also managed to persuade millions of well-to-do consumers to give up LPG subsidy. In the next phase of weaning the affluent off LPG subsidies, those with an annual income of more than Rupees 1 million have been asked to opt out initially, with the cut-off planned to become mandatory later. The government has also launched a drive to replace the use of kerosene and biomass used for cooking in poor, rural households with LPG by offering financial incentives and smaller, 5-kg cylinders that require a smaller cash outlay.

Level of transparency: High

The formula used for the price formation of all four products is made public, and so are the price adjustments, detailing the changes in the values of each component as well as the subsidy amount where applicable.

Indonesia

Current pricing mechanism: High-octane gasoline grades 92 RON and 95 RON are fully liberalized, though susceptible to government price intervention. The lower-octane 88 RON, which is the dominant gasoline grade consumed in Indonesia, follows market pricing in theory but not in practice on the populous islands of Java, Madura and Bali, with government price controls and ad-hoc adjustments the norm. Outside the three main islands, the grade is subsidized. Diesel follows market pricing in theory but not in practice, owing to ad-hoc price adjustments by the government, which do not always

track the global markets. It enjoys Rupiah 1,000/liter government subsidy. The 12 kg LPG cylinders for household use are not officially subsidized, but because of strict government price controls, state-owned Pertamina sells them at a loss. The 3 kg LPG cylinders specifically aimed at the poorer families under the government's kerosene-to-LPG conversion program, are subsidized from the government's budget. Kerosene is universally subsidized, for all consumers.

Oil price reforms since mid-2014:

November 2014: President Joko Widodo's government hikes 88 RON prices by 30.7% to Rupiah 8,500/l (68 cents) and gasoil by 36.3% to Rupiah 7,500/l.

December 2014: Widodo announces an end to government subsidies on 88 RON gasoline in Java, Madura and Bali (essentially shifting the burden of any under-recoveries to Pertamina). He also introduces a "fixed" subsidy of Rupiah 1,000/liter (6.4 cents/liter) on gasoil effective January 1, 2015, which also means any additional under-recoveries will have to be borne by Pertamina. Oil companies are allowed to set their profit margins 5-10% above the government-set "basic price" of 88 RON. The basic prices are to be set on a fortnightly basis.

Mid-2015: Government decides to adjust 88 RON, diesel and kerosene prices once every three months instead of fortnightly. It also orders Pertamina to halt its fortnightly adjustment of high-octane gasoline prices.

Pros and cons of the current system: Subsidies on low-octane gasoline help ensure it is affordable for the middle-income consumers and is available in even the far-flung parts of Indonesia, an archipelago of over 17,000 islands and the world's third-largest two-wheeler market, even after incurring all the transportation costs. Market pricing of the higher-octane gasoline grades ensures a profit margin on the products for Pertamina as long as the government does not re-impose price controls. The high-octane gasoline market has attracted competition, with Shell and Total setting up stations to retail the grades, though a third newcomer to the market, Malaysia's Petronas, was forced to shut its petrol stations and withdraw in 2012 due to lackluster sales. Despite the government's pledge to peg diesel and 88 RON prices to the Platts Singapore spot market benchmarks, price adjustments have been ad-hoc, not fully tracking the overseas movements. Years of subsidies on gasoline, diesel and kerosene have led to routine smuggling of the product out of Indonesia into neighboring countries⁶.

Future plans: The government has not said how it plans to move ahead on pricing reforms. In January 2016, it decided to postpone implementation of a fund to be

⁶ <https://www.facebook.com/AsianDevBank>. "Fuel Smuggling: 12 Things to Know." *Asian Development Bank*. 05 Apr. 2016. Web. 15 July 2016. <http://www.adb.org/news/features/fuel-smuggling-12-things-know>.

built from an “energy security levy” of Rupiah 300/liter (2.2 cents/l) on diesel and Rupiah 200/liter on gasoline and jet fuel, which has been conceptualized to help fund the development of renewable energy, the building of strategic oil reserves, and to improve access to electricity in the country.

Level of transparency: Low

The price formula adopted for retail price adjustments of diesel and unsubsidized 88 RON gasoline has been made public, but how its value has fluctuated on the basis of movements in the underlying benchmark is not disclosed. In practice, the frequency and quantum of price adjustments is unpredictable and entirely at the government’s discretion. How the retail price of the subsidized 3 kg LPG cylinders is derived and the extent of the subsidy is not made public. Though Pertamina is theoretically free to set the price of the unsubsidized 12 kg LPG cylinder, the government, on occasion, has restrained it from increasing the rates, forcing it to sell the product at a loss. As the subsidized 3 kg cylinders are freely available to all consumers, its demand spikes when Pertamina raises the price of the bigger cylinder. Subsidized kerosene price has been fixed at Rupiah 2,500/liter (19 cents/l) until further notification, implying complete disconnect with market forces. Pertamina also does not make public the calculations for its 92 and 95 RON gasoline and unsubsidized LPG price adjustments.

Thailand

Current pricing mechanism: Automotive diesel has been capped at Baht 30/liter (84 cents/l) since 2010. 95 RON gasoline is fully liberalized, but the gasoline-ethanol blends Gasohol 95 and Gasohol 91 are subsidized. NGV prices were conditionally floated in January 2016, with PTT asked to maintain a cap at Baht 13.50/kg (38 cents/kg) until mid-June. Kerosene prices are fully liberalized. LPG is a complex market in Thailand, being used in household cooking, transportation, industrial, and petrochemical sectors. LPG is now sold at a “pool price” that broadly tracks international markets. Products are subsidized through an oil price stabilization fund (“Oil Fund”) and tax exemptions.

Oil price reforms since mid-2014:

August 2014: Government begins eliminating cross-subsidies between gasoline and diesel by cutting the Oil Fund levy and other taxes on gasoline and raising the taxes on diesel. An Oil Fund levy on gasoline was previously being used to subsidize diesel.

