



BRIEFING NOTE

One Fuel, Two Prices: International experiences with dual pricing of fuel

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Key Messages:

- International experience strongly indicates that dual pricing is difficult to implement without prohibitively costly levels of leakage, illegal diversion and shortages.
- Dual pricing is harder for some fuels than others. Those that are easy to divert, smuggle and adulterate—such as kerosene, gasoline and diesel—are among the hardest to dual price.
- Where capacity exists to implement dual pricing effectively, the same administrative systems could usually be used to provide alternative policies that will more effectively deliver better results for targeted businesses and households.
- If dual pricing is to be adopted:
 - » It is important to monitor leakage and illegal diversion closely.
 - » Its viability will depend upon a strong delivery mechanism. Some countries have successfully implemented dual pricing but only with sophisticated use of modern technology.
 - » Strong enforcement is essential.



1.0 Introduction

This briefing note sets out some basic information about international experiences with “dual pricing”:¹ selling the same fuel product at two different prices to different types of consumer. It begins with a broad overview of information from international literature. It then presents several detailed case studies. It concludes with key lessons from international experience.

2.0 International Experiences with Dual Pricing

Dual pricing regimes come in many forms. Key design parameters include:

- **Who** is the target group and **how** are they identified? i.e., the beneficiaries who will purchase fuel at low prices—or the groups excluded from otherwise universal subsidies.
- Is there **rationing**? i.e., quantity restrictions on the fuel that beneficiaries can purchase.
- What is the **delivery mechanism** for the dual pricing?
- How is the regime **enforced**?

Who and How?

The simplest dual pricing is based on “self-selection”: that is, consumers can select which fuel to buy. This is the de facto market in many subsidizing countries, where consumers can purchase lower-quality subsidized fuel or higher-quality unsubsidized fuel. This typically results in virtually universal consumption of subsidized fuel and as such fails to establish any significant scale of dual-priced consumption. The two other major approaches focus on either specific sectors or consumers with specific characteristics. Examples of targeted “sectors” include household consumers, government officials, transport operators or strategic domestic industries such as agriculture and fisheries. Examples of consumer “characteristics” used to target dual pricing are low-income status or being a business that is a bulk buyer.

The most appropriate method for identifying the target group will depend upon the group itself, available resources, existing capacity and the accuracy required. By definition, self-selection requires no method. Sector-specific groups can be identified through existing registries such as licences for transport operators or schemes that already target farmers and fishers. Where no appropriate registry exists, proxies may be used such as taking vehicle size or geographic area as indicative of income level. Point of sale can also be used to target specific groups, most commonly bulk buyers. In some cases, surveys are used to create dedicated registries of dual pricing beneficiaries.

Rationing?

In addition to providing or excluding subsidies, dual pricing systems may in some cases involve some form of rationing. Typically, this is intended to restrict fuel consumption among a favoured group to a “reasonable” level, helping to justify policy objectives and reduce costs. The inclusion of rationing can help to mitigate large-scale illegal diversion of subsidized fuel but it also requires a more complex level of administrative capacity that is able to reliably track purchases of fuel to specific consumers.

Delivery mechanism?

Dual pricing regimes typically require some proof of identification at point of sale, such as ID cards linked to eligibility, smart cards or a personal ID code. Alternatively, proof of sale (after the purchase of fuel at market prices) may be used to trigger subsidy reimbursements via cash transfer systems.

¹ “Dual pricing” is also often referred to as the “targeting” of subsidies, i.e., restricting fuel subsidies so that subsidized fuel can only be purchased by a specific sub-group of the general population.

Where rationing is used, more technologically advanced options are required to track the consumption of individual beneficiaries. Some regimes involve the creation of two separate brands of fuels: one for excluded consumers; one for included consumers. This requires a significant investment into gas station infrastructure and is often linked to enforcement technology based on physical markers. Alternatively, regimes may simply charge targeted beneficiaries less for the same brand of fuel or reimburse them post-sale.

Enforcement?

Dual pricing creates an incentive for illegal diversion of subsidized fuel for sale to non-intended beneficiaries. As a result, some form of enforcement is necessary to prevent leakage. Where two branded fuels are available, this is typically based on the same technologies that are used to ensure fuels are appropriately taxed and retailed, including various forms of physical markers such as dyes. Where only one fuel is available, it depends upon the strength of the delivery system. Complaints and grievance mechanisms, as well as audits, inspections and robust monitoring and evaluation can all improve performance.

Figure 1 summarizes some of the design options that countries have used, based on a review of international literature.

