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Libya: Selected Issues

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LIBYA

SELECTED ISSUES

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CONTENTS

A NOTE ON SUBSIDY REFORM IN LIBYA

The purpose of this note is to support the authorities in their efforts to raise awareness about the distortions and inefficiencies caused by untargeted price subsidies and to sketch out reform options.

1. **The fiscal cost of subsidies, including energy and food, is 14.8 billion dinar or US$11.5 billion, which is equivalent to 13.8 percent of GDP (Table 1).**[1] The bulk of these subsidies is for fuel, food, and electricity. For comparison, current spending on education and health are 5.1 percent of GDP and 1.8 percent of GDP, respectively (Figure 1).[2]

Table 1. Libya: Subsidies in the 2012 Budget [1/]

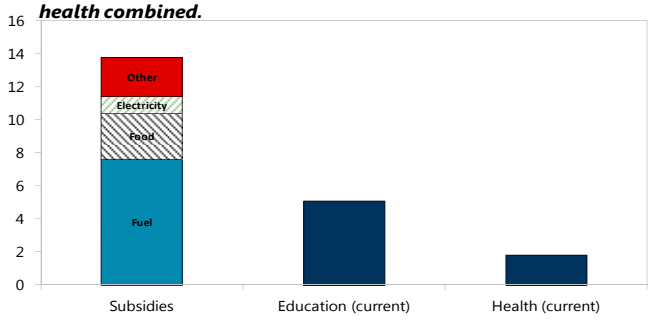
	Share of GDP (percent)	U.S. Dollars (billions)
Total, *of which:*	13.8	11.5
Fuel	7.6	6.4
Food	2.8	2.4
Electricity	1.0	0.9

Source: Libyan authorities.

1/ Excludes implicit subsidies.

Figure 1. Libya: Budget Items 2012
(Share of GDP)

Spending on subsidies is twice current spending on education and health combined.



Source: Libyan authorities.

Energy prices are highly subsidized in Libya, with gasoline prices among the lowest in the world—leading to expenditures on fuel and electricity subsidies that are equivalent to more than 11 percent of GDP, about US$1,500 per capita.[3] Beyond the fiscal cost, however, fuel price subsidies discourage efficiency in energy use by households and industry (Box 1). Moreover, fuel subsidies tend to provide more benefit to high-income households than to low-income households. This note focuses on energy subsidy reform because large price distortions reallocate resources inefficiently. Food price subsidies are also expensive: at the equivalent of 2.8 percent of GDP, they cost about US$400 per capita.

[1] Explicit subsidies are those where budgetary outlays are made by the government, whereas implicit subsidies are those where supply prices are held down. In 2010, implicit electricity consumption subsidies—the difference between domestic fuel prices and world market prices—was 2.8 billion dinar (US$2.2 billion).

[2] The World Health Organization estimates that in 2010 total expenditure on health was 3.9 percent of GDP, of which 2.7 percentage points was government expenditure.

[3] Domestic gasoline consumption in 2010 was 4.1 billion liters with a retail price of US$650 million, compared to the pre-tax price in Italy of US$3.1 billion.

Box 1. Efficiency Loss from Subsidies

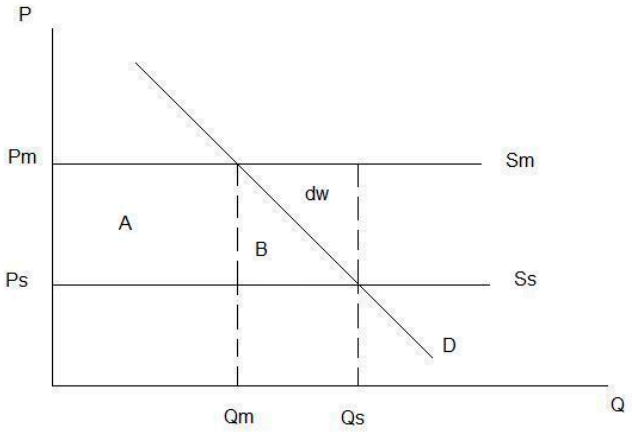
Subsidies distort prices, leading to inefficiency in the allocation of resources, as illustrated below.