October 2014: LPG price for the transport sector is raised twice to harmonize it with the rate for the household cooking sector. This is also aimed at preventing the lower-

priced LPG meant for the transport sector from being diverted to household use.

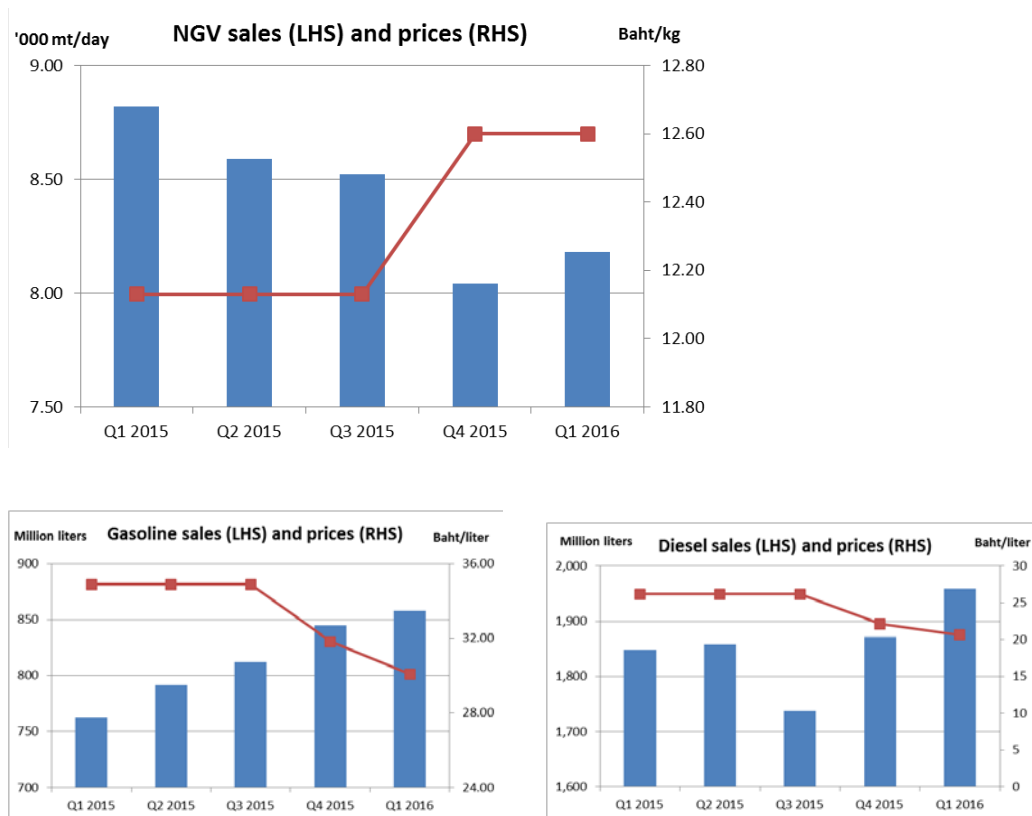
October 2014: NGV price is raised by Baht 1/kg to Baht 11.50/kg to start narrowing the gap with PTT's production cost of Baht 16/kg, though NGV for public transportation continues to be subsidized at Baht 8.50/kg. Prices are raised three more times to September 2015, reaching Baht 13.50/kg.

February 2015: LPG price reforms equalize rates for household, transportation and industrial sectors. Prices are converged to a "pool price" calculated as 54% PTT's gas separation plant price, 27% PTT's ex-refinery price, and 19% import price. The GSP price would be based on PTT's costs and reviewed every three months. The other two are linked to the official Saudi LPG Contract Price and adjusted on a monthly basis: the ex-refinery price being Saudi CP minus \$20/mt and the import price being Saudi CP plus \$85/mt.

January 2016: NGV prices are floated, but with a ceiling of Baht 13.50/kg for private vehicles until July 15, 2016. NGV for public vehicles remains fixed at Baht 10/kg. Prices are to be reviewed on the 16th of every month, and PTT is required to reduce them if costs come down.

February 2016: Energy Policy Administration Committee withdraws a Baht 0.70-2/kg LPG subsidy given to PTT.

Figure 9: Thai demand response to prices



Thai gasoline and diesel sales have climbed as prices dipped in line with the international markets, while NGV sales have dampened on the government’s successive price hikes since late 2014.

Source: PTTplc.com. Investor Relations. Analyst Meeting 1Q/2016.

<http://ptt.listedcompany.com/misc/PRESN/20160523-ptt-am1q2016-02.pdf>

Pros and cons of the current system: Removing an arbitrary \$333/mt ex-refinery price cap on LPG and pegging monthly adjustments to the Saudi CP eases PTT’s losses on sales of the gas, and should encourage enough imports to meet the country’s growing demand. Harmonized LPG pricing for the household and transport sector averts illegal diversion of subsidized cylinders. NGV is not subsidized by the government, so allowing it to rise to Baht 13.50/kg narrows PTT’s losses from selling the fuel below cost.

Future plans: The government intended to float the NGV price from July 16, 2016, when the existing Baht 13.50/kg ceiling is lifted. But how and at what frequency NGV prices will be adjusted after that is not clear. After having pegged domestic LPG prices to the international markets and pulled the plug on LPG subsidy that was being paid to PTT, the government wants to end PTT’s monopoly on LPG imports and

hopes to once again attract new players into this business. There is no roadmap for the phasing out of gasohol and diesel subsidies.

Level of transparency: Low

The government has moved toward transparent pricing formula with a clearly defined price adjustment cycle for LPG, the most crucial product that needed price rationalization, alongside the promised floatation of NGV prices from mid-July 2016. However, there is no word on how NGV will be priced. The mechanism for pricing the other fuels—gasoline, gasohol and diesel—also remains obscure.

