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INTERNATIONAL MONETARY FUND

REPUBLIC OF CONGO

Selected Issues

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Approved by the African Department

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I. Fiscal Costs and Distributional Impact of Oil Subsidies[1]

A. Introduction

1. **A key objective of the Congolese authorities' fiscal policies is to increase priority spending on pro-poor and growth-enhancing programs.** The current composition of spending is moving in this direction, although there is scope for improvement, especially in reducing low-priority outlays such as for fuel subsidies. These subsidies are more than twice as large as outlays for health and addressing HIV/AIDS.

2. **This paper assesses the fiscal costs and distributional impact of fuel subsidies.** It draws on the analysis conducted by the Fiscal Affairs Department in the context of a Policy and Social Impact Assessment.[2] In recent years, while international oil prices kept rising domestic fuel prices remained broadly unchanged, pushing fuel subsidies to very high levels. To understand these subsidies better, we make a clear separation between (i) those borne by the budget, (ii) arising from the inefficiency of the state-owned oil refinery (CORAF), (iii) those required to cover losses stemming from regulated retail prices that are below import-parity, and (iv) budgetary transfers intended to clear payments arrears accumulated by crude oil suppliers to CORAF. Also, the paper quantifies the incidence of fuel subsidies on household welfare using household survey data, to show that these subsidies are not well targeted.[3]

3. **The paper has three main findings**:

- **Until more recently, fuel subsidies have weighed heavily on the budget.** The total fiscal cost of these subsidies rose to as high as 8.3 percent of non-oil GDP last year, compared with total current expenditures of 56.3 percent of non-oil GDP.

- **Higher income households benefit most from the fuel subsidies, contrary to the pro-poor objective of the government's fuel pricing policy.** The top 20 percent of the population received about 40 percent of the subsidies for gasoline and diesel. For kerosene (consumed disproportionately by lower income households), however, the

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[1] Prepared by Abdelrahmi Bessaha, with assistance from Dale Manning.

[2] Gillingham, R., S. Lacoche, D. Manning, 2008, "Republic of Congo: Reforming Fuel Subsidies While Protecting the Poor," Fiscal Affairs Department, IMF.

[3] The household survey was conducted by the Centre National de la Statistique et des Études Économiques in 2005. Enqûete Congolaise des Ménages pour l'Evaluation de la Pauvreté (ECON) 2005 provided socioeconomic data for 4,985 households in Brazzaville, Pointe Noire, and rural areas. For analytical purposes, this paper also uses a 2005 input-output table for Congo, based on detailed cost structures for 18 economic sectors and industries.

top two quintiles receive 42 percent of the benefits while the bottom two quintiles receive 35 percent of the subsidies. Consequently, fuel price subsidies do not adequately protect the real incomes of the poor.

- **The authorities' policies to mitigate the adverse impact of rising fuel prices earlier this year were well intended, but were not sufficiently targeted to benefit the poor**. The various public expenditures that were made probably did not alter the pattern of the welfare distribution. We judge that the lowest quintiles of the welfare distribution only receive about one third of the benefits from these measures.

4. **The paper is organized as follows.** Section B briefly describes the fuel pricing policy currently in effect and evaluates the fiscal cost of the subsidies, while Section C quantifies their distributional impact. Section D discusses the fuel price increases and the impact of the mitigating measures implemented by the authorities in early 2008 to help offset them. Section E offers some conclusions.

B. Current Petroleum Products Pricing Policy and Fuel Subsidies

5. **Domestic prices of refined petroleum products are administratively set by the authorities below import parity.** Prices are set according to a formula established by Presidential Decree 2005-699.[4] This formula first establishes an ex-refinery price for the various domestic petroleum products by adding customs duties, VAT, and an "economic adjustment" factor (*ajustement économique)* to the c.i.f. world market price. To compute the pump price, the formula adds various costs to the ex-refinery price, including transportation, distribution margins for wholesalers and retailers, financing and inventory costs, and an environmental audit tax. Despite recent adjustments, domestic prices of refined petroleum products remain below import parity.

6. **Domestic petroleum products benefit from substantial subsidies.** At the heart of the aggregate subsidies are the price subsidies which compensate for the structural mismatch between administered selling prices and import-parity levels. By end-2007, against a background of rising world prices, these price subsidies represented an estimated 3.2 percent of non-oil GDP (45 percent of overall subsidy). Reflecting these subsidies, end-2007 pump prices of diesel, kerosene and jet oil were at 40-70 percent of an estimated free market reference price. Super gasoline also had a small subsidy of about CFAF 27 per liter. Subsidies to offset the operating and technical losses of CORAF (20 percent of overall subsidy) and to clear payments arrears accumulated vis-à-vis crude oil suppliers ("the guarantee provision") by CORAF reached the

Table 1. Republic of Congo : Transfers to CORAF, 2007-2008
In billions CFA francs

	2007		2008
	Proj.	Est.	Rev. Budget
Price subsidies	45	45	n.a
Technical Losses	20	35	n.a
Payment Guarantees to Suppliers	35	35	n.a
Total	**100**	**115**	**75**
Non-oil GDP		1392	1561
Price subsidies		3.2	
Total subsidies		8.3	4.8

Source: Congolese authorities; and Fund staff projections.

[4] The main fuel products are super gasoline, diesel, kerosene, jet fuel, and propane.

equivalent of 5.1 percent of non-oil GDP. Total subsidies for 2007 reached CFAF 115 billion (equivalent to 8.3 percent of non-oil GDP). Reflecting higher domestic prices, the overall subsidies for 2008 are projected to come down to CFAF 75 billion or 4.8 percent of non-oil GDP (Table 1).

7. **Price subsidies encourage consumption of petroleum products and contribute to a misallocation of scarce budgetary resources**. Non-oil revenue in 2007 was about 20 percent of non-oil GDP, compared with overall fuel subsidies of about 8.3 percent of non-oil GDP. In 2008, they are expected to decline, but they still consume a substantial share of domestic resources.

C. Distributional Impact of the Subsidies

8. **The fuel pricing policy and subsidy scheme were established by the authorities to protect low-income households from rising energy prices.** However, these policies have not been effective, as we demonstrate below through a simulation of the impact of removing the subsidies on households' real incomes across the income distribution. The incidence of subsidies is quantified using ECOM 2005. The simulation involves raising retail prices to reach import-parity levels to capture the effect on each group's real income.

9. **The impact of the subsidy program is evaluated by examining two components**. The first component is the quintile's share of the benefit from the overall subsidy; and the second takes into account the share of petroleum products in total household consumption. The former indicates the efficiency─defined as how much of the total subsidies accrue to the low income groups─of a given subsidy reaching a given quintile, while the latter captures the overall effect of the subsidy on that income group.[5]

10. **We use household per capita consumption as an indicator of welfare**. Data from ECOM 2005 indicate that more than 70 percent of the population lives below the poverty line of US$ 2 per day, including all households in quintiles one to three (Table 2). In addition, the bottom 60 percent of the fourth quintile lives on less than US$ 2 a day. The mean welfare of the top quintile is 11.4 times higher than that of the bottom quintile; the second quintile is 1.8 times higher; and the third 2.7 times higher. Data show that there is also significant variation in welfare among the poorest quintiles. Accordingly, all but 30 percent of households are living in poverty. The bottom top quintile lives in extreme poverty.

[5] Higher domestic prices for petroleum products would affect real income through two channels: (i) directly from an increase in the prices paid by households for their direct consumption of petroleum products; and (ii) 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 for fuel inputs.

Table 2. Republic of Congo: Distribution of Household Welfare [1]

	Bottom Quintile	Quintile 1	Quintile 2	3	4	Top
			(Percent)			
Ratio of mean per capita consumption to bottom quintile mean	1.00	1.53	1.76	2.66	4.28	11.35
Share of total consumption	3.06	4.21	11.32	15.31	21.82	44.28
Share of energy expenditure	2.84	4.52	11.18	15.68	22.60	43.18
Memorandum Items:						
Share of population						
Urban (62.29 percent)	3.42	4.20	9.2	10.9	13.39	15.65
Semi-Urban (7.71 percent)	1.42	0.83	1.68	1.49	1.02	0.58
Rural (30 percent)	5.17	4.96	9.13	7.6	5.6	3.75

Source: IMF staff estimtates based on ECOM, 2005.

[1]Welfare groups are based on household consumption per capita.

11. **On average, all energy expenses accounted for 2.85 percent of household expenditures, with low variation across income groups** (Table 3). Urban households spend the highest share (3 percent) on energy products, compared with semi-urban (2.5 percent) and rural (2.7 percent).

