

II The Recent Oil Boom

This section provides an overview of the fiscal policy responses of oil-producing countries to the oil boom through 2005.¹ Although the analysis focuses on broad trends, the significant diversity of the oil-producing countries in the sample should be borne in mind. In particular, country-specific factors that show great differentiation among oil-producing countries include level of development, institutional capacity, macroeconomic situation, fiscal dependence on oil revenue, public debt and liquidity positions, and the stock and expected duration of oil reserves in the ground. Box 1 compares developments under the recent oil boom with the oil shocks in the 1970s.

Fiscal Policy Responses to the Recent Oil Boom Through 2005

The current oil boom is defined to have started in 2000. Following a sharp decline in 1998 and a recovery in 1999, oil prices increased by more than 50 percent in 2000 and broadly stabilized at that level in 2001–03.² Oil prices accelerated again in 2004–05, reaching US\$53 per barrel on average in 2005, their highest level in real terms since 1984.

On average, through 2005 governments used close to half of the additional fiscal oil revenue in the form of higher non-oil primary spending and/or lower non-oil primary revenue.³ These rates are measured on the basis of the cumulative increase in non-oil primary deficits in 2000–05 relative to the cumulative change in fiscal oil revenue (or in the fiscal oil balance in those countries with public sector coverage in the fiscal accounts) in the same period (Figure 2.1). The average non-oil primary fiscal deficit increased from 26 percent

of non-oil GDP in 1999 to 37½ percent of non-oil GDP in 2005.⁴ Additional oil revenues not spent were used in part to lower debt stocks and accumulate financial assets. However, the size of the oil boom and the fiscal response varied substantially across countries.

Oil-producing countries turned overall fiscal deficits in the late 1990s into growing fiscal surpluses. The average overall balance changed from a deficit of 3½ percent of GDP in 1999 to a surplus of 12 percent of GDP in 2005. The variance across countries, however, was significant.

The increase in total government spending in real terms averaged about 12 percent a year during 2000–05, with capital spending growing faster than current spending. The average rate of growth of primary current spending in real terms accelerated from about 3½ percent a year during 1992–99 to 12 percent a year during 2000–05. Capital spending increased on average by about 19½ percent a year in real terms during 2000–05. The average ratio of capital spending to non-oil GDP surged from 8 percent in 1999 to 14½ percent in 2005 (Figure 2.2, panel B, and Appendix I).⁵ Interest payments, on the other hand, declined in a number of countries as gross public debts were reduced.

The acceleration in spending was stronger in the last few years of the period under consideration, with more than 50 percent of the additional spending in 2000–05 occurring during 2004–05 (see Appendix I). This followed the large increase in oil revenue in the last two years of that period and might have been attributable in part to growing perceptions of a long-lasting increase in oil prices. It might also reflect the time required to design and begin the execution of new capital projects. In addition, although average primary government spending substantially increased between 1999 and 2005, there were large differences across countries. For instance, increases in spending as a share of non-oil GDP exceeded the increase in oil revenues in Indonesia, Sudan, and the Syrian Arab Republic. In contrast, expenditure as a share of non-oil GDP declined in Cameroon, the Republic of Congo, Gabon, Kuwait, and the United

¹Throughout the paper, the term “oil” is used as substitute for the more encompassing terms “hydrocarbon” or “petroleum,” because gas is also an important resource in several countries.

²Crude oil prices are computed as the simple average of three spot prices (Brent, West Texas Intermediate, and Dubai) and deflated by the U.S. consumer price index. The coefficient of variation fell from 0.6 in 1970–85 to 0.2 in 1986–99.

³The quantitative analysis of fiscal developments focuses on the central or general government for most countries in the sample, and on the public sector for Ecuador, Mexico, and Venezuela.

⁴Non-oil primary revenue increased on average by about 1 percentage point of non-oil GDP during the period.

⁵Excluding Angola and Equatorial Guinea.

Box I. The Recent Oil Boom and Previous Oil Shocks

The increase in oil prices in the oil boom up to 2005 was smaller and more gradual than in the 1970s. In real terms, prices expanded by more than 400 percent between 1973 and 1981 (an increase of US\$59 per barrel at 2005 U.S. dollars) compared to 150 percent (an increase of US\$32 per barrel) between 1999 and 2005. The increase in prices up to 2005 was more gradual than in the 1970s (figure). This can be partly explained by the presence of synchronized global growth and sustained increases in the demand for oil, in contrast to the supply-side shocks of the 1970s.