Malaysia

Current pricing mechanism: “Managed float” system used for pricing diesel and gasoline (95 as well as 97 RON), which is pegged to Platts Singapore spot market assessments, as long as crude is below \$80/barrel. Diesel has targeted subsidies for some vehicles and fishermen. LPG is subsidized by the government.

Oil price reforms since mid-2014:

December 2014: 95 RON gasoline and diesel prices switched to a “managed float” system that tracks monthly changes in the Platts Singapore spot market assessments, as long as crude is below \$80/barrel.

Pros and cons of the current system: The absence of subsidies and tracking international market prices for gasoline and diesel prevents market distortion, though the targeted diesel subsidy for specific vehicles and fishermen leaves room for illegal diversion. The government continues to shoulder the burden of LPG subsidies. As is the case with Indonesia, subsidized fuel is also smuggled out of Malaysia.

Future Plans: The government has said it will need to “rationalize” subsidies by targeting them at the lower-income consumers if crude rises above \$80/barrel, but has not offered details of how that will be accomplished. There is talk of a multi-tiered fuel subsidy scheme based on household income levels and consumption quotas, though that could be difficult to implement. Another option available to the government is direct cash transfers through the BR1M program, a welfare fund for the poor.

Level of transparency: Low

Though gasoline and diesel price adjustments under the managed float system are pegged to the Singapore spot market, details of the formula have not been made public.

Petronas does not publish the latest fuel prices, and consumers have no way of knowing how the adjustment is derived. The LPG price build-up is similarly opaque.

Pakistan

Current pricing mechanism: Gasoline and diesel prices are pegged to international market movements, but not fully liberalized. Pakistan's OMCs are required to compute the prices every month on the basis of a government-set formula, which uses PSO's actual product import prices of the previous month and if those are not available, the "Import Parity Price" calculated from the Mean of Platts Arab Gulf (MOPAG) assessments. These prices need to be approved by the government, which on occasion rejects proposed increases, forcing a rollover. Prices of kerosene and E10 or 10% ethanol-blended gasoline, which are typically at a slight discount to regular gasoline, are computed and notified by the Oil and Gas Regulatory Authority on a monthly basis, with the price build-up detailed on its website. OGRA also calculates and announces the monthly inland freight component of diesel, 87 RON gasoline and E10 as well as kerosene retail prices on a monthly basis. LPG prices are fully liberalized, though that is currently under review (see Case Study I on page xy).

Oil price reforms since mid-2014:

2015: Government drafts an LPG (Production and Distribution) Policy, 2015, which proposes to bring prices of domestically produced LPG back under regulation, and to be notified by OGRA, while the pricing of imported LPG will remain deregulated. A new levy on indigenously produced LPG is proposed to level its prices with imported gas, which incurs freight and other costs. This is aimed at encouraging imports in order to plug supply shortages in the domestic market. It also proposes to earmark indigenous LPG production for household and commercial users, while directing the imported material to the transport and industrial sectors. Details and progress of the draft remain sketchy, with media reports saying OGRA has expressed serious reservations. See Case Study I on page 30.

Pros and cons of the current system: Though the formula price for the deregulated products follows movements in the Arab Gulf market, the government having the final say on price adjustments ties the hands of the OMCs and may result in under-recoveries if they are denied proposed increases. The formula includes a fixed marketing margin for the OMCs, in rupees per liter, which is regarded as insufficient to incentivize investment in infrastructure, and ignores regional and seasonal variations in supply-demand dynamics within the country. Liberalization of LPG prices, now in place for more than 15 years, has failed to address frequent supply shortages and OGRA does not have the power to enforce "reasonable" prices. There are incidents of subsidized kerosene being illegally spiked into gasoline, to arbitrage the price differential between

the two fuels, which, based on June 2016 rates, was as much as Pakistan Rupees 21/liter (20 cents/l).

Future plans: The government needs to work through its challenges on LPG pricing and ensuring adequate supply. It has not laid out any plans for the deregulation of kerosene and E10. The government in February 2016 held discussions with the local refiners, urging them to switch over the predominant gasoline supply in the country from 87 RON to 92 RON or higher. The refiners cited several challenges, ranging from lacking funds to upgrade their facilities to produce the higher-octane product, to government restrictions on importing finished 92 RON gasoline, and the price-sensitivity of two-wheeler drivers, which are said to account for more than half of the country's gasoline demand⁷.

Level of transparency: Medium/High

There are at least 14 major oil marketing companies, and their gasoline and diesel prices effective the start of each month are listed on OGRA's website, including details of the price build-up, based on the government-set formula. OGRA also publishes the price build-up of the regulated products E10 and kerosene. It lists the LPG prices of the independent distributors of the fuel in the country, but the public has no information on how those are derived.

⁷ Kiani, Khaleeq. "OMCs Resist Proposal to Sell Superior Petrol." *www.dawn.com*. 29 Feb. 2016. Web. 15 July 2016. <http://www.dawn.com/news/1242625>.

Case Study I

The Pitfalls of Price Liberalization

Pakistan deregulated its domestic LPG market relatively early, in 2000, giving producers and marketers the freedom to set what the government called a “reasonable” producer price and retail price respectively for the product. The move was part of broader fuel pricing and downstream oil industry reforms rolled out that year.

These included allowing licensed OMCs to import refined products and replacing years of tight government control with an Import Parity Pricing formula that linked domestic diesel and gasoline prices to published Middle East oil market benchmarks, but keeping price adjustments subject to final government approval.

In 2003, OGRA, which had been established the previous year, was given regulatory oversight of the LPG market, where the government wanted to encourage infrastructure investment and private sector participation. However, on pricing, OGRA's powers were confined to issuing advisories to provincial governments to intervene if the prices were deemed to be unreasonably high.