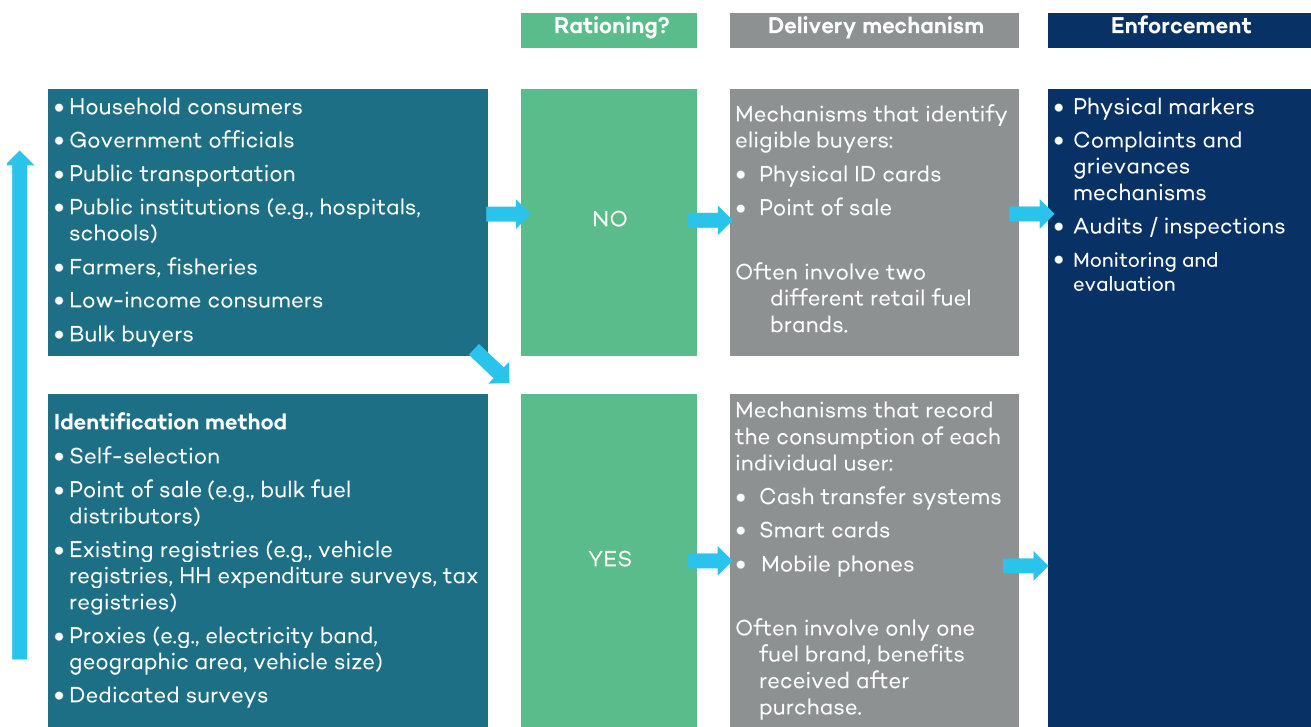


Figure 1. Common Design Features of Dual Pricing Regimes

Source: Authors' diagram drawing on Kojima, 2009; Kojima, 2013; Bailey & Conroy, 2014.

2.1 Problems with Leakage and Illegal Diversion

International literature on fuel pricing generally concludes that dual pricing results in prohibitively costly amounts of leakage, illegal diversion and shortages. This derives from the following main causes:

- **Poor targeting:** Non-target consumers benefit from the low-cost fuel option.
- **Black markets:** Dual pricing causes a financial incentive to “scam” the system.
- **Shortages:** The available fuel quota is eaten up by poor targeting and black markets, or the unsustainable cost of subsidizing fuel leads to an interruption in supply.

A selection of examples include:

- **Ghana (2015):** Premix gasoline is subsidized below the market price (currently 50 per cent) and sold to fishermen (GhanaWeb, 2015). It is diverted on a large scale to adulterate general gasoline, leading to frequent complaints of shortages (Kojima, 2013; MoFA, Gov. of Ghana, 2009). In 2014, liquidity challenges—a USD 0.26 billion debt to distributors, caused by currency fluctuations—also caused shortages (NowGhana, 2014).
- **Malaysia (2008-2012):** In 2006, a smart card scheme was introduced to target subsidized diesel to fishermen. Despite this, it is widely reported to be diverted in large quantities. In 2008, national press sources noted that fishermen typically sold diesel for a profit of USD 0.15 profit per litre; middlemen for USD 0.18 per litre; and the country’s various “untouchable” heads of crime syndicates earned up to USD 3 billion per year (Malaysia Today, 2008). In 2012, the government required each fishing catch to be verified by a government representative in order to reduce diversion (Kojima, 2013).
- **Thailand (2011):** In July 2011, the Thai government introduced differential pricing of LPG. Industry paid the highest rates, followed by automotive transport users and then households. Immediately, the consumption of LPG for industry declined significantly; while automotive and household consumption grew faster than historical trends, suggesting diversion (Leangcharoen, Thampanishvong, & Laan, 2013) (See Figure 2).

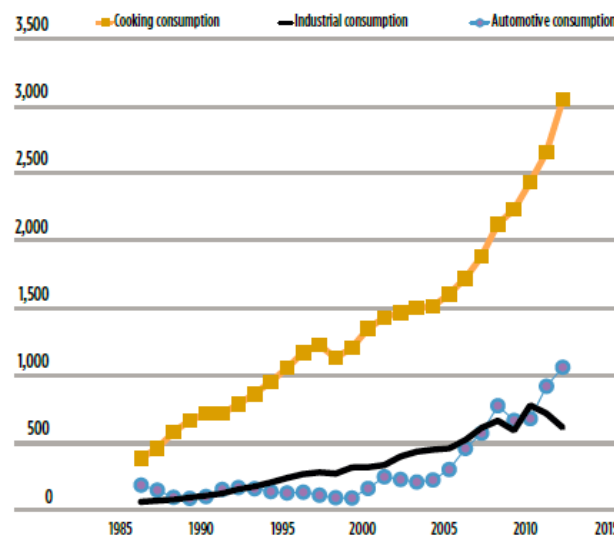


Figure 2. Thailand, Consumption of LPG (Thousands of Tonnes)

Source: Leangcharoen, Thampanishvong, & Laan, 2013.

In addition, adulteration often involves dumping of dangerous waste products; increases in harmful emissions from vehicles; and reduced engine performance and lifespan (ADB, 2015).

Even when there is no commercial malpractice, as in the United States in the 1970s, price controls have led to sporadic fuel shortages and long queues, with costs to many consumers of queuing and other inconveniences outweighing the benefits of low prices.... (Kojima, 2013)

As part of a comprehensive international review of experiences with fuel pricing, Kojima (2013) indicates a rough hierarchy of fuels among which it is easier and harder to use dual pricing effectively, as summarized in Figure 3.