The fiscal revenue impact of the oil boom from 1999 to 2005, however, was comparable to the 1970s. The average change in fiscal revenue in real terms relative to expenditure and revenue levels just before the oil price increases was similar in both periods.¹ Several factors explain this development:

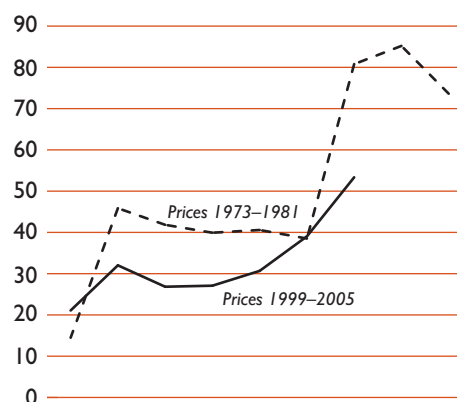
- The 1999–2005 oil boom was accompanied by increases in oil production.
- As a result of sharp downward real exchange rate adjustments that started in the mid-1980s following the collapse of oil prices, real exchange rates in oil-producing countries were more depreciated in the late 1990s than at the outset of the 1970s shock. Thus, the domestic purchasing power of a given level of fiscal oil revenue in U.S. dollar terms was higher at the outset of the current boom than at the outset of the 1970s episode.
- The currencies of oil-producing countries appreciated more in real terms in the 1970s than in the current boom, which more rapidly eroded the domestic purchasing power of higher oil prices.²

The evolution of overall fiscal positions differed in both periods. In contrast to the period 2000–05, in the 1970s the average overall fiscal position barely improved during the windfall from a better starting point (table).

The more gradual fiscal use of the additional oil revenue in the oil boom through 2005 may be partly related to the different evolution of spot oil prices and oil price expectations during the two booms (see Figure 3 in the text). First, oil prices increased more gradually during the current boom. Second, in the 1970s and early 1980s observers generally expected rising oil prices in the medium term. In the current boom, in contrast, futures markets generally remained in backwardation until early 2005. Since then, futures market expectations about tight

Real Oil Prices

(US\$ per barrel at 2005 prices)¹



Source: IMF, *World Economic Outlook*.

¹IMF *World Economic Outlook* oil prices deflated by the U.S. consumer price index.

crude oil markets going forward firmed up, and futures prices switched to contango or at least to medium-term prices similar to current price levels.

Fiscal Impact of the Current and Previous Oil Booms

Years	Change in Expenditure Relative to Change in Total Revenue (Percent)	Average Annual Change in Real Expenditure (Percent)	Average Annual Inflation Rate (Percent)	Average Overall Fiscal Balance in Percent of GDP
1974–81	92.6	9.7	14.7	2.3
1974–76	117.7	15.6	16.9	2.3
1979–81	72.4	11.0	13.2	4.1
2000–05	55.4	12.4	5.9	4.8
2000–02	46.3	12.1	6.3	2.4
2004–05	67.7	12.7	5.7	9.8

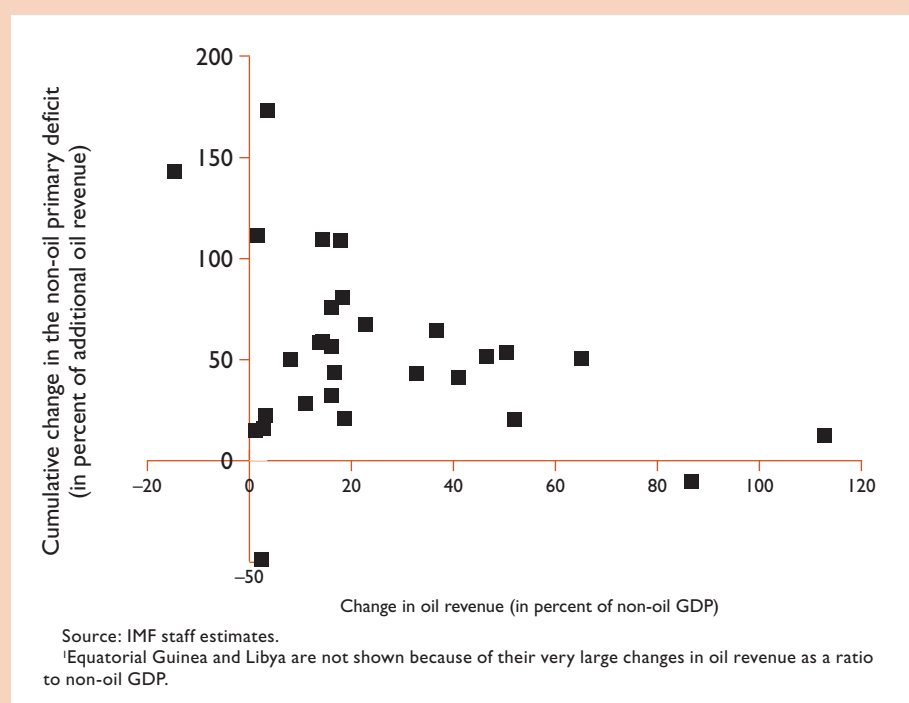
Source: IMF staff estimates.

