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Fuel Price Subsidies in Gabon: Fiscal Cost
and Distributional Impact

Moataz El Said and Daniel Leigh

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Prepared by Moataz El Said and Daniel Leigh

Authorized for distribution by Manmohan S. Kumar and Gerd Schwartz

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Abstract

This paper looks at the fiscal cost and distributional impact of implicit fuel price subsidies in Gabon, where fuel prices have remained largely unchanged since 2002. Using estimated implicit import parity prices, we evaluate the total fiscal cost of the subsidies at 3.2 percent of non-oil GDP in 2005—more than total public health expenditures. We also analyze the distribution of the subsidies using household survey data and find that the bulk of the subsidies benefit higher-income households. Finally, we suggest use of a number of existing programs to provide a more targeted and cost-effective means of protecting the real incomes of lower-income households from the effects of energy price increases.

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I. INTRODUCTION

This paper looks at the impact of recent changes in international petroleum prices on fuel price subsidies in Gabon. While international fuel prices have more than doubled from 2003 to 2005, the domestic prices of petroleum products in Gabon remained frozen. The magnitude of these developments on price subsidies is quantified by comparing ex-refinery prices with estimated import parity prices (IPPs). In addition, the incidence of the subsidies is quantified using household survey data, and a menu of policy options for reform is suggested.

The first main finding is that fuel prices in Gabon benefit from substantial subsidies. The total fiscal cost of the implicit subsidies is likely to reach 3.2 percent and 4.5 percent of non-oil GDP in 2005 and 2006, respectively (1.6 percent and 2 percent of overall GDP). The largest fiscal outlays are for the subsidization of diesel (used in large-scale industries and for ground and maritime transportation) and jet kerosene.

Second, the level of fuel price subsidization in Gabon is in the range observed in other developing and emerging market countries that have fuel price subsidies. Gabon's estimated fuel price subsidy of 1.6 percent of overall GDP in 2005 is near the median of 2 percent of GDP observed in other countries for which data on subsidies were available. However, the almost four-fold increase in implicit subsidies in Gabon during 2003–05 is the largest of the countries surveyed.

Third, it is primarily higher-income households that benefit from the fuel subsidies. The top 10 percent of individuals received about one-third of the total subsidy. Meanwhile, the bottom 30 percent of individuals received only 13 percent of the subsidies, highlighting that fuel price subsidies are a very costly way to protect the real incomes of the poor.

The paper is structured as follows. Section II evaluates the magnitude of price subsidies at the ex-refinery level using estimated IPPs, while Section III compares the degree of fuel price subsidization in Gabon with the size of subsidies in other developing and emerging market countries. Section IV analyzes the distribution of the subsidies, Section V presents some policy options for mitigating the impact of reducing the subsidies, and Section VI concludes.

II. THE MAGNITUDE OF FUEL PRICE SUBSIDIES IN GABON

For the purposes of this paper, a subsidy is defined as the difference between the reduced price of a good that is given government support and the price of the good in the absence of such support. The implicit price subsidy for petroleum product i in time period t (S_{it}) can then be defined as the difference between the reference "free-market price" (M_{it}) and the actual price (P_{it}) times the volume of consumption (C_{it}):

$$S_{it} = (M_{it} - P_{it})C_{it} \tag{1}$$

At the core of the fuel price subsidies in Gabon are the ex-refinery prices of the seven petroleum products that have been frozen since 2002.[1] The sole supplier of these products to the domestic market is the majority-privately-owned refinery SOGARA,[2] which purchases the crude oil required for its operations on the Gabonese market at an international market price. Due to the freeze on prices, the refinery sustains a loss when it sells the refined products on the Gabonese market. To quantify the loss, i.e., the value of the fuel price subsidy, a reference price (M_{it}) is computed every month by SOGARA using an IPP formula. The difference between the IPP and the frozen ex-refinery price multiplied by the quantity sold equals the monthly loss to the refinery, for which it is compensated fully by the government. Payment is made in the form of crude oil delivered free of charge to SOGARA.