Assume that S_s is the energy supply. The subsidized price is P_s, which is lower than the market price P_m. For Libyan fuel consumption, P_m is the opportunity cost of consuming domestically rather than exporting. Given the demand curve *D*, the country consumes the amount of energy Q_s, which is a higher level of consumption than if the price of energy were equal to its opportunity cost Q_m. The rectangle formed by the areas *A*, *B*, and *dw* is the total subsidy to consumers. Note that *dw* is a deadweight loss from the subsidy—that is, the area in which consumers' willingness to pay (given by their demand curve)—is below the opportunity cost. Moreover, the higher the price elasticity of demand, the higher the deadweight loss.

The removal of the subsidy would raise the price to P_m and result in fiscal savings of the areas *A*, *B*, and *dw*. Although consumer welfare declines because they are now consuming less and paying more, the government could fully compensate consumers by providing a transfer equivalent to the areas *A* and *B* while retaining budget savings equal to *dw*—the deadweight loss.

Using the methodology set out in Rodriguez, Charap, and Ribeiro da Silva (2012), the deadweight loss caused by energy subsidies in Libya was estimated to be between 1.8 and 2.7 percent of GDP.

Cost and Deadweight Loss from Subsidies



dw = (Pm-Ps)*(Qs-Qm)/2 = (Pm-Ps)*Qs*(Qs-Qm)/Qs*(1/2)

dw = (subsidy)*(percent change in quantity consumed)*(1/2)

2. **This note highlights the implications of untargeted price subsidies, experience with reform approaches, and makes recommendations for next steps in Libya.** Replacing universal price subsidies with targeted forms of social protection would reduce inefficiencies and better protect low-income households. Raising the prices of fuel to the level of export prices would remove the incentives to develop industries that do not use energy efficiently.

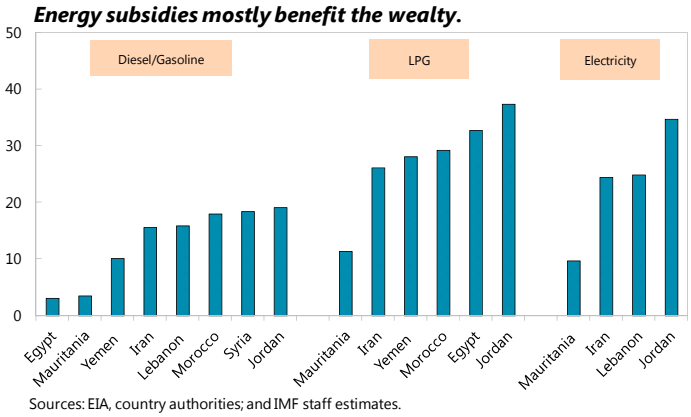
A. Implications of Fuel Subsidies

3. **Energy subsidies lead to higher-than-desirable fuel and electricity consumption (see Box 2).** Fuel price subsidies distort households' consumption choices and companies' investment decisions and lead to inefficient energy use. Low fuel or energy prices—reflecting explicit or implicit subsidies—encourage the establishment and growth of fuel- or energy-intensive companies, such as petrochemical plants or aluminum smelters. Companies exploit low prices for feedstock or electricity to build factories that are not internationally competitive and generate their profits at the expense of forgone government revenue from the sale of company inputs. Moreover, energy subsidies tend to benefit capital-intensive industries, rather than labor-intensive industries, and thus will not help Libya to generate many new jobs. Lastly, low retail prices for gasoline motivate smuggling, which means that subsidies end up benefiting consumers and middlemen in neighboring countries.