Table 3. Republic of Congo: Household Budget Shares for Energy
(In percent)

	First Quintile	Second quintile	Third quintile	Fourth quintile	Top quintile	All households
National						
Electricity	0.18	0.45	0.72	1.26	1.25	0.77
Natural gas	0.01	0.02	0.05	0.13	0.24	0.09
Kerosene	2.62	2.28	1.96	1.44	0.78	1.81
Diesel	0.00	0.00	0.00	0.00	0.04	0.01
Super Gasoline	0.02	0.04	0.07	0.13	0.56	0.16
All energy products	2.83	2.78	2.81	2.95	2.87	2.85
Urban						
Electricity	0.36	0.89	1.15	1.77	1.55	1.26
Natural gas	0.02	0.03	0.09	0.17	0.29	0.15
Kerosene	2.20	1.91	1.69	1.10	0.67	1.37
Diesel	0.00	0.00	0.00	0.00	0.04	0.01
Super Gasoline	0.01	0.00	0.05	0.18	0.59	0.22
All energy products	2.59	2.83	2.99	3.21	3.14	3.01
Semi-urban						
Electricity	0.15	0.38	0.66	0.51	0.45	0.39
Natural gas	0.00	0.00	0.00	0.04	0.06	0.01
Kerosene	2.66	2.13	1.76	1.87	0.89	2.08
Diesel	0.00	0.00	0.00	0.00	0.00	0.00
Super Gasoline	0.00	0.01	0.01	0.12	0.06	0.03
All energy products	2.82	2.51	2.42	2.53	1.46	2.50
Rural						
Electricity	0.06	0.02	0.12	0.17	0.10	0.08
Natural gas	0.00	0.00	0.01	0.05	0.09	0.02
Kerosene	2.91	2.68	2.39	2.19	1.20	2.46
Diesel	0.00	0.00	0.00	0.00	0.07	0.01
Super Gasoline	0.04	0.07	0.11	0.00	0.53	0.11
All energy products	3.01	2.78	2.62	2.41	1.99	2.67

Source: IMF staff calculations based on ECOM 2005.

12. **High income households consume the majority of all fuel types other than kerosene** (Table 4). The top two quintiles represent 95.4 percent of gasoline and diesel expenditures. Kerosene dominates fuel expenditure for the poorer quintiles. The poorest 60 percent of the population account for 57.7 percent of all kerosene expenditure but only

5.2 percent of gasoline and diesel fuels. This suggest that a subsidy on all oil products, while helping the poor up to an equivalent of about 2.8 percent of their income, aids mostly the top income quintiles, up to about 2.9 percent of their significantly larger income. The burden of a subsidy removal would fall mostly on these upper quintiles.

Table 4. Republic of Congo: Distribution of Total Household Energy Consumption
(Percent)

	Bottom quintile	Second quintile	Third quintile	Fourth quintile	Top quintile	Total sum
Share of electricity expenditure	1.86	6.67	12.95	28.96	49.56	100.00
Share of natural gas expenditure	0.85	1.15	6.63	20.49	70.88	100.00
Share of kerosene expenditure	15.31	19.62	22.75	21.06	21.26	100.00
Share of diesel expenditure	0.00	0.00	0.00	1.08	98.92	100.00
Share of gasoline expenditure	0.45	0.63	4.08	8.94	85.91	100.00

Source: IMF staff calculations based on ECOM, 2005.

13. **The question arises as to who benefits from the subsidies**. The distribution of subsidies is computed by simulating the impact of the elimination of subsidies on households' real income across the income distribution using data from ECOM 2005. The price increase needed to eliminate subsidies for domestic petroleum products will affect the household real income directly and indirectly. By end-2007, this implied a 125 percent increase in kerosene prices, a 60 percent increase in diesel prices, and only a 6 percent increase in super gasoline prices (Table 5). The prices of goods in other sectors that use petroleum products as inputs (for example, textiles) are also impacted. The oil sector was shocked with a 55 percent price increase in 2007 and all indirect effects are calculated from that shock. On average, it is estimated that an increase of 55 percent is necessary for all products.

Table 5. Republic of Congo:
Price Increases to Eliminate Subsidy[1]
(Percent)

	Increase
Gasoline	5.5
Kerosene	125.0
Jet fuel (avg.)	68.0
Diesel	59.8
Bunker fuel	66.7
Maritime diesel (int.)	31.9
Maritime diesel (dom.)	112.3

Source: Congolese authorities; and IMF staff calculations.
[1]Increases based on 2007 average oil prices.

14. **From the above distributional analysis, we can draw the following conclusions:**

- **Most of the subsidies benefit higher-income households.** Hence, fuel subsidies are not a cost-effective way to protect the real incomes of poor households. A high proportion (40 percent) of total fuel subsidies benefits the richest 20 percent of the population who consume the highest share of gasoline and diesel. In contrast, a kerosene subsidy would largely benefit the poorer quintiles. Therefore, in addition to being politically difficult to implement, the elimination of subsidies can have a significant adverse impact on the real incomes of poor households.

- **The total (direct and indirect) impact of increasing fuel prices to import parity levels would be an average of 5.9 percent of real per capita income** (Table 6). On average, household real incomes decrease by 5.86 percent, ranging from 6.1 percent for the second and third quintiles to 4.76 percent for the top. This would significantly depress the budgets of low and middle-income households that already face difficulties covering basic expenditures. The impact is associated to an average price increase of 55 percent.

Table 6. Republic of Congo: Estimated Budgetary Impact of a Complete Subsidy Elimination
(Percent of Budget)

	Increase Percent	First Quintile	Second Quintile	Third Quintile	Fourth Quintile	Top Quintile	All Households
Kerosene	125	3.27	2.85	2.46	1.8	0.97	2.27
Diesel	59.8	0	0	0	0	0.03	0.01
Indirect		1.96	1.88	2.15	2.13	2.4	2.21
Gasoline	5.5	0	0	0	0.01	0.03	0.01
Indirect		0.37	0.47	0.68	0.7	0.63	0.62
Diesel (fishing) (indirect)	36.7	0.24	0.66	0.56	0.57	0.38	0.47
Bunker fuel (indirect)	68.5	0.07	0.16	0.23	0.36	0.31	0.27
Total direct impact		3.27	2.85	2.46	1.81	1.03	2.28
Total indirect impact		2.64	3.17	3.61	3.76	3.73	3.58
Total		**5.92**	**6.03**	**3.07**	**5.57**	**4.76**	**5.86**

Source: ECOM 2005, SNPC, Congolese authorities, and staff estimates.

- **Although all income groups experience a substantial decrease in real incomes, the poor feel the largest effect, as a percent of their total budget**. Table 7 indicates that the top-income quintile bears about 40 percent of the total burden and the poorest quintile 8 percent. On average, a household in the top quintile would lose CFAF 11,082 per month in subsidies and the lowest quintile currently receives just CFAF 2293.5 per month.

Table 7. Republic of Congo: Share of the Burden by Income Groups

(In percent)

	First Quintile	Second Quintile	Third Quintile	Fourth Quintile	Top Quintile	All Households
Kerosene	15.3	19.6	22.8	21.1	21.3	100.0
Diesel	0	0	0	1.1	98.9	100.0
Indirect	6.5	9.7	14.8	21	48	100.0
Gasoline	0.5	0.7	3.7	9.9	85.2	100.0
Indirect	4.4	8.6	16.8	24.7	45.4	100.0
Diesel (fishing) (indirect)	3.8	8.6	16.8	24.7	45.4	100.0
Bunker fuel (indirect)	1.9	6.7	13	29	49.6	100.0
Total direct impact	14.6	18.8	21.9	20.4	24.3	100.0
Total indirect impact	5.4	10.1	15.5	23	46.1	100.0
Total	**8.2**	**12.7**	**17.4**	**22.2**	**39.6**	**100.0**
Absolute impact (CFA francs)	**2293.5**	**3551.8**	**4864.9**	**6218**	**11082**	**5602**
Direct	1226.6	1575.3	1829.6	1704.4	2037.1	1674.6
Indirect	1066.9	1976.5	3035.3	4513.6	9044.9	3927.4

Source: ECOM 2005, SNPC, Congolese authorities, and staff estimates.

D. Impact of the January 2008 Policy Changes

15. **Domestic petroleum prices were adjusted in January 2008 (and again in October), to help reduce the rising level of fuel subsidies.** This price adjustment was accompanied by a few mitigating measures. The January across-the-board price increases were projected to reduce fuel subsides by an estimated CFAF 21.1 billion. In addition, the reduction in margins for transportation and distribution operators expected to produce additional savings of about CFAF 7.1 billion; combined, the net annualized savings would be CFAF 30.1 billion. The authorities targeted a price increase on all products to spread the burden of the removal of the subsidies across various market participants and to avoid problems with substitution.

16. **The mitigating measures in early 2008 involved various public expenditures amounting to about CFAF 20 billion (about 1.5 percent of non-oil GDP) (Table 8).** They included (i) a 12.5 percent increase in the base salary for civil servants; (ii) a tax exoneration for public transportation (taxis and buses); (iii) the elimination of fees for public primary, secondary, and technical schools; (iv) free school supplies (books and manuals) for students in public schools; and (v) medium-term investments in health, water, and electricity.