SOGARA calculates the IPP using the items shown in Table 1. The IPP equals the f.o.b. Mediterranean price reported in Platt's (row 1), plus a number of import costs (transportation and financial costs, rows 3-6) and customs duties (rows 16–19). An equalization (cross-subsidization) fee is applied to super and aviation jet fuel (Jet A1) to cover discounts applicable on other petroleum products (row 33). Importantly, the IPP also includes a fee, called the "competitiveness differential," of 15,000 CFAF per cubic meter (for super gasoline, diesel, lighting kerosene, and jet kerosene) or per metric ton (for fuel oil, asphalt, and butane), row 31, i.e., collected on account of SOGARA's production inefficiency.[3] The "volume adjustment factors" (line 27) serve to convert the units of measurement for super gasoline, lighting kerosene, jet kerosene, and diesel from metric tons into cubic meters.[4]

The fiscal cost of the subsidies due to the ex-refinery price freeze is estimated to have reached 3.2 percent of non-oil GDP in 2005, and is expected to rise to 4.5 percent in 2006 (Table 2). This cost exceeds total public spending on health (2.2 percent of non-oil GDP) and national education (3.1 percent of non-oil GDP) in 2005. In contrast, in 2003, the estimated cost of the subsidies represented less than 1 percent of non-oil GDP. Two-thirds of the cost of the subsidies corresponds to diesel (Figure 1).[5] The second largest share of the total cost of

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[1] The seven fuel products are super gasoline, diesel, lighting kerosene, butane gas, jet kerosene, fuel oil, and asphalt. Prior to August 2002, ex-refinery prices had been adjusted in line with an automatic mechanism based on the IPP formula. According to the formula, ex-refinery prices are adjusted to the new IPP levels if the weighted average of the seven IPPs changes by 4 percent or more relative to the previous month's level. However, the adjustment mechanism was suspended in August 2002.

[2] SOGARA is owned by the Gabonese government (25 percent); Total (49.25 percent); Mobil, Shell; ChevronTexaco, Agip (6.25 percent each); and others (7 percent). Because domestic demand exceeds SOGARA's output, the refinery satisfies the domestic shortage by importing the products.

[3] The "competitiveness differential" was originally intended to allow SOGARA to make a modest profit, assuming it kept control of its costs. The authorities had intended for the competitiveness differential to gradually be reduced as SOGARA's throughput increased and as it reduced its administrative expenses. However, maintaining the competitiveness differential has been necessary due to the refinery's production inefficiency.

[4] The conversion factors are computed using standard densities for the products at 15°C.

[5] More than 80 percent of the total cost is due to subsidies on diesel, super gasoline, lighting kerosene, and butane, the prices of which are frozen at the retail level (as well as at the ex-refinery level).

subsidies (15 percent) corresponds to jet kerosene, used for air transport.[6] The third largest share (more than 7 percent) corresponds to super gasoline, used in private motor vehicles.

Table 1. Estimation of Import Parity Price, June 2005

row		Super gasoline	Light. kerosene	Jet kerosene	Diesel	Butane	Fuel oil	Asphalt
1	FOB MED (USD/T)	472.6	507.0	507.0	439.8	329.8	217.8	247.6
2								
3	Direct maritime freight costs (USD)	66.4	66.4	66.4	66.4	100.0	66.4	100.0
4	Merchant margin (USD)	4.0	4.0	4.0	4.0	4.0	4.0	4.0
5	Insurance 0.15% (FOB + freight + margin)	0.8	0.9	0.9	0.8	0.7	0.4	0.5
6	Losses 0.25% (FOB + freight + margin + insurance)	1.4	1.4	1.4	1.3	1.1	0.7	0.9
7	Total international freight costs	72.6	72.7	72.7	72.4	105.7	71.6	105.4
8								
9	CIF price, Port Gentil (USD/T)	545.2	579.7	579.7	512.3	435.5	289.4	353.0
10								
11	Finance charges (applied to CIF price)							
12	Libor + 2%	5.3	5.7	5.0	5.0	4.1	2.9	3.3
13	CREDIT letter (0.75% of CIF price)	4.1	4.3	4.3	3.8	3.3	2.2	2.6
14	Total finance charges	9.4	10.0	9.4	8.9	7.4	5.1	6.0
15								
16	Direct import costs (USD/T)	0.5	0.5	0.5	0.5	0.5	0.5	0.5
17	Customs duties 11.4% of CIF price	62.1	66.1	66.1	58.4	49.7	33.0	40.2
18	Port royalties (USD/T)	2.4	2.4	2.4	2.4	2.4	2.4	2.4
19	Passage charges at SOGARA terminal	4.5	4.5	4.5	4.5	4.5	4.5	4.5
20								
21	IPP, Port Gentil (USD/T)	624.1	663.1	662.5	586.9	499.9	334.8	406.6
22								
23	CFAF/USD exchange rate	539.7	539.7	539.7	539.7	539.7	539.7	539.7
24								
25	IPP, Port Gentil in (CFAF/T)	336,814.2	357,865.8	357,525.8	316,728.1	269,777.9	180,701.4	219,431.6
26								
27	Volume adjustment factor	0.7	0.8	0.8	0.9	1.0	1.0	1.0
28								
29	IPP, Port Gentil in (CFAF per M3 or T)	245,874.4	286,292.6	286,020.7	269,218.8	269,777.9	180,701.4	219,431.6
30								
31	"Competitiveness differential" (CFAF/M3 or T)	10,950.0	12,000.0	12,000.0	12,750.0	15,000.0	15,000.0	15,000.0
32								
33	Equalization factor "péréquation entre produits"	31,600.0	-29,000.0	23,000.0	-4,600.0	-55,115.0	-14,000.0	-34,000.0
34								
35	Implicit IPP - POG (in CFAF/M3)	288,424.4	269,292.6	321,020.7	277,368.8	229,662.9	181,701.4	200,431.6
36	Actual ex-refinery price (frozen since August 2002)	214,404.0	145,693.0	197,693.0	172,313.0	155,717.0	142,348.0	146,857.0
37	Required price increase (percent)	34.5	84.8	62.4	61.0	47.5	27.6	36.5
38	Ex-refinery subsidy (FCFA/M3 or T)	74,020.4	123,599.6	123,327.7	105,055.8	73,945.9	39,353.4	53,574.6
39								
40	Quantity sold on domestic market (M3 or T)	4,735.0	3,707.0	5,959.0	31,609.0	2,098.0	8,897.0	122.0
41	Monthly loss incurred (CFAF)	350,486,381.2	458,183,875.2	734,909,489.5	3,320,710,225.2	155,138,542.7	350,127,130.5	6,536,102.1
42	*Annualized* loss (in percent of annual NOGDP[2])	0.2	0.2	0.4	1.8	0.1	0.2	0.0