LPG is used in Pakistan as household and commercial cooking fuel, supplementing piped natural gas, as well as in the industrial and automotive sectors. Its demand from the auto sector has been growing, spurred by frequent supply shortages of gasoline and CNG, or simply as a cheaper alternative to these fuels.

The government, through its equity in companies such as the Oil and Gas Development Corporation, Pak-Arab Refinery, and Pakistan Petroleum Limited, is indirectly the largest producer of LPG in the country, which comes from natural gas fields as well as oil refineries. The country has several independent LPG importers and distributors.

Pakistan's LPG imports have been rising rapidly, especially since 2014. It imported 245,578 mt of LPG in 2015, according to OGRA data, to supplement 629,509 mt of domestic production, a ratio of about 28:72. During January to May 2016 alone, the country had imported 196,782 mt of LPG, with domestic output at 274,366 mt, a ratio of about 42:58. A lot of the cheaper LPG coming into Pakistan from neighboring countries is said to be substandard product of low calorific value and containing sulfur and other impurities.

OGRA banned the use of LPG in public transportation such as auto-rickshaws, taxis, vans and buses in 2014, citing safety concerns. But these vehicles are served by a thriving illegal decanting industry, where fatal accidents caused by faulty equipment are a routine occurrence.

While Pakistan's transition to market-linked pricing for oil products at the turn of the century was a progressive move, the gulf it created with subsidized natural gas prices led to a switch from oil to gas by the power and transport sectors, in turn boosting demand for domestic gas production, which has been declining. Domestic natural gas output has stalled at 4.2 Bcf/day, while demand has jumped to 6.2 Bcf/d during summer, and ranges between 6.6 and 6.8 Bcf/day in winter.

The country suffers shortages elsewhere, too. The latest petrol shortage crisis to hit Pakistan was in early 2015 as declining oil prices boosted demand, but the dominant supplier, state-owned PSO, ran out of cash to pay for additional supplies, thanks to its circular debt problem. The shortage prompted another wave of vehicles switching to LPG.

Pakistan's gasoline demand has been growing at double-digit rates annually since 2009, and spiked 22.4% in the fiscal year ended June 2015, according to data from the Oil Companies Advisory Council, an organization representing the country's downstream players. OCAC projects consumption of gasoline, which represents a fourth of Pakistan's total liquid fuels demand, will climb a staggering cumulative 46% over the next five years, to fiscal 2019-2020.

Energy shortage is the biggest constraint to Pakistan's economic growth, according to the Petroleum Institute of Pakistan⁸. The country's primary energy deficit ballooned to 7.6 million mt of oil equivalent in 2014 against an estimated demand of 74.4 mtoe/year, according to the institute, which blames "pricing anomalies" for the chronic gas and power shortages.

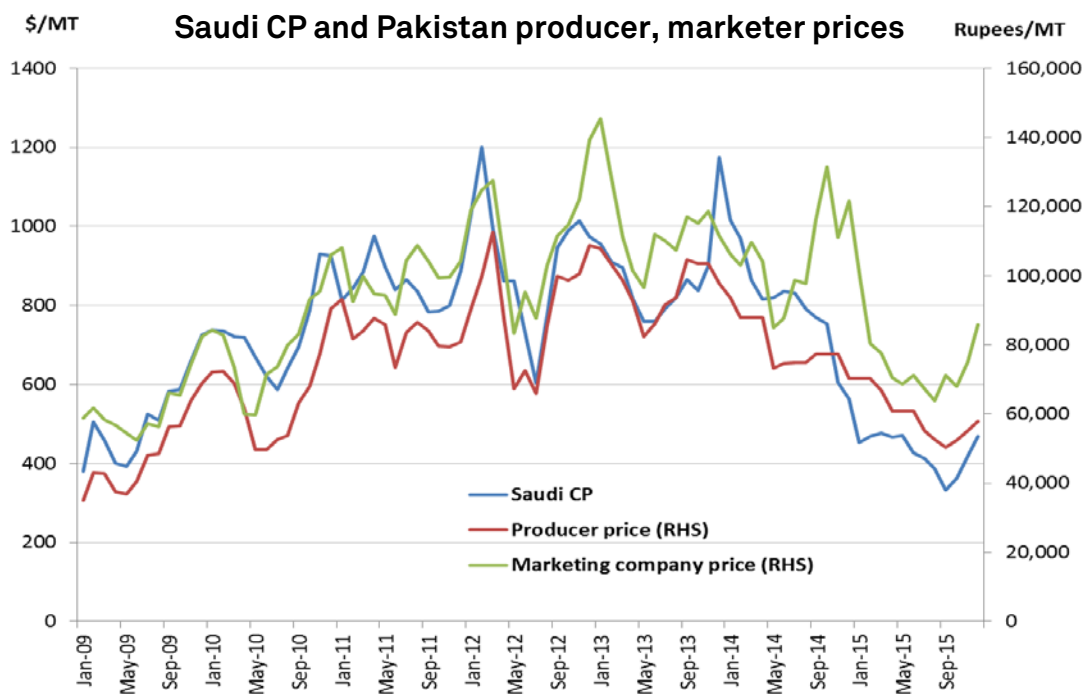
The familiar balancing act of ensuring that LPG cylinders are affordable for the poor and yet priced at levels that encourage the growth of domestic production and sustain imports to meet any supply gaps, has prompted several policy tweaks over the past 15 years. These have included moves to impose new levies on domestically produced LPG and linking price movements to an international benchmark.

In January 2007, the government implemented Import Parity Pricing for indigenous LPG in a bid to level the playing field with the higher-cost imports, which incur additional expenses of freight, import taxes and terminal charges.

⁸ "Pakistan Energy Outlook 2015 - Highlights." *Petroleum Institute of Pakistan*, 25 Nov. 2015. Web. 15 July 2016. <http://pip.org.pk/newsupdates/PEO%202015%20Highlights.pdf>.

