



Special Series on COVID-19

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The Time Is Right! Reforming Fuel Product Pricing Under Low Oil Prices

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A combination of supply and demand factors has resulted in an unprecedented sharp drop in international crude oil and oil (“fuel”) product prices. Such sharp price changes can have important fiscal implications for countries, which can vary with the extent of domestic fuel price regulation. This note reviews how countries have responded to the recent decline in prices of key fuel products (gasoline and diesel) in terms of passing these through to lower domestic fuel prices, and the implications for eliminating fuel subsidies and achieving efficient fuel taxation. While low international oil prices present an opportunity for countries to reform their approach to fuel pricing, sustaining these reforms to protect fiscal and efficiency gains as international prices recover will require depoliticization of fuel pricing in many countries through removing government discretion in price setting. Past reform experiences provide important lessons for the design of reform strategies. Sustained reform requires a well-communicated comprehensive reform approach that links reforms to clear and credible economic and social benefits, including strengthened social protection systems. Exploiting the current opportunity for reform can also support governments’ exit strategies from the COVID-19 crisis and lay the foundation for more ambitious pricing reforms over the medium term.

I. BACKGROUND

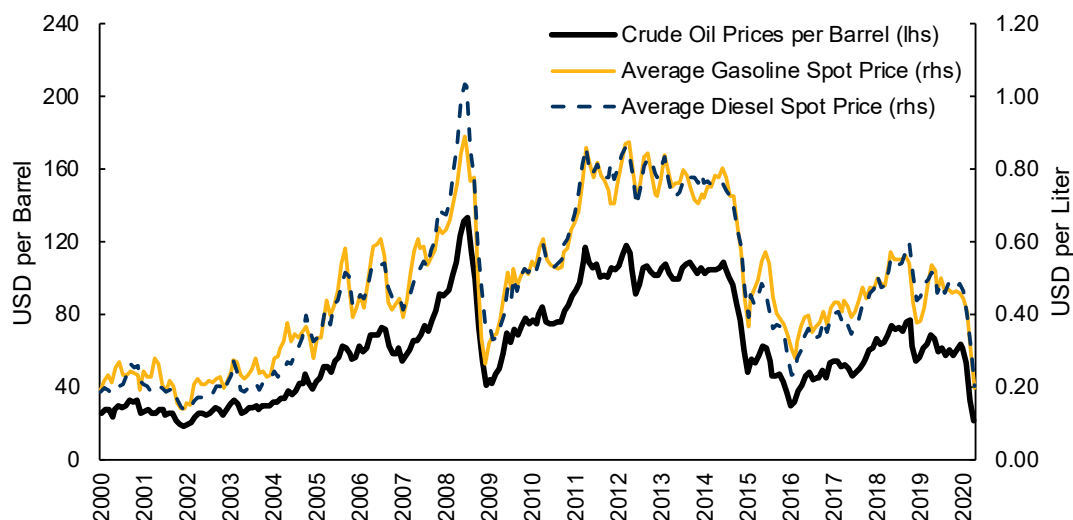
The recent sharp drop in international oil prices has resulted in price levels not seen since the early 2000s. International crude oil prices decreased sharply from US\$62 per barrel at the end of January 2020 to less than US\$20 by the end of April 2020 (Figure 1).² This drop reflects in large part reduced demand due to the economic fallout from policy responses to contain the spread of COVID-19—that is, reduced domestic and

¹ Please direct any questions and comments on this note to cdsupport-spending@imf.org.

² The drop in international oil prices over March 2020 was the steepest decline on record (World Bank 2020).

international travel and a lockdown of a large share of economic activity (World Bank 2020). International prices for key related products such as gasoline and diesel have similarly collapsed.³

FIGURE 1. International Prices for Crude Oil and Fuel Products (US dollars per barrel/liter)



Sources: International Energy Agency, *World Energy Prices 2020*; and IMF, *World Economic Outlook*.
 Note: Crude oil price is the average of UK Brent, Dubai Fateh, and West Texas Intermediate crude oil. Spot product prices are averages of the United States, Rotterdam, and Singapore.