Table 8. Republic of Congo: Compensatory Measures, January 2008

(Billions of CFA Francs)

Measures	Fiscal cost
Increase civil servant base wage	6.0
Tax exoneration on transport	3.0
Eliminate puiblic school fees	1.6
Provide free school supplies	4.8
Health, water, and electricity (residual) [1]	4.6
Total	**20.0**

Source: Congolese authorities; and IMF staff estimates.

[1] Includes expenditure on HIV/AIDS and malaria treatment, free diesel for rural generators, solar energy incentives, and increased access to water. These measures have not been individually costed.

17. **Using the model, we simulate the impact of these mitigating measures on the income distribution to gauge their effect.** Unfortunately, the support to the poor for these measures is mixed. While the measures related to the elimination of public school fees and provision of free school supplies are well targeted, the civil service pay increase and reduction in transportation taxes disproportionately benefits relatively well-to-do households, with an estimated two-thirds of the benefits from each accruing to households in the top two quintiles. Thus households in the bottom two quintiles would receive an estimated 35 percent of the benefits, compared with those in the top two quintiles who would receive an estimated 46 percent (Table 9). In addition, they do not fully compensate lower income households for resources lost to higher petroleum prices.

Table 9. Republic of Congo: Estimated Budgetary Impact of Implemented Measures
(CFA Francs)

	Bottom quintile	Quintile 2	Quintile 3	Quintile 4	Top quintile	Overall Average
Impact of mitigating measures						
Increase in civil service base wage	107.1	233.1	631.5	480.8	1,561.2	602.7
Reduction in transportation taxes	78.5	148.5	267.8	365.3	646.7	301.4
Elimination of public school fees	314.7	214.0	142.3	95.5	37.2	160.7
Provision of free school supplies	944.1	642.1	426.8	286.4	111.5	482.2
Total	1,444.4	1,237.8	1,468.4	1,228.0	2,356.6	1,547.0
Impact of price increases						
Diesel	396.6	588.6	904.3	1,285.2	3,103.9	1,255.7
Kerosene	61.4	78.9	91.4	84.6	85.4	80.4
Gasoline	95.7	180.5	387.3	636.0	2,166.3	693.2
Diesel (fishing)	19.0	79.9	90.8	132.4	180.2	100.5
Bunker fuel	7.5	26.8	52.1	116.3	199.1	80.4
Total	580.2	954.7	1,525.8	2,254.5	5,735.0	2,210.0
Net loss	-864.2	-283.1	57.4	1,026.5	3,378.4	663.0
As a share of total consumption	-2.3	-0.4	0.1	0.7	1.4	0.9
Memorandum items:						
Share of total mitigating measures	18.7	16.0	19.0	15.9	30.5	100.0
Share of total price increases	5.3	8.6	13.8	20.4	51.9	100.0
Share of net loss	-26.1	-8.5	1.7	31.0	101.9	100.0
Additional subsidies for selected fuels	1,325.2	2,176.6	3,171.5	4,440.6	9,839.8	4,190.8

Source: 2005 Household Survey, SNPC, authorities, and staff estimates.

E. Conclusion

18. **The Congolese authorities' efforts to cushion the impact of rising fuel prices are well intended, but come with a high cost to the budget and are not well targeted.** We estimate that the top 20 percent of the income distribution benefit from more than 40 percent of the total subsidy. In this regard, the government's intention to establish a new fuel pricing policy is welcome.

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II. An Assessment of Competitiveness[6]

A. Introduction

19. **Congo's growth in recent years has been strong, primarily because of oil exports.** High oil prices and production have boosted Congo's international reserves, and real income per capita has risen to middle-income level. Yet the non-oil economy is underdeveloped, non-oil exports are largely stagnant, and manufactured exports have lost market share.

20. **Following the methodology of Di Bella, Lewis, and Martin (2007), this paper examines indicators for evaluating competitiveness in the non-oil sector**, which is taken to mean the capacity to produce goods and services more efficiently and profitably than other countries. The indicators studied are real exchange rate movements, developments in relative prices, export performance, market share and profitability, production costs, and institutions.

21. **On a number of competitiveness indicators Congo lags behind other members of the *Communauté Economique et Monétaire de l'Afrique Centrale* (CEMAC)**, a region that itself significantly underperforms the rest of sub-Saharan Africa (SSA).[7] Congo's real effective exchange rate (REER) has appreciated considerably since 2000 and, although evidence of real exchange rate overvaluation is not robust, recent increases in prices relative to its trading partners certainly did not help Congo's competitiveness. Congo's exporters have also been undermined by a poor business environment; inadequate human capital, technology, and infrastructure; and undersdeveloped institutions.

22. The evolution of exports is outlined in Section B; real exchange rate developments and relative prices and costs are assessed in Section C; and structural factors that influence competitiveness are discussed in Section D. Conclusions are in section E.

B. Export Performance

23. **The growth in exports over the past several years has been dominated by oil; non-oil exports have stagnated.** Congo has lost export market share for many non-oil commodities, and some "traditional" exports have disappeared altogether.[8]

- **Congo is highly open to trade**; the ratio of exports and imports to GDP has risen above 200 percent as oil production increased and world oil prices rose (Figure 1a).[9]

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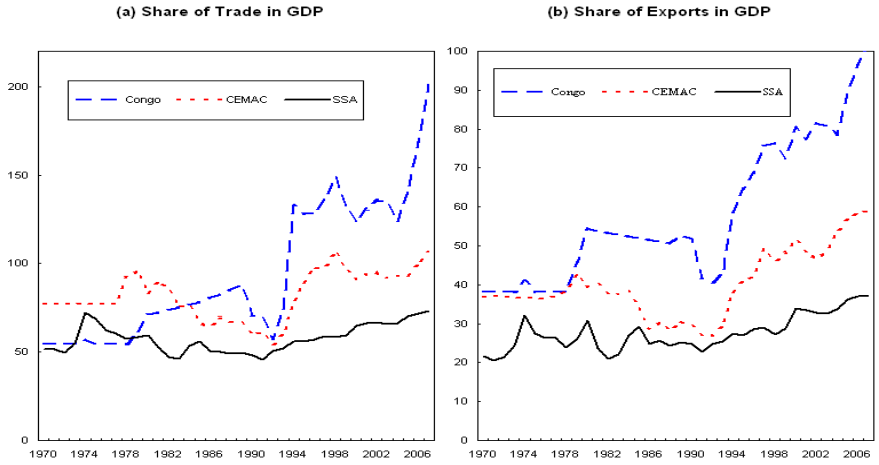
[6] Prepared by Izabela Karpowicz.

[7] The poor performance of lower-income countries, particularly in the CEMAC region, has been documented in a number of studies on exchange rates, evolution of exports, and institution. See, for instance, IMF Country Report 07/206 Selected Issues Paper on Governance, Tsangarides on REER and on competitiveness in Working Papers 06/236 and 7/212; Di Bella, Lewis and Martin (2007) on competitiveness and REER misalignment.

[8] Oil exports are the primary source of government revenue, and Congolese consumers rely heavily on imports of food, machinery, transportation equipment, medicines, and other goods.

Exports account for the bulk of this, having expanded by an average of 12 percent a year for 2000–07—twice as fast as the CEMAC average and four times faster than the SSA average (Figure 1b).

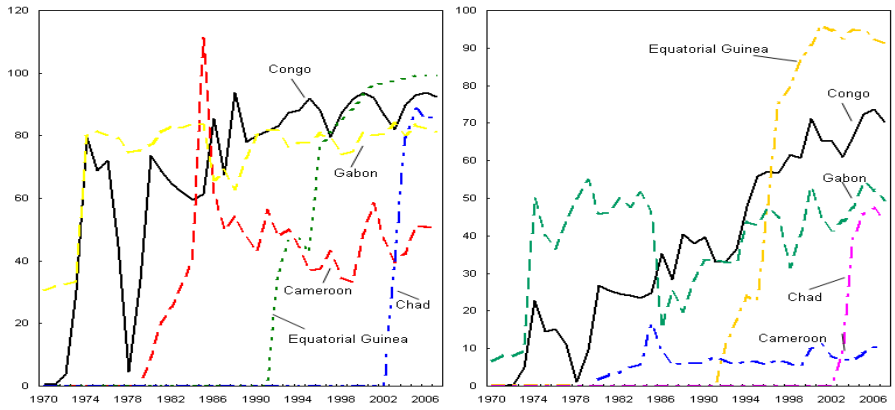
Figure 1. Republic of Congo: Share in Total Trade and Exports in GDP, 1970-2007
(Percent)



Source: World Economic Outloook, IMF.

- **Congo's oil exports account for 80 percent of total exports (Figure 2a) and about two-thirds of GDP (Figure 2b)**. Among CEMAC exporters, only Equatorial Guinea has recorded better oil export performance since 1994, and this only due to a significant increase in oil production.

