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Fiscal Policy Formulation

A. Background Discussion

While it may not be possible to identify an “optimal” fiscal policy for oil countries in general, the discussions in the previous section provide important issues for consideration by policymakers. In this section, we present some operational issues to help in the design of schemes for the use of oil revenue. This subsection presents (1) the case for a rule-based fiscal policy and (2) possible fiscal rules, including two “extremes” to be used as guideposts for the possible range of expenditure profiles.

Rule-based fiscal policy

The boom-bust cycles in oil-producing countries mentioned earlier have been at least partially caused by erratic fiscal policies that depended strongly on current oil price developments. Instead, a rule-based stabilization policy would have aimed at insulating the economy from the short-term volatility of oil prices and revenues. Such a rule-based fiscal policy would attempt to define a fiscal stance for a given, medium-term projection of oil prices and revenues. Budgets would be formulated within a medium-term framework. Oil price and revenue outturns would lead to changes in the net foreign assets position of the government. While fiscal policy rules by themselves may not necessarily guarantee stability, they do provide an anchor for policymakers and make it harder to pursue erratic policies in response to oil price shocks.

Government oil revenue and the expenditure it finances need to be integrated into the normal budgetary procedures. They then augment general government resources, as indicated by a larger overall fiscal surplus or deficit. Nevertheless, an operationally attractive tool for fiscal planners is the primary non-oil balance, defined as the overall balance of fiscal operations minus oil revenue and net

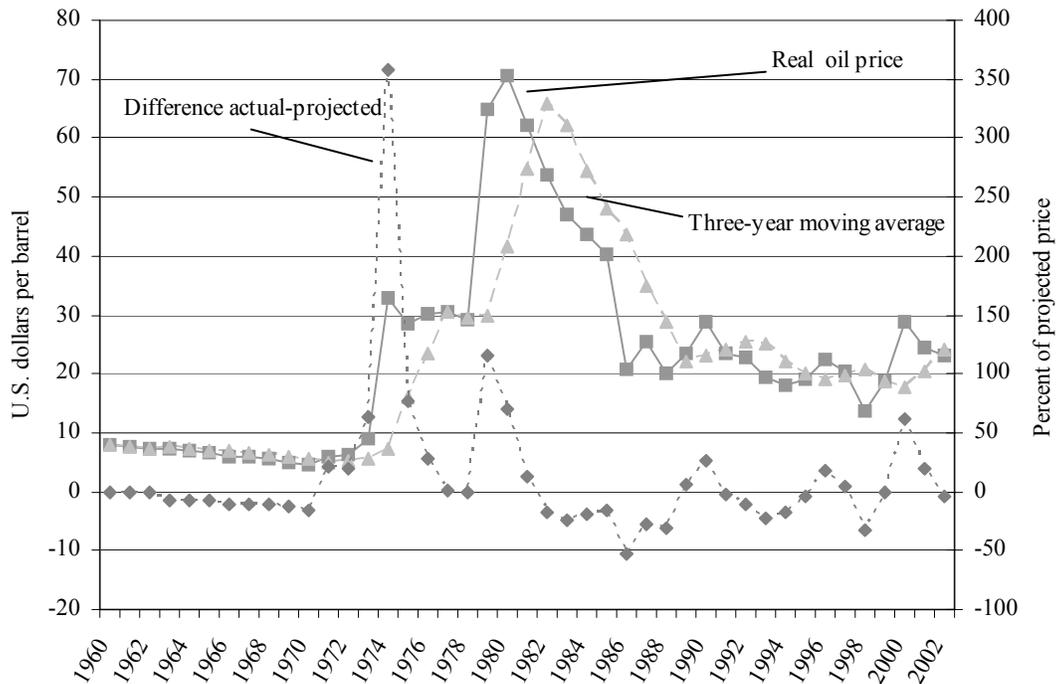
interest income, and excluding foreign-financed investment.¹² The primary non-oil balance provides a useful indicator for measuring the direction and sustainability of fiscal policy. The overall fiscal balance depends strongly on developments in the oil sector, as its position will be comfortable when prices are (temporarily) high and provoke calls for fiscal retrenchment when prices are low. If only oil revenue is subtracted from the overall balance, the resulting non-oil balance reflects income from the net foreign assets of the government (debt service and interest on reserves). The use of the primary non-oil balance allows the targeting of a stable fiscal policy in line with general economic developments, and in most circumstances the primary non-oil balance will be negative to the extent that current oil revenue is used to finance expenditure. The primary non-oil balance makes apparent an increase in budgetary outlays in times of (temporarily) high oil prices, which can be difficult to reverse. In addition, this balance draws attention to the development of non-oil GDP and the associated taxable base. This focus on the non-oil economy supports the objective of diversifying the economy away from the oil sector.