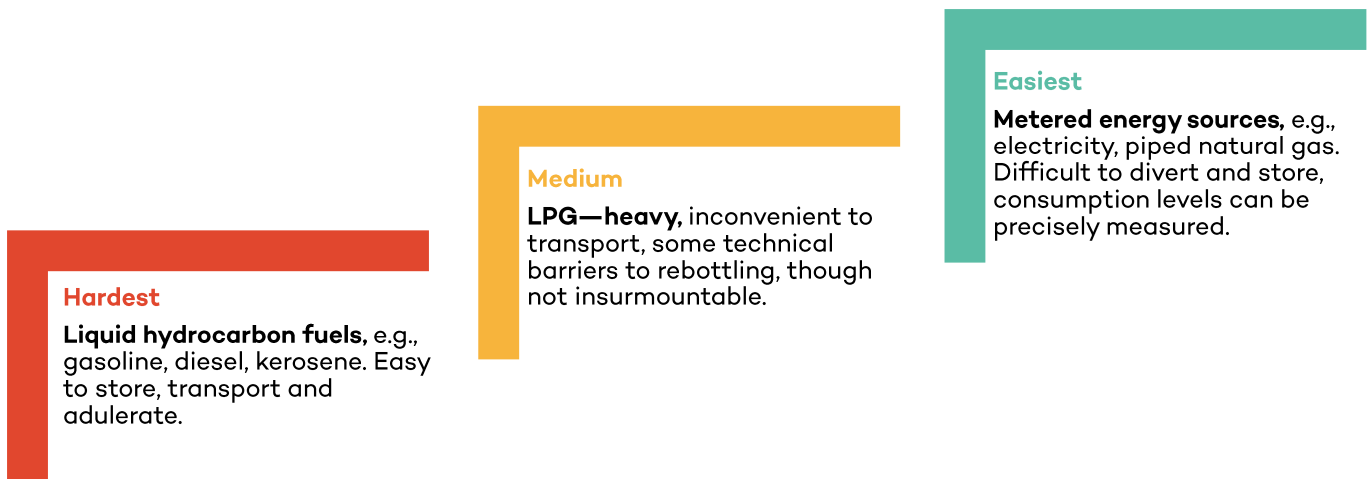


Figure 3. Difficulty to Dual Price: Fuel-by-fuel Ranking

Source: Kojima, 2013.

2.2 Political Considerations

In some countries, dual pricing is introduced as part of a strategy to gradually reduce subsidies for certain consumer groups, as part of a larger strategy toward overall subsidy reform: for example, requiring businesses to pay market costs, while continuing to shield residential users; or requiring residential users to pay market costs, while protecting key industries.

This strategy is a double-edged sword. While restricting subsidies for a specific group can reduce opposition, it can also help to foster organized resistance to subsidy reforms. A selection of examples includes:

- **Indonesia (2005):** Subsidies to industrial users of diesel were removed in 2005. Despite leakage and diversion in subsequent years, this appears to have been one of Indonesia's long-term successes in reducing its subsidy expenditure (Beaton & Lontoh, 2010).
- **Mozambique (2008):** When diesel prices were increased, the government attempted to increase the fares of private minibuses too. A riot in the capital left 15 dead and 68 seriously injured, as well as sparking similar protests in other cities. This led to dual pricing for minibus operators and reduced taxes for diesel used in agriculture, fishing, mining and some oil-fired generators (Kojima, 2009).
- **Nepal (2011–2012):** To cut 2011 subsidy expenditure, the government compelled industries and hotels to buy fuel at market rates. This was rescinded in the same year, following demands from business groups (SAARC Journal of Transport, 2011). It was then reintroduced in 2012, leading to threats of protests (Kathmandu Post, 2012).

2.3 Implementing Rationing

Some countries have combined dual pricing with a system that rations purchases of low-cost fuel. Rationing can help to reduce costs and limit opportunities for leakage and diversion in the short term. However, it increases policy complexity (it is necessary to have a system that records the sales of fuel to each individual user), and with time black markets may circumvent quantity restrictions, requiring strong enforcement capacity in the medium term.

A selection of examples includes:

- **Iran (2007–2014):** In 2007, Iran provided monthly quotas for five different classes of vehicles (including private gasoline-fueled cars, official gasoline-fueled taxis and government vehicles) using smart cards to monitor consumption. In the short term, the scheme was successful, halving gasoline imports; but in the medium-term, black markets soon emerged. The government responded by

modifying the rules, eventually resulting in 45 different categories for rationing (Kojima, 2009). The system was adapted when Iran decided to make major reforms to its fuel subsidies in 2010. The price of gasoline was split into three tiers (subsidized, semi-subsidized and free market), with the second two tiers seeing 4- to 7-fold price increases. Consumers continued to receive a subsidized price for the first 60 litres of gasoline purchased every week. This was used to help mitigate the shock of higher prices although in 2014 the tiered pricing was abandoned (Guillaume, Zyteck, & Farzin, 2011; Salehi-Isfahani, 2014; Foroohar & Nasser, 2015).

- **Rwanda (2008):** Rwanda used rationing effectively to deal with disruptions in supply from Kenya. Small cars were allowed to consume only 10 litres of gasoline per day and jeeps 20 litres a day. In this case, the purpose of rationing was to prevent large price hikes resulting from a situation with high fuel demand and a limited fuel supply (Kojima, 2009).

2.4 Relative Strengths of Different Delivery Mechanisms

International experience indicates that some mechanisms for dual pricing are more robust than others. Generally, systems that make available two different branded fuels (one high-cost and one low-cost) that share the same basic physical properties are more open to abuse than systems that only make fuel available and provide subsidy transfers—ideally electronically—upon proof of purchase. “One-brand” dual pricing delivery mechanisms can avoid the need for large investments in gasoline station storage but require good technology capacity in turn.

