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CASE STUDIES ON ENERGY SUBSIDY REFORM: LESSONS AND IMPLICATIONS

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INTRODUCTION

This supplement presents country case studies reviewing energy subsidy reform experiences, which are the basis for the reform lessons identified in the main paper. The selection of countries for the case studies reflects the availability of data and of previously documented evidence on country-specific reforms (Table 1). The 22 country case studies were also chosen to provide cases from all regions and a mix of outcomes from reform. The studies cover 19 countries, including seven from sub-Saharan Africa, two in developing Asia, three in the Middle East and North Africa, four in Latin America and the Caribbean, and three in Central and Eastern Europe and the CIS. The case studies are organized by energy product, with 14 studies of the reform of petroleum product subsidies, seven studies of the reform of electricity subsidies, and a case study of subsidy reform for coal. The larger number of studies on fuel subsidies reflects the wider availability of data and past studies for these reforms. The structure of each case study is similar, with each one providing the context of the reform and a description of the reforms; discussion of the impact of the reform on energy prices or subsidies and its success or failure; mitigating measures that were implemented in an attempt to generate public support for the reform and offset adverse effects on the poor; and, finally, identification of lessons for designing reforms.

The case studies include both successful and unsuccessful subsidy reform episodes over the past two decades. The 22 case studies cover 28 major reform episodes (Table 1). These involve episodes in which governments attempted to reduce the fiscal burden of subsidies by raising retail energy prices or improving the efficiency of state-owned enterprises in the energy sector. They include cases where governments attempted to reduce pretax subsidies but also where governments tried to restore energy taxation to levels that had prevailed earlier. The studies include cases where countries successfully implemented reforms that led to a permanent and sustained reduction of subsidies (successful); those which achieved a reduction of subsidies for at least a year, but where subsidies have reemerged or remain a policy issue (partially successful); and subsidy reforms that failed, with price increases or efforts to improve efficiency in the energy sector being rolled back soon after the reform began (unsuccessful). Out of the 28 reform episodes, 12 were classified as a success, 11 as a partial success, and five as unsuccessful.

Table 1. Summary of Country Energy Subsidy Reform Episodes

Region/Country	Energy product	Reform episode	Reform outcome	Reform impact	IMF-supported program during the reform episode	Conditionality on energy subsidy reform
CEE-CIS						
Turkey	Fuel	1998	Successful	SOEs turned from net loss to net profitability	Yes	Yes
Armenia	Electricity	Mid-1990s	Successful	Electricity sector financial deficit declined from 22 percent of GDP in 1994 to zero after 2004	Yes	Yes
Turkey	Electricity	1980s	Successful	Generated additional revenues for maintenance	Yes	Yes
Poland	Coal	1990–1998	Unsuccessful	n.a.	Yes	Yes
	Coal	1998	Successful	The industry became financially viable and achieved substantial reduction in government transfer	No	
Emerging and Developing Asia						
Indonesia	Fuel	1997	Unsuccessful	n.a.	Yes	Yes
	Fuel	2003	Unsuccessful	n.a.	No	
	Fuel	2005	Partially successful	Subsidies declined from 3.5 percent of GDP in 2005 to 1.9 percent in 2006	No	
	Fuel	2008	Partially successful	Subsidies declined from 2.8 percent of GDP in 2008 to 0.8 percent in 2009	No	
Philippines	Fuel	1996	Successful	0.1+ percent of GDP	Yes	Yes
Philippines	Electricity	2001	Successful	Subsidies declined from 1.5 percent of GDP in 2004 to zero in 2006	No	
LAC						
Brazil	Fuel	Early 1990s–2001	Successful	From 0.8 percent of GDP in subsidies in mid-1990s to revenue generating since 2002	Yes	Yes
Chile	Fuel	Early 1990s	Successful	n.a.	No	
Peru	Fuel	2010	Partially successful	0.1 percent of GDP	No	
Brazil	Electricity	1993–2003	Successful	0.7 percent of GDP	Yes	Yes
Mexico	Electricity	1999/2001/2002	Unsuccessful	n.a.	Yes	No
MENA						
Iran	Fuel	2010	Partially successful	Growth in the consumption of petroleum products initially stabilized	No	
Mauritania	Fuel	2008	Unsuccessful	n.a.	Yes	No
	Fuel	2011	Partially successful	Subsidies declined from 2 percent of GDP in 2011 to close to zero in 2012	Yes	Yes
Yemen	Fuel	2005	Partially successful	Subsidies declined from 8.7 percent of GDP in 2005 to 8.1 percent in 2006	No	
	Fuel	2010	Partially successful	Subsidies declined from 8.2 percent of GDP in 2010 to 7.4 percent in 2011	Yes	Yes
Sub-Saharan Africa						
Ghana	Fuel	2005	Partially successful	50 percent price increase on average	No	
Namibia	Fuel	1997	Partially successful	0.1+ percent of GDP	No	
Niger	Fuel	2011	Partially successful	0.9 percent of GDP	No	
Nigeria	Fuel	2011–12	Partially successful	Subsidies declined from 4.7 percent of GDP in 2011 to 3.6 percent in 2012	No	
South Africa	Fuel	1950s	Successful	Successfully avoided subsidies and secured supply	No	
Kenya	Electricity	Mid-1990s	Successful	Subsidies declined from 1.5 percent of GDP in 2001 to zero in 2008	Yes	Yes
Uganda	Electricity	1999	Successful	2.1 percent of GDP	Yes	Yes

Source: IMF staff.

Note: n.a. =not applicable.

Note: CEE-CIS=Central and Eastern Europe and Commonwealth of Independent States, LAC=Latin America and Caribbean, S.S. Africa=Sub-Saharan Africa, and MENA=Middle East and North Africa.

PETROLEUM PRODUCT SUBSIDIES

A. Brazil[1]

Table 2. Brazil: Key Macroeconomic Indicators, Selected Years, 2000–2011

	2000	2003	2008	2010	2011
GDP per capita ($US)	3751	3104	8729	10816	12917
GDP growth (percent)	4.3	1.1	5.2	7.5	3.8
Inflation (percent)	6.2	13.7	8.3	8.2	7.0
Overall fiscal balance (percent of GDP)	-3.4	-5.3	-2.3	-5.9	-3.6
Gross public debt (percent of GDP)	51.1	59.6	58.5	63.7	62.2
Net public debt (percent of GDP)	47.7	54.9	38.1	40.2	38.6
Current account balance (percent of GDP)	-3.8	0.8	-1.7	-2.2	-2.1
Oil imports (percent of GDP)	1.2	1.2	1.8	1.2	1.2
Oil exports (percent of GDP)	0.2	0.3	0.3	0.2	0.2
Oil consumption per capita (liters)	412	394	482	624	n.a.
Poverty headcount ratio at $1.25 a day (PPP) (percent of population)	11.8	11.2	6.0	6.1	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

Brazil's economic performance in the prereform era of the 1980s was characterized by low growth, high inflation, and substantial fiscal imbalances. Economic growth averaged about 3 percent and inflation averaged 272 percent. Fiscal policy was expansionary, with the overall budget deficit averaging 5 percent of GDP during the period and reaching 7 percent of GDP in 1989. Weak fiscal performance led to an increase in net public debt from 24 percent of GDP in 1981 to almost 40 percent of GDP in 1989. These deteriorating conditions put pressure on the authorities to alter Brazil's import-substitution policies and liberalize the economy (Giambiagi and Moreira, 1999), including in the energy sector.

The state-owned oil company, Petrobras, dominated the oil market in the 1980s. It held a monopoly on the upstream market and on the refining of liquid fuels in Brazil. In addition, Petrobras had a monopoly on crude oil and petroleum product imports. Even though the distribution of fuel products was open to private sector companies (including multinationals), the final consumer price was determined by the government. An oil stabilization fund was established in 1980 to smooth crude oil price volatility. The price of oil sold to the refineries was adjusted to keep the oil costs for Petrobras refineries at a set price determined by the government; the fund accumulated contingent liabilities to Petrobras when international crude prices were high, and these were offset when crude prices were low. The prices established for diesel and liquefied petroleum gas (LPG) were also

[1]Prepared by Allan Dizioli, Fiscal Affairs Department.

consistently set below import-parity costs. Due to increasing oil import costs, the crude oil stabilization fund and Petrobras ran up enormous deficits. To pay for these accumulated losses, the government transferred R$5.8 billion (0.8 percent of 1995 GDP) to Petrobras in the mid-1990s and Petrobras had to absorb other losses that were never transparently recorded on the budget.

Description of fuel pricing reforms—early 1990s to 2001

A gradual approach to the removal of subsidies was chosen by the government to deal with opposition from interest groups. To build public support for the reforms, the government promised consumers that privatization and liberalization would lower energy prices and improve services. Even though low prices to consumers had led to the subsidies, the authorities hoped that improvements in efficiency of the refinery would be sufficient to reduce these outlays without increases in consumer prices.

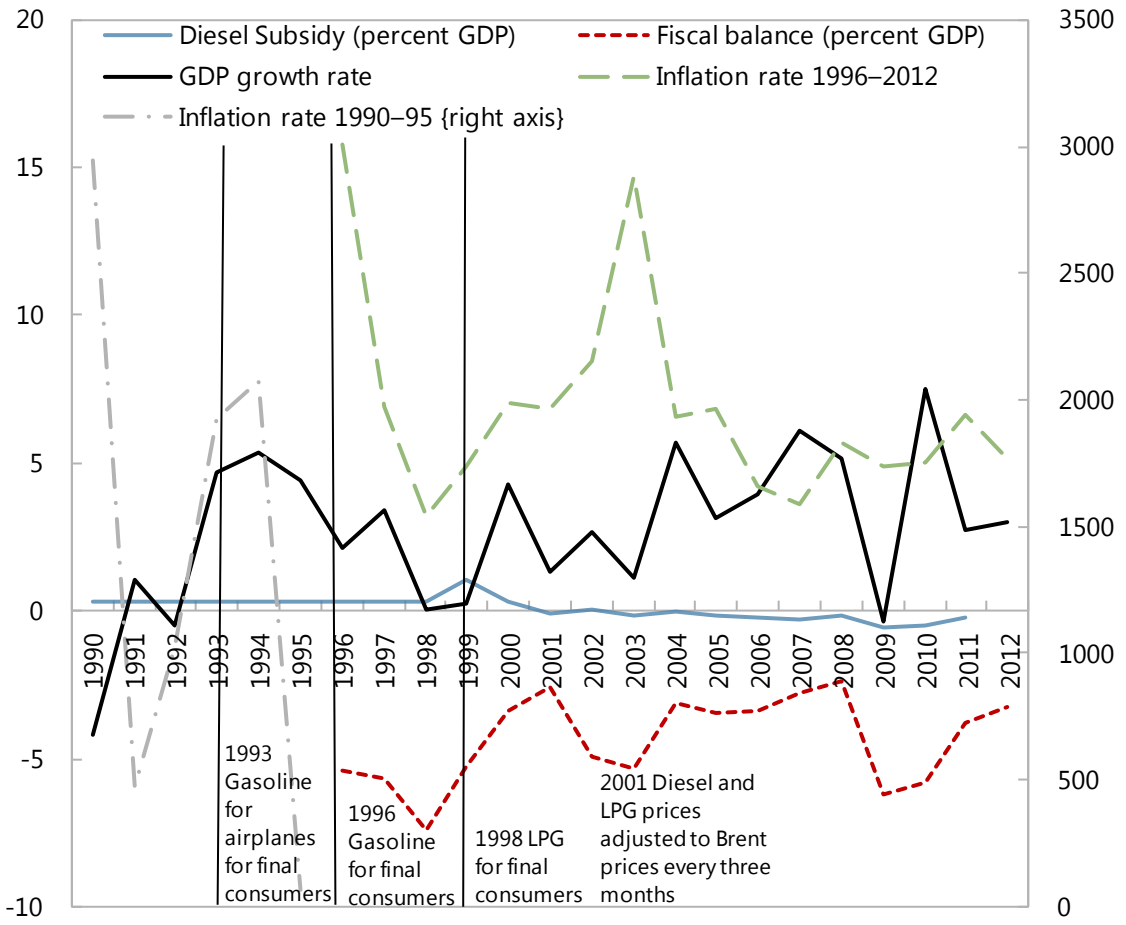
There were several steps involved in liberalizing fuel prices. The process of liberalizing the market began in the early 1990s with the liberalization of prices for petroleum products used primarily by firms, such as asphalt and lubricants (see Figure 1). This was followed by a more extensive liberalization that included gasoline prices for final consumers in 1996, LPG for final consumers in 1998 and diesel in 2001. The first products to lose subsidies were generally those consumed by politically weak stakeholders, while the politically more difficult subsidies (for liquid fuels used for transport and industry) were removed later. The removal of subsidies for ethanol producers and the suppliers of equipment and services to Petrobras was left to the end of the liberalization program.

Price liberalizations were associated with short-run increases in inflation. The dynamic effects of the liberalization reforms can be seen in Figure 1. After each reform, there was a spike in inflation in the short run that eventually died out over the longer term as prices were allowed to fluctuate with developments in international markets.

Petrobras maintained a dominant role in the market despite liberalization. In 1995, the formal monopoly of Petrobras on the upstream market, on refining liquid fuels, and on the imports of crude oil was revoked. In 1997, the Agencia National do Petroleo was created to oversee the deregulation and restructuring of the sector and to manage the auctioning of oil fields for exploration. Despite the wide-ranging scope of the authorities' privatization efforts, Petrobras has still managed to preserve a de facto monopoly in refining and distribution.

High rates of inflation and currency depreciation posed significant challenges for containing the fiscal costs of subsidies. To avoid the emergence of subsidies, frequent price increases were necessary in an environment of high inflation. However, diesel price increases, did not keep pace with exchange rate depreciation in the late 1990s, leading to an upward spike in diesel subsidies to about 1 percent of GDP in 1999 (Figure 1).

Figure 1. Brazil: Macroeconomic Developments and Energy Subsidy Reforms, 1990–2012
(Percent of GDP or rate)

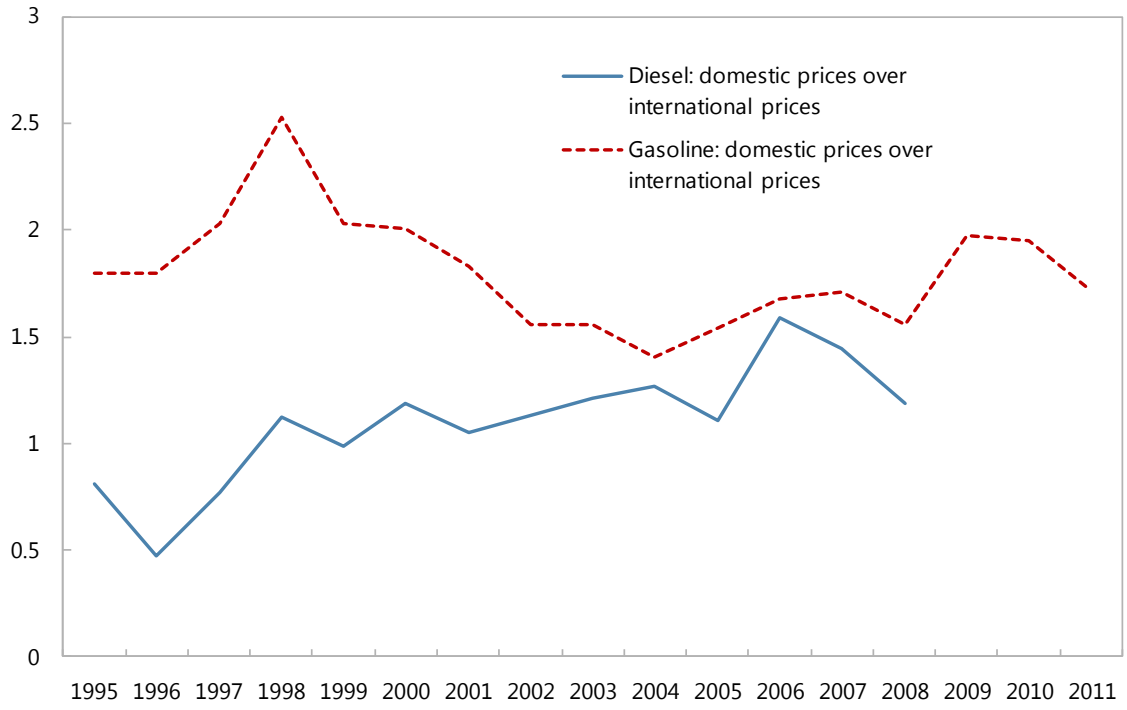


Sources: IMF staff and authorities.

Experience with fuel price setting since 2002

Official price liberalization for all fuel products has been in effect since 2002 and this has helped avoid the recurrence of subsidies. Prices were increased and remained above international levels, despite significant pressure on the currency between 2001 and 2003. Fuel prices continued to rise steadily until 2005 and after that remained mostly flat despite fluctuations in international prices (Figure 2). There is no official government price setting in the chain of fuel production and marketing. Under the new regulatory scheme, Agencia National do Petroleo monitors fuel prices through its "survey of fuel prices and margins," which includes gasoline, fuel ethanol, diesel, natural gas for vehicles, and liquefied natural gas.

Figure 2. Brazil: Fuel Price Developments 1995–2011



Sources: Country authorities and IMF staff estimates.

Durability of the reforms

While officially oil prices are determined by Petrobras, in practice the government has used them as a tool to control inflation. For instance, the government reduced taxes on gasoline and diesel in 2004 and removed the taxes on LPG and fuel oil so as to keep petroleum prices constant for final consumers. As a result of the lower levy rate and narrower coverage, the aggregate total amount of petroleum taxes has not increased in spite of growing consumption. The effect of this policy has been that Petrobras makes operational losses on its downstream business which implies that the net taxes [2] are lower.

Mitigating measures

- *Fuel subsidies*. Subsidies for the supply of fuels to thermal power plants in Amazonia, a politically sensitive region, were maintained for a period of 10 years until 2012.

[2]Net taxes are defined as taxes on petroleum products to final consumers minus possible transfers from the central government to Petrobras to pay for the losses.

- *Import tax*. In 2001, the government introduced a new tax on the importation and marketing of petroleum products. The levy raised revenues that were then used to fund: i) subsidies for ethanol producers and the transportation costs of hydrocarbons; ii) LPG used by low-income families; iii) projects oriented to environmental protection; and iv) the construction of roads.

- *Gas voucher*. After the withdrawal of LPG subsidies in 2001, the government introduced a new LPG subsidy in 2002 to assist low-income families' purchase of LPG through a gas-voucher. Eligibility was based on a means test.

- *Conditional cash transfers*. A conditional cash transfers program, the "Bolsa Escola," was implemented in 2001.

- Both of these targeted programs (the gas voucher and Bolsa Escola) were consolidated under a new national flagship conditional cash transfer program, the Bolsa Familia, in 2003.

Lessons

A gradual approach in implementing subsidies removal can help minimize the resistance of opposition groups that benefit from subsidies. The phased removal of subsidies in Brazil was carefully tailored to ensure that the process would be politically acceptable. The first products to lose subsidies (asphalt, lubricants, and gasoline for airplanes) were products that generally benefited politically weak stakeholders, and the politically more difficult subsidies (for liquid fuels used for transport and by industry) were removed last.

Liberalization reforms have more chance to succeed with a popular government. After controlling hyperinflation, which had been chronic for over a decade, President Cardoso's administration was able to capitalize on this political support to undertake his liberalization agenda.

Discretionary policies to adjust oil prices and stabilization funds do not work under unstable macroeconomic conditions and can have adverse consequences for the sector. The oil price stabilization fund had run up an enormous deficit in the 1980s, and the government had to transfer an equivalent of 0.8 percent of the 1995 GDP to Petrobras in the middle of the 1990s to pay for oil fund losses. Moreover, underpricing contributed to low investment in exploration and refining capacity.

Macroeconomic instability can contribute to the emergence of subsidies for products with controlled prices. Diesel subsidies emerged in 1999 in the wake of large currency depreciation and the failure to rapidly adjust fuel prices. The liberalization of prices soon afterwards allowed the subsidy reform to remain durable, as prices automatically adjusted with fluctuations in the exchange rate.

Targeted social programs can reduce opposition to subsidy reform and enhance its durability. Brazil adopted a gas-voucher to compensate low-income households for the increase in LPG prices

after the liberalization in 2001, and subsequently it has adopted a conditional cash transfer program, which supports the durability of the subsidy removal.

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B. Chile[3]

Table 3. Chile: Key Macroeconomic Indicators

	2000	2003	2008	2010	2011
Nominal GDP per capita (US$)	5174.3	4834.8	10710.7	12570.7	14403.1
Real GDP growth (percent)	4.5	3.4	3.0	6.1	5.9
Inflation (percent)	3.8	2.8	8.7	1.4	3.3
Overall fiscal balance (percent GDP)	-0.7	-0.4	4.1	-0.4	1.3
Central Government gross debt (percent GDP)	13.3	12.6	4.9	8.6	11.3
Current account balance (percent GDP)	-1.1	-1.1	-3.2	1.5	-1.3
Oil imports (percent GDP)	2.5	2.8	4.0	2.0	2.6
Oil exports (percent GDP)	0.0	0.0	0.0	0.0	0.0
Oil consumption per capita (liters)	577.3	541.7	833.2	984.2	n.a.
Poverty headcount ratio at $1.25 per day (PPP) (percent of population)	2.3	2.0	n.a.	n.a.	n.a.
Fuel subsidies (percent GDP)	0.0	0.0	0.0	0.0	0.0

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

Chile depends heavily on fossil fuel imports. The share of crude petroleum production to imports has been declining steadily over the past three decades from 27 percent in 1990 to under 3 percent in 2011.[4] This reflects the combination of shrinking domestic production (which declined by 75 percent in the past two decades) and buoying consumption (which increased by more than 160 percent since the early 1990s) reflecting strong economic growth.

[3]Prepared by Mauricio Soto, Fiscal Affairs Department.

[4]Balance Nacional de Energia 1988–2011, available at: http://bit.ly/GNmVHP.

Oil markets in Chile have a long history of deregulation. From the 1920s until the 1970s, the state played a dominant role in Chilean oil markets—from direct involvement in exploration and production to the creation of the national oil company (ENAP). Government involvement kept prices relatively low over this period through implicit subsidies (O'Ryan and others, 2003). In the 1970s, as part of the general push for economic liberalization in Chile, fuel markets (including LGP) were deregulated. This included opening up markets for production, import, distribution, and sale of fuel products. Nevertheless, the state-owned oil company (ENAP) maintains exclusive rights to explore and refine and remains an important player in the oil market. In 2010, ENAP supplied about 70 percent of the Chilean demand for gasoline, diesel, and kerosene.[5]

Reforms

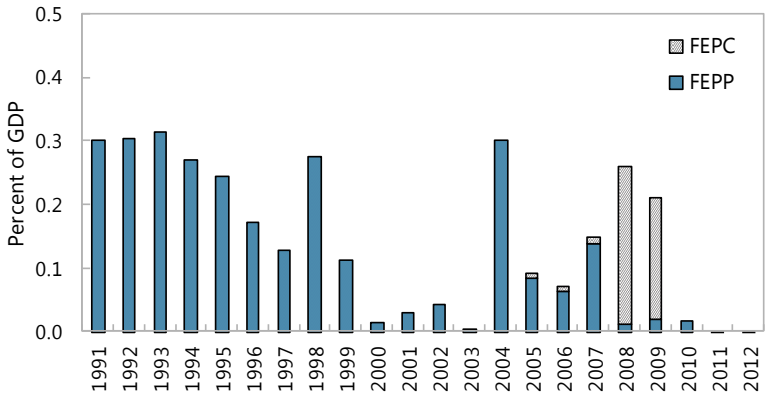
Recognizing the need to smooth the impact of international oil price shocks on domestic consumers, Chile introduced a stabilization mechanism in the early 1990s. Following the spike in oil prices associated with the Gulf War (1990–91), Chile established the Oil Prices Stabilization Fund (FEPP) with an initial fund of US$200 million (0.5 percent of 1991 GDP). Under this mechanism, the authorities set a reference price based on the expected evolution of CIF prices of crude oil in the medium and long term. The fund operated when international prices deviated by more than 12.5 percent from the reference price, by fully subsidizing the difference between international prices and the upper band and imposing a 60 percent tax on deviations below the lower band. The reference price was updated on an ad hoc basis and the formula behind its calculation was not made public. There was only one fund covering different product (gas, kerosene, diesel, and LPG), which allowed for cross-product subsidization.

The FEEP operated satisfactorily for nearly a decade, but required some reforms in the early 2000s to remain financially sustainable (Figure 3). The fund remained relatively healthy for the first eight years of operation. However, the sharp increase in oil prices in the late 1990s nearly depleted the fund (the balance reached US$50 million in January of 2000) and the mechanism failed to operate in late 1999 (Marquez, 2000). At this point, the fund required an emergency injection of capital to continue operating. The adjustment mechanism was also modified in a number of ways in order to increase the financial viability of the fund. These included establishing weekly updates to the reference price (which continued to be based on the current and expected evolution of oil prices in the medium term), introducing an explicit limitation to operate the fund subject to the availability of funds, eliminating the asymmetry in the adjustment mechanism (increasing the tax on deviations below the lower band to 100 percent), increasing transparency by making public the formula to adjust the reference price, and introducing separate funds for gas, kerosene, diesel, and LPG. Nevertheless, even after these adjustments the fund was nearly depleted by 2003. The total fiscal cost of the FEPP over 2000–05 is estimated at 0.15 percent of 2012 GDP (Vagliasindi, 2013).[6]

[5]See http://bit.ly/TsxzGV.

[6]See http://bit.ly/VN9Jo5.

Figure 3. Chile: Balance of Fuel Stabilization Funds, 1991–2012
(Percent of GDP)



Source: General Treasury of the Republic of Chile (http://bit.ly/Wm0e1e).

A temporary stabilization fund was established in 2005 in response to supply disruptions. Chile introduced the Fuel Prices Stabilization Fund (FEPC) as a temporary measure to respond to the spike of prices resulting from the disruption of supply following hurricane Katrina. The mechanism operated in a similar way to the FEPP but relied on a narrower band (5 percent) around a reference price based on the recent and expected evolution of WTI prices in the medium term plus a refining fee instead of the price of each derivate product (OECD, 2013). This mechanism was originally intended to be used for about a year, but was extended until 2010. The total fiscal cost of the FEPC over 2006–09 is estimated at 0.65 percent of 2012 GDP (Vagliasindi, 2013).

More recently, the stabilization fund was replaced by a tax adjustment mechanism. In 2011, Chile introduced the Consumer's Protection System for Fuel Excise Taxes (SIPCO). Instead of a fund, this adjustment mechanism relies on excise taxes to smooth transmission of changes of international prices to domestic prices. The mechanism reduces excise taxes for fuel when international prices jump above a 10 percent band around a reference price and increasing excise taxes when international prices fall below the band.[7] The reference price is based on the recent and expected evolution of WTI prices in the medium term plus a refining fee for each derivate product. Importantly, by focusing on excise taxes, this excludes large industries (mining, electric generators) who can recover these taxes through deductions (Larrain, 2010).

[7]SIPCO was originally introduced with a 12.5 percent band which was narrowed to 10 percent in September 2012. See http://bit.ly/VRAadr.

Mitigating measures

Chile has a range of well-targeted safety net programs that it uses to protect low-income groups from economic and other shocks (World Bank, 2010). In 2005, Chile compensated 5 million low-income households to offset the impacts of rising fuel prices, and another 1.6 million households whose electricity consumption was less than 150 kWh per month. A further payment to low-income families was made in 2006.

Lessons

The costs of smoothing mechanisms depend on their design. For example, there is some evidence that narrowing the bands from 12.5 percent over 1991–2005 to 5 percent over 2006–2010 greatly increased cost. In addition, the asymmetric nature of the original adjustment mechanism contributed to the depletion of the fund. These suggest that, when thinking about the parameters of adjustment mechanism, specific details can have a great impact of the cost of these programs. Thus, countries considering introducing these smoothing devices should carry out illustrative scenarios including sensitivity analysis of the parameters to ensure that the cost of the program would be in line with expectations.

Adjustment mechanisms should be transparent. Initially, the FEPP used a secret formula and allowed for ad-hoc adjustments in the reference band. This added unnecessary uncertainty regarding the timing and size of future fuel price adjustments and the extent to which international shocks would be transmitted to local prices. Such uncertainty is at odds with the goal of stabilizing prices. The reform of the early 2000s shows that it is possible to use a transparent rules-based approach to meet these goals.

It is possible to target the smoothing adjustment to smaller consumers. One important characteristic of the latest Chilean reform is that it excludes large energy consumers by applying the adjustment through an excise tax that is generally deducted by industries in mining, electricity, and other large fuel consumers. This sends a clear signal that these large consumers should be able to hedge on their own and helps to buy in support for reforms from the general population.

Smoothing mechanisms should only offer temporary relief. In Chile, the fuel market has been liberalized since the 1970s. Thus, these smoothing mechanisms have been in part a product of popular outcry related to higher fuel prices (in the context of the Gulf War and hurricane Katrina, for example). Nevertheless, Chile has used these mechanisms for temporary support—all of the adjustment schemes intended the increases to international prices to be eventually transmitted to local prices in full. Importantly, Chile has achieved this while at the same time devoting important resources to a well-targeted safety net (World Bank, 2010).

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C. Ghana[8]

Table 4. Ghana: Key Macroeconomic Indicators, 2000–2011

	2000	2003	2008	2010	2011
GDP per capita ($US)	400	563	1,266	1,358	1,580
Real GDP growth (percent)	4.2	5.1	8.4	8.0	14.4
Inflation (percent)	25.2	26.7	16.5	10.7	8.7
Overall fiscal balance, cash (percent of GDP)	-6.7	-3.3	-8.5	-7.2	-4.1
Public debt (in percent of GDP)	123.3	82.8	33.6	46.3	43.4
Current account balance (percent of GDP)	-6.6	0.1	-11.9	-8.4	-9.2
Oil imports (percent of GDP)	-7.1	-5.0	-8.3	-6.9	-8.3
Oil exports (percent of GDP)	0.0	0.0	0.0	0.0	7.2
Oil consumption per capita (liters)	n.a.	91.1	91.4	98.7	110.7
Poverty headcount ratio at $1.25 a day (PPP) (percent of population)	39	n.a.	30	n.a.	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

Ghana is a country of over 24 million people, rich in natural resources, including arable land and minerals. Ghana has recently discovered offshore oil reserves, and 2011 was the first full year of production. Although Ghana's oil reserves are relatively small on a global scale—with production from the current Jubilee field expected to peak at 120,000 barrels a day—there is considerable upside potential from new discoveries. Moreover, Ghana is in the process of building up infrastructure for the commercial use of its gas reserves with potentially significant benefits in terms of reducing energy costs and developing downstream industries.

Since 2004, deregulation has allowed oil marketing companies to enter the market for importing and distributing crude oil and petroleum products. Until that time, the Tema Oil Refinery (TOR) had a monopoly on the production and importing of refined products. Since then, deregulation has allowed oil marketing companies to enter the market for importing and distribution of crude oil and petroleum products. Under the current system, a pricing formula exists for all petroleum products. The current price-adjustment mechanism is the result of 2005 reforms, although it has not always worked as originally envisaged. The National Petroleum Agency (NPA), also established in 2005, reviews fuel prices twice a month. It provides recommendations to the minister of energy on adjustments to cost-recovery levels, based on a backward-looking formula incorporating changes in world fuel prices in the preceding two weeks.

[8]Prepared by Genevieve Verdier, African Department.

The decision to adjust pump prices is at the discretion of the Executive. If price increases are warranted but not implemented, the cost of subsidies is in principle borne by the budget. However, in the past, TOR carried the cost of the subsidy, and under-pricing of petroleum products saddled TOR with large losses that spilled over into the financial sector in the form of non-performing loans. The government was forced ultimately to clear TOR's arrears to the banking sector at a large budgetary cost. Since October 2010, a hedging scheme using call options has also provided some temporary protection against upward movements in oil prices. The government purchases monthly call options that generate revenues in the event of upside shocks to global oil prices; these revenues are used to cover temporary delays in adjusting domestic petroleum product prices to cost-recovery levels (IMF, 2011).

Experience with fuel price adjustments

The past decade has been marked by several attempts to deregulate fuel prices in Ghana (Figure 4).

- In 2001, a 91 percent adjustment of petroleum pump prices was driven in part by the desire to restore TOR's financial health. Delays in adjusting petroleum prices during 2000 led to large accumulated losses for the state-owned public energy company, which reached 7 percent of GDP (IMF, 2001). The reform was soon abandoned, however, in the face of rising world prices and a depreciating currency. TOR's losses were largely absorbed by the state-owned Ghana Commercial Bank, whose solvency was threatened.