A fiscal policy rule could be formulated on the basis of projected oil prices. In the budgeting process, that is, *ex ante*, a certain non-oil primary deficit would be targeted for the projected price, for example, US\$20 per barrel, implying a certain overall budget balance; this balance would be positive if policymakers decided to aim to save part of the oil revenue. Any revenue above or below this reference price would increase or decrease the targeted stock of financial assets *ex post*, while leaving fiscal spending at the predetermined level. This price rule has obvious political advantages, as it is easily understood and the outcome is readily observable. Revenue changes stemming from factors other than international prices—for example, production increases due to new discoveries—could easily be built into any fiscal program.

The question is how to forecast oil prices during budgeting in order to draw up spending plans for projected oil revenue. As mentioned earlier, oil price developments can be described as a random walk. This means that frequent revisions of the oil price projections would be necessary. To underline the extent of the difficulties involved, we show in Figure 7 real oil prices over the last 40 years. (The U.S. GDP deflator is used to calculate real prices.) The very large swings in prices between the two oil crises (1973 and 1979) and the subsequent fall in prices in 1986 mask the considerable volatility during more “normal” times. Budgetary projections of oil revenue based on the average oil price of previous years were spectacularly wrong in a number of years. Use of the medium-term price-based rule therefore poses a dilemma: on the one hand, it demands that budgets be based on an oil price projection that remains fixed for

¹²This section draws heavily on Barnett and Ossowski (2002).

Figure 7. Oil Prices and Projections Based on Moving Averages, 1960–2002



Sources: Country authorities; and IMF staff estimates.

some time; on the other hand, frequent revisions to the price projection may be necessary because of the large swings in oil prices observed in the past. Therefore, the risk of a prolonged oil price slump strengthens the case for using a fiscal rule with a pro-saving bias (the precautionary savings motive discussed in Section 3). Ideally, the country should first build up a cushion of reserves, and the price-based fiscal rule should be supplemented by a set of contingency measures that would be activated in exceptionally adverse circumstances.

Possible fiscal rules

Within this rule-based approach, a continuum of possibilities exists for the choice of fiscal stance at given oil prices. Two “extreme” solutions frame the range of options, while a third lies in between. The first extreme option is that

policymakers prepare a budget that is designed to spend all projected oil revenue, with no saving foreseen. The second extreme alternative is that policymakers decide to save all current oil revenue and spend only the real projected return on assets accumulated in previous years; that is, they cautiously think that “a bird in the hand is worth two in the bush” in the highly uncertain world of the oil market. The third, more moderate option may appeal most to the theory purists: set the level of fiscal spending equal to permanent per capita income. We present the three options in order of the fiscal spending they imply—the first extreme option, the moderate option, and the second extreme option—and give numerical examples.