4. **A key drawback of untargeted energy price subsidies is that wealthier households receive a disproportionately high share of its benefits.** Coady, et. al. (2010) analyzed 13 countries and found that the benefits of gasoline subsidies are regressively distributed, with over 80 percent of benefits accruing to the wealthiest 40 percent of households.[4] For diesel and liquefied petroleum gas, more than 65 percent and 70 percent of benefits, respectively, go to the wealthiest 40 percent of households. Other work by IMF staff reinforces this finding for the Middle East and North Africa—in Egypt, for example, 3 percent of diesel/gasoline subsidies benefit the poorest 40 percent of the population while the remaining 97 percent of these subsidies benefit the wealthiest 60 percent of the population (Figure 2).

Figure 2. Share of Energy Subsidies Benefiting the Bottom 40 Percent of the Population

(In percent)



Sources: EIA, country authorities; and IMF staff estimates.

[4] The countries studied were Bangladesh, Bolivia, Burkina Faso, Cameroon, Central African Republic, El Salvador, Gabon, Ghana, Jordan, Mali, Peru, Republic of Congo, and Senegal. For Sudan, Flamini (2012) states that for every Sudanese pound transferred to the bottom income quintiles through price subsidies the cost to the budget is almost 33 pounds.

Box 2. The Impact of Subsidies on Consumption

Energy prices and energy consumption are inversely correlated. Rodriguez, Charap, and Ribeiro da Silva (2012) attempt to quantify this effect by estimating the log form of the standard demand equation:

$$q_{i,t} = \alpha\gamma_t A_i y_{i,t}^{\delta} p_{i,t}^{\beta}$$

where $q_{i,t}$ denotes energy demand, A_i denotes country-specific factors (e.g., weather), $y_{i,t}$ is real income, $p_{i,t}$ denotes the real price of energy, δ is the income elasticity of energy demand, and β is the price elasticity of energy demand.

The authors examine gasoline price elasticities for a sample of 66 countries during 2002–10. The results of the analysis indicate long-run elasticities in the range of -0.3 to -0.5. As shown in the paper, elimination of petroleum subsidies in Libya would be likely to lead to a reduction in gasoline consumption of 33.1 to 48.8 percent.

Change in per Capita Energy Consumption if Energy Priced at its Opportunity Cost

	Change in energy costs (in percent) 1/ 2/	Percent change in energy consumption if price elasticity equals:	
		-0.3	-0.5
Saudi Arabia	306	-34.3	-50.4
Libya	282	-33.1	-48.8
Qatar	242	-30.9	-45.9
Turkmenistan	195	-27.7	-41.8
Kuwait	183	-26.8	-40.6
Algeria	103	-19.1	-29.8
UAE	38	-9.2	-14.9
Egypt	35	-8.6	-13.9

Source: IMF staff estimates.

1/ Change in the gasoline price needed to reach opportunity cost–without subsidies or taxes. At end-2010, U.S. cents 65 per liter.

2/ Changes are with respect to the end-2010 price.

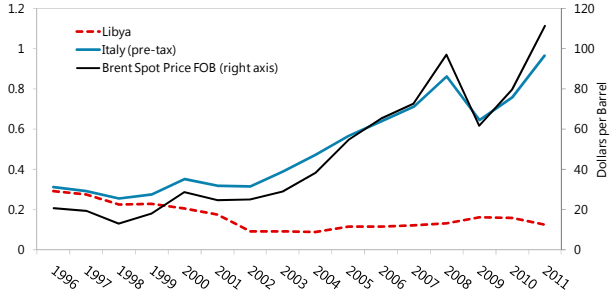
5. **The cost of subsidies is large and reduces the fiscal space available for public expenditure priorities, including education, health and investment in infrastructure.** For example, in Egypt price subsidies make up one quarter of all budgetary expenditures and exceed spending on education and health. Accordingly, a reduction in subsidies could free resources for other priority spending, including targeted forms of social support to better protect vulnerable groups.