- In early 2003, recognizing the unsustainable financial position of both TOR and Ghana Commercial Bank, the government renewed its commitment to cost-recovery pricing with a 90 percent increase in pump prices. Facing widespread opposition to the price increase, the government partially reversed the price increase in the run-up to the 2004 elections and it abandoned cost-recovery adjustments until 2005. In 2004, the subsidies to TOR reached 2.2 percent of GDP, and the company continued to borrow from Ghana Commercial Bank to finance its operations (IMF, 2005).

The deregulation of petroleum product pricing in 2005 was accompanied by strategic measures meant to ensure broad popular support for the reform. The strategy was supported by research, communication, and programs to mitigate the impact on the most vulnerable groups, all of which contributed to its successful implementation.

- *Research*. A poverty and social impact assessment (PSIA) studying the impact of fuel subsidy removal revealed that the program was poorly targeted, with the rich receiving the lion's share of the benefits (Coady and Newhouse, 2006).

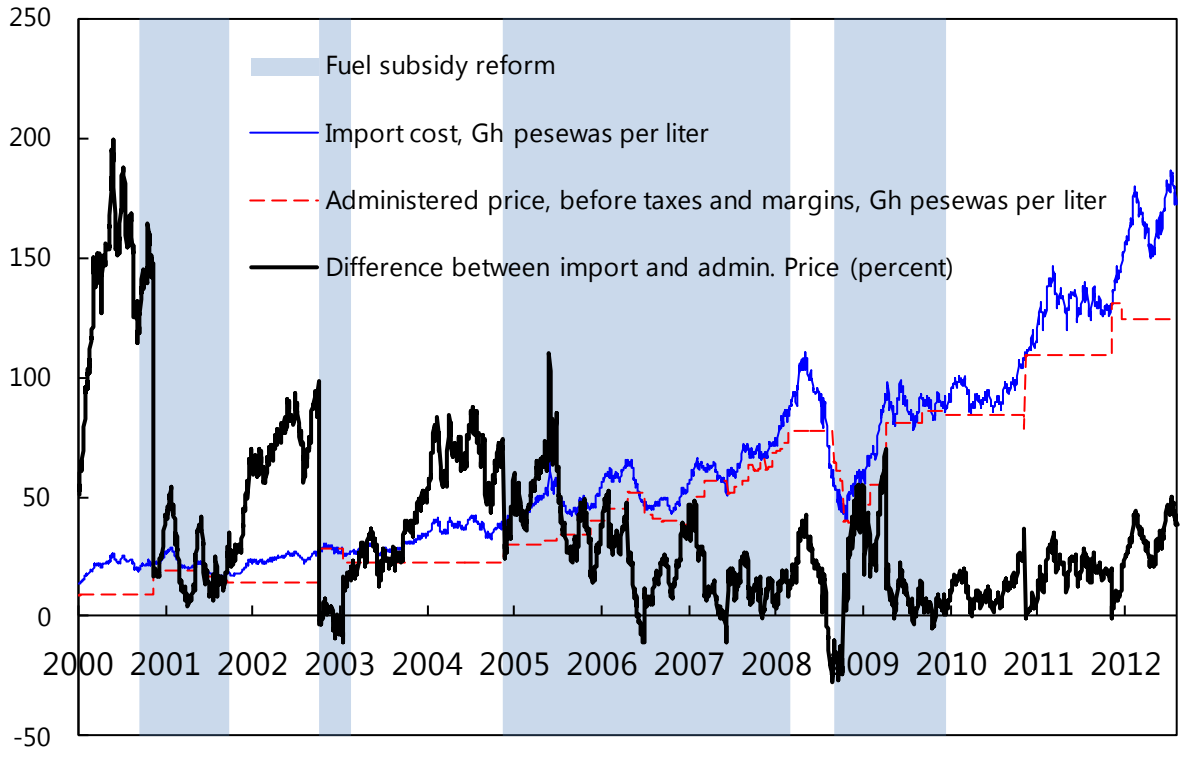
- *Communication*. The government engaged in a widespread communications campaign, including public addresses by the president and the minister of finance, explaining the reform's benefits. The results of the PSIA were made public and discussed in a dialogue with various stakeholders, including trade unions. The government also explained how resources freed from

subsidizing energy products would partly be reallocated to social priorities (Global Subsidies Initiative, 2006).

- *Assistance to the poor*. The government introduced a number of programs aimed at mitigating the effect on the most vulnerable, including the elimination of fees for state-run primary and secondary schools; an increase in public-transport buses; a price ceiling on public-transport fares; more funding for health care in poor areas; an increase in the minimum wage; and investment in electrification in rural areas.

Figure 4. Ghana: Fuel Price Developments, 2000–2012

The 2005 reforms ushered in a period of market-based fuel pricing. However, political considerations have at times interfered with this process.



Sources: National Petroleum Agency (Ghana) and IMF staff estimates.

The administration of the publicly released price-adjustment formula was transferred to the newly established National Petroleum Agency (NPA). The delegation of regulatory powers to the NPA was meant to isolate the decision to adjust prices from political intervention. Prices were adjusted by an average of 50 percent, and the government remained committed to regular adjustment for several years. In the wake of the 2007–08 global fuel and food crisis and in the run-up to the 2008 elections, however, automatic adjustment was temporarily suspended.

The NPA remains the main regulatory agency and publishes the price adjustments required for cost recovery on a biweekly basis. When an upward price adjustment has been required in recent years, the shortfall has often been covered by the budget or more recently by hedging profits. This has resulted in infrequent and large price adjustments, when hedging profits were exhausted and the fiscal burden became too onerous. Prices were adjusted twice in 2011, by 30 percent in January and 15 percent in December. Prices have not been adjusted in 2012 (with the exception of a small downward adjustment early in the year) and the gap between domestic and global oil prices, exacerbated by a depreciating currency, has increased substantially (IMF, 2012a, b).

Mitigating measures

Following the 2005 fuel price reform, the government introduced a number of programs aimed at mitigating its effect on the most vulnerable. (See bullet on "Assistance to the poor" above).

Lessons

A number of lessons can be drawn from Ghana's experience in the past decade.

The durability of reform depends crucially on political will and the independence of regulatory agencies from political interference. Without these conditions, it is difficult to maintain an independent regulatory agency. The NPA is not free to adjust prices without the consent of the Executive: it has adjusted prices only three times (once downwards) since January 2011. Although democratically elected governments have stronger mandates to implement difficult reforms, commitment to automatic adjustment often falters in the run-up to elections.

A constant dialogue with stakeholders and civil society at large about the cost of subsidies is necessary to maintain commitment to the reform. Recent attempts at adjusting prices have not been accompanied by an extensive public information campaign similar to the 2005 efforts. Price increases have been irregular, difficult to anticipate, and usually announced shortly before being implemented. This can result in strong opposition by various stakeholders, including powerful trade unions, and can undermine the government's efforts. The 2005 campaign was also successful because it engaged civil society and powerfully demonstrated the cost of fuel subsidies by sharing the results of the PSIA.

Supportive research and analysis are important for convincing the public of the benefits of reforms. During the 2005 reform, the PSIA was crucial in demonstrating the costs of subsidies. It also outlined that fuel subsidies were a poor policy measure in the fight against poverty: in Ghana, less than 2.3 percent of outlays on fuel subsidies benefitted the poor.

Visible mitigating measures increase the likelihood of success. Although fuel subsidies are ill-targeted, they are a direct transfer to most if not all citizens, their benefits are immediate and easy to understand compared to other social programs, and the individual cost of their removal is swift

and substantial—particularly for the poor who have no income cushion, unless they receive alternative compensation. A key element of a successful reform is, therefore, the efficient and visible reallocation of the resources saved through the removal of fuel subsidies to programs with immediate benefits to the most vulnerable. An expansion of cash transfers through the Livelihood Empowerment against Poverty (LEAP) program and additional spending on health and education subsidies would be good candidates.[9]

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[9]According to the World Bank (2012), LEAP is among the most well targeted of programs for the poor. Fuel subsidies, on the other hand, which disproportionately benefit those in higher income brackets, reached weekly levels in May and August 2012 that matched the annual budget contribution for LEAP.

D. Indonesia[10]

Table 5. Indonesia: Key Macroeconomic Indicators, 2000–2011

	2000	2003	2008	2010	2011
Nominal GDP per capita (US$)	800.0	1091.3	2211.9	2980.8	3508.6
Real GDP growth (percent)	4.2	4.8	6.0	6.2	6.5
Inflation (percent)	3.8	6.8	9.8	5.1	5.4
Overall fiscal balance (percent GDP)	-2.0	-1.4	0.0	-1.2	-1.6
Public debt (percent GDP)	95.1	60.5	33.2	27.4	25.0
Current account balance (percent GDP)	4.8	3.5	0.0	0.8	0.2
Oil imports (percent GDP)	3.5	3.2	4.6	3.4	4.3
Oil exports (percent GDP)	4.8	3.2	3.0	2.2	2.4
Oil consumption per capita (liters)	247.4	254.9	257.8	349.5	...
Poverty headcount ratio at $1.25 per day (PPP) (percent of population)	...	...	22.6	18.1	...
Fuel subsidies (percent GDP)	...	...	2.8	1.3	2.2

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

Reforming fuel subsidies has been a persistent policy challenge. The size of fuel subsidies in Indonesia has fluctuated considerably over time, reflecting changes in international fuel prices, the exchange rate, and the subsidy regime. The fiscal costs have been generally large, reaching 2.8 percent of GDP in 2008 when international oil prices peaked. In 2011, fuel subsidies were around 2.2 percent of GDP. Indonesia has attempted to tackle subsidy reform a number of times during this period to improve the fiscal position and achieve other policy objectives such as improving energy efficiency and protecting the environment.

Experience with fuel pricing reforms since 1997

- **The government cut energy subsidies in the wake of the 1997 Asian financial crisis, and this contributed to political unrest.** In the aftermath of the 1997 Asian financial crisis, the government agreed to cut energy subsidies as part of an IMF-supported adjustment program. Instead of the gradual phase-out strategy that was originally envisioned, the government announced increases in the prices of kerosene by 25 percent, of diesel fuel by 60 percent, and of gasoline by 71 percent (Beaton and Lontoh, 2010). The rapid increase triggered protests in the two weeks after the announcement and, along with a complex range of other factors including dissatisfaction with the government, eventually led to the end of President Suharto's rule.

- **A number of price increases were implemented between 2000 and 2003 with mixed success, and were then rolled back.** In 2000, the prices of gasoline, diesel, and kerosene were successfully raised despite violent demonstrations. These prices were again raised in 2001, not only for households, but also for industries. An attempt was made in 2003 to automatically link

[10]Prepared by Baoping Shang, Fiscal Affairs Department.

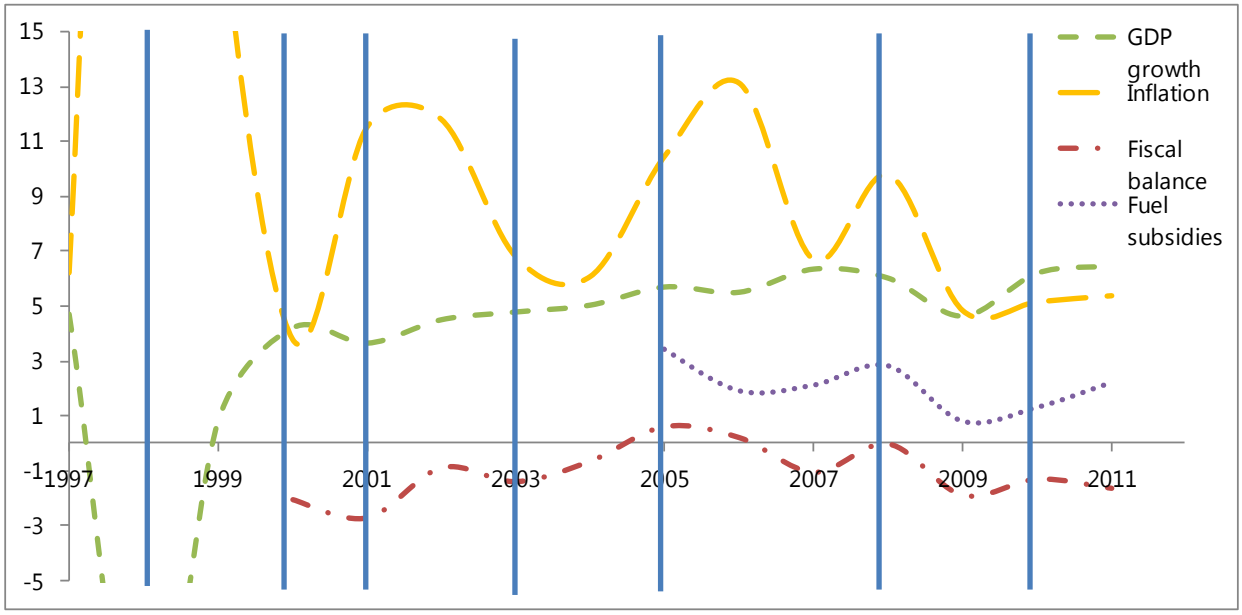
movements in domestic fuel product prices to international prices. This reform, however, was poorly communicated. Many protesters believed that various government decisions at the time had been in favor of powerful interest groups. General dissatisfaction with political corruption and inefficiency also contributed to public opposition. In addition, many of the announced compensation programs did not materialize. As a result, the government rolled back most of the price increases and also severed the link to world prices.

- **Indonesia became a net oil importer for the first time in 2004 and resumed fuel price increases.** Concerned over the increasing fiscal pressure from fuel subsidies, the government undertook two large fuel price increases in 2005. As a result, the price of diesel fuel doubled and that of kerosene nearly tripled. Protests again took place in opposition to the reform, but with less intensity than in 1998 and 2003. The government was led by President Yudhoyono who was first elected in 2004 and won a convincing reelection in 2009.

- **Petroleum subsidies have continued, with some reductions.** In 2008, with international fuel prices at their peak, petroleum product subsidies reached 2.8 percent of GDP. Fuel prices were raised by 29 percent, on average, and were later reduced as international prices started to fall, though remaining above their pre-increase levels. The government also ceased paying subsidies to larger industrial electricity consumers. The government announced its objective to remove fossil-fuel subsidies by 2014. But in September 2010, the House of Representatives agreed to raise budget allocations for subsidized fuel consumption in the revised 2010 budget, which was inconsistent with the government's objective to reduce energy subsidies. Indonesia may have also missed an opportunity to reduce fuel subsides in 2012 as the proposed increases in fuel prices by the government was significantly reduced by the parliament.

- **The government has begun to encourage LPG use over kerosene.** Indonesia also initiated a program to phase out the use of kerosene in favor of liquid propane gas (LPG) in 2007. LPG is less subsidized than kerosene and also has lower levels of cost, pollution, and CO_2 emissions. LPG stoves and small LPG cylinders have been distributed, free of charge. However, the program was not without problems and may have led to LPG diversion and accidents.

Figure 5. Indonesia: Macroeconomic Developments and Energy Subsidy Reforms, 1997–2011
(Percent of GDP or Rate)



Sources: IMF *World Economic Outlook* database and IMF staff estimates.

Note: 2008 data on fuel subsidy expenditures is based on domestic prices as of mid-2008, instead of end-of-year domestic prices as for other years; in 1998 inflation was 58 percent and real GDP growth was -13 percent.

Mitigating measures

Most of the reforms were accompanied by programs to protect the poor. They included the following.

- **Subsidies were created for rice, spending was increased on health, education, and social welfare, and support for small business was increased by providing low-interest loans.** However, many of the announced compensation programs did not materialize for the reform between 2002 and 2003. In 2008, education support was targeted to the children of the lowest ranking civil servants, police, and soldiers (Beaton and Lontoh, 2010; Mourougane, 2010).

- **Unconditional cash transfers and other compensating measures were added during the 2005 reform.** A number of analyses have credited the reduced intensity of protests in 2005 to the government's decision to compensate poor households for the increase in their living costs through a number of welfare programs. The most high profile program Bantuan Langsun Tunai, was a series of unconditional monthly cash transfer payments targeted at poor households. The program covered 19.2 million households or 35 percent of population, which not only helped the poor, but also prevented near-poor households from falling into poverty (Beaton and Lontoh, 2010). Other measures included the health insurance for the poor program, school

operational assistance program, and expanded rural infrastructure support project. Awareness of these programs was raised through an extensive public information campaign.

- **An effort to convert households and small businesses from kerosene to LPG has been underway.** Kerosene has been widely used in households for cooking and is the most heavily subsidized petroleum product in Indonesia. Reducing the subsidies for kerosene requires an alternative way to provide affordable cooking fuel for households. The same logic also applies to small businesses. In addition to providing a free starter pack, including a stove and a compact cylinder, the government established a communication program to educate the public on the safety of LPG technology. Government statistics indicate that the program has achieved significant savings by increasing the use of LPG and reducing the consumption of kerosene.

Lessons

Targeted cash transfers can reduce opposition to subsidy reform and assist the poor. Indonesia's unconditional cash transfer program was a successful strategy in overcoming social and political opposition to fuel subsidy reforms. Experience with the Bantuan Langsun Tunai program suggests that such programs need good preparation, deployment, and monitoring in order to effectively assist the poor.

Providing an affordable alternative energy source could also help reduce subsidies and minimize opposition to reforms. Initial data indicate that the kerosene to LPG conversion in Indonesia has been successful. It has achieved the government's goal to reduce fuel subsidies with limited adverse impacts on households and small businesses.

A rapid reduction of subsidies can generate opposition to reform. The sudden, large price increases in 1998 and 2003 were strongly resisted by the public.

Reforms are more likely to be successful with a popular government. The failure of the 1998 reform to some extent reflected public dissatisfaction with the Suharto government. The reforms that followed between 2000 and 2003 were a mix of success and failure, in which the public distrust of the government also played a role. The success of the 2005 and 2008 reforms, in contrast, was helped by the popularity of President Yudhoyono at the time. The erosion of his popularity in recent years, however, may have contributed to the reversal of the reforms.

Reform initiatives are often triggered by adverse economic events, but durable reform requires recognition of the benefits of subsidy removal and long-term commitment to it. The 1998 reform was triggered by the Asian financial crisis. The 2000–03 reforms were responses to the resulting high fiscal imbalance and government debt. Fiscal pressure and a negative current account balance were the main causes of the 2005 reform as Indonesia became a net oil importer in 2004. And the 2008 reform was the result of historically high oil prices. Without a firm plan for subsidy removal, subsidy reform was stalled in 2010 despite favorable economic conditions.

Ad hoc price adjustments without a clear long-term goal, together with the inability to depoliticize pricing and subsidy policy, led to the reemergence of subsidies and the failure to implement durable reform. Ideally, once the political decision has been made to reduce or remove energy subsides, technical decisions on prices and quantities to subsidize can be delegated to an independent institution that analyzes reform options, disseminates their potential impact, and makes reform recommendations that should be fully implemented. This could improve the transparency of the reform process and reduce the likelihood of setbacks because of election politics. The National Energy Council in Indonesia, however, is not fully independent of the political process. The action by the House of Representatives to increase subsidies in 2010, for example, might have been prevented if there had been a depoliticized decision-making process both for pricing and for the determining quantities to be subsidized.

Communicating the reform objectives and planned mitigating measures to the public can be effective in promoting the acceptance of reforms. As the public becomes better informed about the reasons for, and the objectives of, reforms, it is more likely to understand and accept the measures. Better communicating about the mitigating programs can increase their take-up and thus reduce the negative impact on many households as well as public opposition. The opposition to the 2003 reform in Indonesia was partially motivated by the belief that the reform had been in favor of powerful interest groups.

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E. Islamic Republic of Iran[11]

Table 6. Iran: Key Macroeconomic Indicators 2005–2011

	2005	2006	2007	2008	2009	2010	2011
GDP per capita ($US)	2924.6	3428.5	4312.1	4857.1	4926.5	5637.9	6419.6
GDP growth (percent)	4.7	6.2	6.4	0.6	3.9	5.9	2.0
Inflation (percent)	10.4	11.9	18.4	25.4	10.8	12.4	21.5
Overall fiscal balance (percent of GDP)	3.0	2.1	7.4	0.7	1.0	1.6	-0.2
Public debt (percent of GDP)	9.6	8.5	7.8	7.2	8.9	11.3	9.0
Current account balance (percent of GDP)	7.6	8.5	10.6	6.5	2.6	6.0	12.5
Oil imports (precent of GDP)	1.2	2.0	1.9	1.6	1.0	0.4	0.2
Oil exports (percent of GDP)	27.5	26.8	27.5	24.7	19.4	20.7	25.0
Oil consumption per capita (liters)	1,155	1,224	1,217	1,223	1,224	1,108	n.a.
Poverty headcount ratio at $1.25 a day (PPP) (percent of population)	1.45	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Note: data for 2011 are projected.

Context

Subsidy reform has been on the policy agenda since the late 1980s, with several administrations working on successive reform plans. Setbacks to previous reform efforts led to a surge in energy consumption by the early 2000s, which made Iran one of the countries with the highest energy intensity in the world. As international oil prices approached US$150 per barrel and FOB gasoline prices hovered around US$2 per liter, Iran's domestic price of US$0.10 per liter of gasoline was clearly unsustainable. Oil exports were declining, while Iran was importing increasing amounts of gasoline to meet domestic demand, and the relative price differential was fuelling smuggling to neighboring countries. The rationing of gasoline, which started in June 2007, reduced demand growth and smuggling to some extent and encouraged development of alternative fuel vehicles, but the price for gasoline purchases in excess of the subsidized quota was set at a still relatively low level of US$0.40 per liter.

Experiences with reform

Recognizing the severity of the problems, the authorities launched the first phase of a targeted fuel subsidy reform program in December 2010. The reform made Iran the first major energy-exporting country to drastically cut indirect subsidies and put in place an across-the-board cash transfer program for households. Despite an initial sharp increase in prices, gradual adjustment in prices was a key design feature of the reforms, which planned to increase domestic prices over a five-year period to 90 percent of international prices. In the first phase of the reform, the authorities substantially increased the prices of all major petroleum products and natural gas as well as electricity, water, and bread. In advance of the price adjustments, the authorities also deposited cash transfers in new bank accounts for households, which were to be financed by the revenue from price

[11]Prepared by Ozgur Demirkol, Middle East and Central Asia Department.

increases. Part of the revenue from price increases was also allocated to enterprises to help reduce their energy intensity.

The subsidy reform was also motivated by the authorities' broader structural reform agenda to foster growth and job creation more than to address fiscal concerns. Unlike other countries, Iran's reform was driven by a need to put its valuable hydrocarbon resources to more productive use rather than a need to reduce the direct burden of subsidies on the fiscal accounts. The Iranian authorities were clear from the outset that the main reform objective was to reduce waste and rationalize consumption. The reform legislation, and the political debate that preceded it, ruled out using the reduction of energy subsidies to improve the country's fiscal balance. The subsidy reform was intended to complement a larger structural reform package that also included financial sector and tax reforms to enhance the competitiveness of the economy.

Despite a good start at the end of 2010, the implementation of the reform program was suspended in late 2012 owing to growing concerns over its financing and the deteriorating macroeconomic situation. In mid-2012 the authorities postponed the implementation of the second phase of the reform because of lack of parliamentary support for the authorities' proposed cash transfer budget and implied price increases under the second phase. Later in November 2012, parliament formally voted to halt the implementation of the second phase of the subsidy reform citing rising inflation and unfavorable economic developments in the country. The parliament's vote kept the existing cash transfer program intact but barred further energy price increases under the subsidy reform. The second phase, originally planned to be implemented in the second half of 2012, would have involved further increases in energy prices and cash transfers to households. The new round, as originally proposed, was also expected to replace across-the-board cash transfers with more targeted cash transfers for low-income groups.

Mitigating measures

About 80 percent of the revenue from price increases was redistributed to households as bi-monthly cash transfers. Initially, the authorities leaned towards targeting the transfers to the poorer segments of society. It became clear, however, that it would be administratively difficult to identify and properly screen the recipients given the timeline established. Also, denying support for upper-income groups risked triggering public discontent among the biggest energy users. In the end, all citizens were allowed to apply for the compensatory transfers, which were made equal for all applicants. At the same time, the richest households were discouraged from applying.

The remaining balance of the revenue from price increases was to be set aside to provide support for enterprise restructuring with a view of reducing their energy intensity. The authorities conducted a systematic analysis of more than 12,000 enterprises along several criteria to assess the various channels through which the reform could affect them. Out of these enterprises, 7,000 were selected to receive some form of targeted assistance to restructure their operations. This included direct assistance as well as sales of limited quantities of fuels at partially subsidized rates to

moderate the impact of the price increase on the input costs of enterprises in the industrial and agricultural sectors.

Multitier tariffs on electricity, natural gas, and water were used to moderate the impact of the price increases on small users, mostly the poor. Unit tariffs on electricity, natural gas, and water use were set using escalating schedules. Large household consumers were charged prices marginally higher than in international markets. New tariffs also took into account regional disparities in the availability of different heating fuels. Tariff schedules were further differentiated by region, with prices set at lower rates in hot regions with relatively higher air-conditioning demand. Tariff schedules for natural gas and water were similarly differentiated by quantity used and region. In areas where natural gas was not available, heating costs were to remain closely monitored and regulated, and lower-priced kerosene quotas and lifeline electricity rates were provided to ensure affordability of heating.

The use of the electronic cards system for gasoline rationing and quotas introduced in June 2007 also provided a de facto multi-tier energy pricing structure for gasoline, making the reform seem gradual. The price of rationed gasoline was increased but it remained well below the full price at which households could purchase an unlimited amount of fuel. In addition, households were told that they would not lose any of their unused gasoline quotas. Rationing required the implementation of a comprehensive vehicle registration system and personalized distribution and management of the gasoline quotas.

Lessons

Cash transfers to all segments of the population were pivotal in acceptance of the subsidy reform by the population. The authorities initially considered a targeted cash transfer scheme towards the poorer segments of the society but determined that it would be administratively difficult to identify and properly screen the recipients. Also, denying support for the upper income groups risked triggering public discontent among the biggest energy users. In the end, all citizens were allowed to apply for the compensatory transfers, which were made equal for all applicants. At the same time, with the subsidies being highly regressive, the richest households were encouraged to refrain from applying, with limited success.

Providing all households with equal transfers achieved redistributive effects. For the poor who benefited little from cheap domestic energy prices, the compensation represented a larger share of their income than it did for the middle class; in fact, it was large enough to lift virtually every Iranian out of poverty. In addition, equal transfers helped limit the regressivity of subsidies. This gave the government's economic rationale a powerful public relations stance and built support for the reform.

Maintaining macro stability is critical to the success of the reform. Iran suspended the implementation of the second phase of the reform because of concerns over the deteriorating macroeconomic situation. Expansionary monetary and fiscal policies, coupled with the worsening

external environment, added to the pressures on the exchange rate, fueled inflation, and put further strain on growth during the implementation of the first phase of the reform. In contrast to the proposed reform, the cash transfer program's budget was reportedly in deficit. Furthermore, high inflation reduced energy prices in real terms and partially offset the impact of energy price increases on consumption, undermining progress under the subsidy reform.

Moving to more energy-efficient production technologies and restructuring enterprises takes more time than initially planned. Although some enterprises were able to continue to expand their production since the subsidy reform, small and medium-sized enterprises were reportedly squeezed by high energy prices and limited government support. There was also reportedly no meaningful progress in adoption of more energy efficient technologies in enterprises.

Communication is indispensable in creating public ownership of the reform. The reform was preceded by an extensive public relations campaign to educate the population on the growing costs of low energy prices, and on the benefits expected from the reform. The authorities emphasized that the reform would benefit poor households, which would receive cash benefits, while in the past these households had not benefitted much from the cheap energy that was mostly consumed by the richer groups. The Iranian authorities also underlined from the outset that the reforms were not about eliminating subsidies, but about switching subsidies from products to households. However, following its implementation, the reform did not seem fully supported by public official information about the de facto implementation and outcome of the reform.

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F. Mauritania[12]

Table 7. Mauritania: Key Macroeconomic Indicators

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
GDP per capita ($US)	409.1	412.3	410.5	445.9	504.2	609.5	862.6	878.3	1073.2	897.6	1065.5
GDP growth (percent)	1.9	2.9	1.1	5.6	5.2	5.4	11.4	1.0	3.5	-1.2	5.1
Inflation (percent)	3.3	4.7	3.9	5.2	10.4	12.1	6.2	7.3	7.5	2.1	6.3
Overall fiscal balance (percent of GDP)	0.0	0.0	-2.9	-11.8	-4.8	-7.1	35.8	-1.6	-6.5	-5.1	-1.5
Public debt (percent of GDP)	228.8	223.6	194.5	216.4	209.3	182.1	86.8	96.9	110.5	124.5	86.1
Current account balance (percent of GDP)	-9.0	-11.7	3.0	-13.6	-34.6	-47.2	-1.3	-17.2	-14.8	-10.7	-8.7
Oil imports (precent of GDP)	8.6	7.4	7.4	7.8	9.7	10.6	9.4	15.3	16.5	8.2	9.9
Oil exports (percent of GDP)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fuel consumption per capita (liters)	n.a.	n.a.	n.a.	n.a.	n.a.	359.5	309.3	292.2	294.9	284.2	291.5
Poverty headcount ratio at $1.25 a day (PPP) (percent of population)	21.2	n.a.	n.a.	n.a.	25.4	n.a.	n.a.	n.a.	23.4	n.a.	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

Mauritania's macroeconomic performance since 2000 has been rather volatile (see Table 7). GDP growth hovered between -1.2 (2009) and 11.4 percent (2006), while inflation ran between 2.1 (2009) and 12.1 percent (2005). This volatility was partly due to external shocks, partly due to policies. In particular, after the discovery of oil in 2006 the authorities embarked on a fiscal expansion that was only reversed with the start of an IMF program under the Extended Credit Facility (ECF) in March 2010. Mauritania was also hit hard by several droughts, and by the 2008–2011 spikes in international fuel and food prices.

Experience with reforms

Energy subsidy reform in Mauritania was motivated by the above-mentioned fiscal expansion and spikes in international fuel and food prices. The discovery of oil in 2006 prompted large increases in public spending, particularly the wage bill (through adjustment of salaries) and subsidies. When, contrary to expectations, the oil discovery turned out to be very minor, it became clear that their financing was not sustainable, in particular given Mauritania's dependence on volatile mining revenues. The large increases in international fuel and food prices in 2008 and 2011 further increased fiscal pressures. Consequently, subsidy reform, along with wage bill containment, became the cornerstone of the government's fiscal adjustment strategy supported by the program under the ECF. The adjustment strategy was designed to free resources while still allowing for much-needed higher social and infrastructure spending.

Better targeting of social protection is an explicit component of the government's fiscal adjustment strategy supported by the ECF. The increases in subsidies (diesel, LPG, electricity) that accompanied the rise in international fuel prices benefitted rich households at the expense of the

[12]Prepared by Luc Moers, Middle East and Central Asia Department.

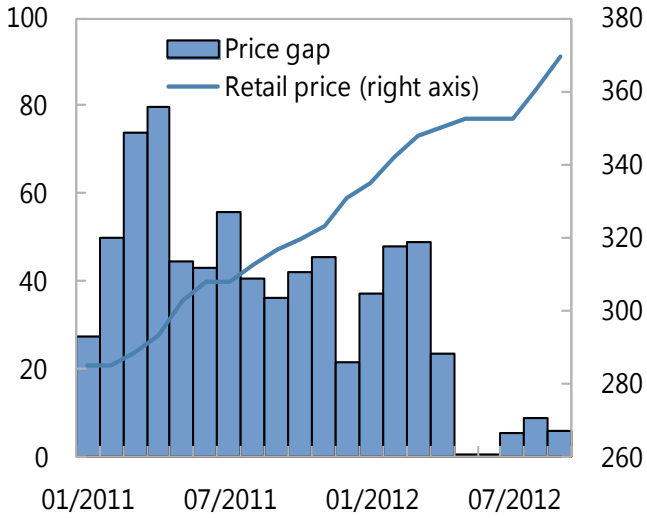
neediest. Almost 80 percent of all energy subsidies were captured by the richest 40 percent of households, thus widening income inequality. Moreover, the emergency relief subsidies on food prices, intended to alleviate the effects of high commodity prices, were not well targeted.