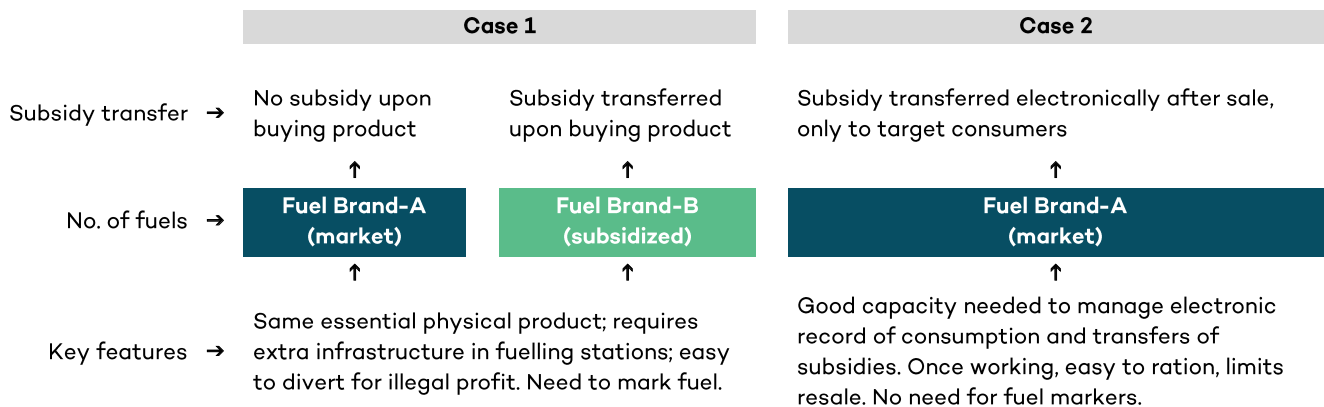


Figure 4. Two-Brand vs. One-Brand Delivery Mechanisms for Dual Pricing

In addition to this, the following observations can be made:

- **Using existing capacity as a delivery mechanism may be more realistic than trying to create new systems—but policy-makers should expect existing capacity to result in a replication of existing problems:** Many countries have some form of pre-existing capacity to distribute or ration key commodities. Policies that make use of this to identify recipients and deliver access to low-cost fuels—such as ID cards or public distribution systems—will be subject to the system’s existing weaknesses. In low- and middle-income countries this often includes eligibility documentation that is easy to counterfeit, poor coverage, little monitoring and governance problems.
- **Point of sale distorts consumer behaviour:** Dual pricing that makes subsidized fuel available only at specific points of sale tends to significantly distort consumer behaviour. When Indonesia restricted the number of gas stations offering subsidized fuel in 2014, most consumers attempted to refuel at stations still offering subsidies, resulting in hours of queues over a kilometre in length and associated social unrest (Lontoh & Beaton, 2015).

- **High-technology solutions are not a “magic bullet”:** Despite better enforceability, implementation problems have still been experienced with “one fuel” dual pricing systems that use technology such as smart cards and mobile phones. For example, the use of smart cards in Malaysia did not prevent illegal diversion (Kojima, 2013). In Thailand, attempts in 2014 to target low-cost LPG to poor households using mobile phones have reached few targeted beneficiaries, largely due to poor surveying and a complex registering process (Toft, Beaton, & Lontoh, 2016).

2.5 Making It Work: Monitoring and enforcement

Most countries have enforcement capacity to prevent smuggling and tax evasion in downstream fuel markets. This may include markers or dyes, analyzer technologies and tracking systems across the supply chain (ADB, 2015). In countries introducing dual pricing for the first time, illegal fuel resale is likely to increase, so such capacity may need to be strengthened. New technologies can help increase the difficulty of illegal activity.

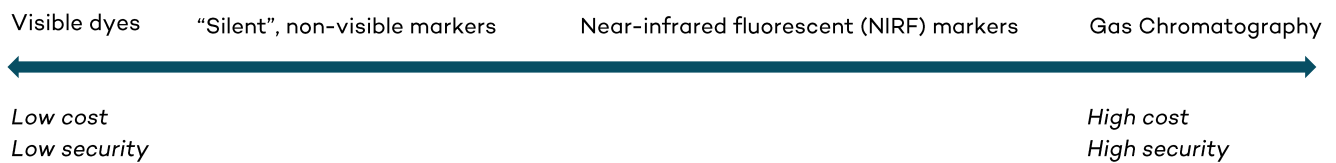


Figure 5. Fuel Marker Technologies

Source: Authors’ diagram, based on Bailey & Conroy, 2014, p. 16.

Box 1. Case Study: the Petroleum Product Marking Scheme in Ghana

The National Petroleum Association (NPA) introduced a program called the Petroleum Product Marking Scheme. This used a near-infrared fluorescent (NIRF) marker for quick inspection and a forensic-level molecular marker to verify suspected illegal activity. This allows prosecutions to be supported by definitive evidence. The fuel marking organization is kept entirely independent of the fuel testing organization. In its first six months, retail sites with significant fuel product dilution fell from 36 per cent to 7 per cent nationally. In part, this was also attributed to an aggressive public awareness campaign (ADB, 2015).

3.0 Case Studies

Case studies on dual pricing in India, the Philippines and El Salvador have been chosen to illustrate a range of experiences.

- **India:** Common difficulties with leakage and diversion, but recent innovative approaches to improve the dual pricing of LPG.
- **The Philippines and El Salvador:** Novel systems and processes that can more effectively manage the dual pricing of fuels.