Going on a binge

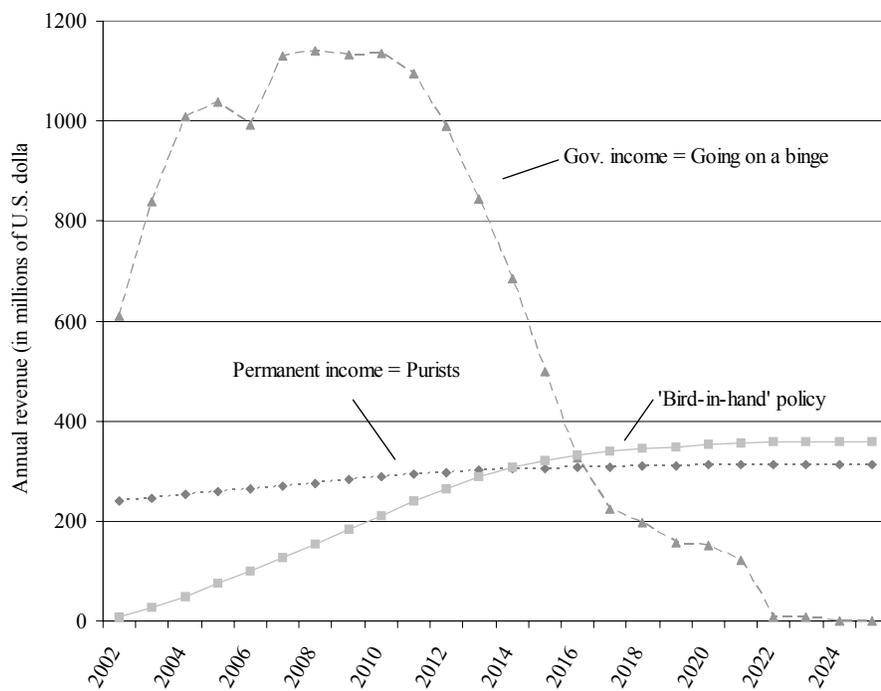
Under the first extreme option, which we call “going on a binge,” a country would adopt a rule that calls for balanced budgets over the next three to five years at the given oil revenue projection. To balance the budget, the overall balance is targeted at zero, the non-oil balance is negative by the amount of oil revenue, and the primary non-oil balance differs from the non-oil balance by the amount of net income from foreign assets (or debt service). This may be the best option for countries like Cameroon, where there is a significant non-oil economy, oil revenue–financed spending has become entrenched, and oil production is stable or declining.

Purist

Oil receipts can be regarded as the proceeds from the sale of a natural asset, rather than as current revenue. Under the moderate option, which we call the “purist” option, fiscal policy should aim at preserving the government’s net worth, which is the net present value of future flows of revenues and debt payments. In order to maintain net worth and to safeguard fiscal sustainability, it is necessary to build income-generating assets from oil revenue or reduce outstanding debt, instead of using it to finance current expenditure.

One way of operationalizing the sustainability requirement based on net worth is by calculating permanent (annual) income from oil reserves. This is the maximum amount that can be treated as current revenue each year—hence, the amount that could be used to finance public spending. In principle, permanent income can be calculated by summing up the estimated government revenue from oil production over the lifetime of the reserves, appropriately discounted to arrive at the present value of oil reserves, and then calculating a permanent income stream that would represent the same net present value. A country’s fiscal policy would be considered sustainable provided its non-oil fiscal deficits did not exceed its permanent oil income.

Figure 8. Alternative Fiscal Rules, 2002–25



Sources: Country authorities; and IMF staff estimates.

To illustrate the concepts, we present below data for government oil revenue from a small number of oil fields in the early years of development (similar to the existing oil sector in Equatorial Guinea). Figure 8 compares the three fiscal policy rules discussed here. The first series, “going on a binge,” shows current government revenue based on standard production-sharing contracts and World Economic Outlook (WEO) oil price projections.¹³ Oil revenue in 2002 reaches around \$600 million. The figure shows the fast rise of revenue to more than \$1,100 million in 2011 and the decline that will result if no major new discoveries are made, with abandonment of the last remaining well in 2025. The first policy option described above would aim to predict revenue each year and spend it. For a small country such as Equatorial Guinea, this is a binge indeed, as spending in the peak revenue year would equal about \$1,500 per capita.

¹³WEO projections reach only until 2007. From then on, prices are assumed to increase by 2 percent a year.

The second series shows budgetary spending based on the permanent income equivalent of the net present value of future oil revenue (constant in per capita terms under the assumption that population grows by 2.5 percent per year initially and stabilizes around 2020). This is the “purist” option. If the net present value of future oil revenue were put into an investment account in 2002, the interest from the deposit would allow fiscal spending starting at \$230 million in 2002, which would then rise before stabilizing at more than \$300 million. The permanent income equivalent of government revenue projected from current proven reserves is about \$530 per capita. However, as discussed earlier, changes in the reserve estimates, the price projections, or the assumed rate of return on the portfolio would change the permanent income equivalent.