An attempt at energy subsidy reform in 2008 was unsuccessful. A freeze on fuel prices in early 2008 led to huge losses for energy distribution companies (all private). In late June 2008, the government increased the prices of petroleum products by 17.5 percent to 20 percent. No particular public communication strategy was implemented, nor were specific mitigating measures introduced in the context of this fuel subsidy reform episode. Furthermore, subsidy reform-related conditionality was not included in the Poverty Reduction and Growth Facility (PRGF) arrangement covering 2006–09. The one-off price adjustment triggered protests, which contributed to a climate of political instability that culminated in a military coup in August 2008. After the coup, the PRGF was suspended; the price increases were reversed in November 2008.

The timing and magnitude of changes in the prices of petroleum products thus remained discretionary and ad hoc. Prices of petroleum products were controlled by the government and set according to a price structure and formula that was in principle to be adjusted monthly, whenever changes in the international prices or the exchange rate exceeded +/-5 percent. In practice, the authorities were reluctant to adjust retail prices. In particular, the government limited price increases when international prices were high (e.g., in 2008), thus causing large losses for distribution companies, and limited domestic price declines when international prices collapsed, thus allowing petroleum companies to make up for past losses (e.g., in 2009).

The government made progress starting in 2011, supported by the ECF agreed after the stabilization of the political situation. The government introduced in May 2012 a new diesel price formula, agreed with petroleum distribution companies, following a simplified cost structure. The reform met with relatively limited opposition, despite a price increase of more than 20 percent since January 2011 and the lack of a real public communication strategy. However, unlike in the 2008 episode, the introduction of mitigating measures was an explicit component of the energy subsidy reform strategy (see below). Technical assistance from the IMF fed into the policy dialogue. Despite substantial increases in international fuel prices, the rigorous application of the new simplified automatic fuel price formula on a biweekly basis helped bring domestic fuel prices up to international levels by June 2012 (see Figure 6), which was a major achievement.

Figure 6. Mauritania: Diesel Retail Price and Price Gap, 2011–12
(UM per liter)



Source: Mauritanian authorities and IMF staff.

Note: The full pass-through price is calculated as the sum of import cost, margins, and taxes. Price gap is calculated as the difference between full pass through price and domestic retail price.

However, it may still be too early to judge if gains will prove durable, and much remains to be done. Since June 2012, the government has not consistently been able to maintain prices at international levels because of the subsequent steep increase in world prices. To ensure that the pricing formula can continue to be applied automatically even in the face of sharp fluctuations in international prices, the government intends to introduce a cap of 3 percent on any one adjustment in cases when the formula would dictate a bigger change. This smoothing approach should avoid excessive domestic retail price volatility, which could undermine the political support for the formula. Additional reduction in subsidies will follow planned increases in electricity tariffs (for large consumers) and in gas prices.

High international prices also aggravated the cost of subsidies to the electricity sector. SOMELEC, the public electricity company that produces almost all the electricity in Mauritania, incurred significant losses from the increase in international fuel prices. Two-thirds of the electricity consumed in the country is generated using thermal plants, evenly split between diesel and fuel oil. Despite higher international prices, electricity tariffs have not been revised upwards in recent years. Residential and commercial tariffs are among the lowest in the region and are estimated at more than 30 percent below cost recovery prices.

Supported by the ECF, the government also moved to address the electricity subsidies. A restructuring plan was laid out with the help of the World Bank and the French Development Agency (AFD). The government recapitalized SOMELEC, and clarified its financial relationship with it by: (i) paying its electricity bills on time; (ii) providing SOMELEC with the required subsidy for its operations at regular intervals throughout the year; and (iii) drawing out a plan for the settlement of arrears accumulated through end-2010. Furthermore, electricity rates for the services sector were aligned with the rates for medium-voltage electricity starting at the beginning of 2012. These measures, together with a new credit line from the Islamic Development Bank, enabled the company to significantly limit its recourse to bank borrowing at high interest rates, which were a drain on its finances in the past. A tariff study, conducted by an international firm, will be completed in November 2012 and will result in electricity rates being increased, particularly those paid by large consumers. In addition, the authorities have called on a consulting firm to establish a performance contract between SOMELEC and the government.

Mitigating measures

In 2011, the Mauritanian authorities introduced emergency relief measures to mitigate the impact on the poor of higher international fuel prices and a drought, which led to a food emergency. Unlike the 2008 emergency plan, the new package, which was worth about UM40 billion (3.4 percent of GDP) and was the largest in terms of GDP among the region's oil importers, comprised mostly reversible measures (e.g., it did not include a raise in the wages of civil servants). It was thus an improvement over earlier measures, and some social response by the government was certainly needed.

However, the ECF-supported government program envisages substituting this temporary program with permanent well-targeted social safety nets. The government plans to conduct a full assessment of the existing drought-emergency program, particularly the functioning of the "subsidized-food shops" programs, which were extended through the end of 2012. This food subsidy program has not always been effective in reaching the poorest households in rural areas. Moreover, with the worst of the drought's impact behind, there is an opportunity to gradually remove most components of this emergency program, re-orienting the savings toward scaling up well-targeted cash transfer schemes.

With the assistance of the World Food Program, a start has been made with such a cash transfer program. This program, which was rapidly put in place, targets 10,000 vulnerable households in Nouakchott identified through a recent poverty survey. Each household receives UM 15,000 monthly (equivalent to half of the legal minimum wage) via a bank transfer. A positive side effect is that beneficiaries thus also gain access to financial services. The program was extended in June 2012 to 15,000 households in four rural areas deemed to have high food insecurity. The agenda of scaling up such well-targeted cash transfer schemes should benefit from the expansion of the vulnerability and poverty survey to provide nationwide coverage, as most of the poor are in rural areas.

A broader social protection strategy developed with UNICEF will also further strengthen the coverage of the social protection system and better protect the poor and vulnerable. Accordingly, with the assistance of technical and financial partners, the authorities plan to strengthen programs such as free school cafeterias, food-for-work, and support for pregnant women. Moreover, recognizing the adverse effects of drought on food security, they are developing a national food security strategy for the period 2015 to 2030 and an associated national investment program.

Lessons

Depoliticizing fuel price adjustments as much as possible can help lock in initial price gains. The automatic implementation of Mauritania's new diesel-price formula has been very effective in keeping a lid on subsidies. Putting a cap on any one price change would ensure that large international price fluctuations do not lead to excessive retail price volatility, which could undermine political support for the automatic fuel price formula. At the same time, such price smoothing would still allow domestic prices to follow the trend in international prices.

Too rapid a reduction of subsidies can generate opposition to reforms. The sudden, large price increases in 2008 met with strong opposition, stimulated political instability, and ultimately had to be rolled back. The absence of any mitigating social measures at the time exacerbated the situation.

Mitigating social measures can help address opposition to energy price increases and their impact on the poor, but they should be well-targeted. Mauritania's recent cash-transfer schemes, developed with assistance from the World Food Program, appear promising in this respect. In contrast, the earlier emergency-relief programs were less well-targeted and not as effective. Furthermore, care should be taken that temporary emergency programs do not become permanent entitlements, draining fiscal resources. The absence of a fully-fledged communication campaign has not been an obstacle to reforms in Mauritania so far. However, the authorities are well advised to accompany energy subsidy reform by an explicit communication campaign that explains its benefits to the population. Transparent reporting on the use of freed-up budget resources should also increase public confidence in the outcome of the reform.

The linkages between fuel and electricity subsidy reform need to be explicitly recognized and addressed. If a highly subsidized electricity sector uses large amounts of fuel, as in Mauritania, fuel price increases can add to problems in the electricity sector. In the case of public sector electricity utilities, reform should also be accompanied by the clarification of their financial relationship with the government.

Involving donor partners specialized in other areas can increase the reforms' chance of success. In the Mauritanian case, the role of the World Food Program and UNICEF in the development of social mitigation strategies was clearly helpful. The study on the restructuring of the electricity sector and SOMELEC assisted by the World Bank and AFD was key in addressing electricity subsidies.

G. Namibia[13]

Table 8. Namibia: Key Macroeconomic Indicators, 2000–2011

	2000	2003	2008	2010	2011
GDP per capita ($US)	2139.7	2607.9	4276.0	5244.1	5828.2
GDP growth (percent)	4.1	4.3	3.4	6.6	4.9
Inflation (percent)	9.3	7.2	10.4	4.5	5.8
Overall fiscal balance (percent of GDP)[1]	-0.9	-6.1	2.4	-4.2	-11.3
Public debt (percent of GDP)[1]	20.4	26.4	18.2	16.2	27.4
Current account balance (percent of GDP)	7.9	6.1	2.8	0.3	-1.7
Oil Imports (percent of GDP)	3.5	4.5	2.4	5.3	5.9
Oil exports (percent of GDP)	0.0	0.0	0.0	0.0	0.0
Oil consumption per capita (liters)	n.a.	491.5	596.2	731.0	812.9
Poverty headcount ratio at $1.25 a day (PPP) (percent of population)	n.a.	31.9	n.a.	n.a.	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

[1] Figures are for the fiscal year, which begins April 1.

Context

Namibia is one of sub-Saharan Africa's richest countries, with a relatively stable macroeconomic environment. Income inequality and unemployment are very high, however. Mineral exports, transfers from the Southern African Customs Union, and prudent fiscal policy in the past have helped the Namibian government to sustain economic growth, while maintaining fiscal and current account surpluses. Inflation in Namibia is closely linked to South Africa's inflation (its currency is pegged to the South African rand) and has remained within single digits since reaching a peak of 11.9 percent in August 2008 driven by a surge in international oil prices. The Namibian economy is sensitive to changes in international fuel prices due to the relative importance of energy intensive industries such as fishing and mining.

Namibia is characterized by political stability and a relatively well functioning democracy. The ruling political party is dominant and has won elections with large majorities since independence in 1990. Labor unionization is fairly high and the largest trade union federation, the National Union of Namibian Workers is a strong political ally of the ruling party.

Namibia has a wide range of formal publicly funded social welfare programs. Social security, welfare and housing spending averaged 5 percent of GDP during 2005–2011. The government's income support grants includes a universal social pension system for the elderly and the disabled, a variety of grants for children, labor-based work programs and shelter and housing programs.

[13]Prepared by Farayi Gwenhamo, African Department.

Despite some weaknesses of inclusion and exclusion errors, anecdotal evidence suggests that Namibia has a well-targeted social safety system.

The downstream market for liquid fuels in Namibia is administered through acts of Parliament that set out clear parameters to calculate fuel prices. According to the acts, the prices of petrol and diesel are regulated while the prices of all other petroleum products are determined by market forces. The country has no refining capacity and imports its refined fuels mainly from South Africa through the port of Walvis Bay. The Ministry of Mines and Energy (MME) regulates the industry while the Namibian Petroleum Corporation (Namcor), a state owned enterprise, acts as an operational arm of the government in the market. There are five private companies involved in the marketing of petroleum products namely BP, Caltex Oil, Engen, Shell and Total. Each private company supplies its own network of distribution outlets but all share import and storage facilities at Walvis Bay. In 1999, Namcor was mandated by the government to import 50 percent of Namibia's petroleum leaving the other 50 percent for private companies. That share was recently reduced due to Namcor's operational difficulties.

Price setting of fuel pump prices for diesel and petrol is based on a formula with three components. The three components are the Basic Fuel Price, based on the international spot price; domestic fuel levies and taxes; and the so-called slate account, which is essentially used to smooth volatility in local pump prices. The slate account, monitored by the MME, is a notional record used to keep track of the degree of under- or over-recovery by fuel importing private companies. However, the price formula is not completely automatic as the MME has some discretion on how much pass through to allow with under-recoveries absorbed by the slate account.

Experience with fuel price adjustments

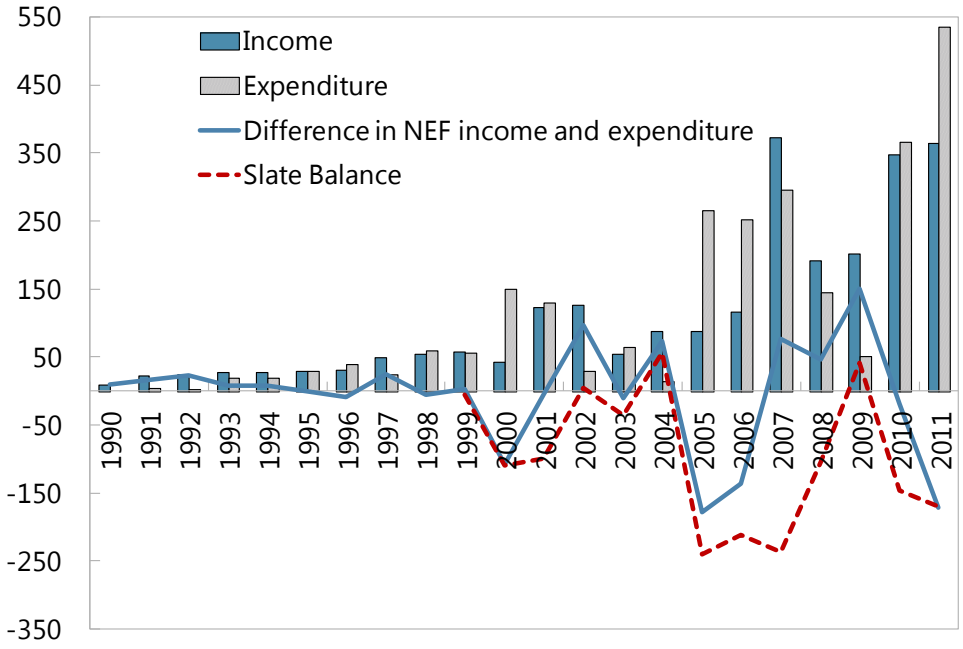
According to the MME, the original motivations for deregulating fuel prices in Namibia were to eliminate fuel subsidies (paid out of the National Energy Fund (NEF) and to respond more efficiently to changes in international oil prices. Several problems associated with the managed petroleum and petrol-product scheme may have motivated the reforms (Amavilah, 1999). First, the NEF compensation scheme came with fiscal costs amounting to about N$170 million between 1990 and 1996, about 0.2 percent of GDP (Figure 7). Although the fiscal costs paid out of the NEF seem small in percent of GDP, they do not include transfers that may have been paid directly to Namcor, or quasi-fiscal costs arising from losses incurred by the company. NAMCOR sometimes receives direct transfers from the government because it does not participate in the slate program and is therefore not compensated for under-recovery through the slate account. The subsidies may also have reduced incentives for petroleum firms to improve their efficiency to help offset their losses.

After the adoption of the new price mechanism, the slate account is supposed to be balanced through price adjustments in theory. In particular, the price adjustment formula should adjust prices so that the value of the cumulative slate balances is kept within a predetermined level of N$3 million. In practice however, balancing the slate account has sometimes involved transfers from the budget to the NEF and then to the slate account (see Figure 7). The wholesale prices of all petrol

grades and diesel are published in a government gazette at each price adjustment. Tax revenue data is published in budget documents.

Figure 7. Namibia: National Energy Fund and Slate Account, 1990–2011
(N$ million)

Resources devoted to smoothing out fuel prices experienced sharp swings over time.



Source: Bank of Namibia, Quarterly Bulletin, March 2005.

The MME used a structured, balanced and consultative approach to price deregulation and subsidy removal. The National Energy Council, chaired by the Minister of Mines and Energy, established the National Deregulation Task Force in 1996 to examine fuel price deregulation through a consultative process. This culminated in the publication of the White Paper on Energy Policy in 1998 articulating, among other issues, the importance of keeping targeted subsidies to remote areas, gradual deregulation, and enhancing transparency in government fuel tax revenues. The fuel price mechanism with quarterly price reviews was adopted in 1997.

NEF expenditures to cover subsidies only started to decline after 2001. That represented a full three years after the release of the "White Paper on Energy Policy," an indication that the implementation of fuel subsidy removal takes time. In addition, as shown by the slate balance in Figure 7, close to full cost recovery by private firms only came after 2001.

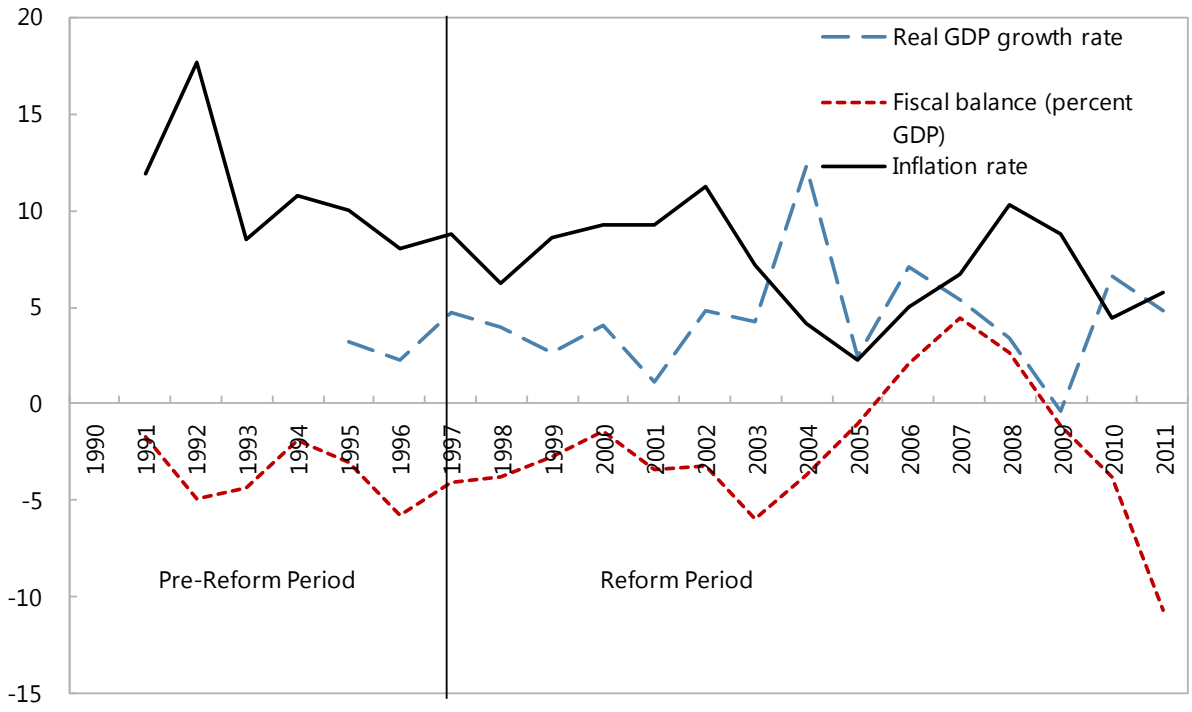
Domestic fuel prices in Namibia increased steadily from 2003 onward and more than doubled from early 2007 to a peak in July 2008. In response to the 2007–08 fuel price shocks, the

authorities replaced the quarterly fuel price adjustments with monthly fuel price reviews so as to increase pass-through. However, the MME did not allow retail prices to rise as fast as world prices, transferring funds from the NEF to the private petroleum firms to compensate them for keeping prices below cost-recovery and thus subsidizing users, including the powerful interest group of taxi drivers. However, in July 2008, the MME announced that the NEF had come under financial pressure due to under-recoveries and was no longer in a position to cushion increasing fuel prices.

Overall, while fuel prices have generally moved in line with international oil prices, the government has from time to time accommodated pressures to limit the full pass-through of changes in international prices. In the 2006–07 budget, the government made a once-off budgetary provision of N$206 million (0.4 percent of GDP) to offset the NEF's accumulated losses. The government also faces contingent liabilities arising from Namcor's operational losses. In 2009, Namcor had operational losses of N$257 million prompting the government to award it a N$100 million grant and a bailout package to the tune of N$260 million (0.5 percent of GDP) as well as a portion ($0.08 per liter) of the existing fuel levy to help boost the state-owned oil corporation's finances. More recently, Namcor lost its mandate to supply 50 percent of Namibia's total fuel requirements in February 2011 due to operational difficulties.

Figure 8. Namibia: Macroeconomic Developments and Fuel Subsidy Reform, 1990–2011

The fuel subsidy reform helped to consolidate Namibia's macroeconomic stability.



Source: Namibian Authorities.

Mitigating measures

The fuel price smoothing mechanism has been complemented by several mitigating measures to address the increases in fuel prices. Unlike its SACU counterparts, Namibia did not experience violent protests in response to rising fuel and food prices, although tax drivers complained when fuel prices increased. This might be partly explained by the MME's fuel price smoothing mechanism and other mitigating measures that were put in place in 2008 to address poverty and alleviate the temporary impact of high fuel and food prices. Mitigating measures included a zero-rate value-added tax on selected food items, rebate facilities for food importers, and a food distribution program to feed the most vulnerable. In addition, rural pump prices are subsidized as part of the socioeconomic policy of government. This is achieved by subsidizing transportation costs to remote areas to ensure that the pump price in remote areas is not inflated by retailers' transport costs. Claims on actual road deliveries are submitted by the oil companies to the MME for reimbursement from the NEF.

Lessons

Comprehensive planning and gradual implementation were key to success. The Namibian authorities undertook comprehensive planning, which included broad consultation with civil society, culminating in a comprehensive reform plan that retained a targeted subsidy for remote areas.

Reforms were implemented gradually, allowing enough time for consensus building between the government and various stakeholders.

Price adjustments that employed smoothing mechanisms helped prevent social unrest. The reform established a quarterly (later monthly) price adjustment mechanism in line with changes in international prices but incorporating a price smoothing mechanism to avoid sharp price adjustments. This, along with the introduction of other mitigating measures, allowed Namibia to manage the large price shocks of 2008 and 2011 with no social unrest.

De-politicization of the price adjustment mechanism has been made difficult by legal obligations to the state-owned energy company. The legally stipulated participation of the state petroleum company in the importation and supply of petroleum products seems to have prevented a full de-politicization of the price adjustment mechanism (i.e., allowing prolonged under-recoveries). This in turn has resulted in large losses for the company that have had to be covered by fiscal transfers. This suggests the need to carefully design price smoothing mechanisms.

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H. Niger[14]

Table 9. Niger: Key Macroeconomic Indicators

	2000	2003	2008	2010	2011
GDP per capita ($US)	155.0	223.8	361.0	363.6	420.7
Real GDP growth (percent)	-2.6	7.1	9.6	10.7	2.2
Inflation (percent)	2.9	-1.8	10.5	0.9	2.9
Overall fiscal balance (percent of GDP)	-3.8	-2.8	1.5	-2.4	-3.0
Public debt (percent of GDP)	118.8	90.1	21.0	23.7	29.2
Current account balance (percent of GDP)	-6.7	-7.5	-13.0	-19.9	-24.7
Oil imports (percent of GDP)	4.0	2.4	3.8	4.7	4.7
Oil exports (percent of GDP)	0.0	0.0	0.0	0.0	0.0
Oil consumption per capita (liters)	n.a.	n.a.	36.4	33.1	34.3
Poverty headcount ratio at $1.25 a day (PPP) (percent of population)	n.a.	n.a.	43.6	n.a.	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

Niger is a large and land-locked country that is extremely vulnerable to external shocks, mostly to climatic conditions and commodity prices. In the past decade, growth has been slowly gathering momentum, though it has also suffered important setbacks. Niger's medium-term growth potential is linked to the expansion occurring in the oil and mining (uranium) sectors. The country recently became a fuel exporter and uranium production is expected to double in the near future with the coming on stream of an important mine currently under development. In addition, the country has the potential to become a crude oil exporter, with five new oil production sharing agreements just signed. A new pipeline to link Niger with the Chad-Cameroon pipeline is envisaged.

Niger ranks at the bottom of the UNDP's Human Development Index, with per capita GDP in PPP terms of US$720 in 2010, one of the lowest in the world. Niger´s government is highly centralized. The current authorities have been in power since April 2011, following a one-year transition to democracy after a February 2010 coup d'état. Since then, the political situation has been stable, although according to the World Bank (2012), there is a risk of political fragility "where

[14]Prepared by Clara Mira, African Department.

failure of the government to deliver tangible results could result quickly in the loss of popular support and a political stalemate."

With the start of operations of its new oil refinery (SORAZ), fuel imports have come nearly to a halt since early 2012. Niger was an oil importer until end-2011. Its market size is small, with annual domestic consumption of about 7,000 barrels a day. The state-owned company SONIDEP has a monopoly on imports and distribution. The new refinery is expected to reach a maximum capacity of 20,000 barrels per day of fuel including gasoline, diesel and LPG. About one third of the petroleum products produced by SORAZ feed the domestic market, with the remainder being exported. SONIDEP is in charge of marketing the petroleum products.

This case study focuses on the period until end-2011, the period in which Niger was an oil importer. It builds on IMF technical assistance support provided to Niger in 2001 to elaborate a pricing formula akin to a full pass-through rule for the automatic adjustment of the price of imported petroleum products. In 2010, a note was prepared by the Fiscal Affairs Department to support the authorities in their intention to eliminate the post-tax fuel subsidies, in the context of discussions with the IMF to prepare an assessment letter.

Experience with fuel price adjustments

According to the formula established with the help of technical assistance from the IMF in 2001, automatic pass-through of international prices would be achieved through a flexible, transparent, and automatic mechanism. The retail price would be adjusted monthly whenever the change in international prices was above CFAF 5. Otherwise, the price at the pump would not change and taxes would counteract the increase or decrease in prices. The pricing formula included: fuel import costs (CIF import price at the port); estimated costs and margins of importing and distributing fuel to domestic consumers (storage and distribution margins); and net fuel taxes (ad-valorem customs and value-added taxes and specific excise taxes). A multi-sectoral body was envisaged to be statutorily in charge of applying the formula; however, such a body was never created.

As international prices started to increase in 2005, an explicit subsidy component was introduced in the formula. The subsidy was initially used to smooth domestic prices. Then, as international import prices increased rapidly and steadily up to mid 2008, the subsidy component rose in order to keep domestic retail prices fixed for extended periods. The increase in international prices and the depreciation of the euro resulted in a significant increase in the subsidies in 2010. Since fuel prices were substantially lower in Niger than in some neighboring countries, increased smuggling contributed to a strong rise in fuel imports.

Changes in import prices without corresponding pass-through to retail prices resulted in a reduction of government tax revenue from fuels. The net fiscal contribution of fuel taxes decreased from 1 percent of GDP in 2005 to 0.6 percent in 2009, and to 0.3 in 2010. The cost of the subsidy on petroleum products amounted to more than 1 percent of GDP. While this pattern applies

to all products, the tax decline in the case of gasoline was more pronounced, going from a peak of 0.8 percent of GDP in 2005 to 0.3 percent of GDP in 2009. Net taxes on diesel also declined from 0.3 percent of GDP in 2005 to 0.2 percent of GDP in 2009. The net tax on kerosene has been continuously negative over this period, although the fiscal cost of this measure has been limited, as the share of kerosene consumption is fairly low.

As the subsidy reached unsustainable levels, the authorities decided to start implementing a strategy to gradually phase out subsidies. The size of the subsidy, together with its very regressive distributional impact, was a critical factor in the authorities' decision to eliminate it. Indeed, the population groups that benefited more from the subsidy were the higher income groups, who consumed more gasoline. While this is particularly the case in gasoline consumption, it is less so in kerosene and lamp oil, which are more widely consumed by lower-income groups. Fuel prices were increased by 12 percent in mid-2010 (Figures 9 and 10).[15]

T**he agreed reform contained two steps.** First, international oil price variations would be passed through to domestic prices starting in June 2011. Second, the existing subsidy would be gradually unwound over the following 12–18 months. Fuel prices were increased by about 8 percent in mid-2011. As a result, the subsidy was significantly reduced, though not completely eliminated, and the total amount devoted to fuel subsidies in 2011 was kept below the 2010 level (1.1 percent of GDP).

Country-specific circumstances and the political situation played key roles in the design and pace of the reform. First, the imminent start of domestic fuel production introduced urgency in the phasing out of the subsidies. The authorities thought that it would have been politically unacceptable to increase prices exactly when domestic production was starting. In fact, the society was expecting rather the opposite: a decrease in fuel prices with the start of domestic production. Second, the initial reforms (in late 2010 and early 2011) were implemented by a transitional government that believed it had less legitimacy to embark on such a sensitive reform process.

To increase public awareness about the dimension of the problem, for the first time the budget explicitly reflected the costs of the subsidy. This helped create an appropriate environment for the subsidy's elimination. In addition, and to help overcome vested interests and gain support from the civil society, the government introduced public information campaigns pointing out the regressive nature of the subsidies and linking the savings from petroleum price increases to priority social spending.

The authorities opted for a consensual approach to the reform, incorporating all relevant shareholders. They established a committee (the Comité du Differé) to discuss the best way to

[15]Weighted average of the prices of gasoline, kerosene, and diesel. Full pass-through includes import prices, taxes, and margins in the formula. In both cases, price increases were considered preconditions for the IMF to issue an assessment letter, and to proceed with the ECF-supported program review.

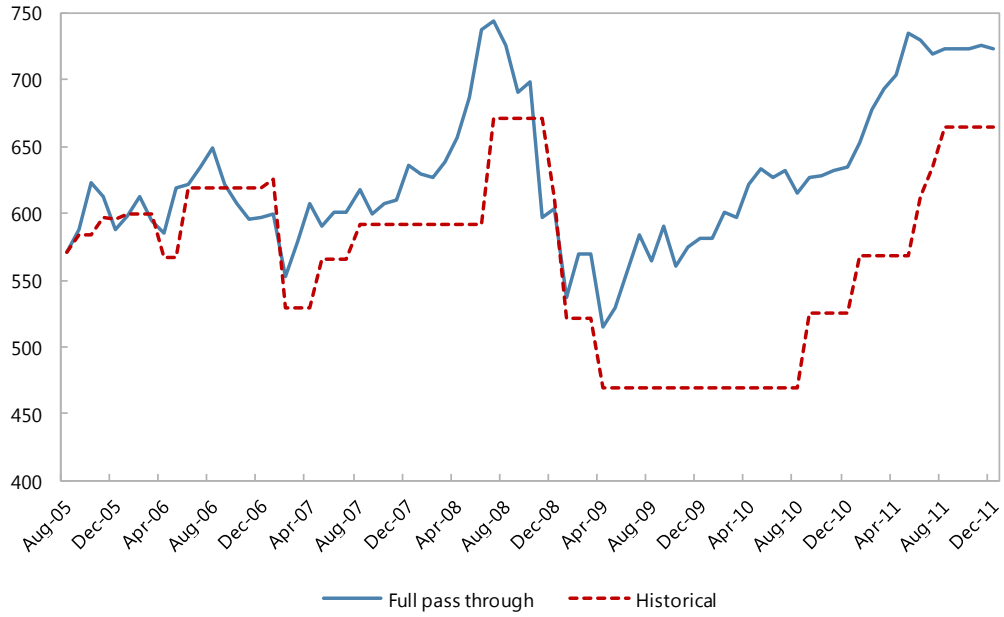
approach the reforms and their subsequent implementation. In this context, dialogue and consensus building were key to the positive outcome of the process.

As a result of the reform, retail prices started increasing in June 2011, and continued increasing through August 2011, but remained fixed again from September until the end of the year. Indeed the monthly cost of the subsidy reached nearly CFAF 4 billion in May 2011, to be reduced to half from August onwards. The authorities decided to stop the price increases in September as they believed the prices were then aligned with prices within the region.

Figure 9. Niger: Fuel Price Developments, 2005–2011

(FCA per liter)

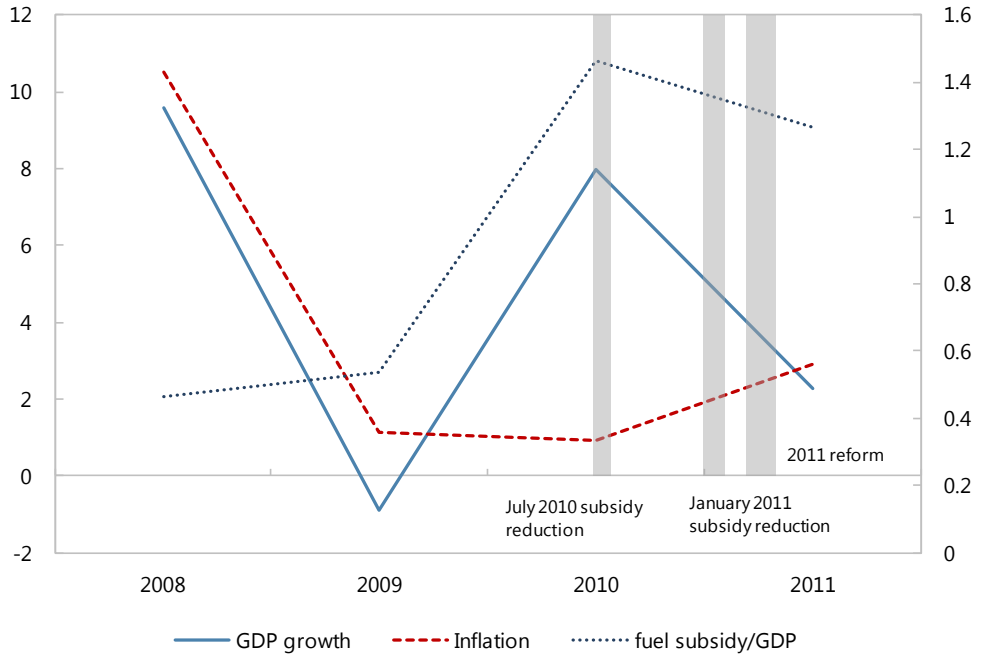
Domestic fuel prices have tended to follow international prices with a lag.