The collapse in international oil prices and in oil demand has important fiscal implications for countries.⁴ Reduced demand results in lower fuel tax revenues in countries that tax fuel product consumption. Lower consumer prices can also decrease revenues where taxes are ad valorem. In countries that regulate domestic fuel prices, the fiscal implications will depend on whether and by how much policymakers allow domestic fuel prices to decline in tandem with international prices. For instance, in countries that limit pass-through, fuel price subsidies will decline, or fuel tax revenues will increase, both resulting in a positive fiscal impact. On the other hand, the fiscal impact of lower demand will differ depending whether a country taxes or subsidizes fuel consumption, with a negative impact in the former and positive impact in the latter.

This note reviews how countries have responded to the decline in international oil prices in terms of passing these through to lower domestic fuel prices, and also the implications for fuel pricing reform efforts.⁵ The setting of fuel product prices is often heavily regulated, especially in emerging and developing economies. Low international oil prices present an opportunity for countries to remove existing fuel subsidies or increase fuel tax revenues since a passive policy of simply not decreasing domestic fuel prices in line with international prices will achieve this objective. This can provide a useful platform for moving to efficient fuel product pricing, which will be needed for countries to deliver on their National Climate Plans (NDCs) mitigation commitments (IMF 2019).⁶ In normal times, this could facilitate the expansion of public spending or reduction of taxes in support of growth and development or help strengthen tax capacity. In the current COVID-19 context,

³ Note that the drop in international product prices in local currency equivalent (LCU) also depends on exchange rate movements over the same time period, with depreciation of exchange rates offsetting some of the drop in international prices in US dollars. However, over the period under discussion, this impact appears to be relatively small.

⁴ This note focuses on the implications of the decline in the international price of fuel products. This impact will be accompanied by a large negative fiscal impact on oil-producing countries due to lower crude oil revenues, which in the current context will be reinforced by lower global oil demand. On the latter, see related notes in this series: [Revenue Administration: Safeguarding Revenues for Oil-Producing Countries](#), [Natural Resource Fiscal Regimes: Tax Policy Response](#), and [Fiscal Policy Responses to the Sharp Decline in Oil Prices](#).

⁵ The analysis is based on a sample 123 countries, for which information on recent retail prices was available. These account for more than 85 percent of the global consumption of oil products.

⁶ Coady and others (2019) estimated that global energy subsidies arising from pricing energy below efficient levels were 3.8 percent of global GDP with oil products accounting for 41 percent of this total.

this would also help finance the recent significant increases in spending on health and support for firms and households in response to lockdown measures. Going forward, however, as international oil prices recover, to generate a sustained fiscal impact countries regulating domestic fuel prices will need to depoliticize domestic fuel pricing through the adoption of independently implemented automatic fuel pricing mechanisms that routinely, and without political interference, adjust domestic fuel prices in line with international prices or through fuel price liberalization. This will require a well-communicated comprehensive approach to policy reform that links fuel price reform to clear and credible economic and social benefits, including strengthened social protection systems.

II. FUEL PRICING POLICY RESPONSES

The fiscal impacts of lower international fuel product prices will depend on how much countries pass through these decreases to consumers. Figure 2 presents the pass-through of international price decreases between February 2020 and May 2020, and where pass-through is defined as the absolute change in retail fuel prices divided by the absolute change in international fuel prices over the same period, both expressed in US dollars per liter. In the context of fuel price decreases, pass-through less (greater) than unity is consistent with *net* tax levels increasing (decreasing).⁷ Empirical studies find that pass-through increases gradually over approximately a 4–6 month period,⁸ with pass-through on average lower during international price decreases compared to increases (Kpodar and Abdallah 2017; Imam and Kpodar forthcoming). The median pass-through across all countries is 0.91 and 0.90 for gasoline and diesel, respectively.⁹ However, this estimate hides substantial variation both across and within country groups. Estimates of the median pass-through for gasoline and diesel range from 1.03 and 1.02 respectively in advanced economies (AEs) to 0.25 and 0.29 in the Middle East and North Africa region. Even within regions there remains significant variation (Figure 3) with, for example, a sizeable share of countries in Middle East and North Africa and sub-Saharan Africa (SSA) having pass-through exceeding unity, and a small number of advanced economies having pass-through below 0.8. Pass-through also varies across oil-exporting (0.25 and 0.28 for gasoline and diesel, respectively) and oil-importing countries (0.94 and 0.93, respectively).