B. Subsidies in Libya

6. **Gasoline prices in Libya have fallen since 1996, whereas world market prices have increased significantly (Figure 3).** Prices are at the low end in a cross-section of countries (Figure 4). As of end-2010, retail prices in Libya were less than half the price in most neighboring countries and less than one-tenth of the prices being charged in Italy (Table 2).[5]

Figure 3. Gasoline and Crude Oil Prices, 1996-2011
(U.S. Dollars per liter)

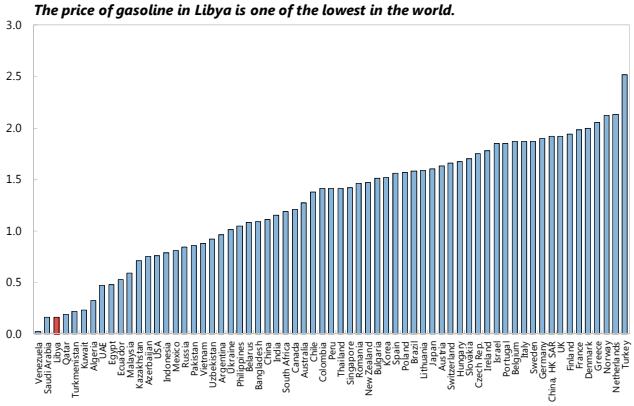
Gasoline prices have been declining in Libya while rising elsewhere.



Sources: Libya National Oil Corporation; EIA; and OECD Energy and Prices Report 2004 and 2012.

Figure 4. Price of Gasoline, end-2010
(U.S. dollars per liter)

The price of gasoline in Libya is one of the lowest in the world.



Sources: FAD database on cross-country gasoline prices, Deutsche Gesellschaft für Technische Zusammenarbeit, and Libyan authorities.

Table 2. Price of Gasoline, 2010
(U.S. dollars per liter)

Libya	0.16
Algeria	0.32
Egypt	0.48
Sudan	0.62
Tunisia	0.94
Niger	1.07
Chad	1.32
Italy	1.87

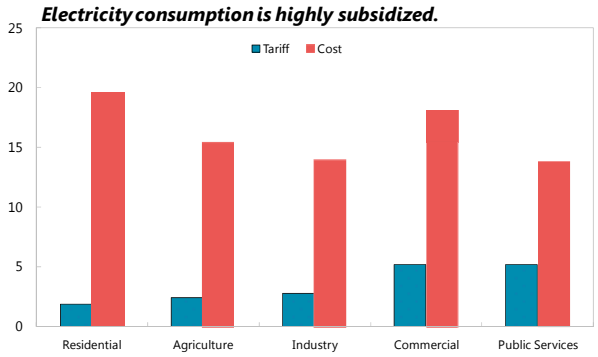
Sources: Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) and Libyan authorities.

7. **Electricity tariffs are below generation costs.** General Electric Libya, the state-owned electricity company, is provided with fuel at domestic prices, which are significantly below world market prices, and with a subsidy from the budget. Electricity tariffs range from 1.5 U.S. cents per kilowatt hour for residential consumers to 5.2 U.S. cents for public services and commercial consumers. Overall, the cost recovery of electricity is very low, ranging from 7.7 percent in the residential sector to 37.5 percent for public services (Figures 5 and 6).[6]

[5] The budget compensates for the difference between the retail price and the consumer price.

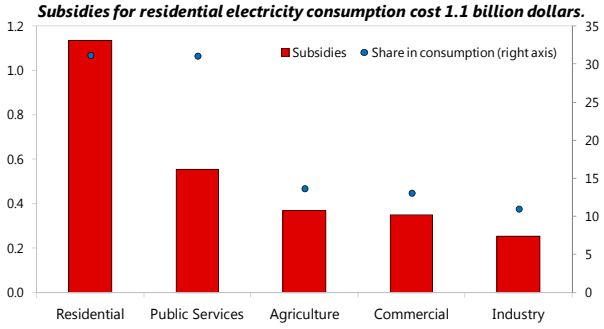
[6] Cost recovery percentages are based on 2010 prices. For this presentation the underpricing of inputs to the public sector is treated as a subsidy.