Sources: IMF Fiscal Affairs Department data, and authorities.

Figure 10. Niger: Macroeconomic Developments and Energy Subsidy Reforms, 2008–2011
(Percent of GDP or rate)

Niger has tried to rein in on fuel subsidies in the context of volatile macroeconomic performance.



Source: IMF staff estimates.

However, prices were set below international prices once Niger started producing fuel domestically. As a result of an agreement between the authorities and the foreign investor in the petroleum sector, SORAZ started selling its fuel products at CFAF 336 per liter for gasoline, and CFAF 340 for diesel, which were below the international prices. The prices were fixed for the first six months of operation of the refinery, with refined products' prices supposed to be set by a formula linked to world market prices after that period. Nonetheless, the prices did not change. More recently, an agreement has been reached between the government and the transportation trade unions aimed at developing proposals to further lower retail fuel prices. As a result, the fuel tax (taxe intérieure sur les produits pétroliers, TIPP) will be reduced from 15 to 12 percent starting in 2013.

The overlap of the subsidy reform with the start of fuel/oil production makes Niger a very special case. As a result, it is difficult to assess at this stage how durable the fuel subsidy reform would have been if domestic production had not started at the same time.

Mitigating measures

The more recent fuel price reform was accompanied by mitigating measures to protect the poorest segments of the population from increases in transportations costs. Following negotiations with the civil society and private sector operators, a direct subsidy to the transport

sector was introduced (*tickets modérateurs),* as this sector was the most affected by the increase and the poorer sectors of the population were the ones that used more public transport.

The costs of the subsidy policy were still reduced significantly since the costs of the mitigating measures (less than 0.1 percent of GDP) were significantly lower than the subsidy itself. The discontinuation of the subsidy on fuel products created room for a 19 percent increase in social spending in the 2012 budget compared to 2011, with particular emphasis on investment in education. The public wage bill was increased to accommodate the recruitment of 4,000 teachers in early 2012.

Lessons

There is a need to appropriately understand the extent of the fuel subsidy problem. Determining the distributional incidence of the subsidies can also help to ensure commitment to the reform.

Promoting an understanding of the issues by society as a whole is important. Being transparent about the costs of the subsidy by an explicit budget line proved very useful in Niger.

An adequate public information campaign also played a crucial role in ensuring the support of the society for reform. In Niger, there were debates on TV and radio about this issue.

A participative approach is valuable. Adopting a participative approach to decision-making was also useful, particularly through the establishment of an ad-hoc and inclusive committee.

Sufficient time needs to be allowed to build support. There is a need for sufficient time to explain, negotiate, and implement the reform. Building reform momentum, stakeholders' consensus and social support requires time. In the case of Niger, ensuring that all stakeholders were on board and agreed with the main elements of the reform took about six months.

Engaging financial partners can be helpful. Engaging partners can help to ensure that there is sufficient information about the problem and put pressure to launch the reform process. A delicate equilibrium needs to be reached between encouragement and ownership of the reform process.

Ensuring that mitigating measures reach the most affected groups is crucial. These measures can take the form of targeted subsidies based on a detailed analysis of who would be the most affected vulnerable groups.

Fuel subsidy reform becomes more complicated when a country becomes an oil exporter. At such times, it might be more difficult to resist the expectations and pressures from civil society to significantly lower pump prices.

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I. Nigeria[16]

Table 10. Nigeria: Key Macroeconomic Indicators

	2000	2003	2008	2010	2011
GDP per capita ($US)	390.0	524.3	1401.2	1465.1	1521.7
Real GDP growth (percent)	5.3	10.3	6.0	8.0	7.4
Inflation (percent)	6.9	14.0	11.6	13.7	10.8
Overall fiscal balance (percent of GDP)	12.4	-4.3	1.7	-4.2	0.1
Public debt (percent of GDP)	84.2	63.9	11.6	15.5	17.2
Current account balance (percent of GDP)	12.5	-5.9	14.1	5.9	3.6
Oil Imports (percent of GDP)	5.1	2.5	5.2	4.9	7.9
Oil exports (percent of GDP)	49.8	39.2	40.6	32.7	36.9
Fuel consumption per capita (liters)	n.a.	98.6	88.0	79.2	93.5
Poverty headcount ratio at $1.25 a day (PPP) (percent of population)	n.a.	n.a.	n.a.	33.7	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF, and Nigerian authorities.

Context

Nigeria is the world's fifth leading oil exporting country. The oil and gas sector accounts for around 25 percent of GDP, 75 percent of general government fiscal revenues, and over 95 percent of total exports. Nigeria's federalist fiscal relations are quite complex and driven by substantial (and constitutionally-mandated) oil revenue-sharing among the federal government, 36 (oil producing and non-oil-producing) states, and various local governments.

Nigeria has administratively set maximum prices for kerosene and gasoline and an indicative price for diesel.[17] At the core of this system, which was established in 2003, is the Petroleum Products Pricing Regulatory Agency, which sets these prices every month. This agency applies import parity but is also expected to stabilize prices, which it does with the help of the Petroleum Support Fund (PSF). When total costs are below the maximum price, the marketer benefits from what is called an "over-recovery;" if they are above, there is an "under-recovery." Any over-recoveries are to be paid into the PSF, supplementing the funds appropriated from the budget, while under recoveries would be compensated from the PSF. The Petroleum Products Pricing Regulatory Agency posts Product Pricing Templates for kerosene and gasoline on its website. They show the maximum prices but also the estimated costs of importing fuel—the so-called Landing Costs—as well as the costs of domestic distribution, decomposed into trading margins and fees all of which are regulated.

[16]Prepared by Anton Op de Beke, African Department.

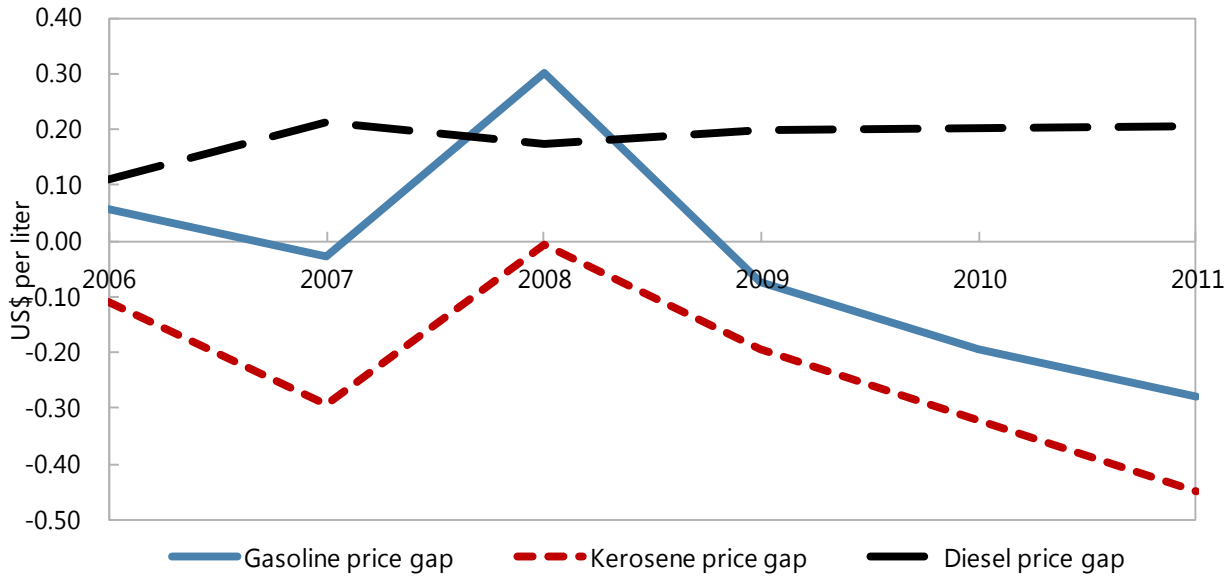
[17]Diesel was deregulated in 2007 and is not subsidized.

Nigeria has subsidized kerosene and gasoline at a substantial cost to the government. Domestic fuel price setting has never been responsive enough to changing international prices. Importers have typically been unable to recover costs and so from the beginning the PSF never received payments, only made them. As the gap between the administered price and the import parity price increased, subsidy costs rose from 1.3 percent of GDP in 2006 to 4.7 percent of GDP in 2011. In 2011, the budget appropriation for the PSF was just 0.6 percent of GDP and funding for the subsidies came from Nigeria's oil stabilization fund (the Excess Crude Account). The price gap has encouraged widespread smuggling to neighboring countries and other abuses (e.g., over-invoicing of gasoline imports) which have contributed to the escalating costs.

Figure 11. Nigeria: International and Domestic Fuel Prices, 2006–2011

(Difference between world price and domestic price, N per liter)

Domestic fuel prices in Nigeria have recorded substantial gaps relative to international prices.



Sources: IMF Fiscal Affairs Department and IMF African Department.

Table 11. Nigeria: Developments in Fuel Prices and Fuel Subsidies, 2006–2012

	2006	2007	2008	2009	2010	2011 Est.	2012 Proj.
Fuel Subsidy (billion Naira)[1]	251	290	637	399	797	1,761	1,570
Fuel Subsidy (percent of GDP)[1]	1.3	1.4	2.6	1.3	2.3	4.7	3.6
Fuel prices (Naira per liter)							
Diesel (deregulated)	81	90	118	94	112	152	144
Kerosene (subsidized)	50	50	50	50	50	50	50
Gasoline (subsidized)	65	70	70	65	65	65	97

Sources: Nigerian authorities and IMF staff calculations and projections.

[1] For 2012, includes one-off payment of about 1 percent of GDP to settle arrears accrued in 2011.

The subsidy regime has also been a disincentive to investment in domestic refining capacity. None of the 20 refinery licenses issued since 2000 have been used. Although Nigeria produces some 2.5 million barrels of oil per day, it is heavily dependent on the import of fuel products. Its four state-owned refineries, operating sometimes at only about 20 percent of capacity and rarely above 40 percent, meet only about 20 percent of the domestic demand.

Experience with reform

In mid-2011 the government decided to radically curtail gasoline subsidies, and waged a public campaign the rest of the year to convince the population. The debate on removal of fuel subsidies was initially supported by several state governors, who wanted to free up resources to be able to pay their civil servants the new minimum wage. This proposal was hotly debated in the press, by business and civil society groups, and it was debated in the National Assembly during the rest of the year, with the government strongly trying to make a convincing case. On January 1, 2012, the price of gasoline was raised to a cost recovery level—a 117 percent increase. The price of kerosene, a cooking fuel used mainly by poorer households, was not changed. However, in response to intense social unrest, the government scaled back the price increase to 49 percent by mid-January. Evidently, despite six months of debate the measure did not enjoy sufficient public support.

The main plank in the government's campaign for the subsidy removal was the Subsidy Reinvestment and Empowerment (SURE) Program. The SURE program was announced only in November. It was preceded by public statements by the president and in budget documents (e.g., the 2012–15 Medium-Term Expenditure Framework and the Fiscal Strategy Paper) highlighting both the costs of the subsidies and the need both to spend on safety nets for poor segments of society to mitigate the effects of the subsidy removal and to spend on the construction of new refineries and the rehabilitation of existing ones. The SURE brochure summarized the government's case for subsidy removal (Box 1), spelled out how much the federal government and states and local governments stood to gain from the subsidy removal, and announced how the federal government would spend the money saved.

Box 1. Nigeria: Rationale for Subsidy Removal

The government summarized its case for subsidy removal in the SURE brochure:

- Fixed prices have led to a huge unsustainable subsidy burden.
- Fuel subsidies do not reach intended beneficiaries, and they benefit the rich mostly.
- Subsidy administration has been beset with inefficiencies, leakages, and corruption.
- Subsidy costs have diverted resources away from investment in critical infrastructure.
- Subsidies have discouraged competition and stifled private investment in downstream petroleum.
- Huge price disparity has encouraged smuggling to neighboring countries.

According to the SURE brochure, savings from the removal of the fuel subsidy would be channeled into "a combination of programs to stimulate the economy and alleviate poverty through critical infrastructure and safety net projects." Capital projects would be selected in line with the government's Vision 20:2020 development strategy, in the power, roads, transportation, water, and downstream petroleum sectors. The potential impact of the subsidy removal on the poor would be mitigated "through properly targeted safety net programs." The SURE brochure provided details on the various projects and programs to be undertaken, from the specific road segments to be built to the maternal and child health services to be upgraded.

The SURE program envisaged the creation of a specific subsidy savings fund to finance its spending initiatives. The fund itself and the specific spending programs would be overseen by an 18-person board, with a chair appointed by the president and including only four government representatives, and other members made up of respected individuals from a wide cross-section of civil society. The board would seek technical assistance from internationally reputed consulting firms, while an independent body would report to the board directly on implementation.[18]

Government's attempts to win support for its subsidy reform met with strong opposition from powerful sectors of society. In early December 2011, the National Assembly came out against the removal of the gasoline subsidy, claiming that the measure was premature and not supported by firm data underpinning the size and incidence of the subsidies. In response, the Ministry of Finance presented a Brief on Fuel Subsidies, laying out once again the case for removal, and supporting it with data on the explosive growth of the subsidies and comparing their costs with

[18]President Goodluck officially inaugurated the program on February 13, 2012, and appointed Dr. Christopher Kolade as Chair of the SURE Board.

the government's capital expenditure and borrowing requirements (Okonjo-Iweala, 2011).[19] In addition, several senior officials gave interviews and speeches during the last two weeks of December. However, trade unions were also voicing their strong opposition to the measure echoing a widely held view that the proceeds from the subsidy removal would most likely go to fund wasteful government spending (including for corrupt politicians) rather than projects to benefit ordinary Nigerians (Okigbo and Enekebe, 2011).[20] State governors who had generally supported the reform earlier on were now silent. Throughout the entire period, the government had deliberately refrained from setting any date for the planned removal of subsidies.

The January 1 announcement came as a surprise and set off widespread protests across the country. On January 9, the two large union federations launched a national strike. Certain parts of the country experienced a near breakdown of law and order and there were a number of deaths related to violence and acts of intimidation associated with the strike. On January 15, the president announced that the January 1 price increase would be partly reversed and the new maximum retail price for gasoline would be N97 (US$0.60) per liter, a 40 percent increase over its end-2011 level. However, he emphasized that the government would continue to pursue full deregulation of the downstream gasoline sector. The SURE program would go ahead but would be scaled back in line with the reduced subsidy savings. The president also announced that the legal and regulatory regime for the petroleum industry would be "reviewed to address accountability issues and current lapses." Unions called off their strike that same day.

Mitigating measures

The SURE program outlined a variety of social safety net programs to mitigate the impact of removing the subsidy on the poor segment of the population. These included:

- *Urban mass transit*—Increasing mass transit availability by facilitating the procurement of diesel-run vehicles (subsidized loans, reduced import tariffs, etc.) to established operators. In the first step of this program, the government intended to import 1600 buses within months.
- *Maternal and child health services*—Expanding the conditional cash transfer program for pregnant women in rural areas; and upgrading facilities at clinics.
- *Public works*—Providing temporary employment to youth and women from the poorest populations in environmental projects and maintaining education and health facilities.
- *Vocational training*—Establishing vocational training centers across the country to help tackle the problem of youth unemployment.

[19]Okonjo-Iweala, December 6, 2011.

[20]Okigbo, December 15, 2011.

Lessons

A well-thought out public information and consultation campaign is crucial to the success of a reform. While the government campaigned vigorously for removal of the subsidies, the measure was still highly controversial when it went into effect. The backlash had been predicted. The public communication campaign lasted only six months and there was no broad popular consultation. The ministry of finance produced several short briefs to support its proposal, but these were issued several months into the campaign, and there was no comprehensive report.

The government must establish credibility for its promise that the proceeds from the removal of the subsidy will actually be used for the benefit of the broad population. Notwithstanding the laudable objectives of the SURE program and the plans for oversight by a highly reputable board of directors, the new administration had yet to establish credibility that it would live up to commitments. On the contrary, it suffered from a very negative image of government held by the general public. As such, the subsidy reform was viewed very suspiciously and the general public simply did not believe that the government would live up to its commitments.

Thorough research on the costs and beneficiaries of subsidies is important to be able to bolster the case for subsidy reform. The absence of good quantitative information on the state of Nigeria's refining industry and of the fuel subsidy mechanism itself allowed spurious arguments, often made by parties with vested interests, that government investment in the state-owned refineries and/or measures to stop abuse by marketers were preferable to removing the subsidies. In addition, the claim that subsidies mostly benefited the poor had been based on anecdotal evidence rather than on research based on household survey data.

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Petroleum Products Pricing Regulatory Agency (PPPRA), http://www.pppra-nigeria.org/index.asp.

Petroleum Support Fund, http://www.pppra-nigeria.org/psf.htm.

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Sweet Crude—A Review of the Nigerian Energy Sector, http://sweetcrudereports.com/.

J. Peru[21]

Table 12. Peru: Key Macroeconomic Indicators, 2000–2011

	2000	2003	2008	2010	2011
Nominal GDP per capita (US$)	1334.7	2258.9	4481.5	5290.8	6007.9
Real GDP growth (percent)	2.8	4.0	9.8	8.8	6.9
Inflation (percent)	3.76	2.3	5.8	1.5	3.4
NFPS balance (percent of GDP)	-3.4	-1.7	2.4	-0.3	1.9
Gross public debt (percent of GDP)	n.a.	46.9	25.9	23.3	21.2
Current account (percent of GDP)	-2.9	-1.5	-4.2	-2.5	-1.9
Oil imports (percent of GDP)	3.1	2.3	4.1	2.6	3.2
Oil exports (percent of GDP)	1.1	1.0	2.1	2.0	2.7
Oil consumption per capita (liters)	n.a.	332.5	380.2	377.2	317.8
Poverty headcount ratio at $1.25 PPP (percent)	n.a.	9.5	6.2	4.9	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

Peru is a net importer of oil and its import bill is highly dependent on developments in international prices. Diesel accounts for the largest share of fuel consumption (47 percent) followed by LPG (19 percent). Historically, the consumer prices of these commodities have been politically sensitive. Diesel is primarily consumed by public transportation vehicles and most households use stoves fueled with LPG.

Peru's oil market is a duopoly controlled by two companies responsible for refining and distribution, the private Relapasa and the public PetroPerú. Before the creation of the fuel product stabilization fund in 2004, the authorities regulated consumer prices by managing the prices of fuels sold by PetroPerú. Because PetroPerú controlled a significant share of the market, Relapasa had to adjust its prices based on that benchmark, incurring losses when international prices were above domestically regulated retail product prices.

Reforms of the fuel price smoothing mechanism and the oil stabilization fund

In May 2004, beleaguered by increasing prices amid a global hike in commodity prices, a smoothing price mechanism was put in place. The mechanism sought to smooth changes in domestic prices by adjusting excise taxes. Excise taxes were adjusted downward (upward) each time international prices breeched an upper (lower) price band in order to keep the consumer price constant. However, this initial attempt to limit the pass through from international to domestic prices, did not perform well, mainly because rising prices created sizeable revenue losses. These

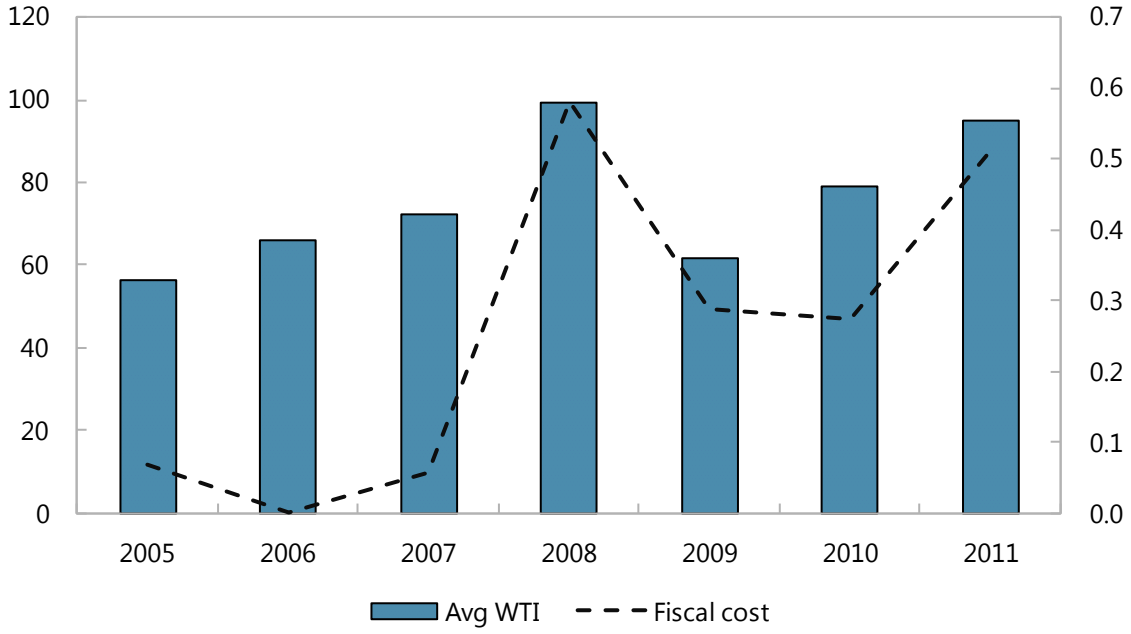
[21]Prepared by Javier Kapsoli, Fiscal Affairs Department.

losses, in turn, caused liquidity shortfalls in the treasury because of the shortfall in expected revenues.

In September 2004, the authorities created a stabilization fund—the Fondo de Estabilización de Precios de Combustibles (FEPC). The fund involved a complex payment system financed directly by the treasury. All types of gasoline and LPG were included as products whose prices were to be regulated by the FEPC. The objective of the FEPC was to prevent the full transmission of international to domestic prices. This was to be achieved by providing transfers to the refineries in periods when international prices were rising to compensate them for their increase in supply costs. When reference prices were above the upper limit of the price band, a contingent credit for refineries (payable by the treasury) was created. Similarly, if reference prices were below the lower limit, a contingent liability for refineries (payable to the treasury) was created.

The performance of the FEPC prior to the reforms was mixed. Although it has been successful in limiting the pass-through from international to domestic prices, the FEPC has also generated sizeable fiscal costs (Figure 12). The latter is the consequence of the upward trend in oil prices and the authorities' reluctance to increase the upward limit of the band. This combination of higher prices and frozen bands has proven to be a drain on fiscal resources. Another problem has been the accumulation of contingent liabilities. There is no legal obligation of the treasury to pay the refineries; instead, the treasury has paid when it had sufficient cash on hand. This has created acute liquidity issues for the refineries, particularly in 2008, which have made repeated requests to the treasury to honor its obligations.

Figure 12. Peru: International Price and the Fiscal Cost of Fuel Subsidies



Source: IMF staff estimates based on data from the Peruvian authorities.

Reforming the stabilization fund

Reforming the FEPC had long been an objective of the authorities. By mid-2008, when the FEPC had accumulated a record amount of liabilities (equivalent to the total cost of the extreme-poverty alleviation program), the authorities disseminated a study on the distributional impact of the subsidy. The study confirmed the regressive impact of this untargeted subsidy. It found that the subsidy received by the wealthiest 20 percent of the population was eight times the amount received by the poorest. The study received widespread media coverage. Nevertheless, the authorities could not reach a consensus among stakeholders to proceed with a comprehensive reform, although they managed to implement a modest increase in the pricing bands.

In 2010, amid a reduction in international prices, the authorities saw a window of opportunity to introduce reform measures. In April they introduced a rule to automatically update the band limits every two months. Price changes would nevertheless be limited to five percent, with an exception for domestic consumption of LPG whose maximum price change was 1½ percent. The authorities also created a special sub-account in the treasury to finance the FEPC, thus reducing uncertainty regarding payments to refineries. In October 2011, all types of high octane gasoline (which is used by luxury cars) were excluded from the FEPC, with international price changes being fully passed on to domestic prices. In August 2012 regular gasoline was also removed, with only

diesel and LPG for household consumption remaining (LPG for industrial consumption was excluded).

The reform has been successful in reducing the fiscal cost of the subsidy without provoking widespread opposition. At the same time, the reform did not touch upon the most politically-sensitive products (diesel and LPG), which also represent the largest share of subsidy spending (80 percent—see Table 13). As a result, the total fiscal savings of the reform have been modest (around 0.1 percent of GDP).

Mitigating measures

Mitigating measures were not implemented, as reforms did not reduce subsidies for products most heavily consumed by the poor.

Table 13. Peru: Spending of the Oil Price Stabilization Fund by Type of Product, 2011

	Million US$	Percent
Total	**871.8**	**100.0**
Diesel	440.6	50.5
LPG	261.0	29.9
Gasolines	106.5	12.2
Industrial petroleum	28.1	3.2
Gasohols	35.7	4.1

Source: Country Authorities.

Lessons

Regulating consumer prices by adjusting taxes can lead to challenges for fiscal management. Fuel products are widely consumed, so the fiscal impact of even minor changes in taxation could be significant. While a smoothing mechanism can help shield households from the shock of higher oil prices, it can create challenges for fiscal management, even when there is fiscal space to accommodate some price smoothing. For example, the transfer of resources from the treasury to the FEPC put pressure on the treasury's liquidity and complicated its cash management particularly due to the strong seasonal behavior of revenues and spending in Peru. Varying commodity taxation according to international prices can also create uncertainties with respect to projected revenues, given the volatility of commodity prices. To address these concerns, either more automatic adjustment mechanisms (see below), or a larger reserve of funding built up during good times, is needed.

Price smoothing mechanisms should incorporate automatic adjustments of pricing bands. The core principle of a price smoothing mechanism is that it only moderates volatility. However, if prices

are on an upward trend, the smoothing mechanism must have some method to adjust to this. In the case of Peru, the decision to keep the bands untouched in the wake of an upward trend in oil prices has proven to be fiscally costly. This has de facto converted a price smoothing mechanism into a pure subsidy.

Rules for the payment of refineries for subsidies should be explicit. This can be done with a special sub-account, which ideally should be integrated into the Treasury Single Account to ensure transparency. This will make explicit the size of the subsidy and also give certainty to the amounts that could be compensated to refineries.

Introducing subsidy reforms during "good times" can enhance the chances of success. The decision to introduce the reform in early 2010, during a period of stable prices and strong economic growth, helped make the reform politically more palatable.

Subsidy reforms can fruitfully begin with the products consumed most heavily by higher-income groups to ensure public support. In the case of Peru, this meant starting the reform by raising high-octane gasoline prices. Despite the fact that fiscal savings under this approach can be limited, such a strategy may be warranted to allow stakeholders to see the effects of the reform and allow more time to muster support for a broader reform. This approach also signals the direction of reform and can pave the road for further more ambitious reforms. There is nevertheless a trade-off involved between fiscal savings and safeguarding adverse effects on lower-income groups, as indicated by the modest savings that subsidy reform has achieved thus far for Peru.

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K. Philippines[22]

Table 14. Philippines: Key Macroeconomic Indicators, 2000–2011

	2000	2003	2008	2010	2011
Nominal GDP per capita (US$)	1055.1	1024.8	1918.3	2123.1	2223.4
Real GDP growth (percent)	4.4	5.0	4.2	7.6	3.7
Inflation (percent)	3.8	3.4	8.2	3.8	4.8
Overall Fiscal Balance (percent GDP)	-3.4	-3.6	0.0	-2.2	-0.8
Public debt (percent GDP)	58.8	68	44.2	42.2	40.5
Current account balance (percent GDP)	-2.7	0.3	2.1	4.5	2.7
Oil imports (percent GDP)	3.9	3.8	12.4	9.6	13.5
Oil exports (percent GDP)	0.4	0.5	1.8	1.4	1.9
Oil Consumption per capita (liters)	154.7	150.4	127	140.9	n.a.
Poverty headcount ratio at $1.25 per day (PPP) (percent of population)	22.5	22	n.a.	n.a.	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

Prior to the deregulation reforms in the late 1990s, the downstream oil sector was heavily regulated, resulting in price subsidies of fuel products when international oil prices rose. The Oil Price Stabilization Fund (OPSF) stabilized domestic prices of fuel products by collecting or paying out the difference between regulated domestic prices and actual import costs. However, increases in domestic prices were politically difficult to implement.[23] As a result, the national government had to replenish the OPSF by transferring 0.8 percent of GDP in 1990 and 1996.

Reforms in fuel pricing

The Philippines, a net oil importer, eliminated fuel subsidies through deregulation of the downstream oil industry in the late 1990s. The deregulation largely depoliticized price settings and eliminated fiscal risks by abolishing an oil price stabilization scheme. It was prompted by the government's initiative of economic liberalization; after a "People's Power" revolution in 1986, successive reformist governments abandoned the previous development path of monopoly and protection, and liberalized and opened up the economy. At the same time, deregulation was implemented in the context of fiscal consolidation, a key policy objective to restore macroeconomic stability and overcome debt overhang after external debt crises in the early 1980s. These objectives were supported by IMF programs—deregulation of the oil sector was part of the program conditionality of the 1998 Extended Arrangement.

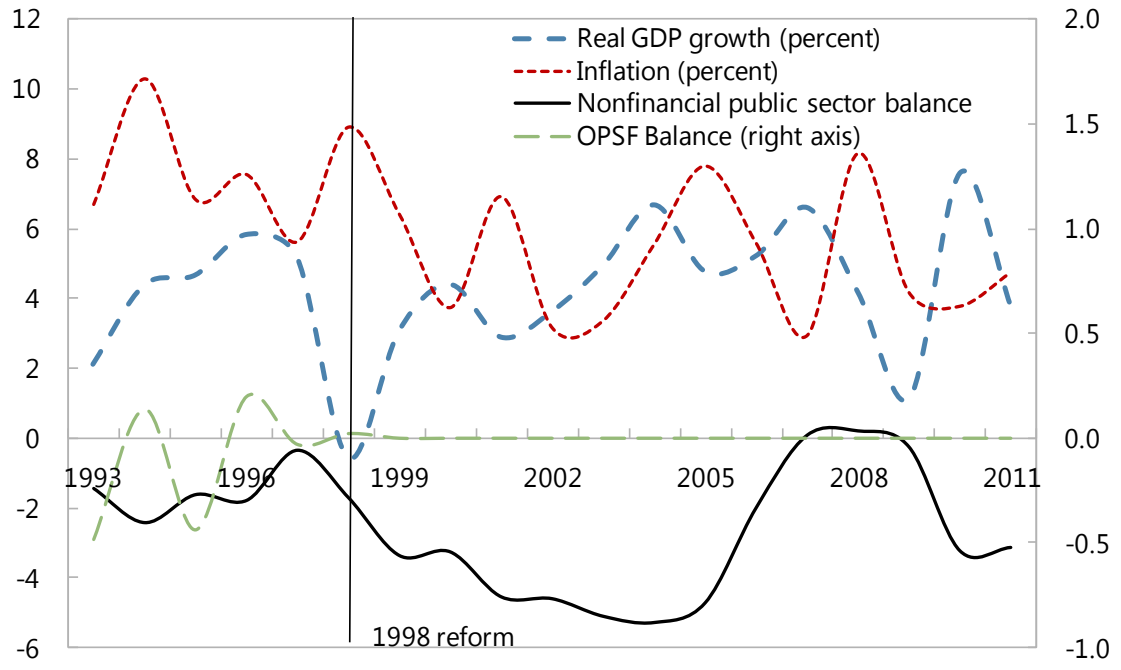
[22]Prepared by Masahiro Nozaki, Fiscal Affairs Department.

[23]For example, an attempt to raise fuel product prices was abandoned because of nationwide protests in 1994. The protest groups consisted of the church, the business sector, labor unions, and other civil society groups (Bernardo and Tang, 2008).