Figure 2. Republic of Congo: Share of Oil Exports in Total Exports and GDP, 1970-2007
(Percent)



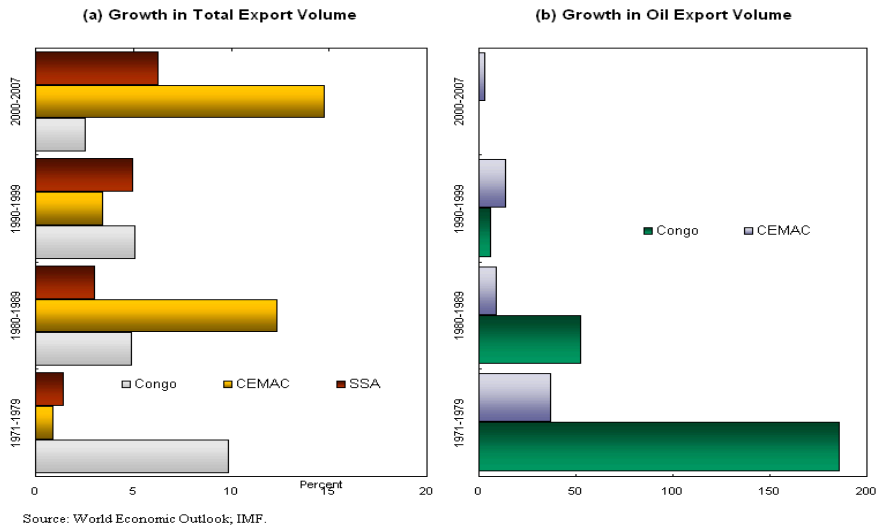
Source: World Economic Outlook, IMF.

- **Despite the encouraging evolution of oil exports since the 1990s, export volumes have grown** little. Real export growth has decreased from about 5 percent in the

[9] In contrast, CEMAC trade increased to 100 percent of GDP in 2007, while SSA exports and imports reached slightly more than 70 percent of GDP.

1990s to below 2 percent since 2000 (Figure 3). Congo's exports did recover briskly in 2000 after the civil war ended, but in 2007 an accident at a major oil platform pushed down oil exports considerably[10].

Figure 3. Republic of Congo: Growth in Total and Oil Export Volume,1971-2007
(Percent)

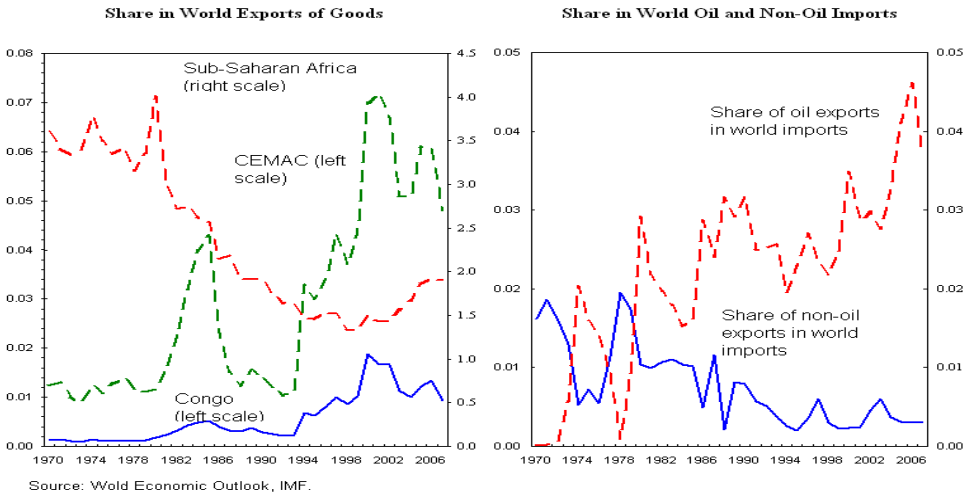


Source: World Economic Outlook; IMF.

- **Congo's share in world trade is still very small.** Since 1994, its exports have grown as a share of world exports only because of oil (Figure 4). Among non-oil exports, production has either disappeared or become marginal in such historically important commodities as cocoa, coffee, and timber. Recently, manufactured exports, which grew in the 1990s, have declined dramatically as a share of total exports as a result of further concentration in oil.

[10] Large annual variations somewhat distort the annual average.

Figure 4. Republic of Congo: Exports Market Shares, 1970-2007
(Percent)



Source: Wold Economic Outlook, IMF.

Composition of Exports, 1969–2007
(Percent of total)

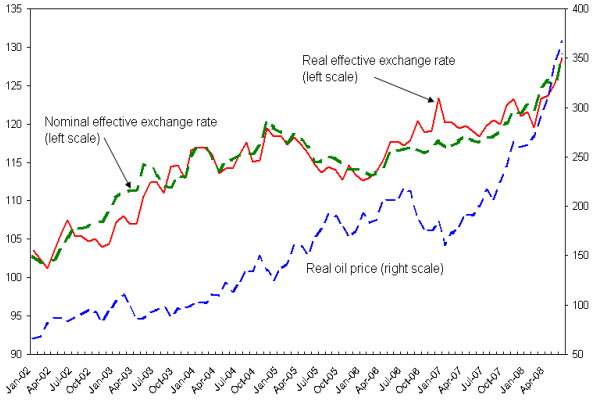
Primary Commodities			Nonfuel Primary Commodities			Manufactures		
1969-89	1990-99	2000-07	1969-89	1990-99	2000-07	1969-89	1990-99	2000-07
76.5	73.4	86.8	15.8	12.0	10.7	7.6	15.5	2.4

24. **The relatively poor performance of non-oil exports may be due to a host of factors, including Dutch disease.** The prominence of the oil sector and recent high oil prices have diverted resources from the traditional export sectors. However, it is also likely that relative prices and structural factors have had an effect.. The rest of the paper will seek to explain the determinants of non-oil exports performance.

C. The Real Effective Exchange Rate

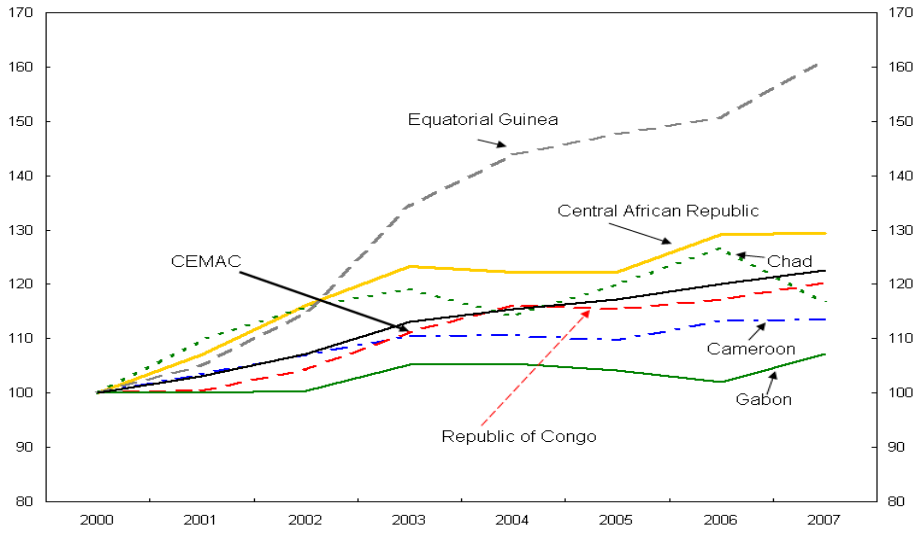
25. **REER developments are often assessed using indices that help explain productivity in the traded goods sector and the patterns of consumption of traded and nontraded goods.** Indices based on the notion of purchasing power parity compare nominal exchange rates between a country and its trading partners, adjusted for differences in prices (consumer, wholesale, production, export, and import, and the GDP deflator) and costs (unit labor costs in manufacturing or the whole economy). There is also the notion of an "internal" exchange rate, based on relative prices, i.e., the ratio of prices of nontraded goods to prices of tradables. The REER[11] indices based on different price measures suggest Congo's competitiveness has deteriorated in recent years:

Figure 5. Republic of Congo: Real Effective Exchange Rate and Real Oil Price, 2002-08
(Index, 2000=100)



Sources: IMF, Information Notice System; and WEO.

Figure 6. CEMAC: CPI Based Real Effective Exchange Rates, 2000-07
(Index, 2000=100)



Sources: IMF, Information Notice System; and Fund staff estimates.

[11] The REER indices were constructed following IMF methodology (Zannello and Desruelle, 1997). The REER is a geometric average of prices (consumer prices, export and import unit values, GDP deflator) and the US dollar exchange rates based on bilateral trade weights. A total of 19 trading partners are included in the index, where trading partners belonging to the euro area together have a weight of 44 percent. The series are spliced backwards to account for changes in INS weights introduced in 2000.