Figure 5. Libya: Electricity Tariffs and Costs[1], 2010
(U.S. cents per kilowatt hour)



Sources: General Electric of Libya, Economic Studies Department.
[1]Data for 2010. In 2012 the residential tariffs was 1.5 U.S. cents.

Figure 6. Libya: Electricity Subsidies and Consumption, 2010
(Billions of U.S. dollars; share in consumption)



Sources: General Electric of Libya, Studies Economic Department.

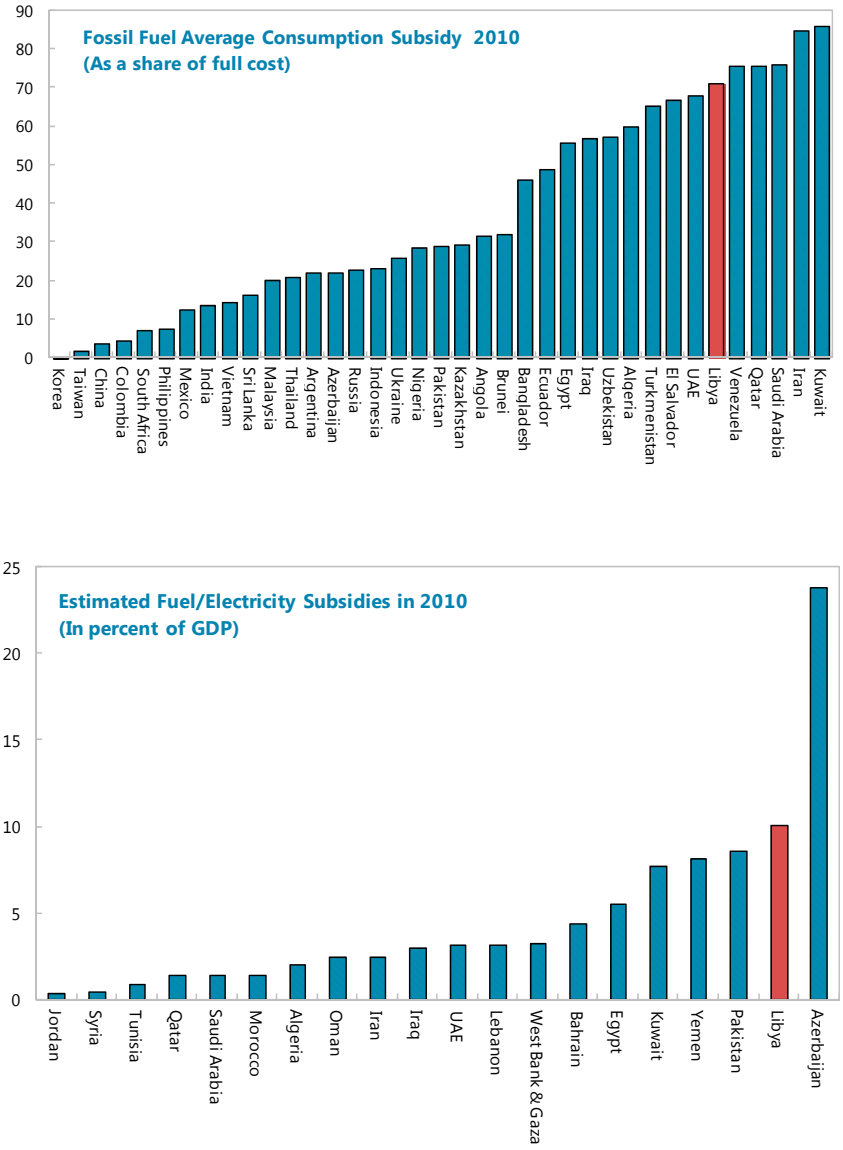
8. **The low price of fuel and electricity results in subsidies which are estimated to have cost over 11 percent of GDP in 2012.** The 2012 budget allocates 8.1 billion dinar for fuel subsidies (7.5 percent of GDP) and 1.1 billion dinar in explicit subsidies for electricity (1.0 percent of GDP). In addition, data from General Electric Libya indicate that implicit subsidies arising from underpricing of fuel inputs to electricity generation were 3.3 percent of GDP.[7]