3.1 Dual Pricing in India

a) What dual pricing policies has India used to manage and target fuel subsidies?

India has used dual pricing for diesel, LPG and kerosene, with varying degrees of success.

Diesel

Until reforms in 2014, diesel subsidies made up the largest proportion of subsidy expenditure in India. As part of the larger process to gradually reduce and reform diesel subsidies, the government decontrolled prices for bulk users in 2013. This created two markets for diesel—one with subsidized prices for retail consumers and one with market prices for bulk users.

Bulk purchases were defined as those made from oil marketing company (OMC) distributor installations. This typically constituted 16–18 per cent of total purchases by volume. Principal bulk purchasers were few, including the Indian Railways and State Road Transport Corporations (accounting for approximately half of total bulk purchases prior to decontrol), large industrial consumers (principally for captive power generation) and defence institutions.

Decontrol of bulk diesel pricing in January 2013 had an immediate and measurable effect. Bulk consumption as a percentage of total consumption fell from an average of 17.8 per cent in the six months prior to January 2013 to 10.2 per cent in February 2013 (see Figure 6).

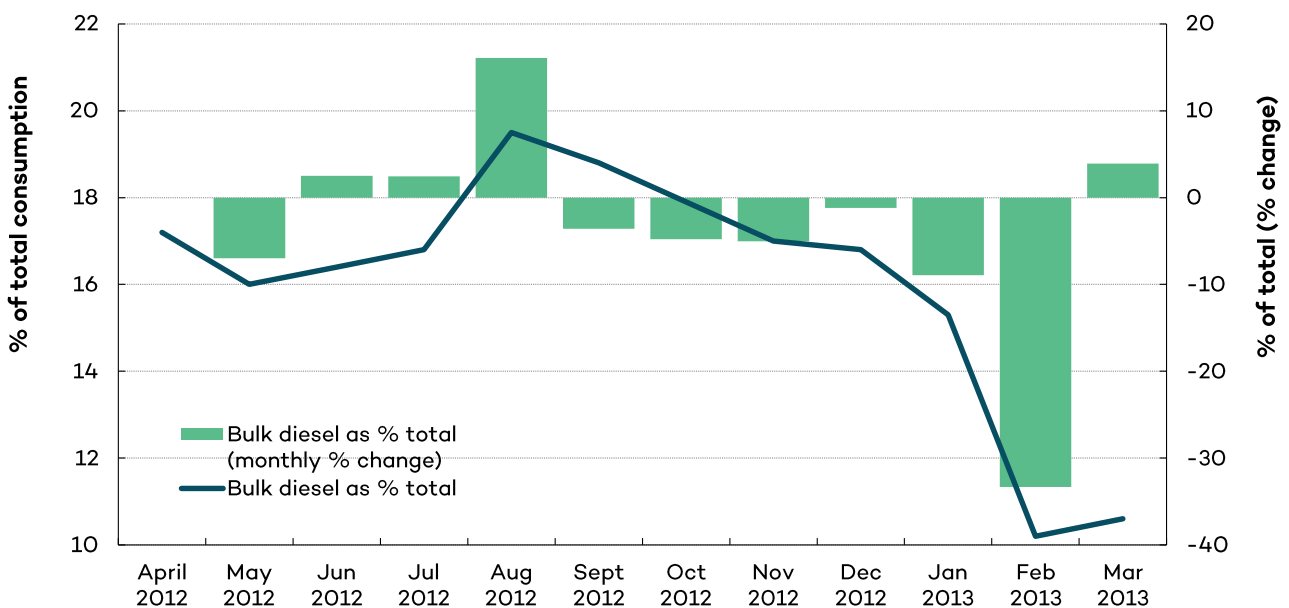


Figure 6: Bulk diesel consumption (April 2012-March 2013) (% total)

Source: Clarke, 2015b.

In practice, however, the policy was a failure. Most transport companies refused to adhere to the rules and began buying from retail outlets. This initially caused disruption in many areas as buses and freight transport operators formed long queues at retail outlets. OMCs began opening retail outlets at night to meet this demand (Forbes India, 2013). The fall in consumption was a simple shift from bulk purchases to retail purchases (Clarke, 2015b).

There were political challenges as well. Several state-level transport corporations claimed that dual pricing was government-sanctioned market discrimination. They successfully obtained interim injunctions that provided temporary immunity from higher bulk prices. Since many bulk consumers are state government-owned, this made the policy highly unpopular with state governments too. The government of Punjab, for example, directed its state transport corporation to stop buying the more expensive diesel in late 2013 (Forbes India, 2013).

Ultimately, total diesel price liberalization in October 2014 meant that the dual pricing system was short-lived. In the absence of effective enforcement mechanisms (and indeed, state-sponsored rejection of the policy), it did little to change diesel consumption or reduce subsidy expenditure, while causing numerous distortions and political problems.

LPG

For several decades, LPG for households has been subsidized while LPG for commercial use has been unsubsidized. Households are required to register an LPG “connection” with their local LPG distributor, which provides the entitlement to receive subsidized LPG. Enforcement has generally been weak, however, with abuse leading to the registration of millions of fake (“ghost”) and duplicate connections (estimated at more than 40 million) (Clarke, 2015b).