- The **REER based on the consumer price index** has appreciated steadily since 2000, tracking appreciation of the nominal effective exchange rate (Figure 5). By the end of 2007, the REER was higher by 20 percent. Due to extensive price differentials in the CEMAC area, the REERs of member countries differed substantially, but Congo's tracked the CEMAC average very closely (Figure 6).

- The **REERs based on import unit values and export unit values** appreciated by 50 and 48 percent, respectively.[12]

- The **REER based on the GDP deflator** increased in 2003–06 during the oil boom and fell in 2007 as production contracted due to the accident mentioned.

- The pattern for the **internal price ratio** was most similar to that of the REER based on the CPI, although within-year variations were more pronounced (Figure 7).

- **Unit labor costs** have not increased relative to the trading partners because of a freeze in public sector wages in 1993, against which the private sector labor returns are priced.

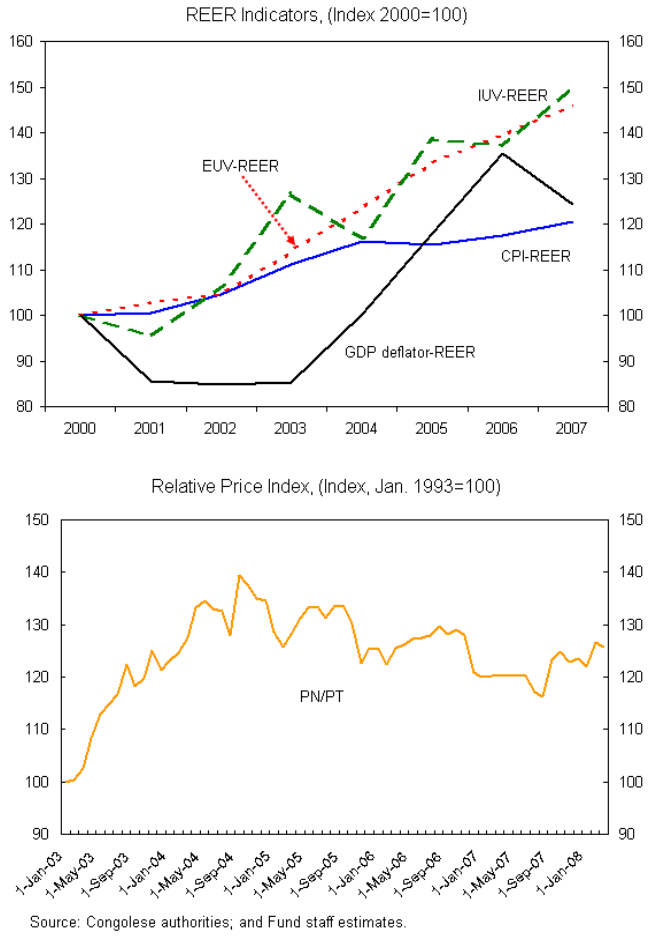
- **Real GDP per capita** has risen sharply in recent years, allowing Congo to graduate to middle-income country status. This was however, due mainly to oil. Productivity in the non-oil sector has plunged, especially in recent years.

- The **relative profits index**[13] decreases over time because the share of labor costs in value-added decreased in Congo relative to its competitors and partners. The decrease is associated with an increase in competitiveness.

[12] In 2007, for instance, the change in terms of trade for Congo was unfavorable.

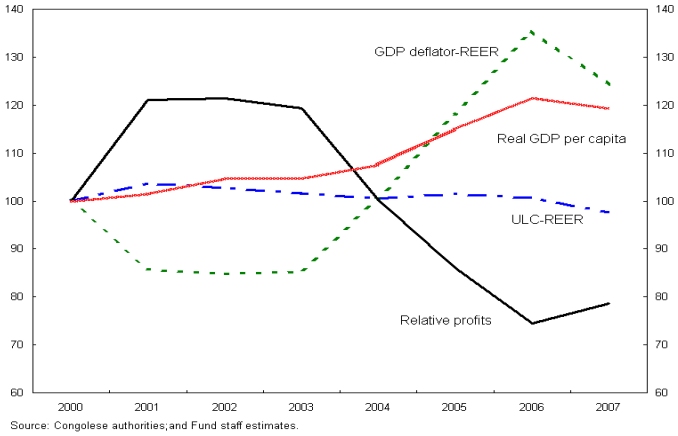
[13] This index is constructed along the lines of Lipschitz and McDonald (1991). It is calculated as the ratio of ULC-REER to the GDP deflator-REER. A rise in the index is associated with a loss in competitiveness and a worsening in the trade balance because the share of labor costs in value-added rises relative to competitors. Unlike the ULC index, this indicator captures the loss in competitiveness resulting from a rise in the price of an intermediate input.

Figure 7. Republic of Congo: Alternative Real Exchange Rate Measures, 2000-08



Source: Congolese authorities; and Fund staff estimates.

Figure 8. Republic of Congo: Real Effective Exchage Rates and Productivity, 2000-07
(Index, 200=100)



Source: Congolese authorities;and Fund staff estimates.

26. **Apart from the unit labor cost indicator and the related relative profits, all other indices point to an appreciation of the REER of at least 20 percent between 2000 and 2007.** While the variation across years is not identical, the upward trend is clear. A large part of this increase was, however, caused by a nominal effective appreciation of the CFAF to the currencies of the trading partners.

D. Real Effective Exchange Rate Equilibrium

27. **Although price competitiveness has suffered in recent years, the actual REER is not necessarily above its long-term equilibrium value**. Significant terms of trade shocks, especially from international oil prices, and productivity gains post conflict have shifted the REER equilibrium.

28. We estimate a behavioral equilibrium exchange rate (BEER) based on the Edwards (1989) dynamic model, which was augmented by adding the productivity variable to capture the Balassa-Samuelson effect. The equilibrium real exchange rate is defined as the relative price of tradables to nontradables associated with a simultaneous internal and external equilibrium. The variables in the model, which reflect Congo- specific factors and data availability, are described in Box 2. The data set consists of annual observations for 1969–2007.

29. The model is estimated using the Johansen (1988, 1995) multivariate cointegration procedure, which requires that the data be nonstationary in levels and be cointegrated. Individual time series evaluation and the unit root test indicate that all the variables are nonstationary and cointegrated.[14] The augmented Dickey-Fuller test detected one cointegrating vector.

Box 1. Fundamental Determinants of the Equilibrium Real Exchange Rate

Drawing from the vast literature on the equilibrium REER, the following fundamental variables were included in the estimation (expressed in natural logs):

- **Terms of trade (TOT),** defined as a ratio of the export to the import deflator. A positive TOT movement would have a positive effect on the trade balance and domestic demand, leading to REER appreciation.
- **Relative productivity (PROD),** defined as real GDP per capita relative to main trading partners. Relatively higher productivity growth (in the tradable sector) is expected to appreciate the REER through the Balassa –Samuelson effect.
- **Government spending (GCE),** defined as government consumption expenditure as a percent of GDP. The impact of government spending on the REER depends on the share of tradables in government spending. If the government spends relatively more on nontradables, an increase in consumption should lead to REER appreciation.
- **Money supply (BM),** defined as the ratio of broad money to GDP. Monetary expansion in excess of economic growth could increase inflation and appreciate the REER.
- **Openness (OPEN),** defined as the ratio of exports and imports of goods and services to GDP. A more open trade regime will tend to lower the domestic price of tradables.

[14] Normality tests for the two specifications indicate that the hypothesis of normality of the residuals is rejected. However, Paruolo (1997) shows that where normality is rejected due to excess kurtosis rather than skewedness, as here, the Johansen cointegration results are not affected.

30. The analysis confirms that there is a stable[15] long-run relationship between the REER and the fundamental variables. All the variables in the equation are statistically significant. The long-run REER is found to appreciate when the terms of trade improve, openness and government spending increase, and relative productivity rises. The coefficient on broad money bears an unexpected sign, suggesting that money growth above economic growth depreciates the REER[16]**.**

$$\ln(REER) = 0.13 \ln(TOT) + 0.14 \ln(OPEN) + 0.27 \ln(GCE) + 0.22 \ln(PROD) - 0.39 \ln(BM) + \varepsilon_t$$

where *ln* denotes the natural logarithm, and ε_t is the error term.

31. The next step is to decompose the fundamentals into permanent and transitory components. The permanent component, interpreted as the equilibrium value of fundamentals, is obtained by (i) filtering historical variables through the Hodrick-Prescott filter; and (ii) estimating out of the sample the values of fundamentals compatible with the permanent income hypothesis. The equilibrium REER is then obtained by fitting the permanent values of the fundamentals into the estimated coefficients. Deviation from equilibrium is derived as a difference between the actual and the equilibrium REER.