The oil deregulation law liberalized the industry and depoliticized the price setting of fuel products. An initial deregulation law was passed in 1996, liberalizing the downstream oil industry and the price-setting of fuel products. The OPSF balance improved in 1996 as it received transfers from the national government and fuel prices were raised according to an automatic pricing mechanism after the passage of the deregulation law. The prices were allowed to move freely in February 1997. As a result, the OPSF was abolished, eliminating its cost to the budget (Figure 13). When the law abolishing it was ruled unconstitutional by the Supreme Court in November 1997, the government introduced a new law to reinstate deregulation while correcting the constitutional deficiencies of the previous law. The new law was enacted in 1998. The industry remains liberalized today and movements in international oil prices have been passed through onto domestic prices.

Figure 13. Philippines: Macroeconomic Developments and Energy Subsidy Reforms, 1993–2011

(Percent of GDP unless otherwise noted)



Sources: World Economic Outlook and IMF staff estimates.

Notes: The Oil Price Stabilization Fund was abolished after the oil sector deregulation in 1998.

The success of the reform can be attributed to good planning, a well-designed communication strategy, effective consensus building, and strong political will (Bernardo and Tang, 2008). Initially, the political environment was not conducive to such a reform, because President Ramos had won the election only by a small margin and his party was a minority in both

chambers of Congress. Nevertheless, the reform was planned and communicated soon after the president took office in 1992. A public communication campaign began at an early stage and included a nationwide road-show to inform the public of the problems of oil price subsidies. While the president's party was a minority in congress, he set up a coordination body between the executive and the two chambers of congress and used it to prioritize the oil deregulation bill and forge consensus on it. The commitment of the oil sector reform as part of the conditionality of an IMF program helped to set a timeframe for passing legislation. It was opportune that the initial deregulation bill was advanced in 1994–96, a "lull" period with declining inflation, high output growth, and stable exchange rates. Political leadership was exercised when the president pursued the reform despite the Supreme Court ruling that the 1996 deregulation law was unconstitutional—the revised bill was enacted in 1998 amid a negative growth shock from the Asian crisis, a surge in domestic oil prices due to exchange rate depreciation, and renewed political pressure to reregulate the industry.

Mitigating measures

The authorities introduced appropriate indirect measures to mitigate the effect of the reform (Bernardo and Tang, 2008). For example, the 1996 law included a transition period during which fuel product prices were adjusted monthly using an automatic pricing mechanism. During this period, the government provided transfers to the OPSF to absorb price increases in excess of a threshold. For some years after the deregulation, the government adjusted the duty on oil imports when international oil prices exceeded a threshold, and it used moral suasion to persuade oil companies to adjust prices in small increments.

More recently, the authorities announced several measures to mitigate the impact of the food and fuel crisis in mid-2008. The government launched a package of pro-poor spending programs that are financed by windfall VAT revenue from high oil prices. The policy package included electricity subsidies for indigent families, college scholarships for low-income students, and subsidized loans to convert engines of public transportation to less costly LPGs (World Bank, 2008). In addition, the government distributed subsidized rice to low-income families. A pilot project of a conditional cash transfer program was conducted in late 2007 and scaled up in 2008 (Fernandez and Olfindo, 2011).

Lessons

The Philippines' experience with fuel subsidy reform underscores the importance of planning, persistence, and a good communication plan in achieving a successful outcome. The fact that reform efforts started soon after the Ramos administration took office indicates the benefit of advance planning. Commitment to the reform under an IMF-supported program helped set up the timeframe for the reform. The reform was supported by a thorough communication strategy, which began at an early stage of the reform. Despite the president's weak political base, a coordination body between the executive and the legislative helped prioritize the reform law. Political leadership

was also essential, as evidenced by the government's effort to pass new legislation after the Supreme Court ruling against the first deregulation law.

The survival of the reform to date can be attributed to its comprehensiveness. Rather than ad hoc price adjustments or the simple introduction of an automatic pricing mechanism, the Philippines chose to introduce deeper reforms with liberalization of the downstream oil sector. It succeeded in de-politicizing the price setting of fuel products throughout the product chain, thus raising the bar for a reversal of the reform.

Mitigating measures for the poor during the 2008 fuel price hike helped maintain support for the authorities' approach to fuel pricing. The authorities were able to finance a package of mitigating measures with windfall VAT revenues from higher fuel prices. This was better targeted and a more desirable policy response than a reintroduction of fuel subsidies.

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L. South Africa[24]

South Africa's fuel industry and automatic pricing mechanism

Table 15. South Africa: Key Macroeconomic Indicators, 1993–2011

	1993	1998	2003	2008	2011
Nominal GDP per capita (US$)	3315.6	3100.1	3656.2	5605.8	8078.5
Real GDP growth (percent)	1.2	0.5	2.9	3.6	3.1
Inflation (percent)	9.9	6.9	5.8	11.5	5.0
Public debt (percent GDP)	n.a.	n.a.	36.9	27.4	38.8
Current account balance (percent GDP)	2.1	-1.8	-1.0	-7.2	-3.3
Oil imports (percent GDP)	0.0	0.1	0.1	0.3	0.2
Oil exports (percent GDP)	n.a.	n.a.	0.0	0.0	0.0
Oil consumption per capita (liters)	n.a.	n.a.	441.7	518.2	534.5
Poverty headcount ratio at $1.25 per day (PPP) (percent of population)	24.3	n.a.	n.a.	n.a.	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

The private sector plays a significant role in South Africa's fuel sector but prices remain controlled. Six [25] of the seven oil companies—state-owned and private, including foreign-owned—operate both upstream and downstream in a competitive environment. Some 30 percent of the country's fuel needs are met from synthetic coal-based fuel that is produced domestically, with the remainder derived from imported crude, which is then refined domestically. While the government has been working toward liberalizing prices, pump prices are currently determined under an automatic pricing mechanism.

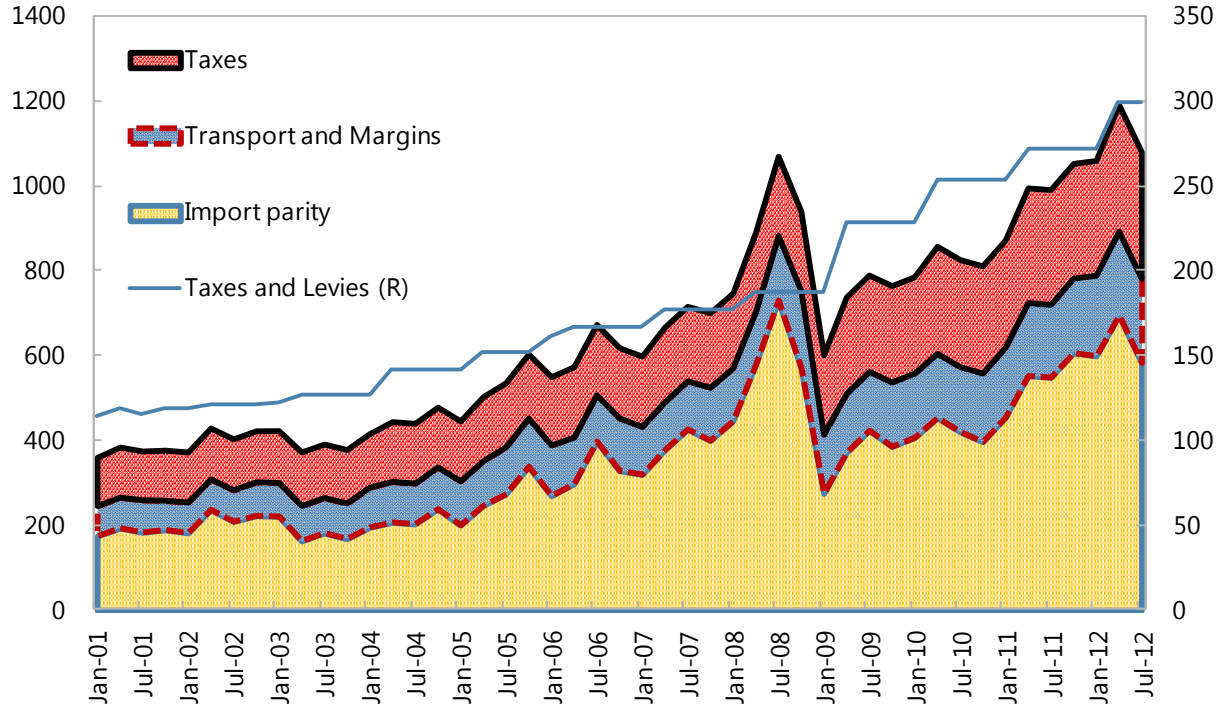
Experience with reform—the automatic pricing mechanism

The primary reason for introducing the automatic pricing mechanism, which has been in place since the 1950s, was to encourage private sector participation in the energy sector and secure an adequate supply of petroleum products. Concerned about the impact of sanctions on fuel supply during the apartheid era, the government realized that providing prices at least equal to import parity was critical to incentivize international firms to invest and maintain their activities in South Africa (CTSA, 2006). Most of those international companies remained in South Africa, even during the anti-apartheid embargo.

[24]Prepared by Vimal Thakoor, Fiscal Affairs Department.

[25]BP, Caltex, Engen, Sasol, Shell, and Total. PetroSA is the seventh company.

Figure 14. South Africa: Composition of Gasoline Pump Prices and Taxes, 2001–2012
(Cents/liter)



Source: South African Petroleum Industry Association.

Attempts to integrate some pump price smoothing through the Equalization Fund (EF) over 1977–2004 were not very successful, and have since been abandoned. The EF was established in 1979 and was principally utilized to smooth out fluctuations in the price of fuel products. It allowed for retail price smoothing by fixing domestic retail fuel prices, with transfers from the fund when international prices were high and transfers to the fund when they were low.[26] When the EF went dry, the government needed to finance the deficit. Eventually the government abandoned this policy, and this necessitated substantial increases in prices to bring them to import parity levels. The steep increase in 1993 led to social unrest, which led to the establishment of the Liquid Fuels Industry Task Force to develop a mechanism to address high fuel prices. The current price structure still has the EF Levy component but this has been set at zero since 2002, except when it was occasionally used in early 2003.

[26]Since domestic prices are adjusted monthly while import parity prices change within each month, suppliers can incur deficits or accumulate losses. To address this, the government also introduced "slate" charges into the pricing formula, which could be negative or positive as required. However, these payments have in practice been negligible.

The Central Energy Fund, a state-owned entity, was set up in 1977 and given responsibility for determining pump prices on behalf of the Department of Energy. Prices are determined on a monthly basis (the first Wednesday of each month) and include margins, taxes, and levies. The fuel tax—the main tax—is a specific levy announced every February in the budget speech (for implementation in April); it has increased steadily over time including in periods of rising international prices (Figure 14). The decisions of the Central Energy Fund are transparently communicated to the public. There is an online publication [27] of the monthly decisions and price structure, which contributes to a good understanding of the factors driving pump prices among the general public.

Mitigating measures

No mitigating measures have been introduced in connection with the automatic pricing mechanism. Given the long-standing application of the formula to determine fuel prices, there has been little debate regarding the adverse effects of international fuel prices increases.

Lessons

South Africa's success in implementing the automatic price mechanism shows that, when well designed, private (including foreign) companies can operate under such a mechanism without much problem. It also yields some insights for other countries:

- **The long-standing automatic pricing mechanism has worked well and is likely to remain in place for the foreseeable future.** While South Africa initially implemented the mechanism for strategic reasons under a peculiar political situation, it has been applied consistently over the years. There has been little discussion of an alternative, even when pump prices have had to be increased sharply.

- **The transparency and credibility of the automatic pricing process has contributed to its durability.** South Africa's experience with automatic pricing has been attributed to the credibility that the Central Energy Fund has gained over the years and the transparency with which the mechanism is implemented. The public dissemination of the fund's decisions has contributed to its success.

- **Stabilization funds can backfire when they are not provided with sufficient resources to absorb volatility in international prices.** In South Africa, the EF was underfunded, and when resources were exhausted, prices needed to rise sharply—thus defeating the very purpose of the EF.

[27] See www.energy.gov.za/files/petroleum_frame.html.

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M. Turkey[28]

Table 16. Turkey: Key Macroeconomic Indicators, 2000–2011

	2000	2003	2008	2010	2011
Nominal GDP per capita (US$)	4146.8	4534.9	10272.4	10062.4	10521.8
Real GDP growth (percent)	6.8	5.3	0.7	9.0	8.5
Inflation (percent)	55.0	25.3	10.4	8.6	6.5
Overall fiscal balance (percent GDP)	n.a.	-10.0	-2.4	-2.7	-0.3
Public debt (percent GDP)	51.6	67.7	40.0	42.2	39.4
Current account balance (percent GDP)	-3.7	-2.5	-5.7	-6.3	-9.9
Oil imports (percent GDP)	3.6	3.8	6.6	5.2	7.0
Oil exports (percent GDP)	0.1	0.3	1.0	0.6	0.6
Oil consumption per capita (liters)	254.7	246.0	310.1	304.6	n.a.
Poverty headcount ratio at $1.25 per day (PPP) (percent of population)	n.a.	2.5	0.0	n.a.	n.a.
Fuel subsidies (percent GDP)	0.0	0.0	0.0	0.0	0.0

Sources: International Energy Agency; *World Development Indicators*, World Bank; *and World Economic Outlook*, IMF.

Context

Prior to reforms, the Turkish petroleum sector was dominated by state-owned vertically integrated enterprises. Before 1990, the public distribution company Petrol Ofisi and the public refining company TÜPRAŞ were subsidiaries of TPAO, the public petroleum exploration and production company. At that time, the industry was governed by public decrees under which prices of petroleum products were largely set by the government.

The petroleum sector reform started in the 1980s as part of broader economy-wide reforms moving toward a market-oriented regime. The policy regime prior to these reforms involved

[28]Prepared by Baoping Shang, Fiscal Affairs Department.

heavy state intervention in economic activities, in particular in the form of government ownership of enterprises in critical industries, such as energy, telecommunications, petrochemicals, iron, and steel. The state also played a critical role in the allocation of financial resources, especially through state-owned banks. However, after a major balance of payments crisis in the second half of the 1970s and a military coup in 1980, Turkey was determined to transform its economy into a more market-oriented regime, through mass liberalization of domestic markets and international trade.

Reform experience

The petroleum sector reform aimed to achieve several objectives:

- *Improve the fiscal position of the government.* The reform would eventually eliminate petroleum subsidies, both consumer and producer subsidies.
- *Reduce the inefficiencies in the petroleum sector.* Private participation would introduce competition, improve efficiency, and limit monopoly abuse in the sector.
- *Meet the preconditions for Turkey's EU membership.* The reform was also urged by various international institutions that provided support during several economics crises.

Turkey initiated a series of reforms which can be characterized as a long process toward full price liberalization, privatization of state-owned enterprises, and a competitive energy market.

Under a new law passed in 1989, private companies were allowed to set prices, and in 1990 public companies began to be privatized. Under the 1989 law, importers, refining companies, distribution companies, and retailers were, in theory, to be allowed to set the prices of crude oil and petroleum products. The privatization process of public refining and distribution companies started in 1990 and was fully completed in 2005. This did not, however, achieve a liberalization of prices at the time. The reason was that the government maintained control of the state-owned enterprises that dominated the petroleum product market, which in practice set the prices of petroleum products—even though a liberal price regime was adopted legally. These reforms were adopted when the government was led by the Motherland party, a center-right nationalist party that supported restrictions on the role government could play in the economy and favored private capital and enterprise.

In 1998, the Automatic Pricing Mechanism (APM) was adopted by the government, which set a ceiling on the prices of almost all oil products based on international petroleum prices and the exchange rate. In principle, refining companies and importers could set prices freely, provided these prices did not exceed the ceilings. However, there were still license requirements for importing and capacity requirements for storage, and these requirements presented large barriers for market entry. In practice, distribution companies and retailers were not allowed to set their prices freely but, instead, prices were set by the government. TRURAS, the pubic refining company, benefited significantly from the APM and was able to make profits. TRURAS had often incurred losses before

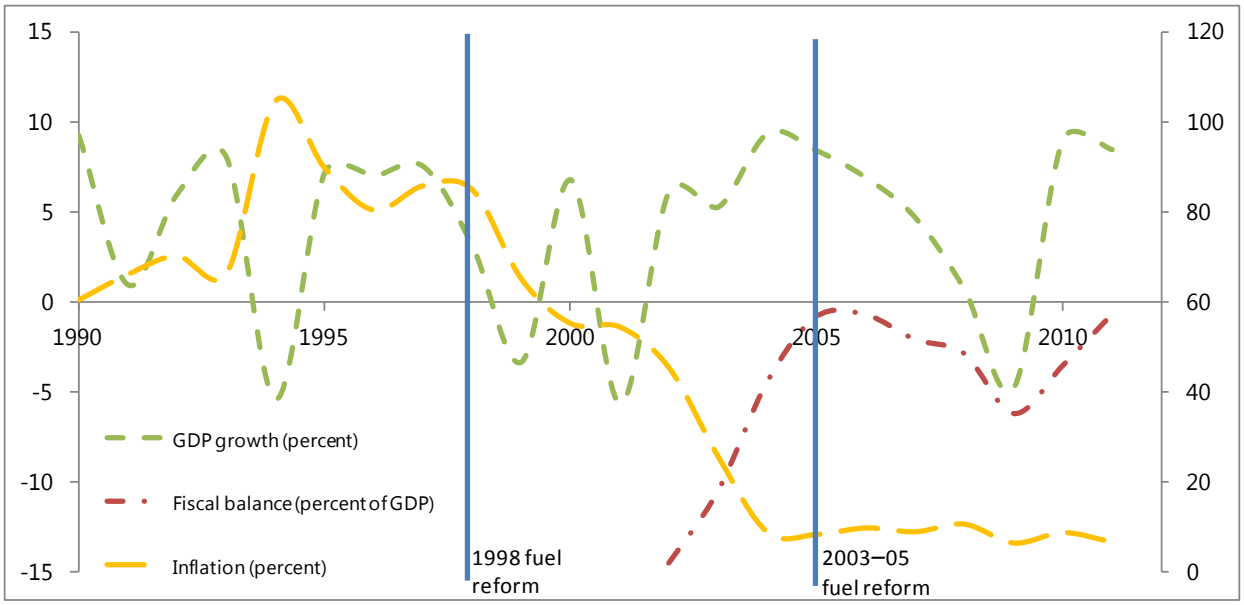
APM as the government kept the prices of petroleum products low. The APM reform was also under the watch of the Motherland party whose popularity, however, had declined significantly.

In 2003, regulatory authority over the petroleum product market moved to an independent agency. The Petroleum Market Law was passed in 2003 to achieve the institutionalization of the market economy and to comply with EU legislation and other international obligations. The law took the regulatory authority of the petroleum market from the Ministry of Energy and Natural Resources and placed it under the control of the Energy Market Regulatory Authority, an independent agency that was also the regulator of the electricity and natural gas market at the time. Under the petroleum market law, the government control of the petroleum market, such as through license requirements and importation limits, was loosened. The privatization of state-owned enterprises was also accelerated under the law and was completed by 2005.

The most important impact of the Petroleum Market Law was the full liberalization of fuel prices, which came into effect in 2005 (Figure 15). Since then, fuel prices have been set by the market. Turkish gasoline and diesel prices are now among the highest in the OECD, owing to the relatively high excise taxes that are reflected at the level of retail prices (Figure 16).

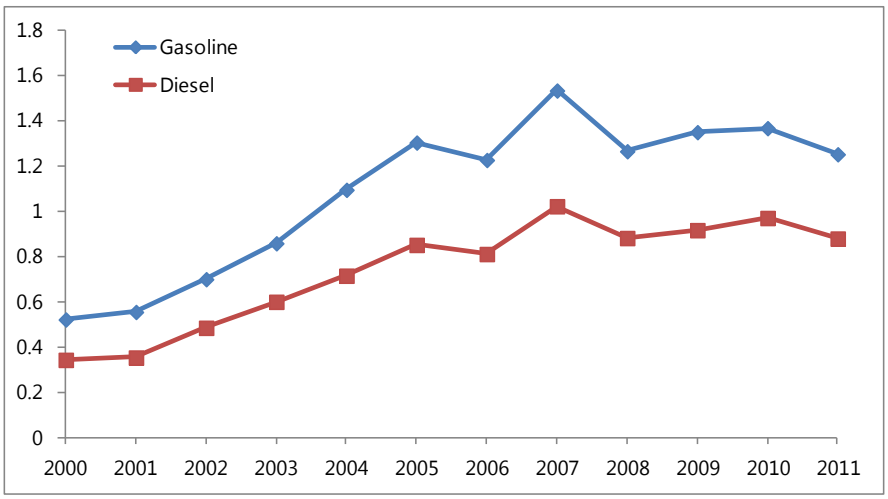
The 2003 and 2005 reforms were introduced when the Justice and Development Party was in power. The Justice and Development Party is a center-right conservative party that came to power in 2002 by a landslide victory and has since maintained a strong majority in the parliament.

Figure 15. Turkey: Macroeconomic Developments and Energy Subsidy Reforms, 1990–2011



Sources: IMF *World Economic Outlook* database, International Energy Agency, and IMF staff estimates.

Figure 16. Turkey: Gasoline and Diesel: Net Tax, 2000–2011
(Dollars per liter)



Source: IMF Staff estimates.

Note: End-year prices.

Mitigating measures

In addition to the existing social safety net programs, several targeted measures were taken to mitigate the impacts of reforms as follows.

Tax exemption for LPG consumption. Between 1999 and 2001, the government supported the use of LPG by households for cooking purposes by foregoing both value added and the special consumption tax. These tax exemptions resulted in the price of LPG being below that of both gasoline and diesel. As regular motor engines cannot use LPG, the government expected the fuel's use in cars to remain limited. However, an underground industry soon developed to make gasoline and diesel engines compatible with LPG. With a payback period of less than two years, the operation proved sufficiently simple and cheap for drivers to convert their vehicles to LPG use. Alerted by the resulting loss of tax revenue, the government began to phase out this tax expenditure at the end of 2000. This provision resulted in significant increases in LPG consumption.

Tax exemption for public transportation. According to the New Turkish Corporate Tax Law passed in 2006, public transport companies owned and managed by municipalities, villages, or special provincial administrations are exempted from value added tax and excise tax.

Rebate for diesel used in agriculture. In Turkey, the tax rate on diesel fuel is very high, thereby affecting the real income of farmers. A rebate program was introduced by the Ministry of Agriculture in 2007 to help farmers grow specific crops. There are three different types of crops defined by the

ministry which correspond to different aid levels. The amounts of aid are calculated according to the area of the land used in growing specified crops, and paid according to a schedule defined by the cabinet. There are no restrictions on how grant money is spent. The measure is to be phased out.

Lessons

Broad support for and firm commitment to market reform was key to the success of subsidy reforms in Turkey. Turkey started a more liberalized regime for energy pricing in the late 1980s and early 1990s, and sustained these reforms under the administration of various political parties. Aided by economy-wide reforms to enter the European Union, energy sector reforms have received broad support with little setback. Because of this, only very limited mitigating measures were adopted and the popularity of government did not appear to have a large bearing on the success of energy reforms.

Improving economic conditions also helped advance reforms. In the past two decades, the Turkish economy has grown steadily; inflation has been lowered substantially; and the overall fiscal balance has also been improving. The short-run impact of energy reforms on household welfare has been limited because of relatively high household income. This assured the public that the country was moving in the right direction and prevented any setback to reforms from occurring.

Independent agencies for energy policy can help steer technical decisions away from politics. Under the Petroleum Market Law, an independent agency, the Energy Market Regulatory Authority, was responsible for implementing the laws and regulating the petroleum sector. This took the technical decisions on pricing and market regulation out of the hands of politicians and ensured the stability and consistency of reforms.

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N. Yemen[29]

Table 17. Yemen: Key Macroeconomic Indicators, 2000–2011

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
GDP per capita ($US)	539.6	532.4	560.0	597.8	682.1	797.7	881.6	971.3	1171.1	1061.0	1272.5	1343.3
GDP growth (percent)	6.2	3.8	3.9	3.7	4.0	5.6	3.2	3.3	3.6	3.9	7.7	-10.5
Inflation (percent)	12.2	11.9	12.2	10.8	12.5	9.9	10.8	7.9	19.0	3.7	11.2	19.5
Overall fiscal balance (percent of GDP)	6.1	2.8	-0.6	-4.2	-2.2	-1.8	1.2	-7.2	-4.5	-10.2	-4.0	-4.3
Public debt (percent of GDP)	61.2	60.7	57.8	56.8	52.1	43.8	40.8	40.4	36.4	49.8	40.9	42.4
Current account balance (percent of GDP)	13.8	6.8	4.1	1.5	1.6	3.8	1.1	-7.0	-4.6	-10.2	-4.4	-3.0
Oil imports (precent of GDP)	2.2	5.1	6.2	6.8	7.5	10.5	17.7	18.1	13.3	7.8	6.7	8.7
Oil exports (percent of GDP)	35.1	29.5	29.4	29.3	31.0	35.6	35.3	28.3	28.7	17.6	20.2	23.3
Oil consumption per capita (liters)	n.a.	252.3	260.8	265.4	274.4	280.5	279.1	293.8	305.4	316.4	322.6	n.a.

Source: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

Yemen has undertaken several reforms to reduce fuel subsidies since the 1990s. The size of these subsidies has fluctuated over time, reflecting changes in international fuel prices, consumption volumes, the exchange rate, and domestic prices. Yemen's main goal in subsidy reform has been to improve its fiscal position, while paying due attention to social considerations. Despite these reforms, the subsidy bill in the budget remains large around 10 percent of GDP in 2012 (having peaked at 14 percent of GDP in 2008). This amount exceeds the total of infrastructure and social expenditures.

Experience with reforms

After 1994, the government increased the price of gasoline, but currency depreciation wiped out all the gains from domestic price increases. In the aftermath of the 1990–94 civil war, the government increased the price of fuel products, which is consumed more by better-off households, by 75 percent. However, the depreciation of domestic currency of almost 240 percent that took place in 1995 wiped out the gains from this increase. In 1995–96 the government implemented more price increases which affected four products. Gasoline increased by 80 percent, diesel by 100 percent, kerosene by 189 percent; and LPG increased in two steps (first by 123 percent and then 85 percent). However, prices in dollar terms remained well below their 1994 levels. During 2000–04, the government increased the price of diesel again by 30 percent in two consecutive years. Nonetheless, in dollar terms it remained below its level of a decade earlier. Throughout the 1994–2004 period the depreciation of the currency wiped out all the gains from domestic price increases. During this time the government also discouraged the use of kerosene for cooking, by making it more expensive compared to LPG.

[29]Prepared by Dragana Ostojic, Middle East and Central Asia Department.

The most important subsidy reform, launched in 2005, aimed at gradually adjusting domestic prices over the medium term. This reform was based on a World Bank study and IMF policy advice, which underlined the need to preserves fiscal sustainability in the face of declining oil reserves. So, in July 2005, the government increased domestic prices by 130 percent on average. This price increase led to violent protests and the government reacted by partially reversing it. Nonetheless, the net price adjustment remained substantial at 71 percent for gasoline, 106 percent for diesel, 119 percent for kerosene, and 7 percent for LPG. There was no increase in the price of mazot, which is mainly used for electricity generation.[30] It is important to note that social tensions during this episode were related not only to the subsidy reform but also to reforms in the taxation system. The initial relative success of the fuel price adjustments was cancelled by the spike in commodity prices in later years. As a result, the subsidy bill remained high, at almost 9 percent of GDP in 2005.

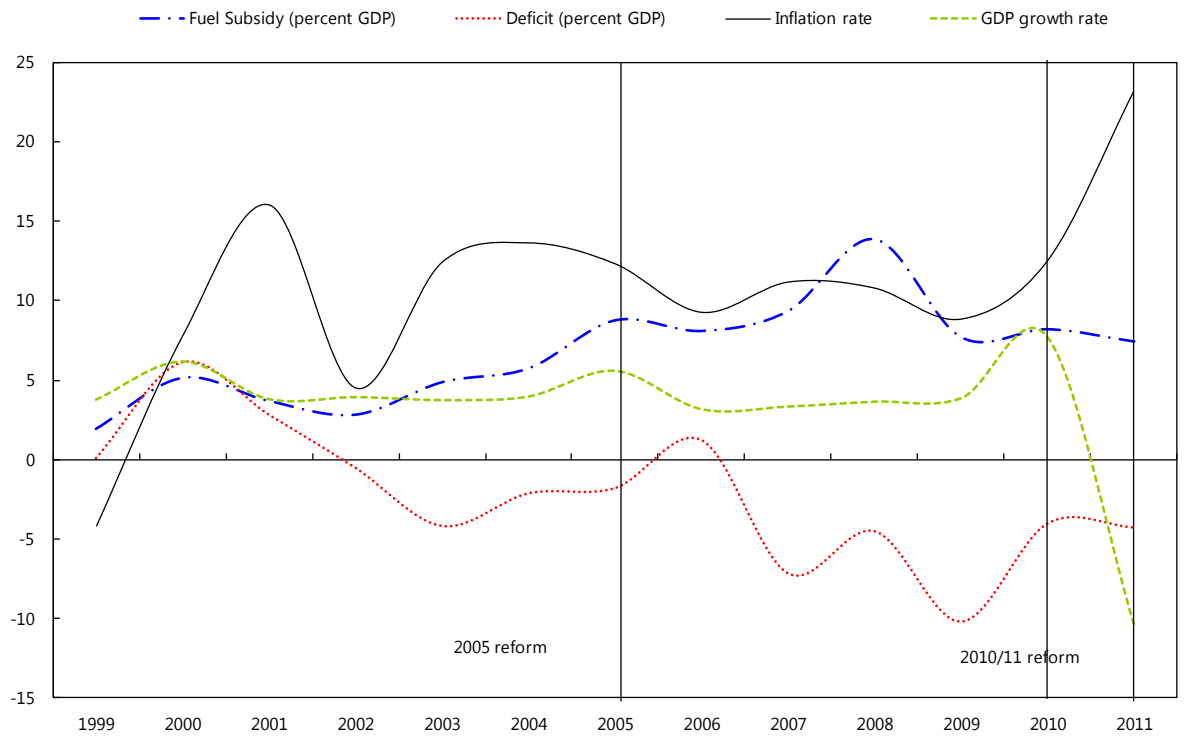
In 2010, as a part of the reforms supported by an IMF Extended Credit Facility arrangement, the prices of gasoline, diesel, and kerosene were gradually increased by about 30 percent on average, and the price of LPG was doubled over a period of nine months. The reform strategy was based on technical assistance from the World Bank, which drew lessons from the experience of the previous reforms. However, the public information campaign component of the strategy was not adopted. Instead, the government implemented small, surprise increases. In addition to fuel price increases, the government also introduced some efficiency-promoting measures such as replacing diesel-fueled power generators with gas-fueled ones. In late 2010, Yemen started to differentiate diesel prices by charging higher prices to commercial users. The main objective of this reform episode was to reduce fiscal pressures, following the record-high fiscal deficit of 10 percent of GDP in 2009.

In 2011/12, as a consequence of the political crisis and tight fiscal space, the government increased the price of gasoline by 66 percent, and doubled the prices of diesel and kerosene. [31] Overall, this reform episode was accepted by the population despite the political tension between the ruling party and the opposition. The major pipeline that provides oil to domestic refineries had been sabotaged. At the same time, the government was able to import only limited quantities of refined fuel products. The ensuing fuel scarcity resulted in the emergence of a black market, with prices that were a multiple of the official sale prices, and long lines at the gas stations. This situation may have played a role in the population's acceptance of the official price increases in exchange for the benefit of uninterrupted supply.

[30] In addition, the electricity company receives diesel at a lower price than other users.

[31] The price of gasoline was initially increased by 133 percent for 90 percent of consumers, and for 10 percent of consumers (poor households who use gasoline) it was left unchanged. In 2011 the increase was partially reversed, but prices were unified.

Figure 17. Yemen: Macroeconomic Developments and Energy Subsidy Reforms, 1999–2011
(Percent of GDP or rate)



Sources: IMF staff and authorities.

Mitigating measures

Well-off Yemeni households benefit disproportionately from fuel price subsidies, both directly (because they consume more energy than poorer households) and indirectly (because they consume more energy-intensive products and services). Overall, about 40 percent of fuel subsidies go to the richest 20 percent of households while only 25 percent go to households in the bottom 40 percent (based on updated of the 2005 HBS data). The unequal distribution of benefits varies widely by fuel product. In the case of gasoline, for example, households in the bottom 40 percent receive only 10 percent of the direct value of the subsidy.