The IPP formula linked domestic producer prices of LPG to Saudi Aramco’s monthly CP in a 40:60 weighted average of propane and butane⁹. OGRA was tasked with notifying the maximum monthly producer price calculated from the previous month’s CP, and converted to Pakistan rupees. LPG producer and consumer prices rose through the year, with no perceptible rise in imports. As a result, the government in December 2007 decided to once again let the producers fix their prices, making OGRA responsible for monitoring the same and ensuring reasonability in line with movements in the Saudi CP.

Figure 10



Sources: Official monthly Saudi Contract Price for propane and butane as published by S&P Global Platts; Pakistan producer price as issued by OGDCL and marketer price from a major independent distributor.

Notes: Pakistan’s producer and marketer price of LPG for household use broadly tracks the Saudi CP, with clear spikes during the peak winter and summer demand seasons.

Over the past several months, the producers have been pricing LPG well above the Saudi CP (Figure 10), prompting a flood of cheaper, oftentimes substandard imports. The government is now contemplating turning the clock back on LPG market liberalization, with the fuel to be sold at a fixed price round the year, across the country, and to all sectors. The proposal is contained in the draft LPG (Production and Distribution) Policy 2015, as a measure to eliminate price volatility and ensure

⁹ LPG Association of Pakistan’s blog on the import parity pricing policy: "Saudi CP Tracker." *LPG Association of Pakistan*. 05 Nov. 2012. Web. 15 July 2016. <https://lpgap.wordpress.com/saudi-cp-tracker/>.

adequate supply of the product¹⁰.

The government has proposed that the price be fixed at Pakistan Rupees 895 (\$8.55) for the 11.8 kg LPG cylinder, though it is not clear how and when it might be revised. Officials at OGRA, tasked with notifying the fixed price, have criticized it as being way higher than existing prices of domestic product. The producer price of the 11.8 kg cylinder in December 2015 was around Pakistan Rupees 685.

The experience of other Asian countries with deregulation has shown that pegging domestic fuel prices to an international benchmark facilitates the movement of product across markets and geographies in response to demand. A country can thus import to plug domestic supply deficits, and export its surplus to markets that would pay the best price. Benchmarking also enables players in the domestic supply chain to hedge their price exposure by using the derivatives markets, which typically develop around established commodity benchmarks.

However, a pricing formula using an international benchmark needs to provide maneuvering room to account for local supply-demand dynamics, production and transportation costs, and any other expenses borne by the suppliers and marketers. Using an international benchmark in itself as a cap or floor for domestic prices would not serve that purpose.

Case Study II

Targeting Subsidies Through Direct Benefit Transfer

When one talks of fuel pricing reform, it may or may not include an end goal of complete elimination of subsidies in favor of free market-based pricing of 100% of the oil product sold. But there is a case to be made for “subsidy reforms” — improving the allocation, administration and distribution of subsidies such that they reach the economically weaker sections of the society rather than being mostly exploited by the rich, who have a bigger per capita energy consumption.

Governments across emerging Asia actually struggle to provide the poor, often in rural areas, access to fuel and electricity, a goal that might be defeated if the removal of subsidies puts the energy resource beyond the reach of the poor. In the case of LPG

¹⁰ According to various local media reports; the draft policy was not publicly available as of 15 July 2016.

or domestic cooking gas, the burning of cheaper or even zero-cost but health- and environmentally damaging biomass alternatives can prove hard to eliminate.

In their quest to direct fuel subsidies to the needy, governments in Indonesia, Thailand and Malaysia have experimented with “smart card” systems over the years with varying degrees of success. The Thai Energy Card allows taxi drivers to buy rationed volumes of NGV at subsidized prices. Malaysia’s MyKad program ties a national identification card to subsidies and other public services. Indonesia has not one but three cards to help offset the impact of fuel price and other hikes on the poor—the Indonesian Health Card (Kartu Indonesia Sehat), the Indonesian Smart Card (Kartu Indonesia Pintar) and the Prosperous Family Card (Kartu Keluarga Sejahtera). The latest card system, launched in November 2014, is designed to facilitate access to healthcare and education, and overcome the problem of frivolous spending and corruption associated with direct cash transfers to the poor.

India has been a late-comer to personal identification cards. The country’s first biometric personal identification card system, which became operational in 2009 and is voluntary rather than mandatory, has reached the 1-billion mark but has still not covered 100% of the population. After a failed attempt to link LPG consumer accounts and subsidy payments to the “Aadhaar” identification card in 2013, the current government of Prime Minister Narendra Modi successfully pulled off a rather large and complex targeted LPG subsidy operation through a direct benefit transfer (DBT) scheme, named “PAHAL”. The scheme is reported to have not only curbed illegal diversion of subsidized cylinders, but also created a database of some 155 million consumers and their bank accounts, which should help facilitate a gradual re-directing of subsidies from the wealthy to the poorest households.

Aside from vision, planning and administrative rigor, PAHAL highlights the critical importance of clear communication and transparency when it comes to making changes to subsidies or fuel pricing systems.

India, where at least 12.4% of the population lives under the poverty line or a daily household expenditure of less than \$1.90 according to the latest World Bank estimates, has offered its economically weaker sections some form of “targeted” food and fuel subsidies for several decades, with mixed results.

Kerosene sold through the “public distribution system” at a fraction of its market price to benefit the poor was routinely diverted to a parallel market as well as spiked into the higher-priced automotive diesel over the years.