32. **The REER has fluctuated around the equilibrium in the past, with periods of over- and under-valuation.** The deviation from equilibrium was sometimes high. Undervaluation was typical of the post-conflict period (the early 2000s) as productivity growth picked up; overvaluation was higher in 1998 and 2003–2007. In recent years, this was due to an expansionary fiscal stance linked to the rise in oil prices—in 2007 the REER is found to be overvalued by about 7 percent.[17] The estimation is, however, sensitive to the period being studied and the choice of explanatory variables.[18]

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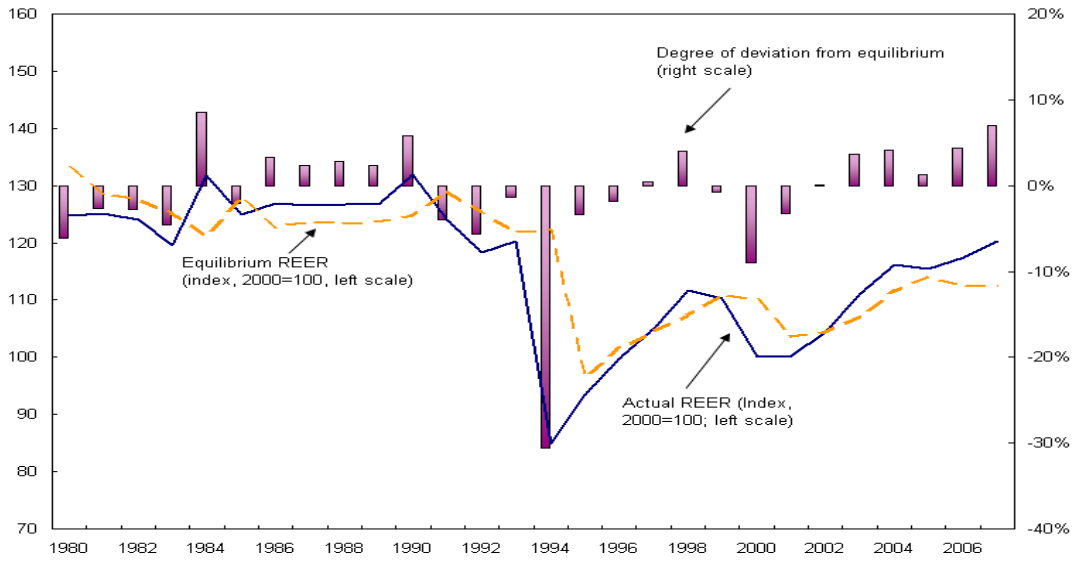
[15] The error correction term is negative and significantly different from zero, an indication that the REER follows a stable mean-reverting process. The short-run effects are mostly insignificant across the estimate. Only the term representing the devaluation is found to be significant and bears the expected negative sign.

[16] It is not clear whether changes in monetary policy have a long-run effect on the equilibrium rate.

[17] As reported in the CEMAC Staff Report on Common Policies of Member Countries (July 2008), the CEMAC REER does not appear to be fundamentally misaligned, despite continuous appreciation.

[18] Chudik and Mongardini (2007) have highlighted the weaknesses of single-country time series estimations for low-income countries. Based on the coefficients estimated from their model on a panel of 7 oil-exporting SSA countries, Congo's REER was overvalued in 2007 by 14 percent. However, the estimated country-specific long-run elasticity of real oil price for Congo is very small in this model, possibly understating the equilibrium value of the REER in recent years.

Figure 9. Republic of Congo: Actual and Equilibrium REER and Deviation from Equilibrium, 1980-2007



Source: IFS, and Fund staff estimates.

33. The forward-looking estimate, based on the fundamental variables derived from the permanent income hypothesis, suggests that over the medium term the equilibrium real exchange rate will decline because of fiscal consolidation and a projected terms of trade deterioration. This implies that Congo needs low and stable inflation if it is to keep its REER internationally competitive.

E. Structural Factors Influencing Competitiveness

34. **Infrastructure, human capital, technology, and institutions affect a country's productive efficiency and profitability, attractiveness to FDI, and private sector development more generally.** Collectively, they also weigh heavily on competitiveness:

- Through their impact on transportation, communication, and production costs, infrastructure and technology may influence competitiveness directly.
- High-quality human capital can enhance both productivity and output quality.
- Good institutions can help reduce transaction costs, among other things by reducing uncertainty. Poor governance is often linked to low tax collections, distortionary taxation, low private investment, and low and more volatile capital flows.[19]

35. **Infrastructure.** Transport infrastructure is particularly weak in Congo. Transportation between the two main cities suffers from frequent rail disruptions, and only 5 percent of the road network is paved (Table 5). Under such conditions it is not possible to develop commodity-based exports, which rely heavily on transport.

[19] Qureshi (2008) finds that the weakness on non-oil exports in oil-producing African countries is closely linked to the quality of their institutions.

36. **Human capital.** Although Congo has made gains in real GDP per capita, there are still large differences between population groups; most of its people live below the poverty line. The UN Human Development Index (HDI) ranks Congo 139th of 177 countries. Congo scores quite high on adult literacy compared with the SSA average at 84 percent, but school enrollment is low and life expectancy less than 50 years.[20]

37. **Information and technology**. World Bank Information, Communication and Technology indicators show Congo and the CEMAC region generally (except for Gabon for some indicators) as having limited access to technology. Internet costs are particularly high in CEMAC countries compared with the SSA region as a whole. However, although fixed telephone costs are very high, costs of mobile communication in Congo have fallen recently, with increased competition created by a third operator; an international call from Congo is as low as CFAF 150 per minute. But in general high cost, limited access, and poor quality of technological services raise production costs and inhibit efficiency, corroding Congo's competitiveness.

Table 1. CEMAC: ICT and Transport Infrastructure Indicators, 2004-06 [1]

	CMR	CAR	TCD	COG	GNQ	GAB	SSA
Access (per 1000 people)							
Telephone mainlines	6	2	1	4	2	3	17
Mobile phone subscribers	138	...	22	123	192	470	125
Internet users	20	30	6	19	16	62	29
Households with television (%)	26	5	4	7	26	56	14
Personal computers	11	29	16	5	19	35	15
Quality							
International Internet bandwidth (bits per person)	9	0	1	0	35	153	2
Affordability (US$ per month)							
Price basket: fixed line	9	...	17	...	...	32	14
Price basket: mobile	16	12	13	11	...	15	12
Price basket: Internet	18	100	...	65	10	39	45
Transportation							
Roads, paved (% of total roads)	10	...	1	5	...	10	15

[1] Latest available information.
CMR=Cameroon; CAR=Central African Republic; TCD=Chad, COG=Congo; GNQ=Equatoral Guinea; GAB=Gabon.
Source: ICT at a Glance Tables and WDI 2008.

38. **Institutions.** A number of indicators show that, despite recent government efforts, Congo's institutional development lags behind that of comparator countries, even in the CEMAC region, as does progress in building up institutions.[21]

- On the 2007 **Worldwide Governance Indicators,**[22] Congo scores below other CEMAC countries, especially on regulatory quality, the rule of law, and government effectiveness (Table 2 and Figure 1). The exception is voice and accountability, a dimension on which Congo has significantly improved in recent years. Advances have also been made in political stability—but control of corruption remains a challenge.

[20] http://hdr.undp.org/en/statistics/ .

[21] The poor governance record of CEMAC countries has been deteriorating; the CEMAC lags behind WAEMU, EAC, and SACU (Oliva and Moussa , 2007).

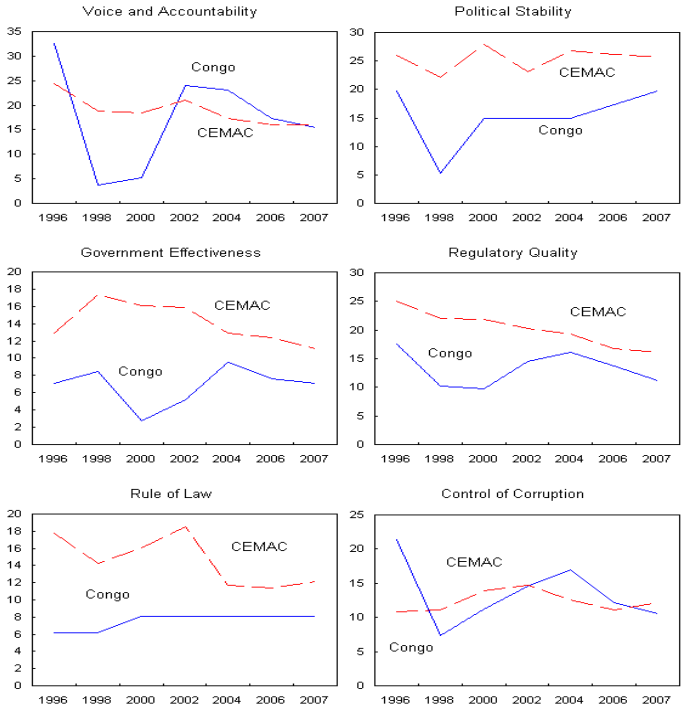
[22] Governance Matters, 2008, http://info.worldbank.org/governance/wgi/index.asp.