To mitigate the impact of the past subsidy reforms on the poor, the authorities introduced or strengthened the following components of the social safety net:

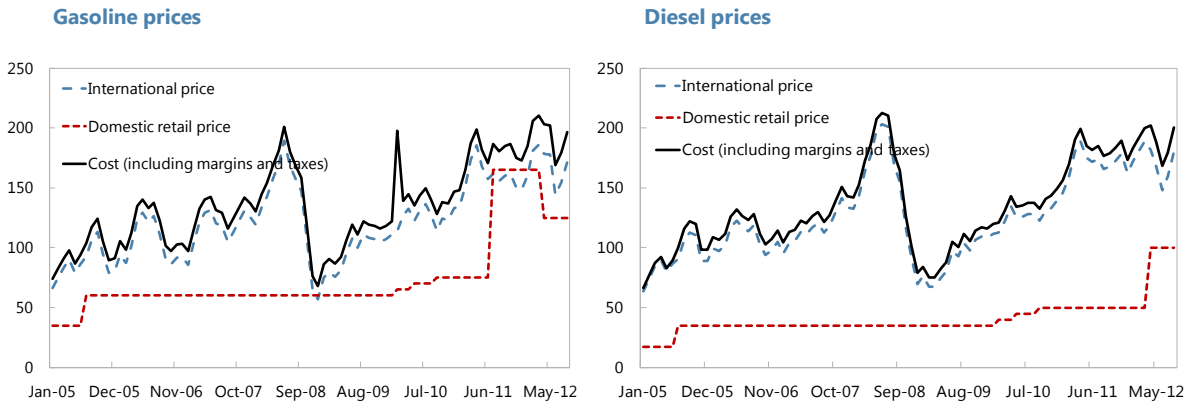
The Social Welfare Fund was established in 1996 as a poverty alleviation program to provide conditional cash transfers to households. The coverage of the fund was expanded gradually, and

transfers were increased in steps. The transfers were partly meant to mitigate the impact of fuel subsidy reforms. The timeliness in the implementation of measures addressing social support varied. For example, in the 2005 subsidy reform episode, it took three years to approve a social protection law to allow for more streamlined application for benefits and increase monthly transfers. On the other hand, the 2010 reform was almost simultaneously mitigated by a 50 percent expansion of the coverage of the cash transfer scheme. Thus far, there have been no mitigating measures in the 2011/12 reform episode, but the government is considering a further increase in the Social Welfare Fund coverage or the size of existing transfers.

Besides conditional cash transfers, Yemen has two other programs focusing primarily on poverty prevention. The Public Works Project provides short-term employment and support for small-scale contractors through a labor-intensive public works program. In addition, the Social Fund for Development promotes community and small- and microenterprise- development and provides short-term employment for both the transitory and chronically poor.

Other mitigating measures include conversion from more to less expensive fuels. For example, the government promoted the conversion from kerosene to LPG for residential use starting in early 2000's. Also, in 2010 the diesel-fueled electricity plants were converted to natural gas.

Figure 18. Yemen: Fuel Prices and International Full Pass-through Prices, 2005–2012
(Yrls/liter)



Sources: IMF staff and authorities.

Lessons

The experience with the pace and size of price increases varied. When the public was made aware of the need for and the benefits of reforms (for example to ensure adequate supply) it accepted large adjustment in prices. On the other hand, when reforms were not accompanied by implementation of an effective public information strategy especially at times of heightened political tension, there were popular protests that forced at least a partial reversal of the adjustments.

Adequate planning to strengthen the safety net and communicate assurances regarding the mitigating effort were also essential for gaining public support.

It is important to avoid multiple prices of a single fuel product. The Yemeni government introduced multiple pricing for gasoline and diesel with a view to protecting vulnerable households. However, the implementation of that strategy was difficult and gave rise to arbitrage, and distortions. It also raised a governance challenge as it created an incentive for commercial users to try to obtain the product at the cheaper price intended for residential users. This is not the case for metered products, such as electricity, for which differential pricing is easier to implement.

If well designed and implemented in a timely fashion, cash transfers and other social protection programs can be effective in protecting the poor and reducing opposition to reforms. The Social Welfare Fund cash transfers, as well as support from the Public Works Project and the Social Fund for Development, helped to reduce opposition to reforms. Based on this experience, it is possible to argue that opposition to the 2005 reforms could have been reduced if the social protection programs had been simultaneously implemented.

While adverse economic conditions increase the need for reforms, they can make price adjustments more difficult, especially if combined with political tensions. It is therefore important whenever possible to implement reforms in a timely fashion before economic and social conditions deteriorate further. The large resources used in generalized subsidies can then be used more effectively to target the poor and to spur growth and employment creation.

Efficiency and governance improvements can also help reduce subsidy costs. Adequate relative pricing (e.g., natural gas vs. diesel, and LPG vs. kerosene) provides and incentive for efficient switching of consumption. Strengthening governance would also help to enhance targeting and reduce abuse and smuggling.

ELECTRICITY AND COAL SUBSIDIES

A. Armenia[32]

Table 18. Armenia: Key Macroeconomic Indicators, 2000–2011

	2000	2003	2008	2010	2011
Nominal GDP per capita (US$)	593.5	874.1	3,605.9	2,840.4	3,032.8
Real GDP growth (percent)	5.9	14.1	6.9	2.1	4.4
Inflation (percent)	-0.8	4.7	9.0	7.3	7.7
Overall Fiscal Balance (percent GDP)	-6.3	-1.5	-1.8	-4.9	-2.7
Public debt (percent GDP)	48.9	32.9	14.6	33.3	35.1
Current account balance (percent GDP)	-14.6	-6.8	-11.8	-14.7	-12.3
Oil imports (percent GDP)	0.1	0.1	0.4	0.3	0.3
Oil exports (percent GDP)	0.0	0.0	0.0	0.0	0.0
Oil Consumption per capita (liters)	133.7	139.3	159.5	127.6	n.a.
Poverty headcount ratio at $1.25 per day (PPP) (percent of population)	n.a.	10.6	1.3	n.a.	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

In the early 1990s, Armenia began the transition to a market-based economy with a financially weak electricity sector. The industry was dominated by a vertically integrated and monopolistic power company and characterized by heavily subsidized retail prices. The sector was largely dependent on fuel imports from other countries of the former Soviet Union. The collapse of the former Soviet Union, and the conflict with neighboring Azerbaijan, led to severe disruptions in oil supply. Electric generation declined by almost 50 percent in 1990–95, resulting in chronic power shortages.

Fiscal and quasi-fiscal subsidies were large and unsustainable. After the transition to a market economy, the power generation mix shifted from oil to hydro power. Despite the fact that the latter is a cheaper source of electricity production, electricity subsidies remained very large, amounting to about 11 percent of GDP in 1995. There were various forms of subsidies:

- *Implicit consumer subsidies due to low retail prices*. Prices were set below levels needed to cover operating costs and capital depreciation. Since there were no transfers from the budget to cover these costs, the electricity companies financed them by accumulating debt with the banking system. Electricity tariffs for households included a cross-subsidy from other energy users (companies and the public sector), which were among the largest non-payers of electricity bills.

[32]Prepared by Kangni Kpodar, Fiscal Affairs Department.

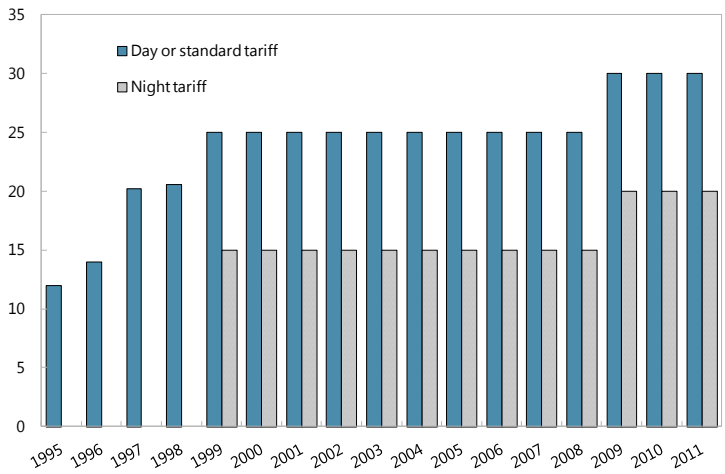
- *Power theft and low collection rates.* These can be considered as subsidies since they lower the effective tariff rates paid by customers. It was estimated that 40 percent of electricity bills were uncollected in 1996, with the biggest nonpayers including other government-owned utility companies in water and heating.

- *Explicit budget support.* Although there were no direct subsidies for the Armenian power sector, state support was substantial in the form of loans made directly from the budget, which equaled, for example, 0.2 percent of GDP in 1996. In addition, the sector benefited from loan guarantees. Unpaid taxes were another source of support, equaling about 1½ percent of GDP in 1996.

Electricity price reforms since the mid-1990s

Electricity prices rose sharply during 1995–99 toward cost recovery levels, effectively eliminating the bulk of the subsidies. Residential tariffs more than doubled over 1995–99 to reach 25AMD/kWh, a level considered close to cost recovery (Figure 19) and consistent with the levels of tariffs charged to non-residential users, considerably reducing cross-subsidies. Efficiency gains from the electricity sector reforms have helped reduce the fiscal burden of the sector in spite of a long period of unchanged prices since 1999. In 2009, retail prices were raised by 20 percent following an increase in the price of gas supplied by Russia.

Figure 19. Armenia: Residential Electricity Tariffs, 1995–2011
(AMD per kWh)

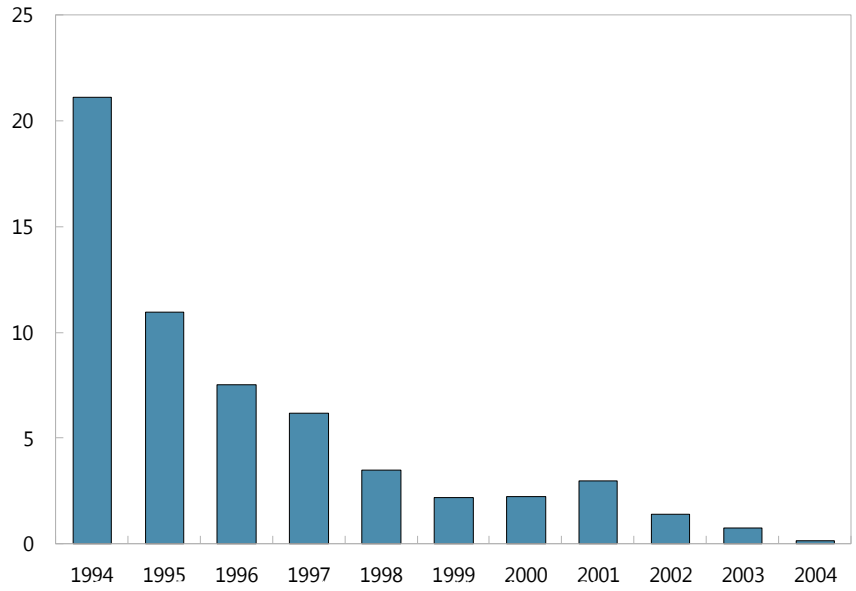


Source: National authorities.

Changes in both the level and structure of tariff increases were the centerpiece of the reforms. The tariff structure changed with the removal of the lifeline tariff in 1999. Although meant in principle to help protect low-income households by providing lower rates for low levels of

consumption, the lifetime tariff was subject to abuse. In particular, households and meter readers colluded to delay the reporting of high winter consumption levels. A year earlier, discounted tariffs for low-income consumers, electricity company employees, and military personnel were withdrawn, following an overhaul of the social protection system to better target it to the poor. Price reforms contributed to reducing the deficit of the electricity sector from about 21 percent of GDP in 1994 to less than 3 percent of GDP in 2000 (Figure 20).

Figure 20. Armenia: Electricity Sector Financial Deficit, 1994–2004
(Percent of GDP)



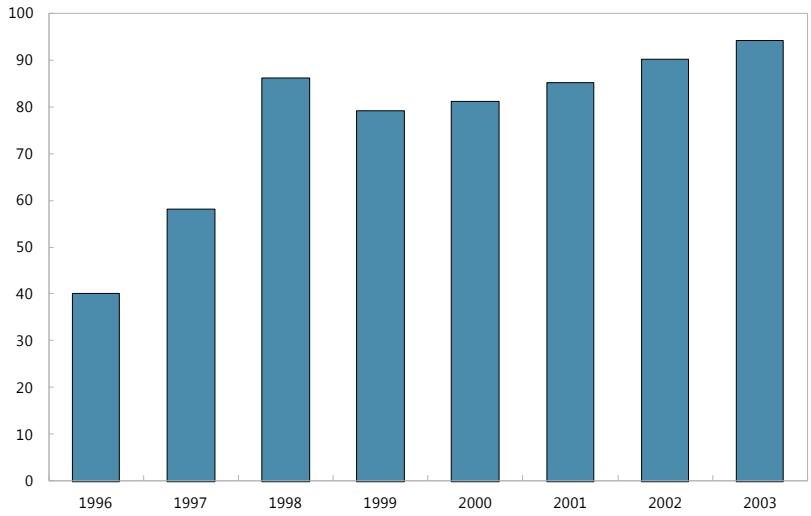
Source: Sargsyan, Balabanyan, and Hankinson (2006).

Efforts to improve collection rates also reduced the commercial losses of electricity companies. Meters were transferred from residential premises to communal hallways to prevent misreporting and tampering (Velody, Cain, and Philips, 2003). Meter readers were no longer allowed to collect cash, reducing the risks of corruption. Bill payments started to be collected through banks and post offices. Strict enforcement of disconnection policies has also led to an improvement in collection rates.

A public awareness campaign helped mobilize support for strengthening collections. The authorities emphasized that bill payments would help solve the problem of frequent power cuts and limited power availability (Velody, Cain, and Philips, 2003). The increase in collection rates was impressive, rising from 40 percent in 1996 to almost 100 percent by 2003, although it weakened temporarily in 1999 due to the sharp increase in tariffs (Figure 21).

Tariff reforms were complemented by institutional reforms, paving the way for private-sector participation. Private-sector participation brought some efficiency gains, with system losses in percent of gross supply declining from 30 percent in 1999 to 10 percent in 2010. The authorities also established an independent regulator in 1997, with the mandate to set up and review electricity tariffs, and regulate the sector. The law empowers the regulator to ensure that tariffs fully cover medium-term costs, including depreciation, debt service, and other capital costs.

Figure 21. Armenia: Electricity Bill Collection Rate, 1996–2003
(Percent)



Source: Nixson and Walters (2005).

Strong political will and donor assistance supported subsidy reforms. According to Sargsyan, Balabanyan, and Hankinson (2006), political will was crucial for the initial impetus toward power sector reform and for the success of the privatization process. Despite the initial failed tender for privatizing the distribution system, the authorities learned from their early setbacks and persisted in their reform efforts, while also addressing weaknesses in the legal and regulatory framework. Further, the electricity price increase took place before privatization, demonstrating the authorities' commitment to reforms. Equally important was the fact that the government kept its commitments after privatization, notably by not backing down from the strict application of disconnection policies, even though some public organizations and ministries were affected. Finally, donors, including the IMF, the World Bank and USAID, provided significant support to the reform agenda, mainly through conditional loans and technical assistance.

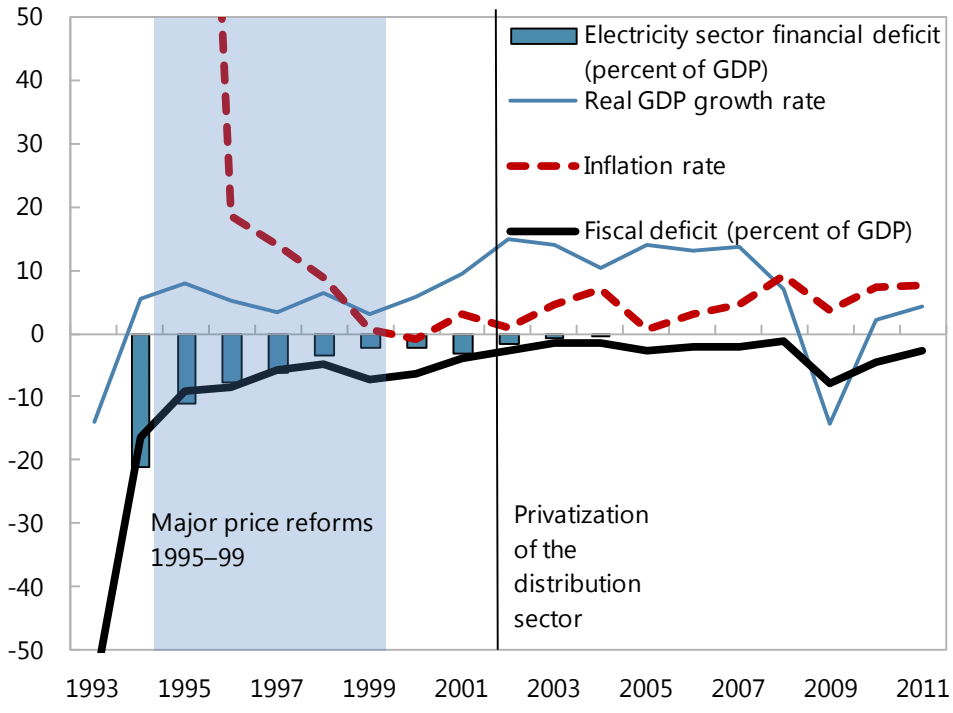
Impact of the reforms

The reform of the electricity sector contributed to fiscal adjustment. The fiscal deficit declined sharply—from 16.5 percent of GDP in 1994 to 9 percent of GDP in 1995, and further to 6.3 percent by 2000 (Figure 22).

The impact of electricity price increases on inflation was mitigated by successful macroeconomic stabilization. The pre-reform period (1993–94) was characterized by very high government deficits largely financed by the central bank. As a result, hyperinflation ensued. Successful macroeconomic stabilization resulted in a decline in inflation from over 5,000 percent in 1994 to single digits by 1998, reflecting monetary policy tightening and a sharp fiscal consolidation.

Sound macroeconomic policies and structural reforms were effective in facilitating growth, which averaged about 5½ percent during 1995–99. It is difficult to disentangle the impact of the subsidy reform on growth from that of other macroeconomic policies and structural reforms, but it is likely that the electricity sector reform facilitated growth by improving power reliability and boosting electricity production.

Figure 22. Armenia: Macroeconomic Developments and Electricity Subsidy Reforms, 1993–2011



Sources: International Financial Statistics; World Development Indicators; and Sargsyan, Balabanyan, and Hankinson (2006).

Mitigating measures

Offsetting measures were needed in light of the high share of the poor's expenditure on electricity. The 1999–2000 household survey showed that the share of electricity spending in household spending was almost twice as high in poor households as in non-poor households (Table 19). This was especially the case among the urban poor.

Table 19. Armenia: Electricity Share in Total Household Spending
(Percent)

	Rural	Urban
Poor	13	16
Non-poor	7	9

Source: Lampietti and others (2011).

Tariff reforms coincided with an overhaul of the social safety nets, marked by the introduction of a cash transfer program, the Poverty Family Benefit. In 1999, the government replaced child and family allowances by a cash transfer program, the Poverty Family Benefit, which in contrast to the previous safety net program, is means-tested. The program was not specifically targeted to offset the effect of higher electricity prices, but it has helped beneficiaries maintain real consumption in the face of higher electricity bills. The design of the benefit, however, helped increase the collection rate and improved energy efficiency, as the benefit is withdrawn if a household over consumes and does not pay its electricity bill. The Poverty Family Benefit is considered a relatively well-targeted program. It covered 25 percent of households initially, but coverage gradually declined to 18 percent in 2010 as eligibility criteria were tightened. This allowed an increase in the average payment by 40 percent in real terms between 2006, while maintaining the cost of the program at around 1 percent of GDP.

In addition, two one-off cash transfers were made to low-income households in 1999–2000 to help them cope with higher electricity prices. Beneficiaries included eligible households under the Poverty Family Benefit program and other households considered to have difficulties paying their bills.

A small-scale government program was started in 1999 to provide dual-rate electricity meters for low-income households. The use of dual-rate meters allowed households to benefit from discounted night tariffs, and removed the need for energy suppliers to use high cost generators during peak times of use.

Lessons

Strong political will is important for reform to succeed. The government was persistent in its efforts to achieve successful privatization, and undertook politically costly tariff reforms. Although donors also played a role, their best efforts would have proven ineffective if government officials had not committed fully to the reforms (Sargsyan, Balabanyan, and Hankinson, 2006).

A good regulatory environment that limits interference in setting tariffs can facilitate reform. A proper legal framework for private-sector participation was put in the place, and an independent regulatory commission was created to determine tariffs.

Measures to improve collections are essential. Strict enforcement of disconnection policies and collection schemes (e.g., through bank accounts) that limit the risk of collusion between consumers and meter readers can increase collection rates.

An effective public awareness campaign linking payments of utility bills to more reliable service helps garner support for reform.

Implementation of mitigating measures for the poor helps fortify support for reform. A means-tested cash transfer program was introduced, improving the targeting of social safety nets. Additionally, two one-off cash payments and the provision of dual meters for low-income households helped soften the impact of electricity price increases on the poor, thereby facilitating public acceptance of the reforms. In the case of Armenia, there were useful synergies between the simultaneous reforms of the social protection system and the energy sector.

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B. Brazil[33]

Table 20. Brazil: Key Macroeconomic Indicators

	2000	2003	2008	2010	2011
GDP per capita ($US)	3751	3104	8729	10816	12917
GDP growth (percent)	4.31	1.15	5.16	7.49	3.77
Inflation (percent)	6.18	13.72	8.33	8.23	6.97
Overall fiscal balance (percent of GDP)	-3.37	-5.31	-2.34	-5.93	-3.57
Gross public debt (percent of GDP)	51.1	59.6	58.5	63.7	62.2
Net public debt (percent of GDP)	47.7	54.9	38.1	40.2	38.6
Current account balance (percent of GDP)	-3.76	0.76	-1.71	-2.21	-2.12
Oil imports (percent of GDP)	1.19	1.16	1.84	1.21	1.25
Oil exports (percent of GDP)	0.16	0.33	0.33	0.19	0.23
Oil consumption per capita (liters)	412	394	482	624	n.a.
Poverty headcount ratio at $1.25 a day (PPP) (percent of population)	11.82	11.21	6.01	6.14	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

During the 1980s, Brazil's economy was characterized by low growth and macroeconomic imbalances. Growth averaged about 3 percent and inflation was high, averaging 272 percent. Fiscal policy was expansionary, with the overall budget deficit averaging 5 percent of GDP during the period and reaching 7 percent in 1989. The weak fiscal performance led to an increase in net public debt from 24 percent of GDP in 1981 to almost 40 percent in 1989. These deteriorating conditions put pressure on the authorities to alter Brazil's import-substitution policies and liberalize the economy (Giambiagi and Moreira, 1999).

Privatizing the power sector was part of the authorities' reform efforts in this area and was attractive for three reasons. First, privatizing some of the assets of the sector held out the promise of raising substantial revenues for the treasury and clearing debt due to the federal government off the books. In 1993, this external debt contracted by the electricity companies amounted to almost 25 percent of Brazil's external debt. Second, selling off the state-owned distribution companies meant that a significant amount of state-level debt owed to the national government would be paid. Third, the federal government believed that it would be difficult to raise sufficient amounts of capital on its own to invest in the facilities needed to meet growing demand. Electricity investment dropped by almost half, in the 1990s, relative to the decade before.

Other sector-specific factors also motivate the privatization. These included high construction costs incurred because of cartels among contractors; excessive employment; and high power losses

[33]Prepared by Allan Dizioli, Fiscal Affairs Department.

throughout the system. Finally, private distribution companies would establish tariff structures that were more reflective of costs.

The performance of the sector in the 1980s was poor and provided the primary impetus for structural change. A number of factors contributed to this weak performance, including the regulatory framework for determining prices. This was determined by the Planning Secretary of the President's Office. Price adjustments were influenced by the desire to contain inflation and were unrelated to developments in costs and the need to ensure an adequate rate of return to capital. This approach to pricing resulted in declining electricity tariffs in real terms and undermined incentives for improving productivity. It led to a worsening of the companies' financial position and an increase in external debt to finance expansion of the electricity supply. As a result, by 1993 debt accumulated in the CRC (Conta de Resultados a Compensar) reached US$26 billion in 1993, which was absorbed by the central government in the same year. Assuming this represented the accumulation of losses over the preceding five years, the subsidy to the electricity sector had averaged 0.7 percent of GDP per year in 1987 (Figure 23).

Reforms of electricity pricing

The overall plan devised for the power sector was for all assets to be privatized to the fullest extent possible. In order to remove constraints for privatization, in 1993 the requirements of uniform national tariffs and of a mandated 10 percent rate of return on capital were removed. Significant pricing reforms were also undertaken. To increase the transparency of the pricing system in the electricity sector, a law was enacted in 1998 unbundling the electricity sector system.

The government decided to begin the electricity sector privatization with the distribution companies. This was motivated by the fact that substantial productivity gains could be realized in these activities. In addition, the financial problems in these companies had ripple effects in the entire sector, since financially insolvent distribution companies were not paying electricity generation companies. Fixing the finances of the distribution companies and making them creditworthy buyers of energy had a positive effect on the power generation sector and helped pave the way for privatizing these assets.

The privatization program took place over a 10-year period from 1993 to 2003 and resulted in a competitive generation market with a number of private companies competing. The distribution sector was privatized under a series of monopoly licenses although over time the end users could obtain third-party access to the grid and the industry was under regulatory jurisdiction.

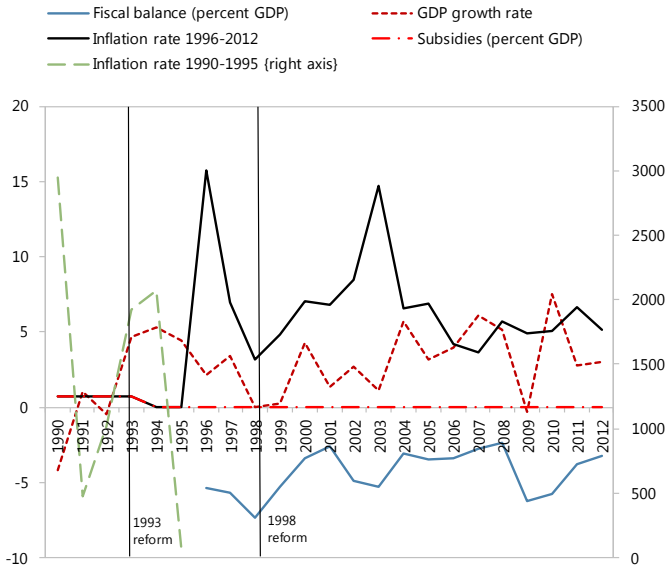
The 1993 reforms were successful, from a fiscal point of view, in eliminating subsidies. However, the privatization of the sector was not accompanied by a strong regulatory framework. This led to an uncertain investment climate and the suspension in the construction of some distribution lines. The lack of investment in electricity generation, combined with a drought in 2001, caused Brazil's hydroelectricity reservoirs to become dangerously depleted. In order to avoid a larger energy supply crisis, the government introduced regulations that forced producers to ration

the electricity they supplied to consumers, and allowed distributors to raise their tariff levels to compensate for their losses during the rationing period. These decisions produced a sudden drop in GDP, and a steep increase in tariff levels. This undermined public support for privatization and contributed to a slowdown in progress in liberalizing the energy sector.

Even after the privatization, cross subsidies were maintained. They were designed to support rural electrification and establish special rates for low-income households. But no uniform method to implement these cross subsidies was developed and each concessionaire was at liberty to fashion its own. The result is a potpourri of subsidies whose targeting efficiency is almost impossible to measure.

In summary, the electricity market reform in Brazil was successful in many respects. It eliminated government subsidies to the sector, depoliticized tariff increases, secured the expansion of electricity generation (post-2001), and reduced vulnerabilities associated with the external debt acquired by electricity-sector companies. Mota (2003) evaluated the effects of the electricity sector privatization on supply quality and cost and found that the efficiency gains due to cost reduction were substantial. These were obtained through the reduction, by half, in the number of employees from 1994 to 2000. With respect to the impact of privatization on quality, there has been an improvement in security and availability of energy supply.

Figure 23. Brazil: Macroeconomic Developments and Electricity Subsidy Reforms
(Percent of GDP or rate)



Sources: IMF *World Economic Outlook* database and IMF staff estimates.

Note: Data on fuel subsidy was calculated from the average of debt accumulated under the Fuel Consumption Account (CCC) from 1987 to 1993 and paid by the treasury in 1993; from 1990 to 1994 annual inflation was over 500 percent.

Mitigating measures

- Even after the liberalization of the sector, regional cross subsidies remained.
- A levy on electricity tariffs was introduced in 1993 to subsidize the supply of fuels to the inefficient thermal power plants of Amazonia, a politically sensitive region, and was maintained for an extended period.
- In 1995, legislation was approved to provide lower electricity tariffs for low-income households.
- In 2003, the government introduced a program to finance free electricity to 10 million rural people, which is funded by levies on electricity tariffs.

Lessons

The need to correct macroeconomic imbalances can provide political support for reforms. The low economic growth, hyperinflation, and high external debt burden of Brazil in the 1980s forced politicians to react and consider subsidy reform as an option to confront these imbalances.

Controlling increases in electricity prices as an anti-inflationary tool can have adverse fiscal consequences. The adoption of this policy in the 1980s resulted in financial losses for the sector, the accumulation of debt, and underinvestment.

Reforms have a better chance of success with a popular government. After controlling the hyperinflation, which had been chronic for over a decade, President Cardoso's administration was able to capitalize on this political support to undertake his agenda for energy sector liberalization.

Targeted social programs can reduce opposition to subsidy reform and assist the poor. Brazil has adopted a policy to reduce the electricity tariffs for low income people and has adopted a conditional cash transfer program, which facilitated the implementation of the subsidy reforms.

Privatization of electricity companies without a strong regulatory framework can have serious consequences and undermine popular support for energy reform. The unclear rules in the first years of the privatization process resulted in low levels of investment and contributed to the energy crisis in 2001.

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C. Kenya[34]

Table 21. Kenya: Key Macroeconomic Indicators

	1995	2000	2005	2009
Real GDP growth	4.0	2.5	6.1	4.1
CPI Inflation	8.9	8.0	11.1	6.7
Overall balance excluding grants (percent of GDP)	-0.8	-4.1	-4.7	-7.2
Total public debt (percent of GDP)	n.a.	53.1	45.1	44.8
Poverty headcount ratio at $1.25 a day (PPP) (percent of population)	n.a.	n.a.	43.4	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

In line with an expanding economy, Kenya has experienced a substantial increase in energy demand, estimated at 7 percent per year on average over the last six years (Ajodhia, Mulder, and Slot, 2012). Despite improvements in access rates and increases in capacity, electricity generation has not been able to keep up with the increase in demand and power continues to be a constraint on growth. Kenya depends heavily on hydropower for electricity generation, which accounts for over 56 percent of installed capacity, while thermal and geothermal energy sources account for 31 and 13 percent respectively.

The Kenya Electricity Generating Company (KenGen) is the main player in the wholesale electricity market, accounting for 75 percent of installed capacity as of 2009. It sells power to the retail distributor under several power purchase agreements. In addition, Kenya has five private independent power producers that account for about 25 percent of installed capacity (World Bank, 2010). The Kenya Power and Lighting Company (KPLC) is responsible for transmission and distribution of electricity. Both KenGen and KPLC operate on a commercial basis and are listed in the Nairobi stock exchange. On the regulatory side, the independent Energy Regulatory Commission (ERC) regulates tariffs, issues licenses, and sets performance targets for KPLC (e.g., revenue collection, average waiting period for new connections, and system losses).

Experience with reform

Reform efforts started in the mid-1990s with attempts to rationalize the sector by unbundling electricity generation from transmission and distribution and allowing for private-sector participation in the industry. The main objectives of the reform were to improve performance in the power sector, ensure the financial sustainability of the companies operating in the sector, and foster investment. Reform efforts culminated in the 2004 Energy Policy and the 2006 Energy Act.

[34]Prepared by Antonio David, African Department, with inputs from the IMF's Resident Representative Office Staff in Nairobi.

Substantial changes in the tariff structure first occurred in 2005, when revisions were introduced to reflect long-run marginal costs and automatically pass-through changes in fuel costs and exchange rate movements. Tariff reform has proved to be durable, but it is important to note that tariff increases occurred concomitantly with improvements in the quality of service. Furthermore, the reform process did not involve any retrenchment of staff in the utilities. The setting up of an Energy Tribunal to arbitrate on disputes between ERC and stakeholders has been instrumental in creating a level playing field in the sector.