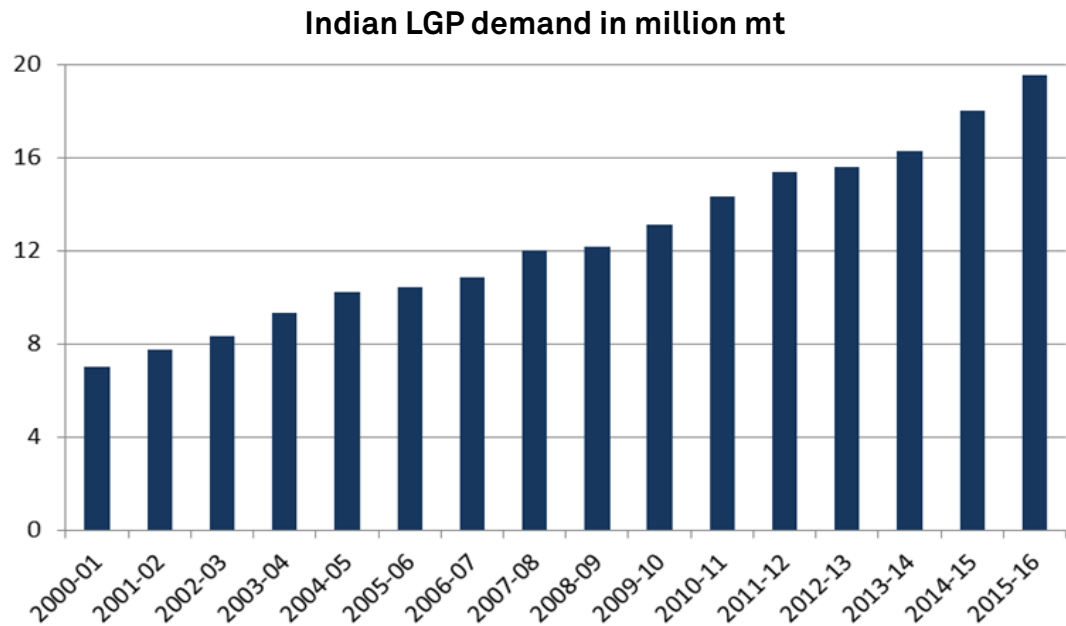
Thus, not only has the kerosene subsidy burdened the public sector OMCs, but it also doesn’t always reach the intended recipients, while the adulterated diesel exacerbates the country’s environmental pollution woes.

Bottled LPG, used by an estimated 164 million consumers in India and deemed a

“sensitive” product, has been subsidized by the government and the country’s three OMCs that sell it—Indian Oil Corp. Ltd., Bharat Petroleum Corp. Ltd., and Hindustan Petroleum Corp. Ltd. —for over four decades. Even under India’s accelerated fuel pricing reforms since 2014, LPG remains the last of two oil products that continue to be subsidized, the other being kerosene.

LPG Subsidies Far More Pressing Than Kerosene

Figure 11



Source: India’s Petroleum Planning and Analysis Cell. Fiscal year runs Apr-Mar.

The two fuels, though, are on divergent tracks when it comes to consumption growth, with LPG use on a steep upward trajectory, rising by 8-10% on year since 2014, while kerosene consumption has been sliding—and desirably so—for several years, now almost 40% lower than at the turn of the century.

Even as the government faced a growing LPG subsidy burden in tandem with the product’s rising consumption, albeit somewhat mitigated by the crash in oil prices since 2014, it was aware of the unintended consequence of two-tier pricing, i.e., the illegal diversion of subsidized cylinders to commercial users, who are required to buy the fuel at market price. Perhaps even more significantly, the majority of the LPG subsidy goes to the urban, affluent consumers.

The DBT scheme implemented in the country since 2014 has largely succeeded in rooting out the illegal diversion of subsidized cylinders, according to government and independent reports, a conclusion also borne out by a break-down of official consumption data for the household and commercial sectors.

The scheme could also prove to be an effective tool to progressively end LPG subsidies for the well-heeled and direct them more to the rural poor, where women are condemned to living with indoor pollution from using wood and biomass, as well as low productivity, due to the time spent in gathering these.

Described as the world's largest subsidy benefit transfer scheme, PAHAL had covered nearly 155 million customers across the country as of early June 2016.

Under the scheme, all LPG cylinders are sold at a uniform market price at the point of delivery, with household consumers receiving the subsidy amount—the differential between the full market price and the government-determined subsidized price—directly into their bank accounts.

The number of subsidized LPG cylinders a family is entitled to is currently capped at 12 per fiscal year, with any consumption beyond that payable at market rates.

The DBT scheme was initially introduced by the previous UPA government on June 1, 2013 and rolled out to 291 districts of India. At the time, it required households to have the Aadhaar card, which was linked to their LPG consumer number and the designated bank account for the subsidy payment. The scheme ran into administrative problems linking the LPG consumer accounts with the respective Aadhaar cards and bank accounts, while those without the card were unable to get the subsidy.

In a bid to rein in its expenditure on fuel subsidies, the UPA government in September 2012 introduced an annual quota of six subsidized cylinders per family, at a time when benchmark Brent crude was hovering above \$110/b. The cap was subsequently raised to nine cylinders in January 2013. In January 2014, with the country's general elections four months away, the limit was further eased to 12 cylinders, and the six-month-old cash transfer scheme was put on hold.

The National Democratic Alliance government under Prime Minister Modi, which came to power in May 2014, resurrected the DBT scheme, with modifications. The new scheme, launched on November 15, 2014 in 54 districts under phase 1 and extended to the rest of the country or 622 additional districts under phase 2 on January 1, 2015, eliminated a major hurdle by dispensing with the Aadhaar card requirement and linking consumer LPG account numbers directly to their bank accounts.

High-Profile Campaign Targets Affluent Consumers

In early 2015, the Modi government launched a high-profile and extensive campaign urging the country's well-to-do consumers to give up their LPG subsidy entitlement. As of the beginning of June 2016, the "Give-It-Up" campaign, as it is called, had persuaded over 10 million customers to voluntarily opt out of the subsidy scheme. The oil ministry has said it intends to use the savings to push for greater LPG

penetration among the rural poor.