[1] Asphalt, butane, and fuel oil quantities are in metric tones (T). The rest are in cubic meters (M3).

[2] Costs in this table are annualized by multiplying the June amount by 12.

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[6] In August 2006, the jet kerosene subsidy was eliminated by raising jet kerosene prices to the IPP level and reinstating the IPP adjustment mechanism for this one product. Therefore, the share of the jet kerosene subsidy in 2006 may be less than 15 percent. In 2007, the share of the jet kerosene subsidy would, by definition, be zero.

**Table 2. Annual Cost of Fuel Price Subsidies, 2003-06**

	2003	2004	2005	2006 [1]
Total cost (billions of CFAF)	14	28	72	107
(percent of GDP)	0.4	0.7	1.6	2.2
(percent of non-oil GDP)	0.7	1.3	3.3	4.4
Memo items				
Total public education expenditure (billions of CFAF) [2]			70.0	
Total public health expenditure (billions of CFAF) [2]			50.3	

Source: Gabonese authorities and IMF staff calculations and projections.

[1] Projection for 2006 incorporates increase in jet fuel price in August, and assumes unchanged ex-refinery prices
for the remaining products, international fuel prices evolving following *World Economic Outlook* projections,
and domestic fuel consumption expanding at the rate of real non-oil GDP growth.

[2] Total appropriations in the supplementary budget on wages and salaries, goods and services,
transfers, and domestically financed investment spending, in the education and health sectors, respectively.

Figure 1. Breakdown of Cost of Fuel Price Subsidies, 2005
(Percent of total cost)
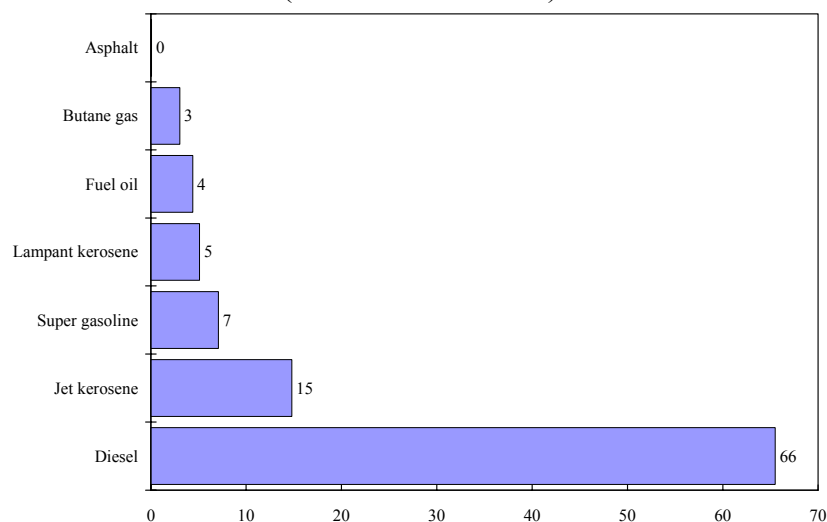
The new 2006 supplementary budget includes the fuel price subsidies explicitly. In previous
years, the cost of the subsidies was not reported in the fiscal accounts but was instead netted
against oil revenue. In other words, expenditure on the subsidies was conducted off budget,
and was financed by off-budget oil revenue. The 2006 supplementary budget has contributed
to improving fiscal transparency by including a budgetary appropriation for the fuel price
subsidies of CFAF 110 billion. However, the final cost of subsidies in 2006 is likely to be
lower than this amount, due to the elimination of the jet kerosene subsidy in August (15% of
the total cost of the subsidies).