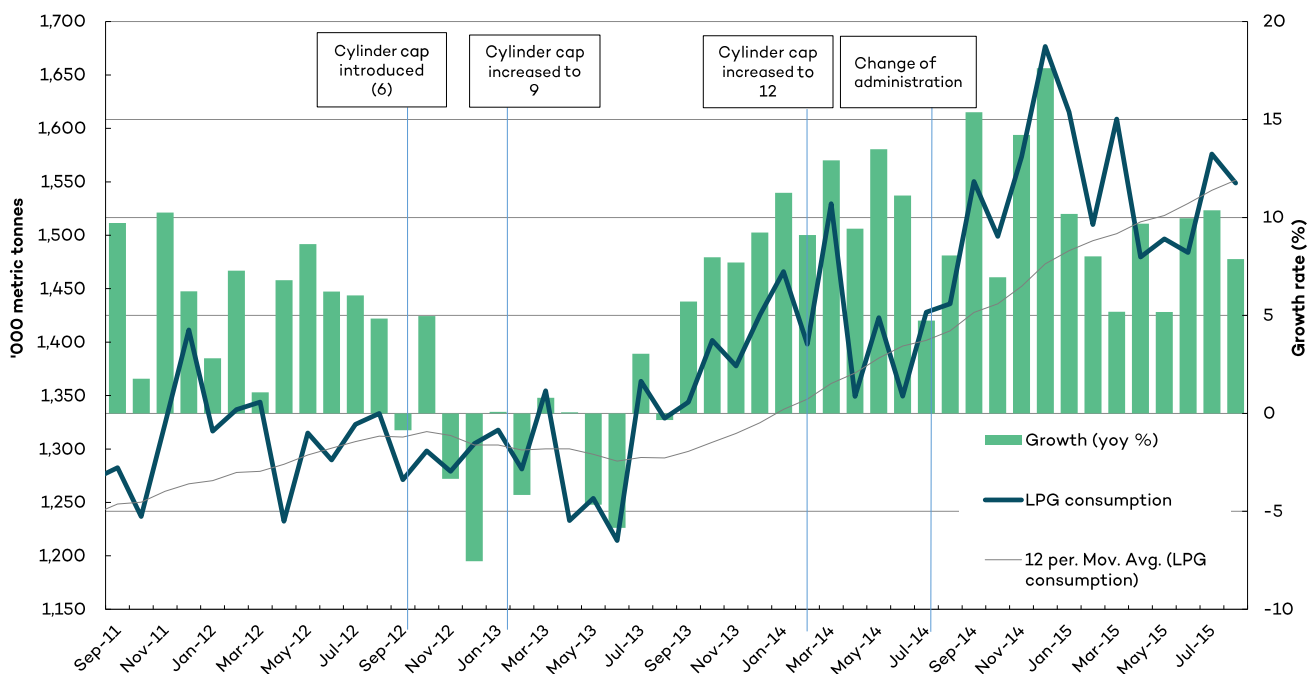


Figure 7: Monthly LPG consumption (Sept 2011–Jun 2015)

Source: Authors’ diagram, based on Clarke, 2015b.

In order to reduce expenditure and leakage, the Government of India instituted a ‘cylinder cap’: households were only entitled to consume six 14.2 kg LPG cylinders per year. The cap was later increased to nine and then twelve cylinders. The six cylinder quota resulted in a clear reduction in total consumption, which was maintained to some extent after it was increased to nine (see Figure 7 above).



However, the cap of 12 cylinders has done little to curb consumption since 99 per cent of households in India consume 12 or less than 12 cylinders per year (CEEW, 2015).

Regardless of the introduction of the quota system, leakages have remained in the system of subsidized LPG in recent years. In order to tackle this issue, in 2012 the Ministry of Petroleum and Natural Gas (MPNG) launched an initiative to block inactive and irregular connections. This has consisted of internal verification within individual OMCs, involving cross-checking and streamlining multiple databases of household connections to identify double or irregular connections, reportedly resulting in the blocking of at least around 13 million unused and duplicate connections by mid-November, 2013 (Doherty, 2014).

In addition, in 2015 the GoI launched the Direct Benefits Transfer scheme for LPG (DBTL) to strengthen dual pricing.² Under the DBTL, households order an LPG cylinder from their gas distributor, receive a payment equivalent to the current subsidy via electronic transfer to their bank account, then pay the full (unsubsidized) price for the cylinder in cash on delivery. Bank accounts are cross-checked with personal information, including current address (confirmed either through a voluntary unique ID number—called Aadhaar—or another form of government ID) to establish a linkage between recipient and registered LPG connection. The government argues that by connecting subsidy receipt with personal details and bank accounts, the system is more resilient against leakage. While the introduction of a registry of consumption can be helpful in controlling leakage, analysis suggests that the change in the structure of the registry alone has likely achieved little: it is likely to have a small or neutral impact on subsidy expenditure; while causing disruptions to legitimate household consumption, particularly due to difficulty accessing banking facilities and the transaction costs of regularly accessing banking to receive benefits (Clarke, 2015a).

Kerosene

Kerosene in India is used by poorer households, predominantly in rural areas, for lighting and, to a lesser extent, cooking. Subsidized kerosene, which constitutes more than 85 per cent of total consumption, is provided through the Public Distribution System (PDS), a nationwide system of predominantly third-party run Fair Price Shops (FPS) (administered at the state level) through which the central and state governments distribute subsidized food, kerosene and other commodities on the basis of household ration card allocations (Clarke, 2014). Subsidized (PDS) kerosene is sold at USD 0.22 per litre, compared to a market price of approximately USD 0.45 per litre for unsubsidized kerosene.

The government predetermines the volume of PDS kerosene available for consumption. Per-state allocations are calculated by MPNG, and kerosene is released for delivery on a quarterly basis, with the Department of Food and Civil Supplies within each state responsible for ensuring uplift of quota allocation and distribution to retail outlets. This process of supply, however, is complex, antiquated and highly opaque, being subject to high levels of corruption, with very little enforced separation between subsidized and unsubsidized kerosene markets. Unlike LPG subsidies, there is no mechanism to systematically link subsidy receipt and subsequent fuel consumption to an intended beneficiary.