A key factor explaining the magnitude of pass-through is the extent of government regulation of domestic fuel prices. The extent of regulation in the determination of domestic fuel prices can be classified according to the following three different pricing regimes:¹⁰

- **Liberalized pricing (LP):** Fuel prices are set by private sector distributors, often with fuel consumption subject to consumption (ad valorem) and excise (specific) taxation.
- **Automatic pricing mechanism (APM):** Fuel prices are set by the routine application of a pricing formula, with domestic prices determined as the sum of supply costs, domestic margins, and taxation (both ad valorem and specific).¹¹

⁷ Net tax is positive when domestic retail prices are greater than supply costs and negative (that is, subsidies) when less than supply costs. Note that where countries impose ad valorem taxes, tax *levels* can change even when tax policy (*rates*) do not.

⁸ Gradual pass-through reflects, for example, the time it takes for higher international fuel product prices to feed through to domestic supply costs and the extent of price smoothing exercised by suppliers and policy regulators.

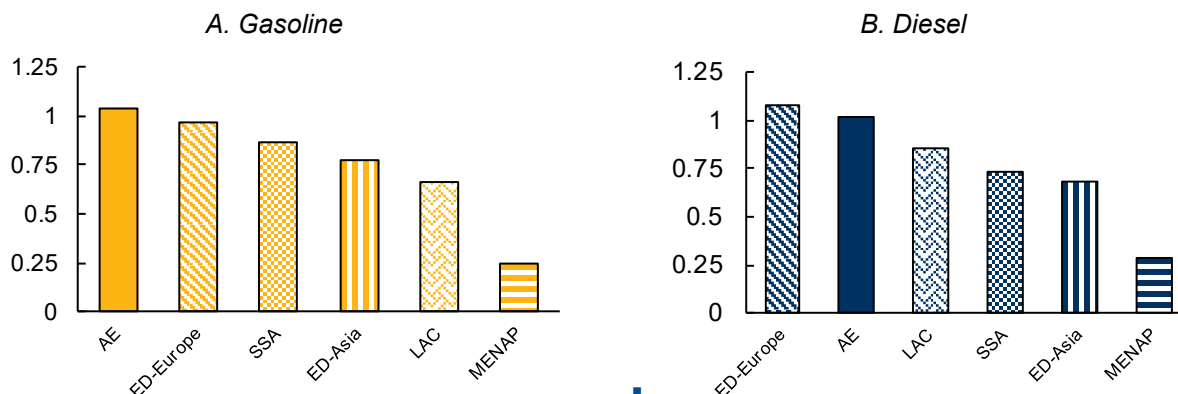
⁹ These estimates appear much larger than estimates for previous sharp declines in international fuel prices (Coady, Flamini, and Sears 2015; Coady, Sears, and Shang 2017; Abdallah and Kpodar, 2017).

¹⁰ Country classification is based on detailed institutional information obtained from past and ongoing technical assistance support to member countries and complement these with information from various other sources (Marchán, Espinasa, and Yépez-García 2017; IMF 2017; the GIZ database; OECD, and EU). Classification in the case of 15 countries in our sample was not possible due to lack of detailed information on the legal framework governing the fuel price setting mechanism.

¹¹ Prices are typically adjusted at regular intervals (for example, monthly or quarterly), and adjustments can involve formal smoothing rules to avoid large short-term price changes but ensure full pass-through over the medium term (Coady and others 2012). For example, supply costs can be calculated as an average of costs over previous months, or the magnitude of domestic price changes can be capped.

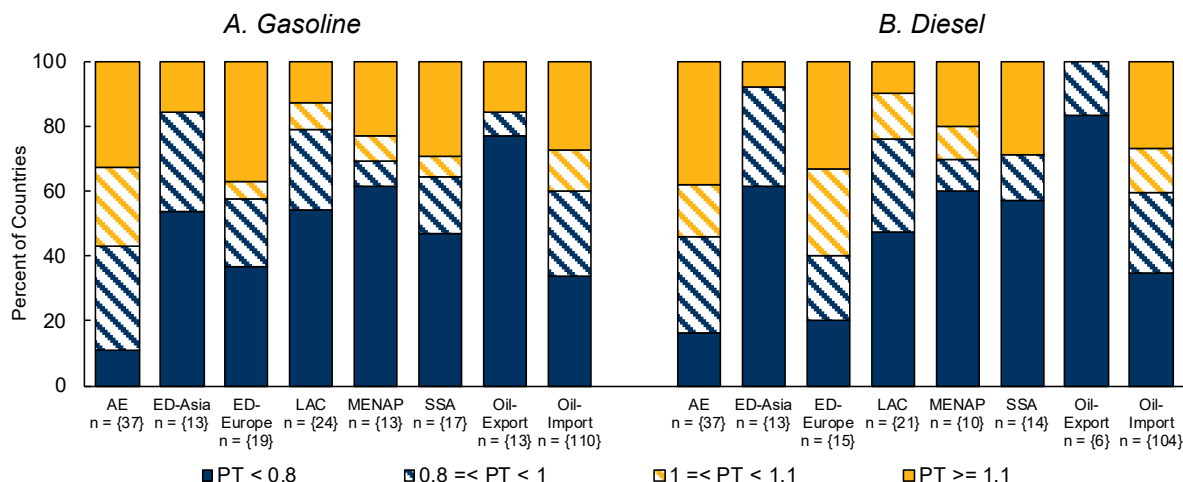
- **Ad hoc pricing (AHP):** Fuel prices are adjusted on a discretionary basis at irregular time intervals. Adjustments can be driven by country-specific fiscal pressures or be a response to prolonged or sharp increases or decreases in supply costs.