9. **Energy subsidies in Libya are very high by international standards.** According to cross-country estimates compiled by the International Energy Agency, fossil fuel subsidies were among the highest in the world both in absolute terms and as a share of the cost of supply (Figure 7).

[7] In 2010 the fuel for electricity generation had a world market price of 3.7 billion dinar compared to the domestic price of 708 million dinar. The reported 2010 operating loss on electricity sales by the power utility General Electric Libya at world market prices was 3.5 billion dinar. In 2012 crude oil prices are expected to be 34 percent higher than in 2010, which implies that the implicit subsidy would be 3.3 percent of GDP. Losses on sales to households were 1.5 billion dinar—equivalent to about US$200 per capita.

Figure 7. Fossil Fuel Subsidies, 2010

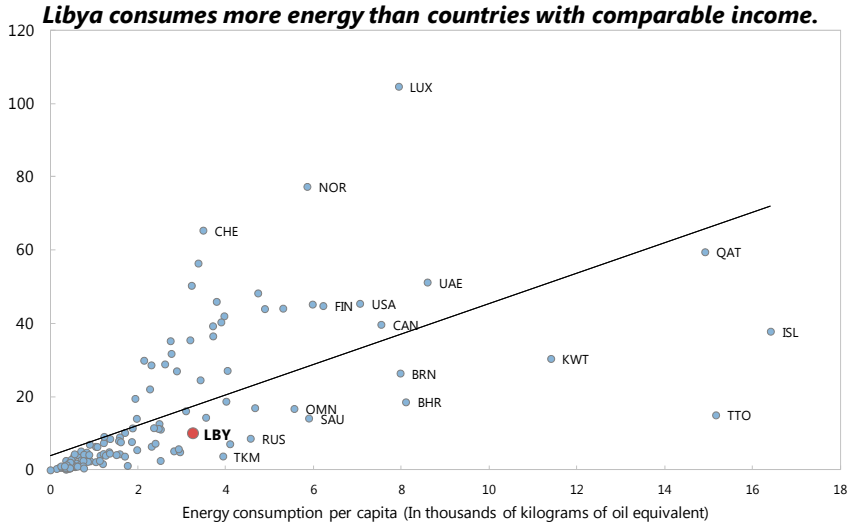
Fuel subsidies are high and costly.



Sources: International Energy Agency, World Energy Outlook 2011, national authorities, and IMF staff estimates.

10. **Subsidies have led to high energy consumption compared to Libya's GDP.** Figure 8 presents per capita energy consumption and per capita GDP in 68 countries, and shows that Libya consumes more energy than countries with a comparable GDP per capita, a consumption pattern similar to those of most GCC countries. By contrast, Norway consumes much less energy than would be expected for its per capita GDP.

Figure 8: GDP per Capita and Energy Consumption per Capita, 2009
GDP per capita (In thousands of U.S. dollars)



Sources: IMF staff calculations; and IEA data from World Bank, World Development Indicators.