Angola is excluded from the calculation of average charges in inflation rates during this decade.

¹A ratio of 1.4 in 1974–81 compared to 1.8 in 2000–05.

²Larger appreciations were associated with high inflation and mostly stable nominal exchange rates in many oil-producing countries in the 1970s. In the current boom, average inflation has been lower, though with a large variance. On the other hand, if oil-producing countries' oil exports are deflated by a trade-weighted Group of Seven countries (G-7) non-oil export price, the current oil boom would be larger in absolute terms than the one in the 1970s (IMF, 2006). This trend partly explains the sharp reversal in external current account balances in the 1970s.

Figure 2.1. Cumulative Change in the Non-Oil Primary Deficit Relative to Additional Oil Revenue, 2000-05¹



Arab Emirates. Spending patterns varied significantly between lower- and higher-income oil-producing countries. Whereas on average the increase in total spending accounted for 27 percent of the increase in oil revenue in higher-income countries, this increase was as high as 40 percent in lower-income countries.

Government Effectiveness, Sustainability, and Vulnerability Issues

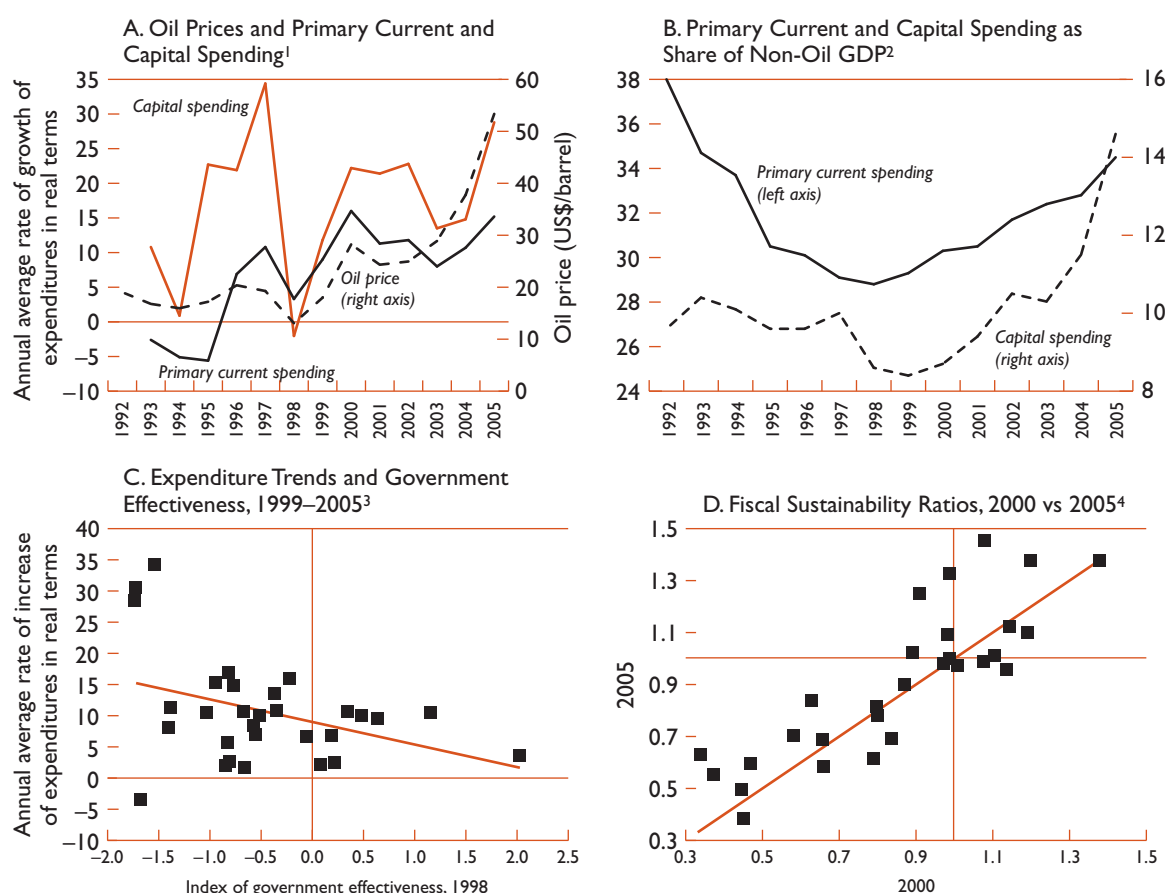
Higher oil revenues, and the prospect that a significant portion of the rise in oil prices may be long-lasting, provided oil-producing countries an opportunity to increase public spending on priority economic and social goals and/or reduce taxes. For countries with relatively strong financial positions, a sustainable fiscal position (taking into account oil reserves in the ground and net public financial assets), and a reasonable capacity to identify and implement good spending programs, a gradual increase in the non-oil fiscal deficit may be an appropriate response to higher oil revenues, provided it does not lead to excessive demand pressures.