The large fuel subsidies in Gabon raise the question as to how much retail fuel prices would have to increase if *ex-refinery* prices increased to IPP levels. Data from the authorities on the taxes, fees, and margins included in the structure of retail fuel prices facilitate the analysis. Table 3 reports the increase in ex-refinery prices of super gasoline, lighting kerosene, diesel, and butane gas from their current to the IPP levels (as of end-March 2006) and how this would affect after-tax retail fuel prices, assuming no change in the size of tax rates, fees, and margins. For super, the retail prices would have to increase by 25 percent (from the current CFAF 475 per liter to CFAF 594 per liter), for diesel by 51 percent (from CFAF 370 to CFAF 560), for lighting kerosene by 79 percent (from CFAF 249 to CFAF 445), and for butane by 54 percent. This would bring retail prices close to those currently prevailing in Cameroon, where, at end-March 2006, the prices were 563, 524, and 356 CFAF per liter for super, diesel, and lighting kerosene, respectively (Table 3).

Table 3. Retail Price Increases Consistent with Elimination of Subsidies [1/]

Product	Super gasoline Actual	Target	Diesel Actual	Target	Lighting kerosene Actual	Target		Butane Actual	Target
Ex-refinery price (CFAF/liter)	214.4	315.2	172.3	333.5	145.7	311.9	Ex-refinery price (CFAF/MT)	155,717	358,866
VAT on ex-refinery price	38.6	56.7	31.0	60.0	26.2	56.1	VAT sur on ex-refinery price	28,029	64,596
After-VAT ex-refinery price (FCFA/liter)	253.0	371.9	203.3	393.5	171.9	368.0	After-VAT price (FCFA/MT)	183,746	423,462
Equalization fee	51.6	51.6	43.9	43.9	26.4	26.4	Equalization fee	0	0
Consumption price	304.6	423.5	247.3	437.5	198.4	394.5	Consumption price	183,746	423,462
Stabilization fee (cross subsidy)	44.8	44.8	6.7	6.7	-40.6	-40.6	SS	1,000	1,000
Interior consumption tax (TCI)	53.2	53.2	47.1	47.1	24.5	24.5	Casting	1,998	1,998
Special tax (TS)	0.0	0.0	0.0	0.0	0.0	0.0	Passage to depot	0	0
Security stock (SS)	2.0	2.0	2.0	2.0	2.0	2.0	TCI	21,469	21,469
Municipal tax (TM)	5.5	5.5	2.1	2.1	0.0	0.0	Storage and ammortissement	100,000	100,000
Distributor's margin	33.1	33.1	33.1	33.1	33.0	33.0	Fees and gross profit	60,232	60,232
VAT on distributor's margin	6.0	6.0	6.0	6.0	5.9	5.9	VAT on fees and gross profit	10,842	10,842
Transport delivery city	6.2	6.2	6.2	6.2	6.2	6.2	Transport delivery city	19,888	19,888
VAT on transport delivery city	1.1	1.1	1.1	1.1	1.1	1.1	VAT on transport delivery city	3,580	3,580
Wholesale price (FCFA/litre)	456.6	575.5	351.6	541.8	230.6	426.7	Price gross (FCFA/MT)	402,753	642,469
									0
Margin of retailer	15.6	15.6	15.6	15.6	15.6	15.6	Margin of reseller	37,440	37,440
VAT on retailer margin	2.8	2.8	2.8	2.8	2.8	2.8	VAT on reseller margin	6,739	6,739
									0
Retail price (all taxes included)	**475**	594	**370**	560	**249**	445	Retail price (all taxes included)	446,932	686,648
Taxes and fees	206	224	143	172	48	78		173,656	210,223
VAT	48	67	41	70	36	66		49,190	85,757
Margins	55	55	55	55	55	55			
Required price increase (in percent)		25		51		79			54
Memo items									
Prices in Yaoundé, Cameroon (CFAF/liter)	**563**		**524**		**356**				
Prices in Senegal (CFAF/liter)	**663**		**550**		**397**				

Source: March 2006 data, Gabonese authorities, and IMF staff calculations.