The result is that PDS kerosene is subject to high levels of diversion, both for sale to households and for a range of non-household uses (primarily as a diesel adulterant or substitute), frequently with political collusion or patronage (Clarke, 2014). A recent analysis estimates leakage in FY 2011–12 at approximately 45 per cent of total allocation, with wide variance between states (Clarke, 2014). This is consistent with other estimates—for example, in August 2014 the government estimated that around 33 per cent of total supply was diverted to non-household uses, generating close to USD 2 billion of illegal income (Clarke, 2014).

² The scheme required extensive piloting. A first phase was launched in 289 districts across India in 2013, but suspended due to concerns around financial inclusion and program design. The phase launched in January 2015 has settled a number of contentious issues (Doherty, 2014). It is now the largest scheme of its kind in history, reaching around 140 million households (Clarke, 2016).



While dyes are used to try to reduce leakage, informal networks pilfer large amounts from supply points and encourage households to on-sell rations, all to be adulterated with diesel. The result is significant shortages of PDS kerosene for actual use in cooking and lighting.

b) What lessons can be learned from India's experiences with dual pricing?

- **Dual pricing will likely result in prohibitively large volumes of leakage in the absence of strong enforcement measures.** This is evident from India's experiences with all three fuels. Bulk diesel pricing lacked dedicated enforcement systems, which was exacerbated by state-level unwillingness to support government policy. LPG pricing resulted in tens of millions of illegal users. Kerosene pricing was vulnerable to the well-known weaknesses in the Public Distribution Systems (PDS) used as a delivery mechanism. This is an issue of effective exclusion. Exclusion is relatively simple to achieve at supply points in principle (e.g., through the use of identification, other documentation, geography etc.); however, it needs to be effectively enforced.
- **Dual pricing will be difficult to manage where there is significant potential on the supply side for dealers and others to sell subsidized products at a markup in parallel markets.** The problem is significantly enhanced in situations, such as kerosene markets in India, where the subsidized product can be easily sold on as an unsubsidized product or where it is a close substitute for a more expensive product. Separating sale and subsidization of a given product can help to resolve this problem.
- **Performance can be improved by “one-brand” approaches that use technology to link subsidy receipt and fuel consumption with intended beneficiaries and transfer subsidies after the point of sale.** By requiring beneficiaries to pay the full cost for LPG, then depositing a cash subsidy in a linked bank account, the DBTL significantly reduces the potential for leakage. The system, however, requires a relatively high level of technical, systems and information technology capacity among implementers and financial inclusion among beneficiaries. In addition, policy-makers should weigh up the costs and benefits of a change in registry structure, particularly where this can result in excluding low-income households from legitimate consumption.

3.2 Dual Pricing in the Philippines³

a) What dual pricing policies has the Philippines used?

In May 2011, the Philippine government, with the Department of Energy (DOE) as the lead implementing agency, launched the Public Transport Assistance Program (PTAP), also known as *Pantawid Pasada*. The program was a temporary dual pricing measure aimed to provide relief to public transport—especially “jeepney” operators—during a period of high oil prices.

Jeepneys, which consume diesel, are the most popular means of public transportation in the Philippines and have become a symbol of Filipino culture because of their flamboyant decoration and sometimes loud music. Jeepney operators are required to hold franchise licences, routes are fixed, and fares are regulated. Depending on its length, a jeepney can load 14 to 30 passengers. Since jeepney fares are regulated, there is no way that jeepney operators can pass-through higher fuel prices into higher fares, with fare increases needing to be sanctioned by public transport authorities. This means that higher fuel prices are immediately borne by jeepney operators.

³ This case study draws predominantly on the GSI publication *Energy subsidies and deregulation in the Philippines* (Mendoza, forthcoming).

The budget for jeepney assistance under Pantawid Pasada was approximately USD 8 million taken from government's revenue from the Malampaya gas field. Licensed jeepney operators were given debit cards or smart cards through which the assistance program was delivered. These debit cards hold displayed and electronic information on the franchise number, vehicle plate number and route identification for the jeepney and are valid for use as long as the vehicle plate numbers in the card and vehicle are identical.



A Jeepney in the Southern Philippines

Source: Keith Kristoffer Bacongco (CC licence 3.0)

For the initial round of the Pantawid Pasada, starting May 2011 to

November 2011, each debit card was given a one-time load of USD 25 to be used in a six-month period. The debit card is restricted to the purchase of diesel at gasoline stations with point-of-sale (POS) facilities and signage saying “Pantawid Pasada Card Accepted Here.” At the same time, the government instructed downstream oil companies to provide jeepney operators in possession of a debit card with a discount on diesel purchases of between USD 0.25 and 0.35 per litre. In February 2012, the Philippine government announced the Pantawid Pasada cards would be reloaded with USD 27 and the diesel discount scheme extended for cardholders.

Despite a target of 300,000 beneficiaries, only around 100,000 cards were issued to jeepney drivers. This was largely a reflection of the fact that a large proportion of jeepney drivers operate informally and lacked the necessary documentation and registration to receive debit cards. The Pantawid Pasada program also did not prevent an eventual rise in jeepney fares for consumers. However, the program was effective in cushioning the short-term impacts of higher diesel prices on jeepney operators and thereby in tempering unrest among drivers, who are important to the functioning of the Philippines' public transport systems.

While cash assistance of USD 25–27 reflects at most two days of diesel expense for jeepney drivers, this was nevertheless seen as largely sufficient given the average net income of jeepney drivers is between USD 6 and USD 10 per day. Combined with discounts on the sale of diesel for cardholders, the Pantawid Pasada was considered to have played a helpful role in mitigating short-term impacts of high diesel prices on an important and vulnerable target group.

b) What lessons can be learned from the Philippines' experiences with dual pricing?