C. A Reform Strategy

11. **Libya's ample hydrocarbon wealth will allow it to reform subsidies while protecting the poor.** A properly formulated reform strategy for fuel and electricity subsidies would allow the reallocation of expenditure to offset the impact of the reform, while creating fiscal space for priority spending. The first step is to assess the implementation capacity for transfers and to decide whether to target low income households or to provide an equal transfer to each individual (or household). A well-targeted approach would require an analysis of household expenditure data and elaboration of an appropriate transfer scheme. Relatively little data are available on expenditure by households; what does exist would need to be augmented with information on the distributional incidence of subsidies (Box 3). In the meantime, alternative approaches could be used, such as rationing quantities at lower prices while pricing additional consumption at market prices. The equal transfer approach has appeal because it removes price distortions.[8] Nevertheless, a generous transfer scheme would undermine incentives for private-sector employment by raising reservation wages. In any event, raising awareness about the need for subsidy reform would help to limit the scope for regulatory capture by vested interests (see IMF 2011).

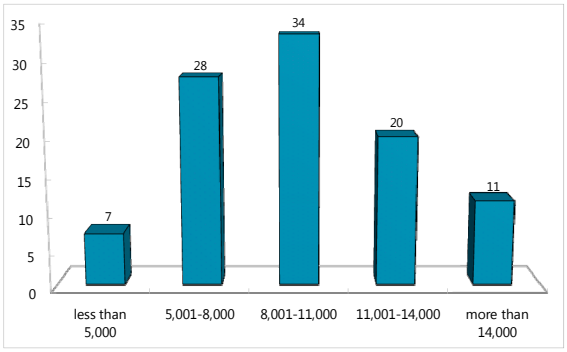
[8] If an equal transfer approach is chosen, the value of transfers to individuals (or households) could be linked to the price of oil. Since the purpose of the transfer is to offset changes in retail prices, and those prices will adjust to changes in global prices, the transfer should be adjusted *pari passu* with changes in world market prices.

Box 3. Summary Data on Household Spending[1]

The 2008 Economic and Social Survey indicates that spending across households was flat. Less than 7 percent of the households spend under 5,000 dinars ($4,000), whereas 11½ percent spent more than 14,000 dinars ($11,000). Spending by households did not vary greatly across professions, with average annual household spending ranging from 8,100 dinars ($6,500) for new job seekers to 10,647 dinars ($8,500) for high officials. Average household spending on "fuel and oils" was 88 dinars ($70), spending on "illumination and fuel" was 193 dinars ($150), and spending on "land, air and sea transport" was 464 dinars ($370).

Household Spending in Libyan dinars, 2008

(Percentage of population)



Source: Libyan authorities.

Average Annual Spending in 2008 by Main Activity of Household Head

Main activity of household head	Spending in Libyan dinar
Ministers and senior officials	10,647
Services staff	10,194
Science and art professionals	10,192
Artisans	9,850
Unidentified	9,808
Technicians	9,766
Administrative staff	9,724
Blue collar workers	9,649
Economically inactive	9,551
Low qualification workers	9,014
Agricultural workers	8,901
New job seekers	8,101

Source: Libyan authorities.

[1] Detailed household survey data were not available.

12. **International experience has shown that subsidy reform can be politically acceptable if the public has been well informed about the shortcomings of subsidies and the details of the reform strategy.** The public information campaign should set out the cost of subsidies, demonstrate the extent to which subsidies primarily benefit higher-income households, articulate the timeline under which subsidies will be eliminated, and explain the modalities through which the resulting fiscal savings will be used to mitigate the impact of higher prices. Box 4 sets out some international experience in removing fuel price subsidies.

Box 4. International Experience with Subsidy Reform[1]

Indonesia

Petroleum product prices were increased in March 2005, October 2005, and May 2008. A temporary cash transfer program was implemented in 2005 to mitigate the impact of price increases with targeting that relied on existing databases. A similar cash transfer accompanied the 2008 price increase. Some budgetary savings from reducing subsidies were reallocated to education, health, and infrastructure programs that benefit low- and middle-income households.

Jordan

Gradual reduction of petroleum product subsidies began in 2005 and culminated in full price liberalization in February 2008. The minimum wage was increased and low-paid government employees received higher wage increases than other employees. A one-time bonus was provided to low-income government employees and pensioners. An electricity lifeline tariff was maintained for low consumption levels. Cash transfers were provided to other low-income households headed by nongovernmental workers or pensioners.