Bird in hand

The second “extreme” option for a fiscal policy rule, the “bird-in-hand” approach, describes a cautionary fiscal policy aimed at building income-generating assets and limiting consumption to the income actually generated. The amount of revenue available for consumption purposes the following year would be determined as the projected return on assets accumulated in an FFG by the end of the current year.¹⁴ The overall balance would be highly positive during most of the lifetime of oil reserves, the non-oil balance would be targeted at zero, and the primary non-oil balance would be negative by the projected amount of net income from foreign assets (i.e., interest on assets accumulated in the FFG in previous years minus debt service). If assets are held in a well-diversified portfolio, returns will be much less volatile than the oil price. In addition, this fiscal rule does not require long-term projections based on “heroic” assumptions.

The third series in Figure 8 shows this “bird-in-hand” alternative. It assumes that oil revenue of about \$600 million is paid into the FFG in 2002. Interest earnings rise fast with the buildup of deposits in the FFG until they stabilize at about \$380 million at the end of the oil era. The growth rate of interest earnings reaches 20 percent per year on average during the first ten years; interest income grows to about \$100 million in the first five years. If this rise in income were matched by a rise in fiscal expenditure, spending would probably overwhelm the country’s absorptive capacity during the first decade.¹⁵

¹⁴This is the fiscal rule followed by Norway (see Box 1).

¹⁵Actual spending in the 2002 budget is \$140 million.

Box 1. Fiscal Policy in Natural Resource–Based Countries

Diamonds and fiscal policy in Botswana

Fiscal surpluses enabled the government to accumulate large balances with the Bank of Botswana. The revenues from the mineral sector consist of a royalty (10 percent of gross sales), company income tax (25 percent of profits), and dividends. These revenues have been earmarked for development purposes, while recurrent expenditures are financed from revenues not related to the diamond industry. In addition, the income from foreign assets has enabled Botswana to cope adequately with internal economic shocks during 2001–02: a cyclical downturn in the diamond market; a large depreciation of the South African rand, which weakened the competitiveness of Botswana’s manufacturing sector; unusual weather conditions; and a regional food shortage.

Oil and fiscal policy in Kuwait

In 1960, the authorities created the General Reserve Fund (GRF), financed by rising budget surpluses; no accumulation rules for the GRF were defined. In 1976, formalizing the policy of reserve accumulation, the authorities established the Reserve Fund for Future Generations (RFFG) with the objective of providing a stream of income once oil production declined. The RFFG consisted initially of half of the GRF’s resources, augmented annually with 10 percent of total (oil and non-oil) revenues. On the whole, these funds have been supported by relatively prudent fiscal policies— conservative oil price assumptions and a restraint on expenditures. Almost all of the RFFG assets are held abroad.

Oil and fiscal policy in Norway

Norway has been able to enjoy substantial fiscal surpluses with the rise of its oil production and exports since 1975. The oil wealth is managed through the State Petroleum Fund (SPF) established in 1990. The purpose is to preserve national wealth for future generations in sufficient amounts for each individual to inherit at least as large an amount as that of the present generation. All of the government’s net income from oil is fed into the SPF, from which an annual transfer is made to the treasury to meet the non-oil deficit in the budget. The non-oil deficit is limited by law to the projected income from the assets in the SPF.

Other oil-producing areas

Alaska deposits 25 percent of oil revenue in savings funds irrespective of oil market developments, and the assets in the fund can be used only following a change to the constitution voted by the Alaskan population. Kazakhstan deposits revenue in excess of the budget reference price into the mineral fund; revenue shortfalls are compensated by transfers from the fund. Oman also has rules in place to deposit oil revenue in excess of the reference price into different funds, but recently has not always followed the rules and has accumulated little. Azerbaijan set up a savings fund to receive revenue from new oil fields, which are expected to increase massively over the next few years. Venezuela has had a mixed experience with its stabilization fund. The initial rules established that oil revenue above the threshold price should be deposited in the fund. However, as the central government remained in deficit in 1999 and 2000 despite the recovery in oil prices, it could only make deposits into the fund with recourse to other financing.