FIGURE 2. Median Pass-Through over February–May 2020, by Region



Source: IMF staff estimates.

FIGURE 3. Distribution of the Pass-Through (PT) Estimates over February–May 2020, by Country Group

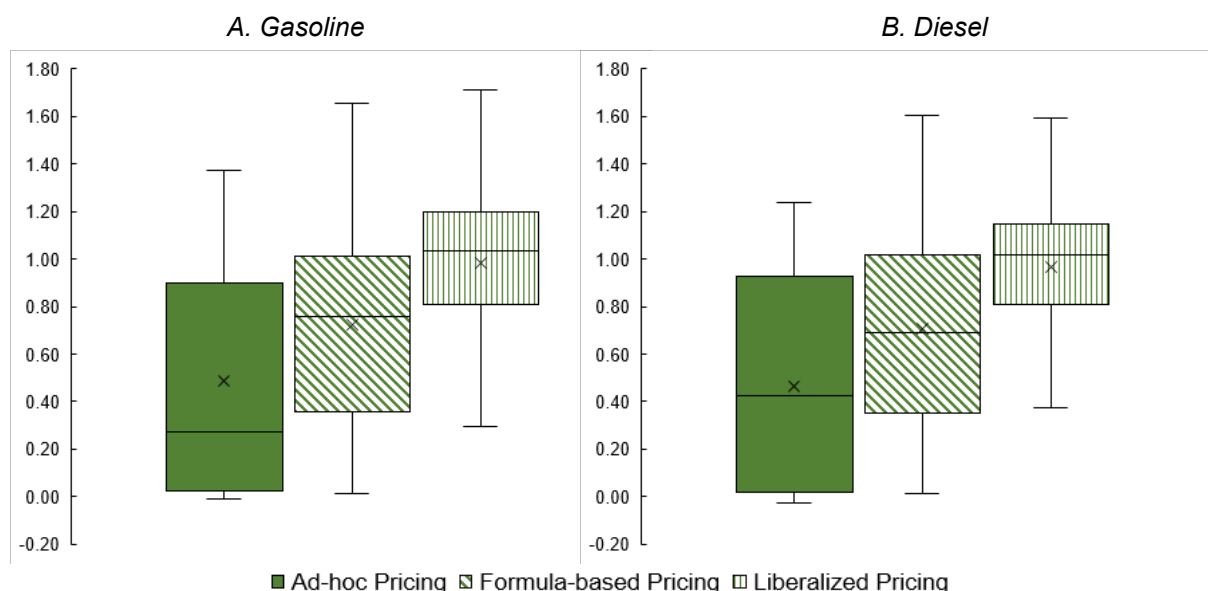


Source: IMF staff estimates.

On average, price pass-through of recent international fuel price decreases has been much lower in countries where domestic fuel prices are more heavily regulated. Figure 4 presents the distribution of pass-through across countries with different pricing regimes. For gasoline and diesel, respectively, the median pass-through varies from 1.03 and 1.02 in liberalized regimes, to 0.76 and 0.69 in automatic pricing regimes, and 0.27 and 0.42 in ad hoc pricing regimes. A relatively large share of countries under regulated pricing (APM and AHP) regimes have not fully passed through the decrease in international prices, which results in an increase in the extent of fuel taxation or a decrease in subsidies. There are also examples of countries with automatic or liberalized pricing that have low pass-through levels consistent with formal smoothing rules, price floors, or discretionary government intervention in price setting. For instance, the Chinese government sets retail gasoline and diesel prices according to an automatic pricing mechanism without smoothing, adjusting them every 10 days in line with changes in international prices. However, when international prices fall below a certain threshold, a rule prevents any further downward adjustments in retail prices with the objective of limiting losses incurred by national oil companies. This helps explain the observed incomplete pass-through of gasoline and