Table 2. Republic of Congo: Governance Scores, 1996-2007 [1]

	1996	1998	2000	2002	2004	2006	**2007**
Voice and Accountability	32.5	3.8	5.3	24.0	23.1	17.3	15.4
Political Stability	19.7	5.3	14.9	14.9	14.9	17.3	19.7
Government Effectiveness	7.1	8.5	2.8	5.2	9.5	7.6	7.1
Regulatory Quality	17.6	10.2	9.8	14.6	16.1	13.7	11.2
Rule of Law	6.2	6.2	8.1	8.1	8.1	8.1	8.1
Control of Corruption	21.4	7.3	11.2	14.6	17.0	12.1	10.6

Source: http://info.worldbank.org/governance/wgi2007/
[1] Percentile rank (0-100)

Figure 10. Republic of Congo: The Worldwide Governance Indicators, 1996-2007



Source: The World Bank (http://info.worldbank.org/governance/wgi/index.asp).

- The **Index of Economic Freedom**[23] shows Congo to be behind the rest of CEMAC and SSA, and progress has been slow. Particularly unfavorable, relative to other CEMAC countries, are property rights and financial freedom (Table 3 and Figure 11).

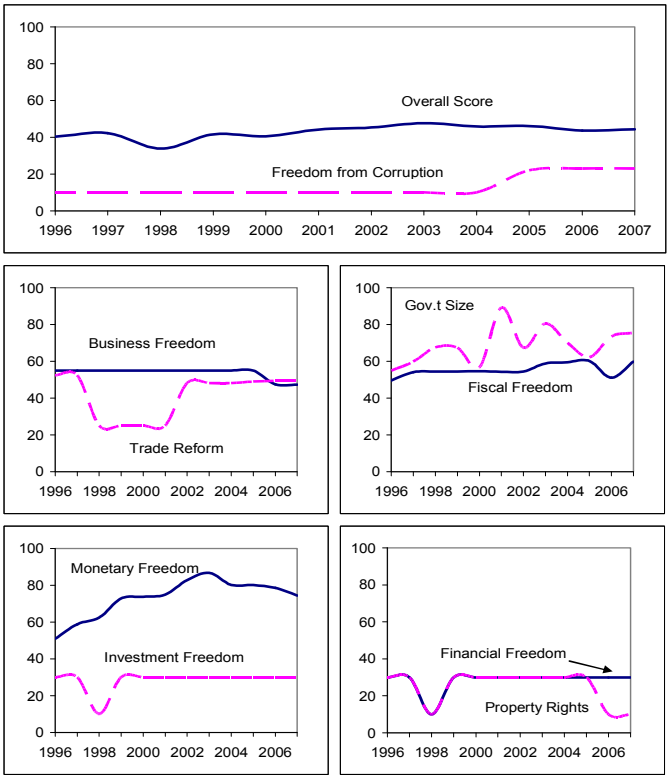
[23] Heritage Foundation, http://www.heritage.org/Index/.

Table 3. CEMAC: Index of Economic Freedom, 2008

Ranking	Country	2008 Score	Business Freedom	Trade Freedom	Fiscal Freedom	Gov't Size	Monetary Freedom	Investment Freedom	Financial Freedom	Property Rights	Freedom from Corruption	Labor Freedom
117	Cameroon	54.0	39.9	57.0	71.8	93.6	72.3	50	50	30	23	52.5
122	Gabon	53.6	52.8	56.4	61.7	85.6	74.6	40	40	40	30	54.6
129	Equatorial Guinea	52.5	47.1	52.2	75.4	82.0	81.1	30	50	30	21	56.2
141	Central African Republic	48.2	40.7	51.4	65.5	91.6	72.5	30	40	20	24	46.7
142	Chad	47.7	34.6	60.0	49.9	94.9	73.6	40	40	20	20	44.2
146	Congo, Republic of	45.2	45.3	54.6	60.1	83.1	73.0	30	30	10	22	44.0

Source: The Heritage Foundation, http://www.heritage.org/Index/

Figure 11. Republic of Congo: Index of Economic Freedom, 1996-2007



Source: The Heritage Foundation, http://www.heritage.org/Index/

- Similarly, the **Corruption Perception Index**[24] counts Congo among the worst performers. In 2007 Congo ranked 150th out of 179 countries, below Cameroon and Gabon and lower than in 2006. Perception of widespread corruption deters private entrepreneurship and non-oil sector development.

- Congo's ranking on the 2008 **Doing Business**[25] indicators worsened to 175th out of 178 countries. Although Congo scores very low in almost all categories, particularly

[24] Transparency International, http://www.transparency.org/policy_research/surveys_indices/cpi/2007.

[25] www.doingbusiness.org .

cumbersome and costly are procedures related to property registration, employment, trading, and taxation (Table 4). Bureaucratic and institutional hurdles create indirect costs of production that reduce the attractiveness of the non-oil economy to private initiative. A business-friendly legal and institutional environment is vital for diversification and for attracting FDI.

Table 4. Republic of Congo: Doing Business Indicators, 2007-08

Ease of...	2008	2007	Change in rank
Doing Business	175	173	-2
Starting a Business	154	141	-13
Dealing with Licences	67	66	-1
Employing Workers	167	167	0
Registerin Property	168	166	-2
Getting Credit	115	111	-4
Protecting Investors	147	147	0
Paying Taxes	176	176	0
Trading Across Borders	171	169	-2
Enforcing Contracts	156	156	0
Closing a Business	110	111	1
Number of economies: 178			

Source: http://doingbusiness.org

- The **financial sector** is currently unable to provide adequate support to the private sector or investment outlets for the population. Although in recent years they have respected prudential norms, banks are still very susceptible to risk. Concentration in the financial system is high by international standards, financial intermediation is limited, integration of banking markets is insufficient, and competition is low (Table 5).[26] Scarce and costly bank lending to the private sector in Congo increases the costs of capital for the non-oil economy. Financial deepening and more intermediation are needed for the private non-oil sector to flourish.

[26] For example, the ratio of private credit to GDP is only 2.1 percent (SSA average: 17.4 percent), and the share of the population with a formal bank account is less than 3 percent (regional average: 26.8 percent). The loan/deposit ratio is about 22 percent in Congo, 80 percent for WAEMU countries, and 48 percent for the CEMAC.

Table 5. Selected Financial Sector Indicators, 2006

	Number of Comm. Banks [1]	M2/GDP (percent)	Bank Assets/GDP (percent) [1]	Private Sector Credit/GDP (percent)	Central Government Credit/GDP (percent)	Population with Formal Bank Account (percent) [1]
Republic of Congo	**4**	**14.6**	**8.9**	**2.1**	**-6.5**	**2.7**
Averages for:						
Sub-Saharan African countries	30	33.6	67.4	17.4	3.8	26.8
Middle income	30	50.4	96.0	28.7	3.5	41.2
Low income	30	24.9	38.3	11.8	4.0	7.6
Oil-exporting countries	53	14.9	33.6	6.3	-4.8	7.1
Oil-importing countries	23	38.3	77.5	20.1	5.8	33.9
CFA countries	9	19.9	16.1	10.8	-1.8	3.9
Non-CFA countries	34	41.8	72.5	21.2	6.9	29.2

Source: IFS, and *Sub-Saharan Africa Regional Outlook* (May 2006).
[1] Data refer to 2004.

F. Conclusions

39. We undertook a comprehensive review of the Congo's competitiveness compared with its trading partners in the CEMAC region and SSA. The record is mixed:

Assessment of Overall Competitiveness

(-)	(+)
Non-oil exports	Oil exports
CPI-REER evolution	Reserve accumulation
Institutional record	Labor costs
Human capital and technology	
Equilibrium REER	

- In some areas competitiveness has held steady in recent years, among them oil exports and gains in oil market shares that have made possible a substantial accumulation of reserves; and a firm grip on wages that has kept increases in labor costs in line with productivity.

- In other areas external competitiveness has worsened: REER developments were unfavorable and structural deficiencies pervasive. In particular, there were problems with institutional and business environment indicators, human capital, and infrastructure. These outcomes are worrying for the competitiveness of non-oil activity because they undermine non-oil exports, the value-added of the non-oil sector, and the non-oil economy's attractiveness to FDI.

Reforms that should enhance competitiveness	
Institutions	Transparency and governance in the oil sector and in public investmant management to improve allocation of resources, enhance efficiency and decrease costs.
Financial sector	Comprehensive reforms to improve intermediation, increasses access to and lower cost of credit to the private sector.
Fiscal policy	Fiscal consolidation to ensure macro stability and generate savings for the future.
Price liberalization	Regular fuel price adjustmets to rationalize subsidies and improve targeting to enhance human capital.

40. **Structural reforms envisaged in the authorities economic program supported by the Fund and the enhanced HIPC Initiative[27] could generate major gains in competitiveness.** Given Congo's inadequate institutions, improvements in transparency and governance, and financial sector development should improve resource allocation, increase productivity, and lower costs. The non-oil sector could benefit substantially from these reforms. Government willingness to invest in basic infrastructure could also increase productivity and lower economy-wide costs.