The quality of government institutions and public financial management is critical for the effectiveness of

scaling up public spending. In this connection, although expenditures increased in almost all oil-producing countries in recent years, many countries that saw a rapid increase in spending are characterized by low indices of government effectiveness. This may raise questions about certain countries' ability to use the additional resources effectively. The analysis suggests an inverse relationship between spending growth and government effectiveness (Figure 2.2, panel C).⁶ Institutional capacity—which includes the collection of laws, organizations, and behaviors that define the way fiscal policy is determined, managed, and governed—is positively correlated with the countries' level of income (with a correlation coefficient of 0.8). Thus, countries that arguably have more urgent needs and spending pressures tend to be those where the quality of spending may be most affected by institutional weaknesses. This poses trade-offs between pressing developmental needs on the one hand, and the institutional ability to address them effectively and efficiently on the other. Indications of a significant acceleration of

⁶The government effectiveness indicator, developed by Kaufmann, Kraay, and Mastruzzi (2005), was used as a proxy of spending quality. The indicator is measured in units ranging from -2.5 to 2.5, with higher values corresponding to better effectiveness outcomes.

Figure 2.2. Expenditure Growth and Sustainability Analysis



Source: IMF staff estimates.

¹Excludes Angola.

²Excludes Angola and Equatorial Guinea.

³Excludes Timor-Leste.

⁴The sustainability ratios are computed as the ratio of sustainable primary expenditure relative to actual primary expenditure. In the chart, countries with a value lower than 1 would have to adjust to reach the sustainable benchmark. Countries that are above the 45-degree line improved their fiscal sustainability position between 2000 and 2005. The analysis excluded Chad and Timor-Leste.

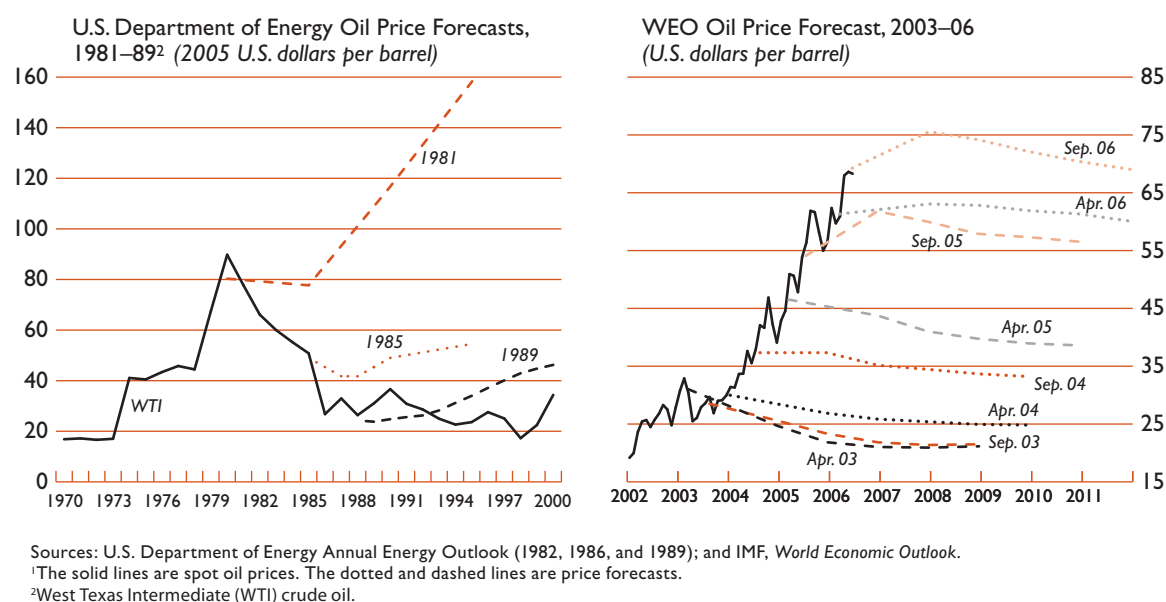
spending in some oil-producing countries in 2006–07 make this issue more pressing.