diesel prices in China, which amount to 0.77 and 0.68, respectively. In general, however, countries should avoid discretionary intervention in the context of APMs so as not to undermine the credibility and integrity of the pricing system, and formally introduce smoothing rules should they wish to more gradually adjust to sharp international price changes, especially when these are expected to revert over the short term. Where governments do temporarily intervene, they should clearly communicate the underlying rationale (for example, the fiscal pressures created by the crisis) and the temporary nature of the intervention.

FIGURE 4. Pass-Through Estimates over February–May 2020, by Fuel Pricing Regime



Source: IMF staff estimates.

Note: Countries for which information on pricing regime is not available are excluded from the sample.

III. AN OPPORTUNITY FOR ENERGY PRICING REFORM

The current environment of low international oil prices presents countries with an opportune window for reforming their approach to domestic fuel pricing to reduce fuel subsidies, increase taxation, and depoliticize fuel pricing over the medium term. For instance, fiscal pressures arising from the collapse in international oil prices in 2014 led to an increased emphasis on energy pricing reforms in oil-exporting emerging and developing economies (IMF 2017; World Bank 2020)—between mid-2014 and end-2016, more than half of these countries reduced energy subsidies. Others, including oil-importing countries, also subsequently reduced the extent of fuel price regulation (Asamoah, Hanedar, and Shang 2017). In the short term, limiting pass-through of lower international prices to domestic fuel prices can generate fiscal space to help finance increasing public spending on health and social support in the context of the COVID-19 pandemic. It also helps countries to eliminate subsidies or increase in taxes to desired levels in a passive manner without having to adjust domestic prices upward. This can lay the foundation for reducing price regulation through adopting an automatic or liberalized pricing regime.¹² This would in turn help to depoliticize domestic fuel pricing, protect the budget from fluctuating fuel price subsidies or taxes, and transition to higher fuel taxes in support of achieving higher tax ratios. While avoiding significant pass-through during periods of declining international prices helps to eliminate fuel subsidies or implicitly increases fuel taxation, achieving environmental objectives through efficient carbon taxation will require further significant increases in fuel tax and price levels for most countries.

¹² Note that moving to a liberalized system will need careful planning to ensure supply and distribution systems are competitive with adequate oversight.

Experience with past attempts to actively reduce energy subsidies or increase energy taxation through significant increases in energy prices suggest that the chances of implementing a successful and sustained reform depends on how and when the reform is designed and implemented, including measures to protect vulnerable households. While there is no single recipe for addressing challenges in the context of reforms, past country experiences suggest that the subsidy removal should be carefully designed, taking into account six key ingredients that have been identified as being conducive to the success and sustainability of reforms (Clements and others 2013; Coady, Parry, and Shang 2018; IMF 2019).

- **A comprehensive reform plan.** The plan should have clear long-term objectives and identify and address the various challenges associated with the reform in consultation with key stakeholders both within and outside of government. This should be accompanied by an evidence-based analysis of the potential impact of reforms on different stakeholder groups and of complementary policies that could help alleviate adverse impacts on some stakeholders.
- **An effective communications strategy.** This includes informing the public about the size of energy subsidies or forgone tax revenues, their adverse impact on inequality and labor-intensive growth, how they negatively affect the government’s budget and its allocation to priority social and infrastructure spending, and the need to deliver on climate commitments. This is essential to help generate broad political and public support and should be undertaken throughout the reform process.
- **Sequencing energy price increases.** Phasing-in price increases is desirable where required price increases are large. Sharp increases in energy prices can generate intense opposition to reforms, while a more gradual approach to price increases will allow households and industries time to adjust. It will also allow governments time to adequately prepare for the design and implementation of appropriate supporting measures, and to mitigate any possible inflationary impacts.¹³
- **Improving the efficiency and transparency of state-owned enterprises affected by the reforms.** Strengthening the financial position and operational efficiencies of energy and energy-intensive enterprises can reduce the need for budget transfers, and consequently reduce the fiscal burden on public finances. This helps avoid the public perception that fiscal gains are being squandered on sustaining inefficient enterprises.
- **Implementing compensation measures.** It is crucial that households who are significantly negatively impacted by the removal of energy subsidies (especially lower-income households) be compensated to avoid exacerbating poverty and maintain support for reforms. These measures should be communicated and implemented early on in the reform process to build up credibility.
- **Depoliticizing the price setting mechanism.** Rule-based mechanisms for setting energy prices can help reduce the likelihood of reform reversal. The adoption of automatic pricing mechanisms, implemented by an independent body that is removed from political pressures, can be coupled with smoothing rules to avoid large domestic price increases while ensuring gradual full pass-through of international price changes over the medium term. Any plans for liberalizing markets should be carefully formulated and accompanied by measures that ensure competitive market supply and price setting.