Tariffs are based on a formula that, in addition to the basic rate of charge, reflects long-run marginal costs and features a monthly automatic pass-through of generation-related fuel costs and adjustments for exchange rate movements. Furthermore, every six months the formula also takes into account adjustments for domestic inflation. Information on the calculation of tariff adjustments is readily available on the ERC's website. On the generation side, KenGen has long-term power purchase agreements with KPLC that determine prices and generally reflect underlying costs. Moreover, residential electricity tariffs in Kenya are based on an increasing block tariff scheme (IBT), such that the unit price per kWh increases according to three defined blocks. The first block ranges from 0 up to 50 kWh per month at a rate of K Sh 2 per kWh. The second block rages from 51 to 1,500 kWh per month at a rate of K Sh 8.10. Finally, the third block applies to households that consume more than 1,500 kWh per month with a rate of 18.57 per KWh. Thus, the tariff rate charged to the highest block is over 828 percent higher than the rate applicable to the lowest one. Residential consumers also pay a fixed charge of K Sh 120. Non-residential consumers are charged different linear rates (which do not vary according to consumption levels) depending on their category (i.e., commercial, industrial, or government).

Earlier in the reform process, tariff increases faced significant difficulties and required intense negotiations, particularly with large consumers (Bacon, Ley, and Kojima, 2010). Key in securing the cooperation of the private sector was the commitment by the government that the additional cost of energy would help finance the development and expansion of domestic sources of renewable energy that would ultimately reduce the cost of power and strengthen competitiveness. Moreover, there was agreement among stakeholders that ensuring the financial soundness of KenGen and KPLC and setting up a tariff structure reflecting true costs were essential in order to attract foreign investors into the sector. Subsequently, owing to the negative impact of droughts in 2008 and 2009, a decision was taken to lower the value-added tax (VAT) rate on electricity from 16 to 12 percent.

Power pricing reforms in Kenya allowed tariffs to increase in line with costs from an estimated average of $0.07 per kWh in 2000 to $0.15 in 2006, and $0.19 in 2009 (Table 21). The current electricity tariff structure for KPLC tariffs has been in place since July 2008. According to the World Bank (2010), currently the negotiations for tariff-setting and power purchase agreements are transparent; the regulatory framework in the sector is robust and resistant to political interference. However, planned increases in the basic tariff rate in June 2011 did not occur due to political economy constraints because the authorities believed the prevailing food and energy prices were

already excessively high and some delays had been encountered in the implementation of new power generation projects.

Table 22. Kenya: Key Power Sector and Macroeconomic Indicators

	1995	2000	2005	2009
Access to electricity (percent of population)	11.791	13.102	n.a.	16.10
Electric power consumption (kWh per capita)	130.83	109.72	137.13	147.43
Electric power transmission and distribution losses (percent of output)	17.90	21.16	18.38	15.53
Electricity production (GWh)	3759	4098	5995	6875
Average Tariff ($/kWh)	n.a.	0.07	0.153	0.19

Sources: World Bank World Development Indicators, Africa Infrastructure Country Diagnostic (AICD) electricity database, Briceño-Garmendia and Shkaratan (2011a), World Bank (2010), and IMF staff estimates.

[1] Data from 1996.

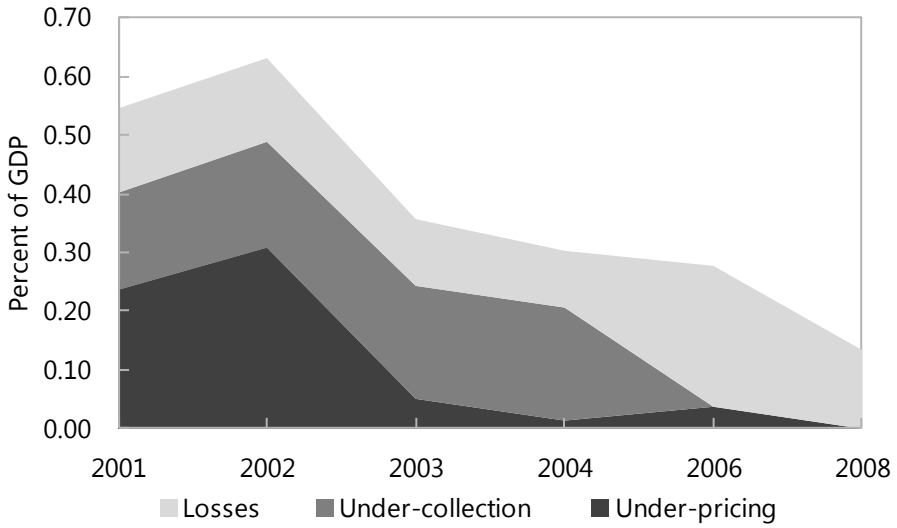
[2] Data from 2001.

[3] Data from 2006.

As a result of tariff reform measures, the hidden costs of the power sector have decreased significantly over the 2000s, dropping from a level of around 0.6 percent of GDP in 2002 to virtually zero by 2008 (Figure 23). In fact, the bulk of the reduction in costs is attributable to large decreases in under-pricing, as tariffs were brought to cost-recovery levels, and reductions in under-collection through improvements in billing. Furthermore, by mid-2008, there were no explicit subsidies or fiscal transfers to power utilities.

Figure 24. Kenya: Hidden Costs in the Power Sector, 2001–08

Hidden costs in the power sector have fallen continuously in the last decade.



Sources: Briceño-Garmendia and Shkaratan (2011a).

Reforms are considered to have been largely successful with achievements that include rendering both the generation and distribution/transmission companies financially viable and increasing in investment in generation capacity, including some private sector involvement. According to the World Bank (2010), reforms have resulted in significant operational improvements, including increases in revenue collection. The annual rate of new electricity connections increased from 43,000 in 2003/2004 to 200,000 in 2008/2009. Distribution losses in the power system also declined gradually from 21 percent in 2000 to 15.5 percent in 2009 (Table 22). Revenue collection for KPLC improved from 81 percent in 2004 to 100 percent by 2006 (Foster and Briceño-Garmendia, 2010) before dropping back to about 98 percent, according to the latest information provided by ERC. Labor productivity at KPLC (measured by the ratio of sales per employee or customers per employee) also improved substantially over the period 2004 (World Bank, 2010).

Despite significant progress, there still is a need to expand the power infrastructure to alleviate constraints on growth. The 2007 World Bank Enterprise Survey shows that over 67 percent of firms in Kenya owned a generator and that power outages typically led to losses that amounted to 5 percent of annual sales for the firms surveyed.[35] Briceño-Garmendia and Shkaratan (2011a) present estimates that suggest that unreliable electricity supply reduces Kenya's GDP growth by 1.5 percent per year. Representatives from the Kenya Association of Manufacturers point out that power disruptions continue to affect their operations, despite a provision that prices

[35]See http://www.enterprisesurveys.org/.

charged by KPLC to its customers incorporate a requirement that system losses cannot exceed 15 percent.[36]

Mitigating measures

In order to address social objectives and affordability concerns a number of measures have been adopted (World Bank, 2010, ERC website, Briceño-Garmendia and Shkaratan, 2011b). These include a rural electrification program that has helped increase the number of connections from 650,000 in 2003 to 2 million at present, a revolving fund for deferred connection fee payments (financed by donor funds), commercial bank loans for connection fees, and a "life-line" tariff (below costs) for households that consume less than 50 kWh per month, which is cross-subsidized by rates imposed on larger consumers. The 50 kWh per month threshold is commonly used in Africa as a benchmark for the subsistence level of energy consumption. It is estimated to be affordable for 99 percent of Kenyan households (Briceño-Garmendia and Shkaratan, 2011b). In addition, there are cross-subsidies from urban to rural consumers, as tariffs are uniform across these areas.

Access continues to be a challenge, particularly in rural areas, where access rates are estimated at 4 percent in 2009 compared to 51 percent for urban locations. Briceño-Garmendia and Shkaratan (2011a) argue that Kenya will need to double its current installed capacity over the next decade and will need to reinforce cross-border transmission links with neighboring countries to increase access to cheaper hydroelectric power and improve overall system security. Despite the fact that there is scope to reduce energy costs through regional interconnections, exchanges across countries in the East Africa power pool are still small.

Lessons

Successful electricity reform involves more than tariff changes and it takes time. The reform of the power sector in Kenya started in the mid-1990s and took over 10 years to mature. Apart from a prudent tariff policy, improving the technical and administrative efficiency of state-owned companies was key to eliminating hidden costs. The establishment of a relatively sound regulatory framework (including a regulator that is considered to be largely effective and independent) has also been vital to the durability of the reform process and to encouraging greater private sector participation in generation capacity.

Tariff increases were arguably made more acceptable because they were accompanied by improvements in quality service delivery and access. At the earlier stages of the reform process, authorities actively negotiated changes in tariffs with stakeholders demonstrating strong political commitment to addressing the challenges of the sector. At the moment, the transparent (with information regularly published on the ERC's website) automatic adjustments to changes in fuel

[36]Members of the Kenya Association of Manufacturers account for approximately 60 percent of total industrial energy consumption.

costs, exchange rate movements, and inflation appear to be largely accepted by consumers. Nevertheless, political economy constraints have led to the postponement of a revision in the tariff structure scheduled for mid-2011.

The Kenyan experience also shows that with appropriate instruments, it is possible to reconcile tariff rates at cost-recovery levels with affordability of services for poorer segments of the population. Estimates suggest that the vast majority of Kenyan households are able to afford basic electricity consumption at the effective tariff rate. In addition to the so-called life-line tariffs (cross-subsidized by large electricity consumers), authorities also implemented alternative mechanisms to alleviate the burden of connection fees, such as a revolving fund for deferred payments (financed by donors) as well as commercial bank loans.

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D. Mexico[37]

Table 23. Mexico: Key Macroeconomic Indicators, 2000–2011

	2000	2003	2008	2010	2011
Nominal GDP per capita (US$)	6858.8	6864.7	10050.5	9218.5	10153.3
Real GDP growth (percent)	6.0	1.4	1.2	5.5	4.0
Inflation (percent)	9.5	4.6	5.1	4.2	3.4
Overall fiscal balance (percent GDP)	-3.1	-2.3	-1.1	-4.3	-3.4
Public debt (percent GDP)	42.6	45.6	43.1	42.9	43.8
Current account balance (percent GDP)	-2.8	-1.0	-1.4	-0.3	-0.8
Oil imports (percent GDP)	1.1	1.2	3.3	2.9	3.7
Oil exports (percent GDP)	2.4	2.7	4.6	4.0	4.9
Oil consumption per capita (liters)	505.6	529.9	653.8	607.0	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

Mexico has a sound macro policy framework but suffers from high income inequality and poverty. Fiscal and monetary fiscal policies are underpinned by a fiscal rule and inflation targeting. Mexico's Gini coefficient averaged 0.48 in the late 2000s, which indicates a significantly higher degree of inequality than the OECD average. About 46 percent of Mexico's total population lives in poverty, while about 10 percent lives in extreme poverty.

The electricity sector is dominated by the government-owned Comision Federal de Electricidad (CFE). CFE is a major electricity generator, accounting for about three-quarters of total generation capacity of the country, and monopolizes transmission and distribution functions.[38] While independent power producers entered the market after deregulation in the generation sector in 1992, they account for only about one quarter of generation assets. The dominance of the public sector in the electricity market is mandated by constitutional provisions.[39] Comision Reguladora de la Energia (CRE) is the regulator of the electricity sector.

[37]Prepared by Masahiro Nozaki, Fiscal Affairs Department.

[38]Before 2009, electricity distribution was operated under a duopoly by CFE and Luz y Fuerza del Centro (LFC), a government-owned company which served customers in metropolitan Mexico City. In 2009, the government closed down LFC to eliminate direct government subsidies to LFC to cover operating losses, and let CFE take over LFC's service areas.

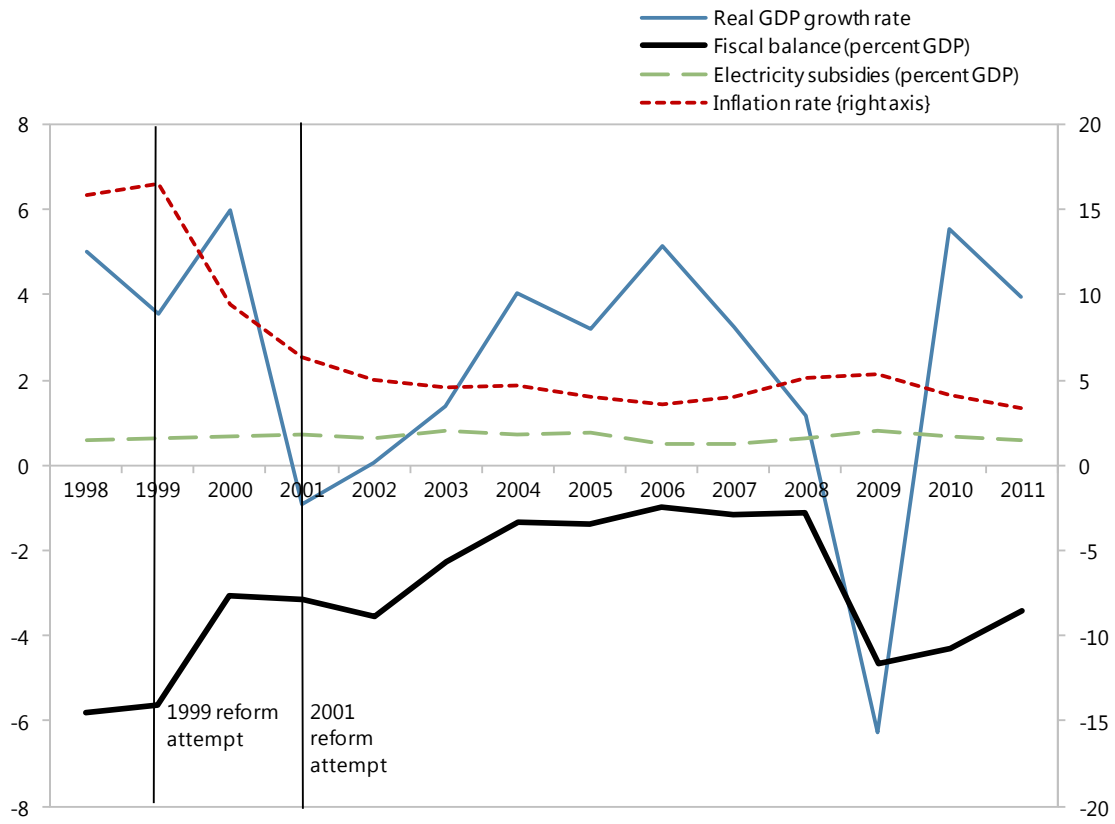
[39]The public electricity service act was amended in 1992, which opened electricity to the private sector, lists the following areas as falling outside of "public service" and thus open to private sector participation: self-supply, cogeneration, independent power production, imports, exports, and small-scale generation.

Electricity tariffs have been set below cost-recovery levels. A study of tariff structures in 2005–06 showed that tariffs were below cost-recovery levels for most residential users (by about 40 percent) and the agricultural sector (by about 30 percent). Subsidies were smaller for other sectors, but tariffs still failed to cover costs. The benefit incidence of these subsidies is highly regressive (Komives and others, 2009). The Ministry of Finance and Public Credit has tariff-setting authority, and tariffs have been adjusted monthly in proportion to changes in input prices for electricity generation, transmission, and distribution, rather than based on actual service costs. Tariff systems are highly complex, with over a hundred different billing possibilities for residential users. They are built upon block tariffs, which provide larger subsidies for users who consume less. In addition, a scheme of "summer subsidies" provides a discount to residential customers residing in warm areas to compensate for higher air-conditioning costs.

Electricity subsidies impose a substantial fiscal burden. Electricity subsidies were estimated at about ½ percent of GDP in 2011, a similar ratio as 10 years earlier (Figure 24).[40] The government does not record the subsidies explicitly. Under the so-called *aprovechamiento* system, CFE must pay the government a return on the fixed assets (9 percent), but this is transferred back from the government to CFE to cover tariff subsidies and infrastructure investment (OECD, 2004). Since 2002, the amount of *aprovechamiento* fell short of what was needed to cover tariff subsidies, thus eroding CFE's capital base (Komives and others, 2009).

[40]This estimate of the cost of subsidies, from the authorities, exceeds the figure provided by the International Energy Agency (IEA), which indicates subsidies were about 0.1 percent of GDP or smaller in 2007–2010. The reason is that the IEA approach only measures consumer subsidies using the price gap approach, and does not measure the total budget support that also compensates producers for inefficiencies (producer subsidies).

Figure 25. Mexico: Macroeconomic Developments and Electricity Subsidy Reforms, 1998–2011



Sources: IMF *World Economic Outlook,* Comisión Federal de Electricidad, and IMF staff estimates.

Reform experience

Reform initiatives for the electricity sector and subsidies have been unsuccessful.

A comprehensive reform proposed in 1999, to include market privatization, failed due to legal impediments, opposition from interest groups, lack of public awareness, and political impasse. In 1999, President Zedillo proposed a comprehensive reform package that included unbundling of generation, transmission, and distribution; creation of a wholesale market; privatization; and strengthening of the regulator's power. It failed due to a number of reasons. These included: legal impediments, such as the need for a constitutional amendment to allow broad private-sector participation; opposition from powerful interest groups, mainly consumers and labor unions for CFE employees, who opposed tariff reform and privatization; limited public awareness about problems in

the electricity sector and public opinion against privatization;[41] and a political impasse in the period leading up to the 2000 presidential election (Carreón-Rodriguez, San Vicente and Rosellón, 2003).

A reform proposal launched by President Fox in April 2001, although it deemphasized privatization, also failed. The president could not forge a consensus in the Congress to turn the bill into a law. In addition to the obstacles against President Zedillo's reform, President Fox also had to cope with political fragmentation after a drastic change in the political landscape. In particular, after seven decades of continuous ruling, the Partido Revolucionario Institutional (PRI) was defeated in the 2000 presidential election, and political parties were forced to compromise with labor unions and powerful conglomerates, which had earlier been submissive to presidential administrations under the PRI. Various reform proposals made by opposition parties, as well as their petition to the Supreme Court on the constitutionality of President Fox's proposal, complicated the debate.

Tariff reform was implemented in 2002 to reduce electricity subsidies. In particular, a tariff was introduced that exceeded the long-run marginal cost for customers with high consumption volumes. However, the reform did not lead to a permanent reduction in subsidies, as the scheme of "summer subsidies" allowed customers to be reclassified into highly subsidized categories (see below).

Mitigating measures

The residential tariff structure is characterized by an extensive list of subsidized categories. Tariffs are subsidized for customers who consume less and reside in warm areas. The latter, called a scheme of "summer subsidies" applicable during the summer season, classifies customers into six categories based on average real temperatures (cutoffs are 25ºC, 28ºC, 30ºC, 31ºC, 32ºC, and 33ºC), with customers living in warmer areas receiving higher subsidies. More customers were reclassified from lower temperature categories to higher temperature ones during the 2000s, further increasing the overall subsidy bill (Komives and others, 2009).

Mexico has a well-developed safety net program, *Oportunidades*, that has not yet been used in the context of subsidy reform. *Oportunidades* is a cash transfer targeted for families of extreme poverty and is conditional on school attendance and medical checkups of family members. In 2008, about 5 million families benefited from the program. Benefits consist of not only direct cash transfers and education grants but also cash compensation for energy consumption expenses. *Oportunidades* offers more effective and better-targeted pro-poor subsidies than fuel and electricity subsidies (the authorities also acknowledge that the incidence of the electricity subsidy is highly regressive), while it cost only one-fifth of total fuel subsidies (including subsidies for petroleum products and electricity) in 2008.

[41]According to a public opinion poll in 2002, 49 percent of respondents acknowledged problems in the electricity sector. 35 percent of respondents opposed private investment, while 17 percent supported a strategy of encouraging it (Carreón-Rodriguez, San Vicente, and Rosellón, 2003).

Lessons

The failure of the electricity sector reform in Mexico reveals the numerous obstacles to successful reform. A long history of tariff subsidies and the vertical and horizontal dominance of a state-owned company created strong interest groups against reform, especially consumers and labor unions. Political fragmentation, the constitutional mandate for the public sector to run the electricity sector, and public opinion against privatization made the reform even more challenging. The extensive list of subsidized customer categories has contributed to an increase in overall subsidies, as customers have been reclassified into highly subsidized categories. Mexico's case also suggests that the existence of a targeted safety net and commitment to sound macroeconomic policies are not sufficient to successfully reform electricity subsidies. A thorough public information campaign, as well as transparent accounting of electricity subsidies, would be a key first step for successful reform.

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E. Philippines[42,43]

Table 24. Philippines: Key Macroeconomic Indicators

	2000	2003	2008	2010	2011
Nominal GDP per capita (US$)	1055.1	1024.8	1918.3	2123.1	2223.4
Real GDP growth (percent)	4.4	5.0	4.2	7.6	3.7
Inflation (percent)	3.8	3.4	8.2	3.8	4.8
Overall Fiscal Balance (percent GDP)	-3.4	-3.6	0.0	-2.2	-0.8
Public debt (percent GDP)	58.8	68	44.2	42.2	40.5
Current account balance (percent GDP)	-2.7	0.3	2.1	4.5	2.7
Oil imports (percent GDP)	3.9	3.8	12.4	9.6	13.5
Oil exports (percent GDP)	0.4	0.5	1.8	1.4	1.9
Oil Consumption per capita (liters)	154.7	150.4	127	140.9	n.a.
Poverty headcount ratio at $1.25 per day (PPP) (percent of population)	22.5	22	n.a.	n.a.	n.a.

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

The Philippine electricity sector became financially unsustainable in the late 1990s. Electricity generation and transmission were monopolized by the state-owned National Power Corporation (NPC) prior to the reform started in 2001. During the 1980s, the NPC's mismanagement led to chronic electricity shortages. To solve this problem, the government opened up the generation sector to independent power producers (IPPs) in the early 1990s to increase supply. Since the NPC was a major purchaser from the IPPs, the IPP initiative left the NPC highly vulnerable to market, exchange rate, and fuel price risks in IPP projects. Eventually, the NPC became financially insolvent in the late 1990s. This owed to the failure to increase tariffs in line with rising costs, as well as the decline in demand (and higher external debt burden) in the aftermath of the 1997 Asian crisis.

Reforms of the electricity sector

To confront these weaknesses the government embarked on a major restructuring of the sector in 2001 under the Electric Power Industry Reform Act (EPIRA). The EPIRA introduced a fundamental reorganization of the electricity sector. It envisaged breaking up the NPC into generation and transmission functions; privatizing of generation and transmission assets; unbundling of electricity tariffs; establishing of the Energy Regulatory Commission (ERC), an independent regulatory body that regulates electricity tariffs; creating a wholesale electricity market; and promoting of retail competition in the long run. Once it was complete, the reform would

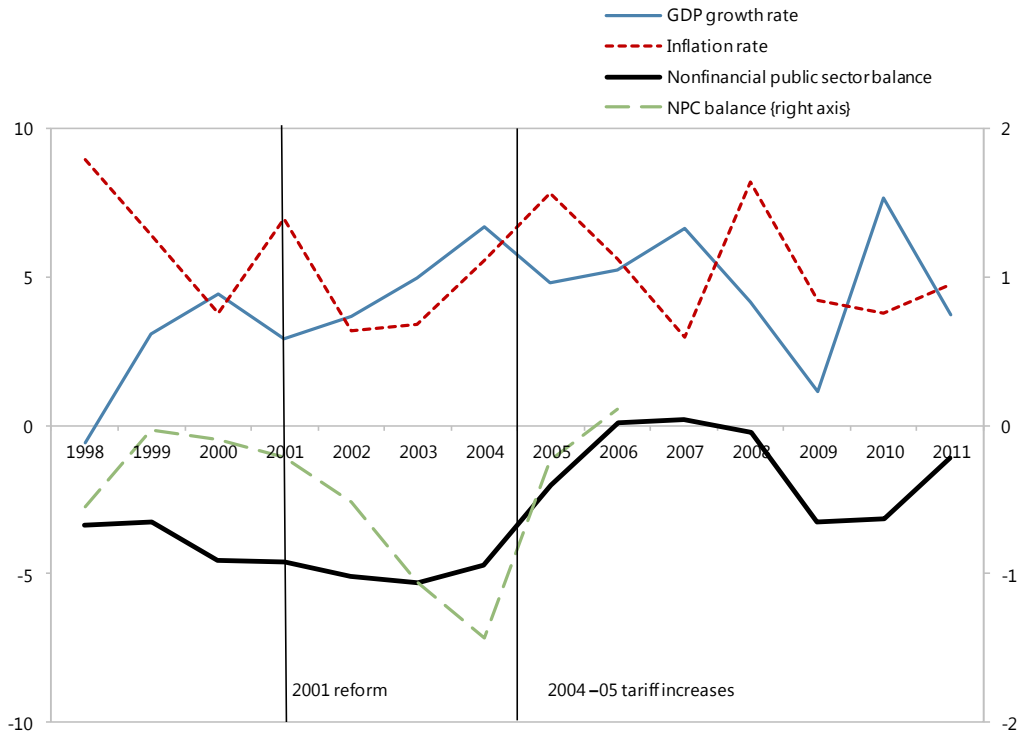
[42]Prepared by Masahiro Nozaki, Fiscal Affairs Department.

[43]This study draws on various IMF country reports for the Philippines (IMF (2005), IMF (2008)), and the World Bank (2009)).

eliminate direct fiscal exposure to the electricity sector by de-politicizing tariff setting and a limited government ownership in the electricity sector.

The passage of the EPIRA, however, did not immediately restore the financial sustainability of the electricity sector. Tariff setting remained politicized, despite establishment of the ERC in 2001, delaying tariff increases needed to eliminate the operating deficit of the NPC. Limited administrative capacity of the ERC was another reason for the delay. In addition, since privatization of generation assets did not pick up until mid-2000s, the NPC continued to incur losses by purchasing electricity from the IPPs. As a result, the NPC deficit ballooned to 1½ percent of GDP in 2004 (Figure 26).

Figure 26. Philippines: Macroeconomic Developments and Electricity Subsidy Reforms
(Percent of GDP or rate)



Sources: *World Economic Outlook,* IMF and IMF staff estimates.

Substantial tariff increases in 2004–05 were implemented in the context of strong political will to avert a fiscal crisis. The Philippines was on the verge of a fiscal crisis around 2003—the public sector deficit reached 5 percent of GDP on account of weak revenue performance and the large NPC deficit; public debt exceeded 100 percent of GDP and was on a rising path; and deteriorating investor confidence raised external borrowing costs. The Arroyo administration exercised strong political will to avert a crisis, and implemented a fiscal consolidation package shortly after the 2004 presidential election. The package included revenue measures such as increases in value-added tax (VAT) and excise tax rates, as well as expenditure restraint. In this

context, electricity tariffs were raised by about 30 percent during late 2004–early 2005, contributing to a reduction in the NPC deficit to 0.2 percent of GDP in 2005 (Figure 26). These measures turned out to be successful in averting a fiscal crisis.

Electricity sector reform has continued to advance over the past eight years. In particular, most of the generation assets are now owned by the private sector; wholesale electricity markets are up and running; retail electricity tariffs are unbundled into generation, transmission, and distribution charges; and cross-subsidization among customers has been eliminated except for lifeline tariffs for poor families and subsidies provided by the Small Power Utilities Group (SPUG) to users in remote and less developed areas. One remaining issue is settlement of restructuring cost of the NPC—universal electricity charges to cover sunk costs have yet to be introduced.

Mitigating measures

The adverse effect of the 2004–05 tariff increases on poor households was absorbed mainly by lifeline tariff structures. The EPIRA allowed a lifeline tariff schedule as a subsidized rate for poor households. The ERC approved lifeline tariff applications for most of distributors by 2006. The discount ranged from 5–50 percent and benefited 3 million poor households (Philippines, Department of Energy, 2006).

Lessons

A comprehensive reform that addresses pricing, regulation, privatization, and mitigation of adverse effects on the poor can be successful in eliminating electricity subsidies. In the case of the Philippines, establishing an independent electricity regulator helped de-politicize pricing, and privatization reduced the direct fiscal exposure to the electricity sector. A lifeline tariff schedule mitigated the effect of tariff increases on poor households.

Electricity reforms can take a long time to implement. The Philippines' reform, which started in 2001 and is still ongoing, took a long time to bear fruit. This was because they involve various institutional challenges such as unbundling of the electricity industry, privatization of a large number of generation facilities, and the capacity building of the regulator.

The success of the reform hinged on strong political support throughout the reform process. In the case of the Philippines, the deficit of the state electricity company kept increasing in the early stage of the reform, posing a threat to the country's overall fiscal sustainability. This followed because tariff increases were politicized and delayed even after the establishment of an independent regulator, while privatization of generation assets did not materialize. Tariff increases were eventually approved as the government remained determined to reduce the deficit of the state electricity company, in the context of decisive fiscal consolidation efforts to avert a fiscal crisis.

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F. Poland[44]

Table 25. Poland: Key Macroeconomic Indicators

	1990	1992	1994	1996	1998	2000	2003	2008	2010	2011
GDP per capita ($US)	1544.0	3149.1	6105.4	4056.0	4494.3	4477.7	5678.3	13876.3	12285.7	13539.8
GDP growth (percent)	-7.2	2.0	5.2	6.2	5.0	4.3	3.9	5.1	3.9	4.3
Inflation (percent)	585.8	43.0	32.2	19.9	11.8	10.1	0.8	4.2	2.5	4.3
Overall fiscal balance (GFS2001, percent of GDP)	n.a.	n.a.	n.a.	-4.9	-4.3	-3.0	-6.2	-3.7	-7.8	-5.2
Overall fiscal balance (GFS1986, percent of GDP)	0.0	-6.7	-2.9	-3.1	-2.5	-3.3	-5.6	-3.1	n.a.	n.a.
Public debt (GFS2001, percent of GDP)	n.a.	n.a.	n.a.	43.4	38.9	36.8	47.1	47.1	54.9	55.4
Public debt (GFS1986, percent of GDP)	90.1	82.4	64.6	42.4	36.7	37.7	48.4	47.0	n.a.	n.a.
Current account balance (percent of GDP)	1.9	1.0	5.3	-2.1	-4.0	-6.0	-2.5	-6.6	-4.7	-4.3
Oil imports (percent of GDP)	2.6	2.5	1.2	1.7	1.1	2.4	2.0	3.6	3.5	4.4
Oil exports (percent of GDP)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Oil consumption per capita (liters)	n.a.	n.a.	n.a.	n.a.	n.a.	407.6	401.5	530.0	470.7	n.a.
Coal production (million tons oil equivalent)	94.5	89.2	89.3	94.5	79.6	71.3	71.4	60.5	55.5	56.6
Coal consumption (million tons oil equivalent)	80.2	73.0	72.3	73.2	63.8	57.6	57.7	56.0	56.4	59.8
Coal price (Northwest Europe market in $US per ton)	43.5	38.5	37.2	41.3	32.0	36.0	43.6	147.7	92.5	121.5
Poverty headcount ratio at $1.25 a day (PPP) (percent of population)	n.a.	0.0	n.a.	1.4	0.1	0.1	n.a.	0.1	n.a.	n.a.

Sources: BP (2012) and IMF *World Economic Outlook* database.

Context

In the pre-transition era, coal mines were state owned and posed a substantial burden on the public finances. Coal mining was one of Poland's largest industries and employers, characterized by excess capacity and over-employment, which contributed—along with controlled prices—to

[44]Prepared by Katja Funke, Fiscal Affairs Department.