41. Specific actions envisaged in the authorities' Poverty Reduction Strategy Paper[28] to accelerate non-oil private-sector-led growth and enhance competitiveness include:

- **Business climate**: simplify administrative procedures; apply the OHADA business laws (common to Francophone African countries); create a "one-stop" window for establishing a business; enhance governance and combat corruption.

- **Trade liberalization:** reduce the maximum common external tariff (from 30 to 20 percent) and tariff rates and harmonization of rules of origin; bring the customs code into line with international standards; fully implement the ASYCUDA system for customs clearance; and remove nuisance taxes and surcharges.

- **Financial intermediation:** adopt the financial sector strategy, drafted with Fund staff assistance; expand public access to banking services, lower the cost of credit. Better information on the cost of credit and credit history are priorities.

[27] The triggers for enhanced HIPC debt relief have also identified measures for improving governance in Congo. See http://www.imf.org/external/pubs/cat/longres.cfm?sk=19163.0 .

[28] The Poverty Reduction Strategy paper was submitted to the Executive Board in August 2008, along with the Joint Staff Advisory Note on the PRS.

- **Key sectors:** target interventions in key sectors, particularly agriculture, manufacturing, mining, and forestry through investment and technological transfer; encourage exploration and investment in minerals; and lay the foundations for manufacturing.

- **Human capital**: regular adjustments of domestic fuel prices to decrease generalized subsidies, free space for more expenditure for and improved targeting of the poor to achieve MGDs faster and build human capital.

42. **It is important, that, along the way, economic policies support competitiveness through fiscal consolidation**. Lower non-oil deficits should ensure higher savings, allowing to support the common exchange rate, but also to maintain and improve the living standards of future generations.

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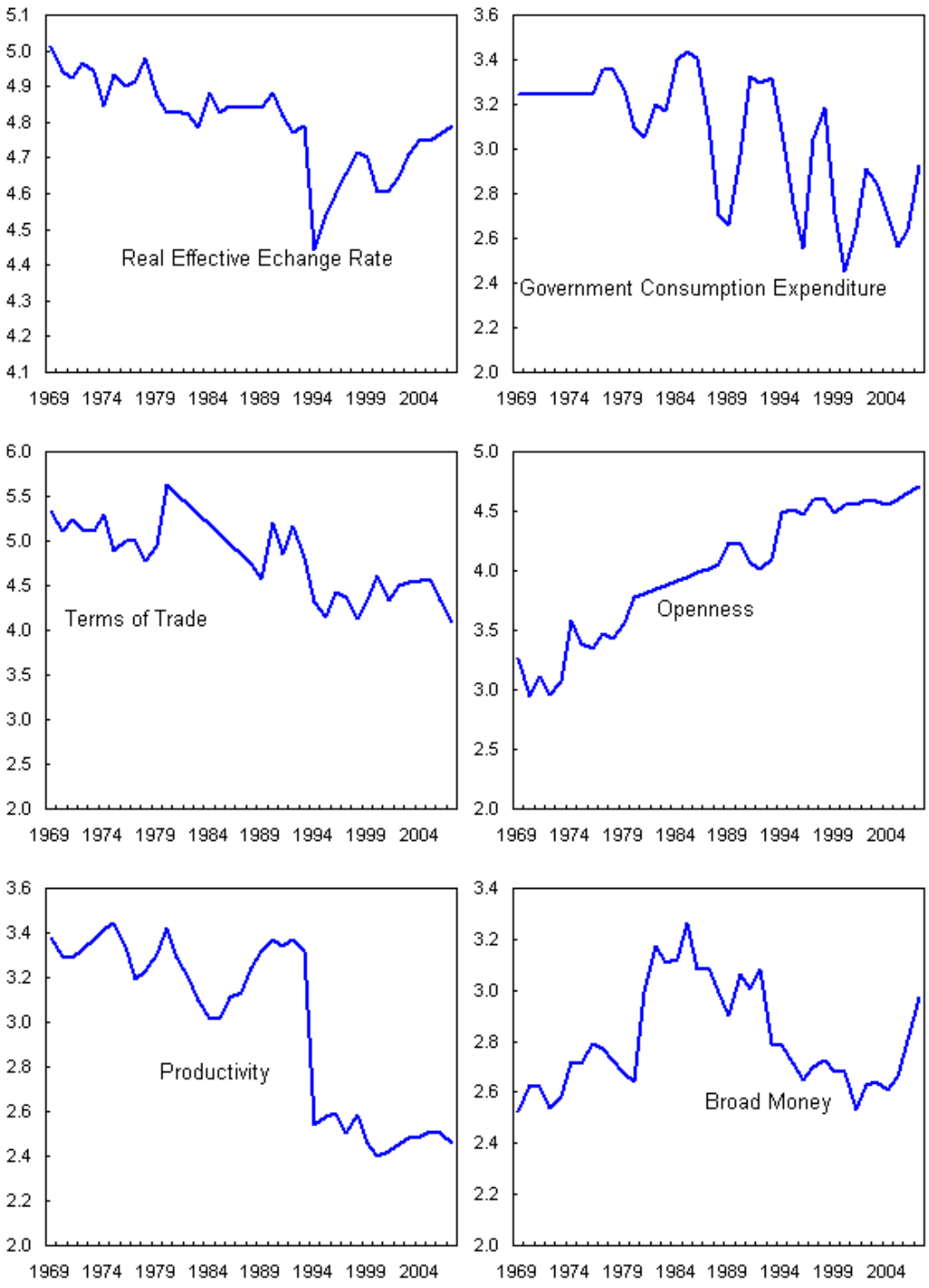
Appendix I

Figure 1. Republic of Congo: REER and Fundamental Determinants, 1969-2007 [1]



Source: WEO; and Fund staff estimates.

[1] All sreries are expressed in natural logarithms.

Table 1. ADF Statistics Unit Root Test

Variables	t-ADF	p-value
Log Levels		
REER	-2.344	[0.164]
GCE	-1.726	[0.410]
PROD	-0.922	[0.770]
TOT	-1.770	[0.389]
OPEN	-0.857	[0.627]
BM	-1.967	[0.300]
First differences		
REER	-7.283	[0.000]
GCE	-7.215	[0.005]
PROD	-5.682	[0.000]
TOT	-7.302	[0.000]
OPEN	-5.962	[0.000]
BM	-5.883	[0.000]

Table 2. Misspecification Tests
(Chi-squared test statistics)

A. VEC Test for Skewness, Kurtosis and Normality of residuals [1, 2]

	Degr. of freedom	Statistic	Probability
Skewness	6	6.159	0.406
Kurtosis	6	24.861	0.000
Normality	12	31.020	0.002

[1] The null hypothesis is that of residuals with no skeweness, no kurtosis and normal.

[2] Ortogonalization is based on Cholesky (Lutkepohl) test; skewness and kurtosis is based on joint chi-square test; normality is based on joint Jarque-Bera test.

B. VAR Residual Serial Correlation LM Tests [1]
(Chi-squared test statistic)

Lags	LM-Stat	Prob
1	31.8	0.671
2	43.1	0.192
3	25.6	0.901
4	46.0	0.122
5	34.1	0.560

[1] The null hypothesis is that of no serial correlation at lag order h.

C. VEC Lag Exclusion Wald Test [1, 2]

Lag1	171.147 [0.000]
Lag2	172.694 [0.000]
degr. of freedom	36

[1] The null hypothesis is that the coefficients of the lags

[2] Numbers in [ ] are probabilities

Table 3. Test Statistics for the Cointegrating Rank [1]

Null	Alt	Trace statistic	Null	Alt	λmax statistic
r=0*	r≥1	125.327	r=0*	r=1	64.570
r≤1	r≥2	60.730	r=1	r=2	24.125
r≤2	r≥3	36.605	r=2	r=3	15.483
r≤3	r≥4	21.123	r=3	r=4	11.491
r≤4	r≥5	9.631	r=4	r=5	9.579
r≤5	r≥6	0.052	r=5	r=6	0.052

[1] The unrestricted VAR was estimated with 2 lags following the results from the Wald test.
* denotes rejection of the null hypothesis and 5 percent significance level.

Table 4. Selected Results of the VECM

Cointegrating Equation:	CointEq	t-statistics
LREER	1.000	
LGCE	0.275	[-3.304]
LPROD	0.218	[-4.275]
LTOT	0.129	[-2.231]
LOPEN	0.146	[-2.227]
LBM	-0.387	[4.242]
C	3.202	[-6.479]
Estimate of the speed of adjustment of the REER		
CointEq1	-0.400	[-2.523]
Estimate of the CFAF devaluation effect		
DUM94	-0.426	[-6.927]
R-squared	0.804	
Sum sq. resids	0.047	
S.E. equation	0.047	
F-statistic	5.465	