Developing and implementing a reform strategy requires both a “whole of government” and “whole of society” approach. This, in turn, requires effective engagement and communication across government agencies, and open and interactive consultation with key stakeholders during the early design stages of the reform. An effective communications strategy can help build broad public support for reforming fuel prices. The communication strategy should include consultation with those stakeholders who are affected by the reform, since their support can significantly enhance the probability of reform success (Worley, Pasquier, and Canpolat

¹³ Policymakers are often concerned about possibly inflationary impacts from increasing domestic fuel prices. However, recent study by Abdallah and Kpodar (2020) and Choi and others (2018) find that the impact of fuel price increases on the general price level is on average modest and transitory. Factors that mitigate the persistence of any general price increase include greater labor market flexibility, lower energy intensity, and credible monetary policy.

2018; Abdallah and others 2019).¹⁴ The information campaign should be transparent about both the benefits and the costs of reform. It should explain the rationale for the reform, the benefits from the reform, and the cost of the status quo, as well as the mitigation measures for adversely affected groups complementing the reform.

Countries can look to the experiences of other countries that have successfully reformed their fuel pricing regimes for policy lessons. Several countries have in the past successfully adopted and implemented automatic fuel pricing mechanisms that can protect the budget from international oil prices movements. These includes China, Kenya, Mauritius, Mexico, Mozambique, Nepal, and United Arab Emirates. Other countries, such as India, Morocco (Box 1), and the Philippines, have even liberalized pricing of key fuel products following a gradual reform process.¹⁵ More recent reforms help illustrate how governments can capitalize on lower oil prices and act swiftly to remove fuel subsidies and reform the overall approach to pricing. After decades of price controls, both Indonesia and Malaysia—each at the time among the top five fuel subsidizers in Southeast Asia—seized the opportunity to abolish their fuel subsidies toward the end of 2014 when international oil prices also collapsed. At the beginning of 2015, Indonesia abolished its gasoline subsidy and significantly reduced its diesel subsidy. At the end of 2014, Malaysia stopped subsidizing both gasoline and diesel, essentially moving from partial reforms to a full deregulation of prices for both fuel products; this is reflected in Malaysia’s high pass-through levels for gasoline (0.8) and diesel (0.7) during the recent decline in international prices.¹⁶

Deregulation of fuel pricing offers broader economic, social, and environmental benefits beyond the creation of fiscal space. These benefits include:

- **Promoting job creation and human-capital intensive growth.** Reforming fuel prices can stimulate job creation and inclusive growth, and thus lay the foundation for greater economic diversification. Overall, diverting resources away from capital-intensive industries (which are typically energy intensive) toward skill-intensive industries (which are also labor intensive) promotes job creation and helps address persistent high levels of unemployment. Mundaca (2017) investigates the impact fossil fuel subsidy reforms on economic growth and finds that a country which initially subsidizes its fossil fuels and then eliminates or reduces these subsidies, experiences higher economic GDP per capita growth and higher levels of employment. These effects are strongest in countries whose fuel subsidies are high at the outset, such as in the MENA region where a US 20 cents per liter decrease in gasoline and diesel subsidies increased the GDP per capita growth rate by about 0.5 and 0.3 percent, respectively.
- **Prioritization of spending and inclusive growth.** Subsidy reforms and fuel tax increases provide an efficient source of additional fiscal space that can be used to finance increased spending on priority social and infrastructure expenditures, which help promote inclusive growth (Clements and others 2013). This includes higher spending and health and education. Evidence suggests that reforming energy prices in the context of an efficient and growth-friendly fiscal consolidation can potentially alleviate poverty and reduce inequality (Abdallah and others 2015).
- **Social and environmental benefits.** The environmental benefits of reforms are at the center of an ongoing policy initiative that has gained prominence in 2009 with the world’s largest G20 economies agreeing to phase out subsidies for fossil fuels as part of efforts to combat global warming (Parry and others 2014). These commitments were reaffirmed in 2012, and more recently under the 2015 Paris Climate Agreement. Coady and others (2019) estimated that eliminating fossil fuel subsidies and moving to efficient pricing would result in

¹⁴ The discussion in Abdallah and others (2019) shows how to design and roll out a successful communication campaign strategy, using as application, energy price reform in Colombia.