[1/] Retail price increases consistent closing the gap between actual ex-refinery prices and the IPP based on the automatic adjustment mechanism.

III. COMPARISON WITH SELECTED DEVELOPING AND EMERGING MARKET COUNTRIES

The level of fuel price subsidization in Gabon is not unusual from a cross-country perspective. As reported in Table 4, several countries have responded to the increase in world oil prices by increasing *explicit* and *implicit* price subsidies on domestic fuels. In most of the surveyed countries, explicit subsidies tend to reflect the compensation of the national energy company for the increased difference between the ex-refinery domestic price and the world price of fuels, reported in the fiscal accounts. Mati and Thornton (2005) report that the size of explicit subsidies (at different levels of government) in 11 countries in 2005 ranged from 0.2 of GDP (Argentina) to 9.2 percent of GDP (Yemen), with a median of 0.8 percent of

GDP. Regarding implicit subsidies, Mati and Thornton (2005) report projections for eight countries for 2005 in the range of 0.3 percent of GDP (Cameroon) to 9.9 percent (Azerbaijan), with a median of 2.0 percent of GDP. Gabon's implicit subsidy for 2005 of 1.5 percent of overall GDP is thus well within the range of shares observed in the countries surveyed. However, the almost fourfold increase in implicit subsidies in Gabon during 2003–05 is the largest among the countries in the sample.

Table 4. Fuel Price Subsidies in Selected Countries
(In percent of GDP)

	2003	2005 [1/]
(a) Explicit		
Argentina		0.2
Azerbaijan	5.5	2.8
Bolivia	0.6	0.8
Congo, Rep. of	0.8	1.0
Ghana	0.2	0.4
Indonesia	1.5	3.2
Jordan		6.6
Pakistan	0.1	0.2
Senegal		0.7
Sri Lanka		0.8
Yemen	5.0	9.2
average	2.0	2.4
median	0.8	0.8
(b) Implicit		
Azerbaijan	8.2	9.9
Bolivia		2.3
Cameroon		0.3
Colombia	1.2	1.3
Ecuador	1.4	3.6
Egypt	3.9	4.1
Gabon	0.4	1.6
Nigeria	1.6	1.6
average	2.8	3.1
median	1.5	2.0

Source: Mati and Thornton (2005).
[1/] Estimates based on preliminary data.

IV. DISTRIBUTIONAL IMPACT OF FUEL PRICE SUBSIDIES

Who benefits from the fuel price subsidies? The distribution of the subsidies is calculated by simulating the impact of removing the subsidies on household real incomes across the income distribution using the 2005 Gabonese Survey for the Evaluation and Tracking of Poverty (EGEP) household data set. The simulation involves raising ex-refinery prices to IPP levels, while keeping tax rates, fees, and margins unchanged. Table 5 shows the simulated fuel price increases, which averaged 54 percent at end-March 2006.

Table 5. Fuel Price Increases Consistent with Elimination of Subsidies
(In percent) [1/]

Product	Price Increase
Super gasoline	25
Lighting kerosene	79
Diesel	51
Butane gas	54
Jet kerosene	69
Asphalt	50
Fuel oil	51
Average	54
Transport fuel[2/]	40

[1/] Increases in retail prices (all taxes included) for super gasoline, lighting kerosene, diesel, and butane. Increases in ex-refinery prices for jet kerosene, asphalt, and fuel oil, based on March 2006 data.

[2/] The price of transport fuel is a weighted average of diesel (57 percent) and super gasoline (43 percent), based on SOGARA data on fuel use in Gabon.

Higher domestic prices for petroleum products would affect household real incomes through two channels: directly from an increase in the prices paid by households for their direct consumption of petroleum products, and indirectly from increases in prices of other goods and services (e.g., higher prices for food and transportation) consumed by households as producers pass on the higher costs of fuel inputs.