This “bird-in-hand” option is a solution to the problem posed by uncertainties in the determination of permanent income.¹⁶ Following this rule will (1) raise fiscal expenditure relatively slowly at the beginning of oil production, thus providing time for an increase in absorptive capacity; (2) increase fiscal expenditure continuously until the end of oil production, which is politically easier to accomplish than to hold expenditure constant at the assumed permanent income level; (3) provide the most dependable stabilization of fiscal policy, since the spending planned for the current year is always in line with projected non-oil revenue (including interest on foreign assets); and (4) lead to a rapid buildup of assets, so that even a very large underperformance of the oil sector—whether because of catastrophic events or structural shifts in the oil market (e.g., the obsolescence of oil)—will not force the government into retrenchment. Volatility and costly downward adjustments to fiscal expenditure will be avoided. This rule is particularly attractive to new, small oil-producing countries, where oil revenue is rising rapidly and threatens to overwhelm the non-oil economy. However, political acceptance may be difficult to achieve, in particular in the early years of oil development, when the need for public spending is perceived to be large and the prospects for rising oil revenue in the future are clear. For small countries, it is also possible that interest income may rise more rapidly than absorptive capacity, and that expenditure would be held below interest income.

B. Current Practice

Government budgets are usually based on projected oil prices and production volumes, and contingencies are generally not taken into account. It is often not clear which source of oil price projections is used. Oil revenue is usually deposited in the central banks, and oil revenue constitutes part of general government resources in most countries.¹⁷ Oil revenues are now generally included in the budget, and budgets give a good picture of the expected financial operations of the government. In Angola, Sonangol, the state oil company, retains 10 percent of oil profits to cover the costs that it incurs as a regulator on behalf of the state, and some bonuses are paid directly to various autonomous social funds with unclear legal bases. A high level of cross arrears exists between the Angolan Treasury and Sonangol. In Equatorial Guinea, oil revenue has been included in the budget only since 2001, and a degree of realism and accuracy in budget projections was achieved only when the revised budget for 2002 was submitted to parliament in May 2002. In Nigeria, set percentages of government oil revenue are transferred to provincial governments, whereas the other

¹⁶The expression was first used in this context by Bjerkholt (2002). See Barnett and Ossowski (2002).

¹⁷Exceptions are Angola, where the Ministry of Finance and Sonangol recently moved deposits to private banks, and Equatorial Guinea, where oil companies pay government revenue in bank accounts abroad and fiscal surpluses remain in these bank accounts.

countries have centralized budgets. Under the Law on Petroleum Revenue Management, Chad's oil revenue is to be included in the budget.

Regarding expenditures financed by government oil revenue, Chad and Equatorial Guinea have adopted rules that limit the use of such revenue. Equatorial Guinea restricts the use of oil revenue to public investment only, whereas in Chad oil revenue is to be used mostly for earmarked social sector spending. In Cameroon, part of any windfall revenue is to be spent in the social sectors and part for reducing domestic debt arrears. In the Republic of Congo, a large portion of fiscal oil revenue (about 40 percent in 2001) is precommitted for the service of collateralized debt and some investment projects.

C. Discussion and Recommendations

Participants in the Douala workshop acknowledged the importance of rules for guiding the formulation of fiscal policy, so as to limit the negative impact of oil revenue volatility and to ensure transparency and credibility. They also broadly agreed on the relevance of the use of both the price-based rule and the non-oil budget balance as tools for formulating and monitoring fiscal policy, although some voiced skepticism as to the usefulness of the non-oil balance in view of the low share in GDP of the non-oil sectors in most of the countries concerned.

It is much more difficult to make the case for accumulating savings for future generations in the form of foreign financial assets. Participants argued that physical investment might be just as useful to ensure future growth, while acknowledging that absorptive capacity may be limited and some temporary financial savings therefore justified.

It will be important to raise absorptive capacity, which would allow for an increase in the effective use of oil revenue. It would be difficult to save oil windfalls in the face of pressing needs to build countries' physical infrastructure and human capital. African policymakers feel that any decision on savings and expenditure should ensure political stability, and that certain institutional characteristics, such as fiscal federalism, might be associated with higher spending pressures.

There is a growing need to deepen the dialogue with civil society, and particularly parliaments, on fiscal policy options. Oil revenue management priorities should become part of stakeholder discussions as spending priorities already are in countries that are preparing poverty reduction strategy papers (PRSPs).