¹⁵ See Coady, Parry, and Shang (2018, Table 1) for more details.

¹⁶ Note, however, that Malaysia reintroduced subsidies in May 2018.

substantial reduction in CO₂ emissions. But such reforms can also deliver significant domestic gains, including reducing premature air pollution deaths.¹⁷

Box 1. “Whole of Government” and “Whole of Society” Approach to Reform: Experience of Morocco

Energy subsidies in Morocco have existed since the early 1900s, prior to the government’s decision in 2010 to embark on reforms. While there was some adjustment in domestic retail prices of fuel products after 2000, such adjustments were very infrequent. Pressure for reform intensified when energy subsidies reached roughly 4.6 percent of GDP by late 2011 following a sharp rebound in international oil prices after 2009. It was clear that these subsidies were not only unsustainable from a fiscal perspective but also distorting the Moroccan economy toward inefficient energy-intensive production.

A multiyear reform strategy was launched in 2012, focusing on a phased approach to reforming retail fuel prices. The strategy featured three stages: a preparation phase during which incremental increases in pump prices were introduced to gradually reduce subsidies; a partial indexation phase during which prices were set according to an automatic pricing mechanism with smoothing rules with the aim of gradually eliminating subsidies; and a final phase under which price liberalization was rolled out.

- **Preparation phase** (from 2012 to 2013). The partial phasing out of subsidies began in September 2013 when ceilings on unit subsidies were introduced (with higher ceilings for diesel) to limit the fiscal cost of fuel subsidies. These ceilings were gradually reduced over time.
- **Indexation phase.** At the end of 2013, the government introduced an automatic pricing mechanism for diesel and gasoline, based on a moving average of international prices in the previous two months. Automatic domestic price adjustments were set to occur whenever the import reference price diverged from the domestic retail price by 2.5 percent either on the upside or downside. Adjustment initially occurred monthly but then became more frequent (twice per month) until subsidies were fully eliminated in January 2014 for mid-grade gasoline and fuel oil, and in December 2014 for automotive diesel.
- **Liberalization phase.** After successfully implementing the automatic pricing mechanism and avoiding the return of subsidies from 2015, retail prices of all fuel products were fully liberalized in 2018.

Morocco provides an example of how to build public acceptance for reforms. Communication across government ministries, including teams working on the technical aspects of the reform, was key with all parties involved in the process working in coordination. A “whole of society” approach also complemented this “whole of government” approach to reform. The incremental approach to increasing prices helped ensure a smoother transition and a better level of acceptance among the public. Transparency and communication regarding these price changes (and how they are affected by external or domestic factors) also helped to sustain the reform process. Finally, the government also took parallel measures to expand existing targeted social protection programs (for example, support to school-age children and medical assistance for the poor), supplemented by the creation of new programs (for example, support for low-income widows and the physically disabled). The government established the Fund for Social Cohesion under the Finance Act of 2012 aimed at (1) contributing to the financing of medical assistance for the most vulnerable, (2) providing conditional cash transfers that require poor families who receive them to send their children to school, and (3) providing direct unconditional support to vulnerable households.

The Moroccan government has continued to strengthen the social safety net in support of ongoing subsidy reform efforts. The reform process is still ongoing given that liquefied petroleum gas subsidies

¹⁷ Coady and others (2019) estimated that eliminating fossil fuel subsidies and moving to efficient pricing would result in substantial domestic and global environmental benefits would have led to a 28 percent reduction in CO₂ emissions and a global reduction in premature air pollution deaths by about 46 percent. About 80 percent of these environmental benefits are due to efficient pricing of coal.

remain. As part of the efforts to address these subsidies and strengthen the safety net, with support from the World Bank the government is designing a unified social register based on biometric data, drawing lessons from the recent experience in India. This should help improve the coverage and targeting of social safety net in support of ongoing subsidy reform.

Source: Abdallah and others (2018).

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