Calculating the *direct effect* requires information on the level of consumption of fuel by individual households in different parts of the national income distribution. The Gabon 2005 EGEP household survey contains reported expenditure by households on individual fuel products. A "first-order" estimate of the direct real income effect of fuel price increases can be calculated as follows. For each household, one calculates the budget share of fuel expenditure items, i.e., fuel expenditures divided by total household consumption. The data indicate that poor households report smaller budget shares for transport fuel than do higher-income groups. Also, poor consumers have larger lighting kerosene budget shares than do rich households. Then multiplying the budget shares by the required percentage increase in retail fuel prices (Table 5) gives a first-order estimate of the real income effect of the price rise, which assumes that fuel consumption stays fixed (Table 6).[7]

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[7] This overestimates the real income effect, since, in practice, households can reduce this impact by substituting away from fuel. For a discussion of the theoretical foundations of this approach in the context of price and tax reforms, see Ahmad and Stern (1984, 1991), Newbery and Stern (1987), and Deaton (1997).

Table 6. Energy Spending and Direct Subsidies per Capita by Welfare Level [1]

					Welfare Decile						
Product	Poorest	2	3	4	5	6	7	8	9	Richest	Summary
Expenditure on fuel as a share of total expenditure (percent)											
											Average
Transport fuel [2]	0.0	0.1	0.1	0.3	0.2	0.3	0.5	1.1	1.4	2.5	0.63
Lighting kerosene	1.3	0.8	0.6	0.5	0.4	0.4	0.3	0.2	0.2	0.1	0.50
Butane cooking gas	1.2	1.6	1.6	1.8	1.6	1.8	1.7	1.6	1.5	1.1	1.54
Total	2.59	2.51	2.29	2.53	2.16	2.44	2.48	2.88	3.03	3.71	2.66
Direct subsidies as a share of total expenditure (percent)											
											Average
Transport fuel	0.00	0.02	0.03	0.12	0.08	0.12	0.19	0.43	0.54	0.98	0.25
Lighting kerosene	1.08	0.67	0.50	0.37	0.32	0.31	0.26	0.20	0.16	0.11	0.40
Butane cooking gas	0.66	0.86	0.85	0.95	0.85	0.94	0.90	0.84	0.79	0.60	0.82
Total	1.74	1.56	1.38	1.44	1.24	1.37	1.35	1.46	1.49	1.69	1.47
Direct subsidies per capita (CFAF per year)											
											Average
Transport fuel	9	99	163	750	543	984	1,916	5,424	8,900	33,259	5204.80
Lighting kerosene	2,879	2,704	2,519	2,236	2,261	2,644	2,691	2,512	2,595	3,690	2673.13
Butane cooking gas	1,763	3,471	4,289	5,760	6,043	7,927	9,220	10,592	12,955	20,347	8236.90
Total	4,651	6,275	6,971	8,747	8,847	11,556	13,827	18,528	24,449	57,296	16,115
Distribution of aggregate direct subsidies across welfare groups (percent)											
											Total
Transport fuel	0.0	0.2	0.3	1.4	1.0	1.9	3.7	10.4	17.1	63.9	100.0
Lighting kerosene	10.8	10.1	9.4	8.4	8.5	9.9	10.1	9.4	9.7	13.8	100.0
Butane cooking gas	2.1	4.2	5.2	7.0	7.3	9.6	11.2	12.9	15.7	24.7	100.0
Average	4.3	4.8	5.0	5.6	5.6	7.1	8.3	10.9	14.2	34.1	100.0

[1] Source: Gabonese authorities (2004 EGEP household survey), and IMF staff calculations.

[2] Transport fuel is a weighted average of diesel (57 percent) and super gasoline (43 percent), based on SOGARA data on fuel use in Gabon.

Identifying the magnitude of the *indirect effect* requires an estimate of the effect of higher fuel costs on the prices of other goods and services consumed by households. These price effects can be estimated using an input-output table of the economy showing the energy intensity of each sector and a price-shifting model of the effect of higher fuel costs on prices.[8] The indirect real-income effect is then calculated by multiplying the household expenditure shares (from the EGEP survey) for the various goods by their estimated final price increases. Table 7 reports the incidence of both the indirect and direct effect for households at different points of the welfare distribution.[9]

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[8] For a detailed presentation of the price-shifting model used for the case of Gabon, see Coady and Newhouse (2005). A multiplier approach yields the cumulative effect of an increase in fuel prices on the prices of goods and services in the other sectors of the economy. The input-output (IO) coefficient matrix used was obtained from the Gabon office of statistics based on 2001 data.

[9] There can also be other indirect effects not considered in the analysis, for example, through lower employment in sectors that use petroleum products as inputs.