The #GiveltUp campaign¹¹ included several emotional appeals by Modi to well-off Indian consumers as well as to banks and corporates to encourage their staff to opt out of LPG subsidies. Giving up was made easy—customers had a range of options from logging on to a few OMC or dedicated websites such as mylpg.in or giveitup.in, to sending a brief text message to their LPG provider, or filling up an opt-out form and handing it over to their distributor.

The World Bank's Roxanne Bauer lauded the ease of the subsidy giving-up process and the focus on the social good as essential ingredients of the campaign in a blog¹².

The campaign pulled in more star power through advertisements featuring legendary actor Amitabh Bachchan exhorting the affluent to give up their LPG subsidies.

Surrendering one's subsidy entitlement to enable a poor household to switch to LPG was portrayed as a source of national pride.

The MyLPG.in, a portal maintained by the OMCs, as well as the oil ministry's www.giveitup.in feature a "scroll of honor"—names of consumers across the country who have voluntarily given up the subsidies.

Aside from the clear, consistent and persuasive messaging by the oil ministry and the OMCs, consumers have easy access to the latest information and statistics around PAHAL and the Give-It-Up campaign.

Household Cylinders Subsidized by 20%

Subsidies knock off nearly a fifth of the market price of a cylinder for the Indian consumer. The subsidy amount on a 14.2 kg cylinder in the capital Delhi effective May 1, 2016 was Rupees 108.35 on a retail selling price of Rupees 548.50 (\$8.23), which is derived from the official Saudi CP for the previous month and other components in a formula transparently laid out on the PPAC web site.

Of the Rupees 108.35 subsidy per cylinder, Rupees 65.80 or 61% would be borne by the federal government and Rupees 42.55 by the OMCs, for which they receive no compensation.

The DBT scheme is helping overcome the decades-old problem of commercial

¹¹ "GiveltUp LPG Subsidy - Contribute Towards Nation Building by Giving Up Your LPG Subsidy." *GiveltUp LPG Subsidy - Contribute Towards Nation Building by Giving Up Your LPG Subsidy*. Web. 15 July 2016. <http://www.giveltup.in/>.

¹² @worldbank. "The Things We Do: Nudging People to Give." *People, Spaces, Deliberation*. Web. 15 July 2016. <http://blogs.worldbank.org/publicsphere/things-we-do-nudging-people-give>.

establishments such as restaurants, factories and big businesses illegally buying subsidized LPG cylinders. The digital database of LPG consumers that was built under PAHAL is said to have helped the OMCs identify and eliminate “ghost” and illegal connections, as well as other irregularities such as residents with piped gas supply holding LPG accounts.

The growth in LPG sales to commercial consumers in India has exploded in recent months, a testimony to the drying up of subsidized domestic cylinder supply in the black market. Consumption in this category jumped nearly 30% year-on-year in April 2016, according to latest data available at this writing from the government’s Petroleum Planning and Analysis Cell (PPAC).

The year-on-year growth in sales to commercial consumers—for the 16th consecutive month in April— was attributed to reduced diversion of subsidized household LPG cylinders to the commercial sector, aside from lower overall prices owing to a drop in the world markets and “easy availability” of commercial cylinders, according to PPAC. Total LPG sales, including both the household and commercial categories, were up 8.2% on year in April at 1.6 million mt.

Absolute sales data for the two categories is not available, but the household cooking sector accounts for about 89% of India’s LPG consumption, with the remainder being commercial cooking (6%), industries (1%), and transportation (1%) as well as miscellaneous use (3%), according to a report by the International Institute for Sustainable Development.

Rapid urbanization, accompanied by the government’s push to increase LPG penetration in the rural areas, is boosting India’s overall consumption of the fuel, which rose 8.6% to 19.55 million mt in the fiscal year ended March 31, 2016.

Meanwhile, savings from the Give-It-Up campaign are being used to offer each BPL family financial help of Rupees 1,600 to pay for their LPG connection charges.

The government has earmarked Rupees 80 billion under a scheme that aims to provide 50 million connections to BPL households over a period of three years, starting with a target of 15 million in the first year from May 2016. About Rupees 50 billion (\$750 million) of subsidy savings from the Give-It-Up campaign have been allocated to the BPL scheme, called Pradhan Mantri Ujjwala Yojana. The remaining will come from various state government-sponsored schemes and OMCs’ CSR funds.

The PAHAL scheme should also help facilitate smooth implementation of further LPG pricing reforms, which are in the pipeline. For instance, starting January 1, 2016, the government has begun withdrawing LPG subsidies from consumers who individually or along with their spouses have an annual taxable income of more than Rupees 1 million (\$15,000). Such consumers numbered around 202.6 million in the assessment year 2014-15, according to media reports.

The new initiative is to initially run on a voluntary-declaration basis, with a mandatory application to follow. Details of the mandatory implementation are yet to emerge and will no doubt put the political will and the administrative machinery to the test once again, but its success could help re-write the playbook for phasing out subsidies through targeted application, an example other emerging countries could emulate.

The implementation challenges notwithstanding, India's phasing out of LPG subsidies by income level appears to be a more pragmatic and achievable route to pricing reform than an idealistic and perhaps even contradictory target of blanket elimination, given its goal of putting LPG or piped natural gas as cooking fuel in 100% of households.

India is a net exporter of surplus refined oil products, but has a major and widening deficit in LPG supply. The country imported 45% of its cooking gas needs in the fiscal year ended March 31, 2016 and expects this figure to rise to 50% in the coming years.

If and when prices rise, India will have to pay market rates for its imports. That makes the gradual withdrawal of all remaining subsidies from those who can afford to pay the market price and well-controlled allocation of the cheaper fuel to the rural poor an even bigger imperative.

Encouraged by the success of the PAHAL scheme, the Indian government is now planning to introduce DBT for subsidized kerosene sold through the public distribution system.