Iran

In 2010, Iran increased energy prices by up to 20 fold and compensated individuals with transfers. The price increase removed annual subsidies of approximately US$700 per capita. Part of the impetus for the reform was rising domestic energy consumption that reduced the availability of fuel for export.

The reform was preceded by an extensive public education campaign. For example, prior to the increase, household electricity bills indicated the full value of consumption along with the subsidized amount payable.

All Iranians were eligible for regular transfers. Transfers were based on the submission of an application that did not require means testing or income verification. Approximately 16 million new bank accounts were opened to ensure that eligible families could receive benefits. The payment system was upgraded and the ATM network was expanded to facilitate access to accounts. Money was deposited in household bank accounts prior to the price increase; these deposits were frozen until the day the price increase took effect.

[1] Sources: Coady, *et. al.* (2011) and Guillaume, *et. al.* (2011).

13. **A gradual phasing out of subsidies would allow consumers and industries to adjust their consumption so as to minimize the inflationary impact, and the government to strengthen the social assistance system over the medium term.** The timeframe would hinge on the extent of the average unit price gap, as well as the range of social, political, economical, and institutional constraints faced by the government.

14. **It may be necessary to sequence reform to mitigate its impact on vulnerable households and provide time to strengthen the social assistance system.** The phasing could differ among fuel products to take into consideration fiscal needs, social impacts, and institutional capacity. Subsidies for fuel products that are fiscally costly but have less impact on vulnerable households, such as gasoline, could be eliminated first, while the elimination of other subsidies, such as kerosene, could be back-loaded. This could minimize the initial impact of the reform on the poor and provide time to strengthen the social assistance system over the medium term. The feasibility of introducing targeted cash transfers depends on the availability of household consumption data, the existence of a proxy means test, and the institutional capacity to monitor its application and to reach poor households in rural areas. It would also be important to assess the likely impact of subsidy reform on output.[9]

15. **Once subsidies are phased out, the government should introduce an automatic fuel-pricing mechanism that ensures full pass-through of international price changes to domestic consumers.** Such mechanisms have worked well in other countries including Botswana, Chile, Liberia, South Africa, and Turkey.[10] While price increases will have an initial impact on inflation, the credibility of the exchange rate peg should contain inflation expectations and limit second-order effects of price increases. In due course, the electricity price should be raised to cover the operating costs of General Electric Libya at world market fuel prices—in 2010 the average cost of electricity for households was 0.26 dinar per kilowatt hour compared to the 2010 tariff of 0.025 dinar and the 2012 tariff of 0.02 dinar.

D. Conclusion

16. **Removal of subsidies would improve economic efficiency**. By moving the prices of fuel and electricity to levels that reflect the opportunity cost of consumption, Libya will ensure that national wealth is not squandered on wasteful consumption or inefficient industries. A transfer mechanism can help offset the impact of subsidy reform on households.

17. **Many of the arguments for removing fuel and electricity subsidies can be applied to food subsidies.** The budget for 2012 has allocated 3.0 billion dinar (2.8 percent of GDP) for food subsidies; there should be scope to reduce these expenditures. Nevertheless, food subsidies are usually better targeted than fuel subsidies. Once a transfer mechanism to facilitate fuel and electricity subsidy reform is in place, the next step would be consideration of food subsidy reform.

[9] The government could consider measures including: (i) delaying price increases or maintaining subsidies on goods, such as liquefied petroleum gas and kerosene that are mostly consumed by low income households, and (ii) maintaining subsidized prices on a modest monthly quantity of electricity consumption. While private industry is small, it may be necessary to offer them targeted assistance to adjust to price increases; it would be important to provide this assistance in a transparent and accountable manner.

[10] See Coady, D., V. Flamini, and M. Antonio, (2012).

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