Table 7. Direct and Indirect Subsidies per Capita by Welfare Level [1]

Type of subsidy	Poorest	2	3	4	5	6	7	8	9	Richest	Summary
						Welfare Decile					
Direct and indirect subsidies as a share of total expenditure (in percent)											
											Average
Direct subsidies	1.7	1.6	1.4	1.4	1.2	1.4	1.4	1.5	1.5	1.7	1.5
Indirect subsidies	4.7	4.8	4.8	4.9	4.9	4.9	4.9	4.9	4.9	4.8	4.8
Total	6.5	6.3	6.2	6.3	6.1	6.2	6.2	6.3	6.4	6.4	6.3
Direct and indirect subsidies per capita in CFAF per year											
											Average
Direct subsidies	4,651	6,275	6,971	8,747	8,847	11,556	13,827	18,528	24,449	57,296	16,115
Indirect subsidies	12,569	19,196	24,297	29,810	34,927	41,141	49,648	61,536	80,123	161,258	51,450
Total	17,220	25,472	31,268	38,557	43,774	52,697	63,475	80,064	104,572	218,554	67,565
Distribution of aggregate direct and indirect subsidies across welfare groups											
											Total
Direct subsidies	4.3	4.8	5.0	5.6	5.6	7.1	8.3	10.9	14.2	34.1	100.00
Indirect subsidies	2.4	3.7	4.7	5.8	6.8	8.0	9.6	12.0	15.6	31.3	100.00
Average	3.4	4.3	4.9	5.7	6.2	7.6	9.0	11.4	14.9	32.7	100.00

[1] Source: Gabonese authorities (2004 EGEP household survey), and IMF staff calculations.

Four main conclusions emerge from the distributional analysis:

1. Most of the subsidy goes to higher-income households. The richest 10 percent of individuals received about one-third of the total subsidy. Meanwhile, the poorest 30 percent of individuals receive only 13 percent of all the subsidies, highlighting that fuel subsidies are a costly approach to protecting the real incomes of the poor.[10] The finding that fuel subsidies are pro-rich in Gabon is consistent with the analysis of the distributional effects of fuel subsidies in other countries.[11]

2. Even an equal transfer to all households would be better targeted than the existing subsidies, since 30 percent of benefits would then accrue to the poorest 30 percent of households. The very poor targeting of fuel subsidies is not surprising; almost any universal consumption subsidy disproportionately benefits the rich since they, by definition, account for a relatively high proportion of total income and consumption. In Gabon, the richest 10 percent of households consume more than 30 percent of total consumption, while the poorest 10 percent of households consume only 2.5 percent of the total.

3. The total (direct plus indirect) impact of increasing fuel prices to levels consistent with IPP would be an average of 6.3 percent of real per capita income (Table 7). This impact corresponds to an average price increase of 54 percent and is consistent with the range

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[10] The official poverty rate is 33 percent according to the 2005 World Bank Gabon Poverty Assessment (also based on the 2005 EGEP household survey).

[11] See Coady and others (2006) for an overview of the distributional impact of fuel-price subsidies in Bolivia, Ghana, Jordan, Mali, and Sri Lanka.

observed in other countries (3–9 percent real income decline for average price increases ranging from 34–68 percent), as reported in Coady and others (2006).

4. The indirect effect, at 4.8 percent of real income, is larger than the direct effect. This finding reflects the fact that a substantial proportion of diesel and other fuel is used in the production and distribution of other goods and services.

V. MITIGATING THE EFFECT OF PRICE INCREASES ON THE POOR

The escalating fiscal cost of the subsidies, and their pro-rich bias, suggests the need to reduce them. There is also a consensus that fuel subsidies are inappropriate on efficiency grounds, as they discourage producers from acquiring more energy-efficient technologies, so as to remain competitive in worlds markets.[12] However, governments are often reluctant to allow fuel prices to increase due to the adverse effect that such price increases would have on the real incomes of poor households. Fortunately, as most fuel subsidies accrue to higher-income households, it is often possible to eliminate the subsidies while using some of the budgetary savings to finance better targeted programs to protect the real incomes of the poor from energy price increases.

This section suggests a number of mitigating measures that could accompany an increase in fuel prices in Gabon. The suggested measures draw on discussions with the Gabonese authorities and are consistent with policies implemented in other countries that reduced fuel price subsidies, as discussed in Coady and others (2006).