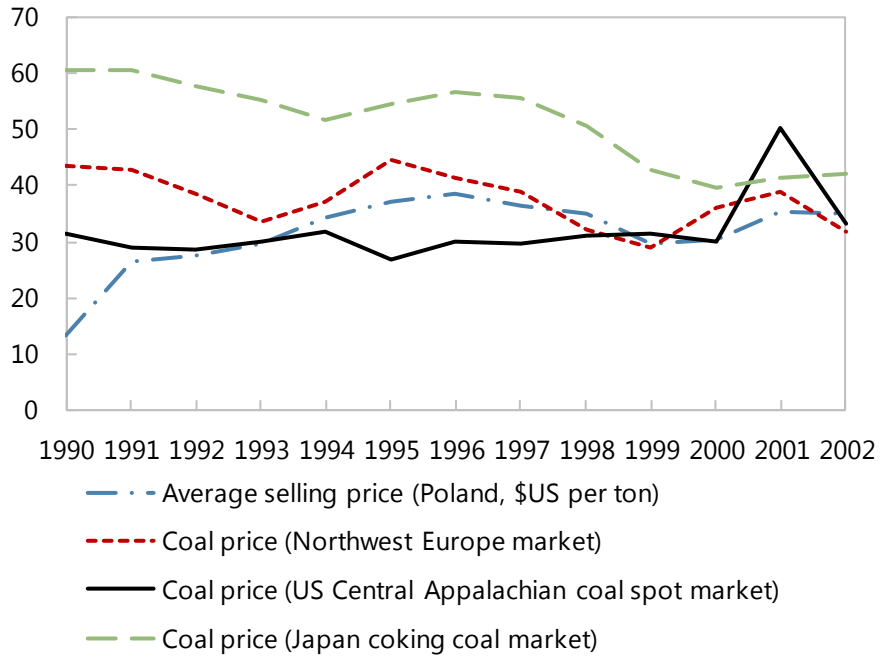
operational deficits. The importance given to the coal mining industry, especially in the pre-transition era, made the mining sector and its employees an economically and politically powerful lobby. This was also reflected in special privileges granted to coal sector employees, including free coal. While there is no hard evidence available on the fiscal cost of maintaining the coal mining sector during the central planning period, data from the early transition period shows that the sector ran operational deficits and had accumulated substantial debts.

Reform experience

In the 1990s, Poland started transforming its large and inefficient coal industry as part of the economic transition process. The government made several attempts to reform the sector with the aim: (i) to close unprofitable mines, (ii) to reduce employment levels to improve labor productivity, (iii) to eliminate the sector's overcapacity, and (iv) to make the mining sector profitable, with the ultimate objective of privatizing mining companies. In a first restructuring program, 1990 through 1998, coal mines were transformed into state owned enterprises (SOE) and the SOEs consolidated into seven coal companies.

However, these early attempts of reform showed only limited results in terms of reducing capacity, employment, and fiscal costs. This was mainly due to incomplete implementation of the reform agenda and resistance from unions against proposed wage cuts or reductions in employment. More specifically, the coal market was only gradually liberalized—allowing prices to increase to international levels by mid 2000s (see Figure 27), limiting the opportunity for income growth for those mines that could have had viable operations under free-market conditions. In addition, the government provided insufficient resources to finance mine closures and social programs. As a result, the sector's debt level almost tripled between 1990 and 1998, amounting to US$5.6 billion (over 3 percent of GDP), despite significant transfers from the government and local authorities.

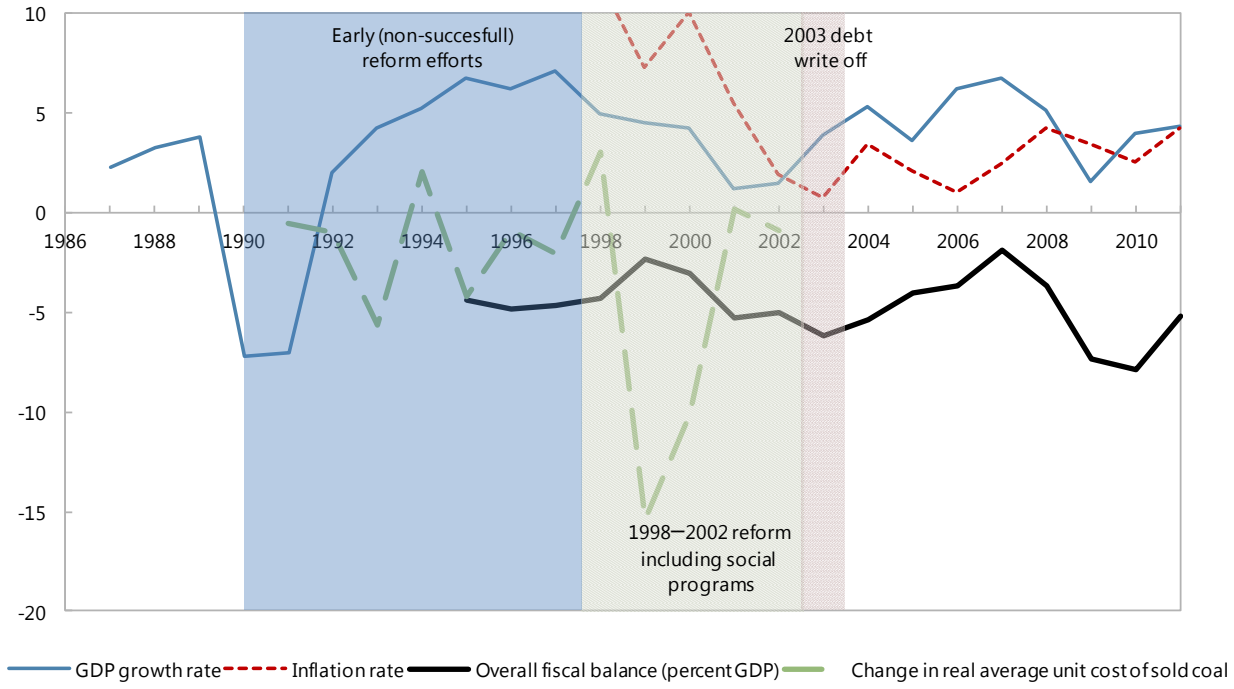
Figure 27. Poland: Coal Prices in Poland and Selected International Markets
($US per Ton)



Sources: Blaschke and others (2004) and BP (2012).

Only the new hard coal reform program, started in 1998, resulted in an effective restructuring of the Polish coal mining industry. The 1998–2002 hard coal reform—which fell into a less favorable economic situation than the previous reform attempt as GDP growth was on a downward trend and fiscal deficits increased (see Figure 28)—and several subsequent plans provided additional funding for social schemes and expressed a commitment to write-off the debt, which the mines had accumulated over past years. Under these plans, 21 uneconomic mines were closed, about 100,000 workers left the sector (Table 26) and about 70 percent of the coal mining industry's liabilities was written-off—contributing to the 2003 spike in the fiscal deficit. The substantial reduction in employment and capacity allowed reducing production costs (see Figure 29) and the debt reduction gave the industry the necessary financial freedom. Consequently, the sector has been profitable from 2003 onward and a first privatization took place in 2009. With more decisive action from the government, closer cooperation with unions and supporting programs from the European Development Bank and the World Bank, Poland's coal mining sector was transformed into a commercially viable industry. Today the Polish coal mining sector comprises 31 mines grouped into seven joint-stock holding companies and is dominated by three state-owned companies.

Figure 28. Poland: Macroeconomic Developments and Coal Sector Reforms
(Percent of GDP or Rate)



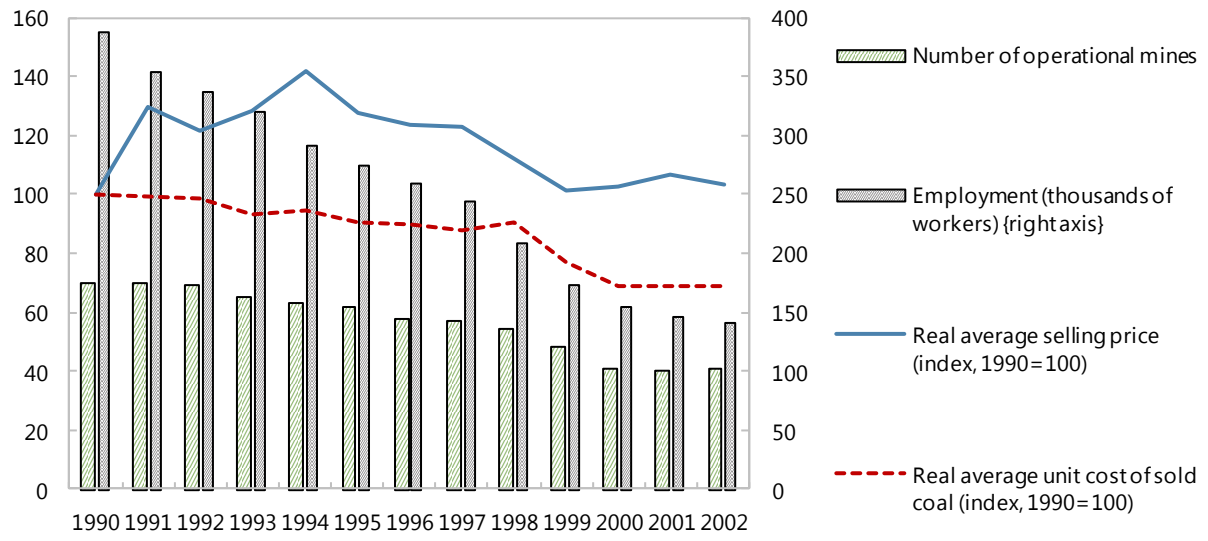
Sources: BP (2012) and *World Economic Outlook*, IMF.

Table 26. Poland: Selected Indicators of Coal Mining Industry, 1990–2006

	1990	1992	1994	1996	1998	2000	2002	2004	2006
Number of operating mines	70	69	63	58	54	41	41	36	33
Production level (Mmt)	147	132	133	136	116	102	102	99	94
Employment (000 persons)	388	336	292	259	208	155	141	127	119
Productivity (mt per person)	380	392	454	526	558	659	725	780	790
Average coal price ($US per mt)	37	45	52	45	41	38	38	53	57
Average coal production cost ($US per mt)	54	53	51	48	49	37	37	44	55
Income ($US million)	8,848	6,347	6,722	6,933	6,148	5,619	5,477	6,473	6,222
Production costs ($US million)	8,104	7,237	7,233	7,731	7,760	6,107	5,634	5,568	6,025
Operating profit ($US million)	744	-890	40	-798	-1,612	-488	-157	850	235
Net financial profit ($US million)	-121	-1,497	-128	-777	-1,445	-504	-162	734	126
Debt ($US million)	1,879	3,558	4,490	4,293	5,585	6,232	6,066	2,335	2,130
Total payments from government and local authorities ($US million)	610	1,036	1,872	1,103	1,118	752	693	595	493

Source: Suwala (2010).

Figure 29. Poland: Indicators for the Coal Sector Reform, 1990–2002



Sources: Blaschke and others. (2004) and BP (2012).

Mitigating measures

The 1998 reform program was supported by social and labor market programs. The social program provided welfare benefits to dismissed workers while they transitioned into retirement or into new jobs. The labor market program intended to redeploy especially younger coal workers elsewhere in the economy. It included soft loans for the establishment of a business, and services provided from newly established employment agencies, which offered training and other support to ease the transfer to other sectors. Under the social program of 1998–2002, more than 53.000 workers left coal mining, of which 33 000 received some form of help.

Lessons

Reforms need political commitment and might also need some financial resources to complete. Not providing either or both of this might lead to a costly prolongation or even worsening of the drain of fiscal resources. When Poland made the first attempt to reform the coal mining sector, the government did not demonstrate full commitment to implementing the reforms and it did not provide adequate funding for social programs. As a consequence, the reforms dragged on, the sector continued running deficits and accumulating debt. The reform would have been less costly if it had been fully implemented from the beginning.

When reforming subsidies of nationally important industry, reforms need to cover all aspects of the industry, including product and labor markets. Coal mines in Poland could not become

profitable until the coal market was liberalized and prices were able to adjust in line with international price fluctuations. In addition, preferential employment conditions in the coal mining sector made it difficult to motivate employees to leave the sector voluntarily. Converting the publically owned coal mines into stock companies that are managed according to business interests lead also to an adjustment of employment conditions. Together with the implementation of a social safety net for the sector's employees, this allowed to increase the mobility of the labor force and their willingness to move to other sectors.

Reforms that come with substantial employment losses in major industries have to be designed in cooperation with unions and supported by appropriate social and labor market programs. In Poland, the first mining sector reform attempts were not successful because they did not provide adequate support for the miners, who were most affected by the reforms and who had a strong lobby. The mitigating measures designed in cooperation with the unions and included in subsequent reform plans broke the resistance of the miners to the restructuring. The case of Poland's coal industry demonstrated that the role of unions in the reform process and the magnitude for the required social and labor market program is especially important for an industry that (i) is a major employer for the economy and the absolutely dominant employer in some regions and (ii) has employees with very specialized skills that are of very limited use outside the industry.

The assumption of social liabilities and accumulated debt can be instrumental to successful subsidy reforms, especially when the sector needs to be modernized. In order to become profitable under market conditions, the Polish coal mining industry needed to be transformed from an oversized and inefficient energy provider for a centrally planned economy into an internationally competitive lean and modern industry. Given the substantial financial burden from the past—from the rehabilitation of old mines as well as from obligations towards the sector's employees—the sector could not have lifted the reform without the financial support from the government. The assumption of past liabilities, as well as substantial support for transition costs, allowed the industry to move toward profitability and to eventually be weaned from public support.

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G. Turkey[45]

Table 27. Turkey: Spending of the Oil Price Stabilization Fund by Type of Product, 2011

	2000	2003	2008	2010	2011
Nominal GDP per capita (US$)	4146.8	4534.9	10272.4	10062.4	10521.8
Real GDP growth (percent)	6.8	5.3	0.7	9.0	8.5
Inflation (percent)	55.0	25.3	10.4	8.6	6.5
Overall fiscal balance (percent GDP)	n.a.	-10.0	-2.4	-2.7	-0.3
Public debt (percent GDP)	51.6	67.7	40.0	42.2	39.4
Current account balance (percent GDP)	-3.7	-2.5	-5.7	-6.3	-9.9
Oil imports (percent GDP)	3.6	3.8	6.6	5.2	7.0
Oil exports (percent GDP)	0.1	0.3	1.0	0.6	0.6
Oil consumption per capita (liters)	254.7	246.0	310.1	304.6	n.a.
Poverty headcount ratio at $1.25 per day (PPP) (percent of population)	n.a.	2.5	0.0	n.a.	n.a.
Fuel subsidies (percent GDP)	0.0	0.0	0.0	0.0	0.0

Sources: International Energy Agency; *World Development Indicators*, World Bank; and *World Economic Outlook*, IMF.

Context

The Turkish electricity sector was dominated by a state-owned vertically integrated company prior to the reform. The Turkish Electricity Authority (TEK) was in control of generation, transmission, and distribution. TEK was later restructured into two separate state-owned companies, Turkish Electricity Generation and Transmission Company (TEAS) and the Turkish Electricity Distribution Company (TEDAS).

The electricity sector reform started as part of the economy-wide reforms toward a market-oriented regime in the 1980s. The policy regime prior to these reforms was featured by heavy

[45]Prepared by Baoping Shang, Fiscal Affairs Department.

involvement of the state in economic activities, in particular in the form of government ownership of enterprises in critical industries, such as energy, telecommunications, petrochemicals, iron, and steel. The state also played a critical role in the allocation of financial resources, especially through state-owned banks. However, after a major balance-of-payments crisis in the second half of the 1970s and a military coup in 1980, Turkey was determined to transform its economy into a more market-oriented regime, through mass liberalization of domestic markets and international trade.

The reform experience

The electricity sector reform was set to achieve several objectives:

- *To better meet the growing electricity demand and to improve the fiscal position of the government.* The reform would eventually eliminate electricity subsidies, both consumer and producer subsidies. In addition, it was apparent that the government does not have the fiscal capacity to finance the expansions necessary to meet the future electricity demand.

- *To reduce the inefficiency in the electricity sector.* Private participation would introduce competition, improve efficiency, and limit monopoly abuse in the sector.

- *To meet the preconditions for Turkey's EU membership.* The reform was also been urged by various international institutions which provided support during several economics crises.

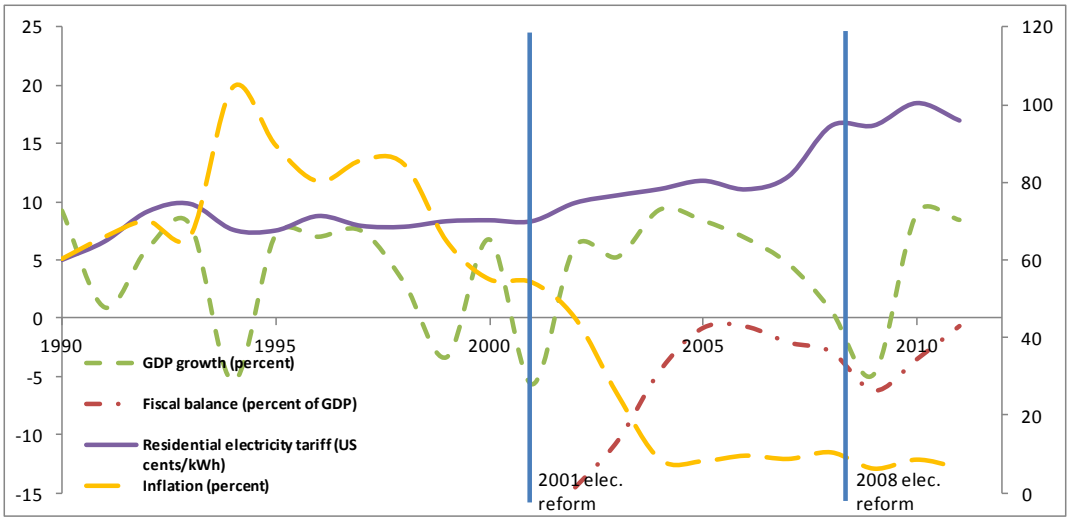
Turkey has taken a series of steps to reform its electricity sector, with the goal to attract investment, encourage competition, and improve efficiency. The first law setting up a framework for private participation came into effect in 1984. The unbundling of the Turkish public electricity sector started in 1993. However, progress had been slow, with the public sector remaining dominant. An important attempt to privatize through sale of ownership rights in 1994 was struck down by the Constitutional Court. The privatization was only able to resume after an amendment to the Constitution in 1999. Instead, attempts to engage the private sector took the form of designing investment schemes such as build-operate-transfer, build-operate, , and transfer-of-operating rights contracts. These schemes, however, do not appear to have led to the development of competitive electricity markets in Turkey as these contracts locked generation companies into long-term exclusive sale agreements with pre-determined prices and did not provide sufficient incentives for efficiency (Atiyas and Dutz, 2012).

By the end of the 1990s, the rapidly deteriorating fiscal stance led to pressures for a more ambitious privatization program, including in the electricity sector. In 2001, Turkey initiated a comprehensive electricity reform program by enacting its Electricity Market Law. The goal was to establish a competitive electricity market so as to increase private investment, improve efficiency, and ultimately strengthen Turkey's energy security while meeting the rapidly growing electricity demand. The state-owned enterprises were further unbundled into different business activities, including generation, transmission, distribution, wholesale and retail supply. In 2006, a wholesale electricity market was also introduced to spur competition and improve efficiency.

Between 2002 and 2007, tariffs remained unchanged as demand rose. Despite the progress in restructuring the electricity sector, the tariffs for electricity remained unchanged between 2002 and 2007, although the prices of inputs had increased significantly. This disconnection between price and cost resulted in limited funding available for the maintenance of existing infrastructure and for new investment. In addition, the low electricity tariff contributed to the rapid rise in demand during this period.

To address these problems, the government started moving gradually to full cost recovery in the electricity sector in 2008. In January, electricity prices were increased by 20 percent from the fixed level in previous years. In March, the government approved a cost-based pricing mechanism which enables automatic quarterly tariff adjustments to cover the changes in the cost of supply. The new pricing mechanism became effective in July 2008 and resulted in several price increases by the end of 2009 (Figure 30). Although the electricity price increased more than 50 percent during this period, the impact on household welfare appears to be limited as electricity consumption only accounts for a relatively small share of the total household budget (Zhang, 2011).

Figure 30. Turkey: Macroeconomic Developments and Energy Subsidy Reforms



Sources: IMF *World Economic Outlook* database, International Energy Agency, and IMF staff estimates.

Mitigating measures

Turkey did not implement specific mitigating measures for the reform. It relied primarily on its social safety net to address the adverse impacts of electricity subsidy reforms on the poor.

Lessons

Broad support for and firm commitment to the market approach is the key to the reform progress in the electricity sector in Turkey. The electricity sector reform started from the 1980s and has made significant progress despite several obstacles.

Improving economic conditions also helped advance reforms. A growing economy and improving standards of living assured the public that the country was moving in the right direction and helped move the reform forward.

Independent agencies for energy policy can help steer technical decisions away from politics. Under the Electricity Market Law, EMRA, the same independent agency in charge of petroleum sector, was also responsible for implementing the electricity market laws and regulating the electricity sector.

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H. Uganda[46]

Table 28. Uganda: Key Macroeconomic Indicators

	2005	2007	2010
	Macroeconomic Indicators		
Real GDP growth (percent)	6.3	8.4	5.2
Inflation rate (percent)	10.7	4.4	4.2
Fiscal balance excl. grants (percent of GDP)	-7.6	-6	-7.3
	Power Sector Indicators		
Input energy (million kWh)	1846	1861	2456
Electricity consumed (million kWh)	1139	1204	1731
Distribution losses (percent)	38	35	30
Collection ratio (percent of all bills)	81	93	96
Effective tariff (U.S. cents/kWh)	9	18	16
Average revenue (U.S. cents/kWh)	8	17	n.a.
Average cost (U.S. cents/kWh)	13	23	26

Sources: Uganda Ministry of Energy and Mineral Development (2012), Ranganathan, and Foster (2012), and IMF *World Economic Outlook* database.

Context

Despite large potential for hydro power, Uganda has suffered for decades from power shortages. Uganda sustained high economic growth rates during the 1990s and 2000s, which contributed to rapid growth in energy demand (Table 28). The public utility, Uganda Electricity Board (UEB), was not able to meet the growing demand partly because of weak financial conditions. Access to electricity was one of the lowest in sub-Saharan Africa, particularly in rural areas. Near exclusive dependence on hydro power prior to 2006 made Uganda vulnerable to weather shocks. Due to financing constraints, the government was not able to provide adequate support to help UEB meet power demand and tap into the hydro power potential.

In this context, Uganda initiated a comprehensive power sector reform program in 1999. After adopting a power sector restructuring and privatization strategy, a new Electricity Act was passed that aimed at creating an enabling environment for development of the power sector and for private sector participation. An independent regulatory agency, the Electricity Regulatory Authority (ERA), became operational in 2000. In 2001, UEB was unbundled into three separate entities: a generation

[46]Prepared by Mumtaz Hussain, African Department.

company (the Uganda Electricity Generation Company Ltd., UEGCL), a transmission company (the Uganda Electricity Transmission Company, Ltd, UETCL), and a distribution company (the Uganda Electricity Distribution Company, Ltd., UEDCL). Given lack of access to electricity in rural areas, a Rural Electrification Agency was established in 2003.

Subsequently, separate private concessions were approved for the generation and distribution companies. In 2003, Eskom Uganda (a subsidiary of Eskom of South Africa) was awarded a 20-year concession for the management of UEGCL's assets. In 2005, UMEME Ltd was awarded a 20-year concession for the distribution company UEDCL, the first electricity distribution network concession in sub-Saharan Africa. The state-owned UETCL operates the high-voltage transmission network and serves also as a bulk supplier to the distribution company. As UETCL's bulk supply tariffs have been below cost-recovery levels, the government provided direct and indirect financial supports to UETCL.

The 2005–06 droughts led to an increased dependency on costly thermal power. Prior to the droughts, power generation in Uganda was largely hydro based. To offset the power shortfall caused by the drought and to meet growing demand, the authorities contracted rental thermal plants, increasing the share of thermal power from about 7 percent in 2005 to about 39 percent in 2011 (Table 29). Despite increased thermal power, power cuts were common. According to a 2006 World Bank survey, around 45 percent of firms cited power as a major constraint to doing business. Despite relying on generators to self-supply for as much as 30 percent of their power needs, these firms lost 10 percent of their sales due to power cuts.

Table 29. Uganda: Explicit Fiscal Subsidies for the Power Sector and the Cost of Thermal Generation

	2006	2007	2008	2009	2010	2011
Explicity power subsidy						
US$ million	60.11	51.28	87.56	112.87	151.05	174.80
percent of GDP	0.6	0.4	0.7	0.8	1.0	1.1
Thermal power (GWh)	370	539	590	896	1022	1029
percent of total energy	23.3	29.0	28.9	39.5	41.6	38.9
Average oil price per barrel (000 Ush)	131	132	210	132	173	253
percent change (y-o-y)		1	60	-37	32	46
Thermal power costs (in percent of GDP)	0.9	1.1	1.3	1.3	1.5	1.7

Sources: Dhalla (2012) and IMF *World Economic Outlook* database.

[1] Subsidy figures are for fiscal years, which start in July. Data for 2011 are preliminary.

Explicit budgetary support for the power utility rose steadily since 2005. The explicit subsidy comprised two mechanisms: direct budgetary support to UETCL (bulk supplier) and capacity payments to thermal power units. In FY 2010/11, direct subsidy costs represented 1.1 percent of GDP (Table 29). The 2012 tariff increase is expected to eliminate explicit subsidy costs once the

Bujagali hydro generation unit becomes fully operational in late 2012. With increased hydro generation capacity, the government will avoid purchase of expensive thermal power, though it will still need to make capacity payments to the IPPs.

Private concession of the distribution company has produced slow but steady improvements. First, distribution line losses have steadily fallen from 38 percent in 2005 to 28 percent in 2011 (Table 28). Similarly, the collection rate increased from 80 percent of total power bills in 2005 to 96 percent in 2011. To attain these improvements in the distribution system, UMEME invested US$105 million by end-2010—more than envisaged in the contract (Uganda MEMD , 2012). After little progress in 2005–08, UMEME increased the number of customers by over 30 percent by 2009–2010. The increased power supply is expected to further boost the access rate. Notwithstanding this progress, about one-third of the electricity supplied is still not paid for due to distribution and transmission losses and non-collection of bills.

Once the latter losses are accounted for, the quasi-fiscal deficit of the power system has also increased over time.[47] The quasi-fiscal deficit (QFD) of the power sector would have amounted to 2.6 percent of Uganda's GDP in 2011—of which about 1.1 percent of GDP were explicit fiscal costs. The QFD continued to grow even after some progress in reducing inefficiencies, largely because of the rising gap between the average effective tariff and the average cost of electricity (Table 30). Growing demand also contributed to the QFD—consumption almost doubled between 2006 and 2011. In any case, QFDs in Uganda have been primarily driven by under-pricing: in 2011, underpricing accounted for about 80 percent of the QFD.

Uganda's long-run marginal costs can be substantially lower than the current average costs, but this requires substantial investment. By developing its hydro-power potential the country can reduce costs from US$0.16 to around US$0.12 per kWh (Ranganathan and Foster, 2012). The Bujagali power project was the first step, while other major hydro projects are currently being finalized that could double the capacity in a few years.

[47]Quasi-fiscal deficit of a power utility is defined as the difference between the actual revenue collected at regulated electricity prices and the revenue required to fully cover the operating costs of production and capital depreciation.

Table 30. Uganda: Quasi-fiscal Deficit of the Power Sector

	2005–08		2009–2011	
	In percent of costs[1]	In percent of GDP	In percent of costs[1]	In percent of GDP
QFC due to underpricing	32.8	1.0	40.1	1.4
QFC due to distribution losses (up to 10 percent)	6.7	0.2	6.0	0.2
QFC due to distribution losses (over 10 percent)	17.0	0.5	12.5	0.4
QFC due to undercollection	4.6	0.1	1.9	0.1
Total quasi-fiscal costs	61.1	1.9	60.5	2.1

Source: Staff calculations based on data from the World Bank; *World Economic Outlook*, IMF; and country authorities.

[1] In percent of total cost of electricity production.

Experience with reforms—power tariff adjustments

Past attempts to bring power tariffs to cost recovery levels were not enough to catch up with increasing costs. In June and November 2006, power tariffs were increased by about 35 and 41 percent, respectively (World Bank, 2011). These tariff hikes raised the average effective tariff to US$0.18 per kWh. During 2007–09, no retail tariff adjustments took place, while generation costs kept rising, mainly on account of rising fuel prices, delays in the commissioning of Bujagali hydro-power project, and the depreciating Ugandan schilling (Table 27). In January 2010, retail power tariffs were modified to give some relief to household consumers. Given the high cost of thermal power, retail effective tariffs only covered about two-thirds of the costs of power supply in 2010 (World Bank, 2011).

To offset rising power costs and associated subsidies (see below), the ERA approved a substantial increase in retail tariffs in January 2012. The average effective tariff was increased about 41 percent (or US$0.05 per kWh). While at the time of the hike, new tariffs were still below the cost recovery levels, they are expected to become in line with the cost recovery once the Bujagali hydro power project becomes fully operational in late 2012. In addition, the cross-subsidization from households to industrial consumers was also reduced significantly. The new tariff for industrial users, who were previously paying a relatively low price, was set at US$0.13 per kWh—an increase of about 73 percent. The life-line tariff—for monthly consumption up to 15 kWhs— remained unchanged. Following the latest tariff increase, Uganda's power tariffs are in line with other members of the EAC.

While the recent tariff hike was not without controversies and protests, the government's determination and effective communication have helped to sustain it. The government has run a strong communication campaign to explain the factors that led to the current tariff hike. It was noted that the price of diesel almost doubled since the last tariff increase in 2006 and that the government was subsidizing consumption as average tariffs remained below unit costs. While the chairman of the Uganda Manufacturers Association pointed out that the new tariff would

automatically increase production costs, he also acknowledged that the new tariffs would be bearable if power supply was reliable.

The extent of protests was limited. There were some protests in Kampala and a big political debate in Parliament about the tariff hike. The government argued that there were simply no resources to continue subsidizing electricity for the small and relatively rich elite. Low access to power also helped as the 88 percent of the people without access to electricity were not interested in the protests. Some newspapers highlighted the fact that the subsidy accrues disproportionately to the rich and stressed that the tariff hike would be actually a pro-poor policy decision. Importantly, the life-line tariff was maintained.

Overall, a variety of factors help create an environment that allowed the authorities to raise power tariffs in early 2012.

- The increasing and unsustainable fiscal costs of thermal power in the context of rising fuel prices. In recent years, the government repeatedly ran arrears in payments for thermal power. In 2011, the explicit fiscal subsidy reached over 1.1 percent of GDP.
- Poorly targeted electricity subsidies. Before the recent tariff hike, large industrial consumers paid less than a quarter of the cost of producing a kWh. These consumers accounted for 44 percent of total power consumption in 2010. Thus, almost two-thirds of the power subsidy accrued to a small group of industrial consumers. Among households, only 12 percent of Ugandans have access to the national power grid, while the rest rely on unsubsidized kerosene and firewood. The poor generally do not have access to the electricity grid and the initial power connection costs (about US$80) are too prohibitive.
- Evidence that both industrial and household consumers are willing to pay substantially more than the prevailing tariffs in 2010. A World Bank report noted that average coping costs for intermittent power supply was US$0.30 per kWh (or US$0.40 including fixed costs). For residential customers, the willingness to pay would be US$0.50 per kWh.
- Investments in hydro power infrastructure leading to a reduction in electricity provision costs over the medium- and long-term.
- Limited access to power in Uganda. As of 2010, only 12 percent of the population (under 4 percent of rural population) had access to power, which was less than half of the rate observed on average in other low-income African countries.

Mitigating measures

The key explicit mitigating measure to power tariff reform is the lifeline tariff for low income consumers. Uganda has lifeline tariff for poor domestic consumers for power consumption of up to 15 kWhs a month. This lifeline tariff has remained unchanged at USh 100 per kWh.

Reform lessons

The Ugandan case clearly shows that a key impediment to addressing inefficiencies in a power utility is lack of investment. As UMEME made substantial investments, it was able to reduce distribution losses and improve collection while increasing access rate by about 50 percent in the last three years.

Poor financial performance of power utilities is not only caused by the government's desire to maintain low tariffs. Their performance is equally impacted by high levels of distribution network losses and under collection of bills. Therefore, increasing power tariffs alone will not be enough. Power tariffs should be set at economic levels but need to allow for a reasonable level of line losses. In addition, the utility's financial sustainability needs to be pursued through measures to improve efficiency. For this purpose, regulatory policies can help provide utilities with appropriate incentives.

Institutional reform of the power sector takes some time (e.g., 5–10 years). Uganda started its reforms in 1999 and took moer than 10 years to make progress (in terms of access rates, efficiency measures, fiscal burden, etc.). The reforms led to the establishment of a largely independent regulator with a relatively sound regulatory framework, greater private sector participation in electricity generation and distribution through concessions, and tariff policies that are expected to eliminate hidden costs by the end of this year.

Tariff increases require a careful strategy for communication and implementation. The Ugandan government communicated well the cost of the power subsidy and its incidence to the public. A large portion of the media considered raising tariffs to be pro-poor measure.

Raising access to power is challenging. Targets for rural electrification had to be revised from 2010 to 2012. It should be noted that the high cost of getting a new power connection is a major impediment to accessing power.

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