- Limited-issue smart or debit cards for a small and well-defined target group can be an effective and efficient way to implement a dual pricing system. A small group is easier to accurately identify and enforce than a large one. While abuse of the system is still possible, linking smart cards to specific vehicles undermines the potential for systemic abuse.
- Policy-makers should be careful to consider the potential for exclusion of intended beneficiaries. In the Philippines, a large proportion of jeepney drivers were excluded because they lacked the requisite documentation to enrol in the scheme. Where policy-makers observe high rates of exclusion among target beneficiaries, the enrolment processes should be revised or relaxed. If exclusion is related to businesses operating in the informal sector, governments should encourage businesses to formally register their operations.



- Dual pricing systems need not be permanent or long-lasting. The Philippines' experience demonstrates that dual pricing can help to manage the immediate impacts of higher prices on vulnerable groups.

3.3 Dual Pricing in El Salvador

a) What dual pricing policies has El Salvador used?

LPG has been subsidized in El Salvador for many years. Although the government has made only very limited attempts to use dual pricing (largely focused on cutting off a small share of high-income households from subsidy benefits) its recent use of mobile phone technology is notable as a delivery mechanism that could be used to implement dual pricing effectively.

The new system to deliver subsidies was introduced in FY 2013–14, when 14 “customer care centres” were established to help identify subsidized LPG vendors, to register household beneficiaries and deal with complaints (Ministerio de Economía, 2015). Identified distributors were provided with a mobile phone and training on how they could use the phone to reimburse themselves for sales of subsidized LPG. As of mid-2015, centres had provided over 13,000 phones (Ministerio de Economía, 2015). At the same time, household heads were required to register as beneficiaries of the program, using their single identity document (documento único de identidad, DUI)—an ID card including photo, fingerprint and biometric data (Beneke, Lustig, & Oliva, 2015). Once registered, consumers were provided with a 3-digit personal identification number (PIN). Upon purchasing LPG from a designated distributor, they are required to enter their PIN code into the distributor’s mobile phone (Ministerio de Economía, n.d.). This is sent to a central database that is able to validate in real time if the consumer is an eligible beneficiary. If so, a confirmation message is sent, the government transfers the subsidy amount to the distributor’s e-wallet and beneficiaries are able to buy one 25-pound LPG cylinder per month at a fixed below-market price. Distributors are given a separate card that allows them to withdraw cash from their e-wallet at designated financial institutions (Ministerio de Economía, 2015).

c) What lessons can be learned from El Salvador’s experiences with dual pricing?

- **Mobile phone systems used by designated fuel vendors can allow for a more secure electronic subsidy transfer system in contexts where cash transfers are not possible because of capacity constraints.** By focusing mobile phone usage on fuel vendors, the system also takes away a burden of information from subsidy beneficiaries, who only need to know their PIN code and do not need banking facilities.
- **Sufficient information and strong delivery are fundamental to policy acceptability.** In an analysis of public opinion polls about LPG subsidy reforms, Calvo-Gonzalez, Cunha, and Trezzi (2015) found that three variables had significant explanatory power in determining whether people supported or opposed reforms: first, how “well-informed” people considered themselves to be (this was only important at the moment of the first price increase); second, whether the subsidy had been delivered effectively (significant at all points in time and of gradually increasing importance in determining attitudes); and third, whether they were existing supporters of the government (significant at all points in time). This suggests that good preparation, with intensive piloting, is required to ensure that any dual pricing system works as intended and grows in acceptability.



Conclusions

1. **International experience strongly indicates that dual pricing is difficult to implement without prohibitively costly levels of leakage, illegal diversion and shortages.** There are very few success stories. This is partly due to poor targeting of beneficiaries and partly because of the financial incentives for corruption throughout the supply chain of subsidized fuels.
2. **Dual pricing is harder for some fuels than others.** Fuels that are easy to divert, transport, store and adulterate—such as kerosene, diesel and gasoline—are among the hardest fuels to dual price effectively.
3. **Where capacity exists to implement dual pricing effectively, it usually enables alternative policies that deliver better results for targeted businesses and households.** If the technology exists to implement dual pricing without problems, it is generally the case that it is possible to deliver alternative policies that will help targeted groups more usefully. For example, businesses may face challenges in many other areas than energy costs; while households may be better served by providing services that meet basic needs or through cash transfers. One possible exception is LPG, where dual pricing may be an effective way to make cooking fuel more affordable for low-income households.
4. **If political decision makers decide that dual pricing must be adopted:**
 - a. **It is important to monitor leakage and illegal diversion closely.** Without exception, some degree of leakage takes place with all dual pricing policies. This makes it imperative for governments to monitor the scale of leakage in any given time so that they can act decisively if large-scale leakage is occurring.
 - b. **Its viability will depend upon a strong delivery mechanism.** Generally, mechanisms that attempt to make two brands of the same fuel available involve large-scale leakage. By contrast, mechanisms that make one brand of fuel available but have systems to identify beneficiaries and transfer subsidies separately to the pricing of the fuel product involve less leakage. The implementation of such mechanisms requires good preparation and may benefit from the use of information technology.
 - c. **Strong policy enforcement is essential.** Given that leakage will take place, policies will only be able to operate at reasonable efficiency with adequate enforcement capacity. This can be improved through policy design. For example, dual pricing that targets small target groups is easier to enforce. It can also be improved through delivery mechanisms, as indicated above, although the use of smart cards and mobile phone technology is not a “magic bullet.” Ultimately, enforcement will depend upon systems to cut out unintended beneficiaries and to catch illegal activity. This is likely to involve complaints systems and the use of markers to substantiate claims of illegal diversion.



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