Increasing expenditure on poverty-reduction projects. The authorities completed a Poverty Reduction Strategy Paper (PRSP) in early 2006 that includes a number of projects in the health, education, and infrastructure sectors that could offset the impact on the poor of increasing fuel prices. PRSP projects that could benefit from increased budgetary support following the reduction of fuel price subsidies include the following:

- Providing additional funding to the National Pharmaceutical Office (OPN) for purchases of medical supplies and to ensure effective distribution of supplies to remote areas.
- Reinforcing the delivery of equipment and of supplies to Regional Centers of Blood Transfusion (CRTS).
- Purchasing equipment for primary schools, improving teacher-training facilities, and building new primary schools.
- Promoting rural electrification, including the construction of small-scale hydroelectric dams and connection of remote areas to the national electricity grid.
- Constructing water purification centers and networks of potable water distribution to villages.

Increasing financial support for Gabon's existing welfare programs. The National Social Guarantee Fund (CNGS) is responsible for providing family and school tuition allowance

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[12] See Gupta and others (2003), for example.

payments in favor of indigents. Indigents are defined as Gabonese citizens that have a monetary income below the minimum wage level and are identified using means-based testing. In 2006, the authorities announced an increase in budgetary support for CNGS cash transfer programs.

Reducing Gabon's existing electricity and water "social" tariffs. Given that electricity is an important source of energy for poor households and its cost is closely correlated with fuel prices, reforming the level of electricity prices can mitigate the effect of higher average tariffs on poorer households with access to electricity. In Gabon, the privately owned electricity provider, the Company of Energy and Water of Gabon (SEEG), already offers lower "social" tariffs for electricity and water consumption below certain "social" limits. The lifeline tariffs could be reduced, with the government compensating the SEEG for the resulting losses or with higher tariffs for larger-scale users. Providing utilities free of charge to selected households for a limited period of time was implemented recently in Gabon—during the electoral campaign of late 2005, the government paid for the free provision of water and electricity for one month to all households with a September electricity bill of less than 50,000 CFAF.[13]

Increasing the geographic targeting of social expenditures. Gabon's existing rural road network maintenance program, and other public works programs, can be expanded. Such programs not only protect household real incomes in the short run, they can also contribute to the medium-term objective of improving public infrastructure. Reducing or eliminating user charges for education and health services in rural areas can enhance Gabon's stock of human capital and, over time, growth in the non-oil economy.

Eliminating the subsidies gradually. Phasing the subsidies out over two to three years would allow firms in export-oriented industries, such as those in the forestry sector, to catch up with the fuel-efficiency levels of competitive firms in countries without fuel price subsidies.[14] In addition, maintaining the relatively less pro-rich lighting kerosene subsidy for a year or two while reducing subsidies on diesel and super gasoline would give time to implement better targeted expenditure programs. However, price differentials between lighting kerosene and diesel should not be maintained over the medium term as the two products are substitutable.

VI. CONCLUSION

This paper evaluates the fiscal cost and distributional impact of fuel price subsidies in Gabon. The results suggest that the total fiscal cost of the implicit subsidies reached 3.2 percent of

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[13] Note that this particular temporary measure during the electoral campaign appears to have had a strong pro-rich bias. Analysis using the EGEP survey indicates that, of the total amount spent by the government on the free utilities, 22 percent reached households in the top 10 percent of the population. Half of the total amount reached the top 30 percent of households. Meanwhile, households in the bottom 30 percent of the income distribution received only 15 percent of the free utilities subsidy.

[14] See Coady and others (2006) for a discussion of formulae that can be used to smooth the price adjustment.

non-oil GDP in 2005—more than total public health expenditure—and could rise to 4.5 percent of non-oil GDP in 2006. In addition, the fuel subsidies are strongly biased towards higher-income households. The top 10 percent of the income distribution benefits from one-third of the total subsidy, while the bottom 30 percent of the distribution benefits from only 13 percent of the subsidy.

The reform of fuel price subsidies in Gabon may therefore be necessary to release resources for critical social services for the poor and to facilitate pro-poor economic growth. At the same time, increases in prices of basic commodities such as lighting kerosene and butane cooking gas may be associated with real income losses for the poor. Therefore, these effects need to be mitigated or eliminated by phasing out the subsidies gradually and reorienting expenditure towards targeted programs and growth-enhancing infrastructure spending. The current period of strong economic growth could offer a useful window to mobilize support for a reduction in the fuel price subsidy. Educating the public about the size and distribution of the subsidies, and depoliticizing fuel prices by using a pre-announced formula-based adjustment path, would further help to generate support for reform.

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