Challenges Ahead

PAHAL is not without its drawbacks. Among the criticisms leveled at the scheme, a major one is that it excludes consumers, typically the rural poor, who do not have a bank account or have had trouble opening one, or are generally unfamiliar with the world of banking.

That suggests a fresh multi-pronged approach is needed to ensure the spread of banking facilities in the remotest villages, and to educate and communicate with consumers and banks in the rural areas, which could be a slow and arduous task, no doubt. But the baby should not be thrown out with the bathwater. The effectiveness of PAHAL in curbing illegal diversion of subsidized cylinders and weaning the wealthier consumers off subsidies has been documented. The criticism from some quarters that only a fraction of the wealthy have voluntarily surrendered their subsidy entitlements cannot be allowed to detract from the scheme, as it misses the point that elective processes, by definition, cannot be controlled.

India's LPG subsidy spending in fiscal 2015-16 is estimated at Rupees 160.74 billion (\$2.4 billion), according to PPAC data, including Rupees 180 million designated as "under-recoveries" or losses borne by the OMCs. Under-recoveries on subsidized kerosene were around Rupees 114.96 billion.

Recommendations:

1. The oil price crash of 2014 and expectations of crude remaining below \$60 for a few more years has provided countries a unique opportunity to reduce their fuel subsidy burdens and accelerate pricing reforms. Several developing economies in Asia, which also happen to be major and growing energy consumers, have seized the opportunity, though the urgency and pace of reforms, as also the political will and resolve to sustain them, varies greatly from one country to another. While these elements depend on the macroeconomic, social and political climate of each country, policy makers have at their disposal techniques and strategies that can help ensure a smooth and sustainable transition to liberalization. These include:
 - a. Providing certainty to the domestic oil and gas companies through a clear and time-bound roadmap on liberalization and then sticking with it
 - b. Establishing full clarity and transparency around market pricing by adopting reliable and relevant international pricing benchmarks, detailing all the components of the pricing formula, as well as the mechanism and frequency of price adjustments
 - c. Putting in place a clear regulatory framework, with an independent regulator empowered to ensure efficient and fair pricing of product in a deregulated market
 - d. Winning consumer confidence through transparency and regular communication around the phasing out of subsidies, implementation of targeted subsidy schemes, rollout of pricing reforms, adoption of pricing formulae, and price adjustment mechanisms
2. As pricing reforms transition from gasoline, through diesel, and finally to the “sensitive” products LPG and kerosene, Asian governments will need to find strategies to phase out subsidies and price controls even as they make cleaner energy resources available to the poor at an affordable price. Several Asian governments have ambitious targets to switch their rural poor from using biomass such as wood, charcoal, agricultural and animal waste—which has serious environmental, economic and health consequences—to modern energy sources and technologies. Transitioning families from biomass and kerosene to LPG automatically reduces kerosene use and the subsidy spending on it. But much work remains to be done on putting LPG into poor homes at an economical price. Offering smaller cylinders that require less cash outlay is an obvious option, though if they are subsidized, there is no fool-proof way to avoid diversion into the regular market. In this regard, as India’s experience with PAHAL shows, direct benefit transfer might be a better option.
3. Several Asian governments have adopted regulation through the back door on certain consumer fuels. They have freed the product of government subsidies and adopted a transparent pricing mechanism based on international benchmarks, but retain final say over retail price adjustments, justifying it as a measure to protect consumers and the economy at large from extreme oil price volatility. While the benefits of smoothening out routine price movements are debatable, apart from

being market distortionary, the policy risks leaving the country's oil and gas NOCs and state-owned companies shouldering the financial burden of having to sell fuel at a loss, thereby also discouraging investment in the sector and competition from private players. An alternative option for governments would be to identify a pain threshold if oil prices start rising substantially, which would trigger targeted subsidies for the poor, as is being contemplated by Malaysia.

4. Targeting subsidies by income level and assisting the poor through direct cash transfers or similar schemes could become an effective policy tool, enabling market pricing of fuel at the point of sale, thereby reducing the government's subsidy spending while curbing illegal diversion, adulteration and smuggling. Existing schemes need to be refined to better identify the deserving recipients of subsidy, the optimum way to reimburse the poor in the event of fuel price spikes, and ensuring that the financial aid reaches them. This route will transfer the losses being borne by oil companies as a result of government control over price adjustments of unsubsidized fuels back to the government budget. This will maintain pressure on governments to push through with subsidy rationalization, and free up the oil companies' financial resources for investment in ensuring supply security, expanding and upgrading production and distribution infrastructure, and improving fuel quality.
5. Refined oil products such as diesel and gasoline and natural gas-derived fuels such as LPG and CNG have intricate linkages, with consumers in sectors such as household cooking, industrial, mining, and transportation able to switch between the various alternatives. At any given point in time, there exists a delicate balance between supply, demand and the pricing of each product. Liberalizing one product while regulating or subsidizing others is vulnerable to illegal diversions, adulteration, and unintended consequences of large-scale swings in demand from the expensive to the cheaper fuel. Pakistan has been struggling to manage the supply-demand balance between subsidized CNG, gasoline that follows market pricing but with government controls, and the fully liberalized LPG as fuels for the auto sector. In India, a widening gap between the subsidized diesel and the fully liberalized gasoline prices in the early part of this decade prompted "dieselization" of the country's car fleet, a trend widely blamed for the worsening air pollution blanketing its major cities. The sharp narrowing of diesel's discount to gasoline following the removal of diesel subsidies in 2014 cramped demand for diesel vehicles, leaving the car manufacturing industry on the back foot.
6. Finally, over-engineering of fuel pricing is not the way out of regulation. It only creates confusion, uncertainty, and the need for more tinkering. Tiered pricing based on supply source or consumer sector, or earmarking certain supply sources for certain users, can prove to be logistical and administrative nightmares, apart from fostering smuggling and illegal diversions.