To analyze trends in the long-term sustainability of fiscal policy in oil-producing countries during the period through 2005, the actual fiscal position was compared to a “sustainable fiscal benchmark” calculated for each country in the sample. The sustainable fiscal benchmark is defined as the (permanent) annual non-oil primary deficit derived from government net wealth, which is the present value of projected future oil revenues plus the value of net government financial assets. This exercise, based on a permanent income hypothesis model,

assesses whether the fiscal position at a specific point in time could be sustained indefinitely given that fiscal oil wealth is finite (Appendix II describes the methodology in greater detail and provides a discussion of some of the issues not addressed by this approach).

Sustainable fiscal benchmarks were calculated for 2000 and 2005.⁷ Some countries recorded substantial improvements, but the average increase in sustainabil-

⁷Proven reserves and actual oil prices prevalent in those years were used in the exercise.

Figure 2.3. Oil Price Projections¹

ity between those years was limited, and a number of countries were running unsustainable fiscal policies compared to the sustainability benchmark (Figure 2.2, panel D).⁸ Even some countries that saved a significant share of the additional oil revenue experienced a deteriorating sustainability position. The key explanation is that several countries had an expansion in the non-oil primary deficit that was larger than the change in the long-term sustainable non-oil primary deficit associated with the changes in government net wealth.⁹

These results are subject to some caveats. First, any estimate of the permanently sustainable non-oil primary deficit is subject to considerable uncertainty, including uncertainties about oil reserves and future oil prices. This implies that the benchmark results should be updated regularly with the availability of new information. Second, the quality of government spending, including public

investment, can have effects on growth, fiscal revenues, and thus on fiscal sustainability, which are not captured in the exercise. In particular, public investment could stimulate growth, yield returns to the government, and improve sustainability, provided that the investment is of high quality and governments are able to reap sufficient fiscal dividends from the additional growth to cover the costs of the investment. The relationship between public investment and growth is difficult to model and generalize, and should be looked at on a country-by-country basis, partly because major determinants of growth are connected to the quality of policies, institutions, and decision making, and the management of exogenous shocks.¹⁰

Oil price fluctuations may expose some oil-producing countries to the need for significant adjustments. Fiscal policy decisions should take into account the vulnerability of oil-producing countries to cash flow shocks. There is ample evidence that oil prices exhibit significant volatility in the short run and large fluctuations over the medium term.¹¹ Moreover, market forecasts have often been wrong in the past (Figure 2.3). In a number of oil-producing countries, the fiscal stance and sustainability position in 2005 were comfortable, and

⁸The sustainability ratios are computed as the ratio of the implied sustainable expenditure relative to actual expenditure; that is, countries with a value lower than 1 would have to adjust to reach the sustainable benchmark. In Figure 2, countries that are above the 45 degree line improved their fiscal sustainability position between 2000 and 2005.

⁹In addition, the appreciation of the currencies in real terms of a number of oil-producing countries reduced the domestic purchasing power of higher international oil prices, and growth in the non-oil sector reduced the relative size of the increase in oil wealth relative to non-oil GDP.

¹⁰See IMF (2004, 2005) and IMF and World Bank (2006).

¹¹According to Cashin, Liang, and McDermott (1999), there is a one-in-three chance of a monthly oil price change greater than 8 percent. The average annual oil price change in 1970–2005 was 27 percent.

many of them accumulated substantial public financial assets and/or reduced their liabilities in recent years. Others, however, were exposed to the possible need for large fiscal adjustments. If the oil price in 2005 had been one standard deviation lower, the average overall fiscal balance of oil-producing countries in the sample would have been nearly 10 percentage points of GDP

lower, and about half the countries in the sample would have recorded overall fiscal deficits.¹²

¹²These estimates refer to the first-round effects and do not allow for policy responses. They also assume local linearity between oil export revenues and fiscal oil revenues, as well as between oil prices and oil GDP.