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Fiscal Rules for Economies with Nonrenewable Resources: Norway and Venezuela

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Introduction

Recent studies have singled out resource-abundant economies as having weak economic performance over the last three decades; the greater the resource endowment, the lower the per capita growth rate.[2] Analysts offer a variety of reasons to explain the low growth rate in these economies. Resource abundance has led to a shift away from competitive manufacturing, with a consequent loss of growth-inducing externalities. Critics have also argued that resource abundance may blunt the incentives to save and invest, partly due to the slow development of financial institutions.[3] Other explanations center on phenomena derived from pervasive rent seeking, as a large amount of resources is channeled through the public sector. For oil-producing countries a notable feature has been the extreme procyclicality of government expenditure with respect to oil price fluctuations. A more sophisticated growth-theoretic argument is that the resource abundance has led these economies to overshoot in expanding demand beyond the steady state path, requiring subsequent adjustment from above.[4]

A central question is whether fiscal rules could have helped these economies make better use of resource gains and achieve higher growth. Although it is doubtful that rules alone could have prevented mistaken policy choices especially during resource booms, appropriate fiscal rules may have helped to shift the policy focus from a shortsighted use of resource revenues toward the long-term pursuit of fiscal sustainability and growth. This chapter begins with a brief survey of salient characteristics of economies with nonrenewable resources, followed by a discussion of the risks they face. After considering the potential role of fiscal rules in these economies, we examine the cases of two large oil producers, Norway and Venezuela. In particular, we look at the evolution of the rule recently adopted in Norway

limiting the cyclically adjusted nonresource budget deficit to the return on accumulated proceeds from resource extraction. Lastly, we present recent innovations in Venezuela, aimed at temporarily separating stabilization and saving functions and combining an oil stabilization fund with other macrofiscal rules. The chapter concludes with a comparative assessment of fiscal rules in the two countries.

Economies with nonrenewable resources

Economies well endowed with a nonrenewable resource, especially the oil-producing countries, extract a substantial resource rent from a resource that is sufficiently scarce in an oilgopolistic market, dominated by the Organization of Petroleum Exporting Countries (OPEC). A large proportion of the resource rent normally accrues to the government through ownership, royalties, and taxes; therefore, fiscal policy assumes a crucial role in the economy-wide and intertemporal distribution of the rent.

As the export price is volatile, the resource rent fluctuates in ways that are difficult or impossible to predict. Occasional periods of windfall gains may lead to overestimation of future income, as happened in oil-producing countries when the oil prices rose in the 1970s and early 1980s.[5] Given the dearth of experience of many of these countries, government spending decisions were often made in response to short-term fluctuations in petroleum earnings. Thus, commodity price volatility exercised a destabilizing influence on the economy, and fiscal policy assumed an additional role, namely, managing risks associated with the exploitation of the natural resource.[6]

Economies endowed with natural resources differ with regard to resource dependency. At one end of the spectrum are those with a large resource endowment, upon which export earnings and government revenues are totally dependent, as in some oil-rich countries in the Middle East. The challenge for these economies is their transformation from total resource dependence toward a long run, end-of-resource sustainability. At the other end are economies with limited resource dependency that does not warrant particular fiscal consideration. In the middle range are some Latin American countries that are substantially but not entirely resource dependent.

Typically, an economy endowed with a valuable natural resource evolves through three phases. An initial phase of exploration and early extraction is followed by a mature phase with a stable production level, and eventually, succeeded by the terminal phase when production and revenue decline. The early boom phase may bring large fiscal deficits as substantial costs are incurred. The mature phase harvests the gains by using liquidated natural wealth – mainly through the fiscal channel – for either consumption or saving. The adjustment needed to adapt to declining levels of resource earnings in the terminal phase is facilitated if earlier proceeds have been saved.

Since nonrenewable resources are part of the national wealth, when such resources are extracted and sold on the world market, the resource rent is counted as income in the national accounts. Yet in a real sense it is not income, but liquidated or transformed wealth. Hence, resource-abundant economies may not be as rich as they seem from resource exploitation, nor do they save on a net basis as much as it appears. Furthermore, the resource rent differs from other incomes because the part of it that accrues to the government does not have the contractionary effect on the domestic private sector as other revenues. This implies that a (cyclically adjusted) balanced budget carries a different meaning for economies with a large net fiscal income derived from natural resource rent; a balanced budget will be expansionary or contractionary depending upon the fluctuation of resource prices or other factors determining the net fiscal resource income. Price volatility renders a strict balanced-budget policy highly procyclical and destabilizing.

Resource revenue tends to bring about shifts in the relative size of the tradable and nontradable sectors, as discussed in the booming sector or Dutch disease literature.[7] This results in real appreciation and loss in competitiveness. The use of resource revenue thus entails macroeconomic adjustment costs, which are necessary for the benefits of the natural resource wealth to be enjoyed, but which also carry the risk of overshooting and policy failure. However, the adjustment costs can be eased over the medium term through gradual phasing in and proper signaling, depending mainly on the industrial structure and on the flexibility of the labor market. Conversely, the adjustment can result in macroeconomic havoc if fiscal impulses are driven by the fluctuations in resource revenue. The smoothing of expansionary and contractionary impulses, however, may not suffice. The deindustrialization resulting from using a liquidated nonrenewable resource eventually has to be reversed by a costly reindustrialization process. The growth-theoretic literature suggests that the loss of industrial clusters may imply long-term reduction in endogenous technological progress. The larger the resource sector, the larger the potential gains, but the larger also the exposure to risks inherent in the extraction and use of the resource.

Cash-flow versus net-worth risks

The focus on risk management in oil-exporting countries emerged as a consequence of the drop in oil prices in the mid-1980s. Whereas the ensuing liquidity problem drew attention to the uncertainty in earnings over a short span of time, for most economies with substantial resource earnings the resource base is likely to last for decades, requiring a long-term policy perspective. At that time, the gap between expected and actual earnings in the short term reflected uncertainty in *cash flow* rather than uncertainty in *net worth*.[8]

Uncertainty affects resource earnings in two ways. First, uncertainty in short- to medium-term fluctuations in earnings cannot be estimated with precision. Second, uncertainty also affects the total (discounted) value of the nonrenewable-resource extraction. While cash-flow risk is associated with short-term price volatility, net-worth risk arises because the long-term trend in prices is uncertain, information on cost of extraction from new fields is insufficient, and the stock of reserves and thus overall production potential is unknown. However, short-term fluctuations in revenue need not affect economic stability, including the levels of domestic consumption and investment, to the extent the government can resort to short-term borrowing. Thus the policy regime should aim at coping with net-worth uncertainty, but remain robust enough to accommodate cash-flow fluctuations.

Of the three major sources of uncertainty, prices and costs are more significant than reserves. Uncertainty about the stock of reserves may well be large, but it comes into play at the far end of the resource horizon and has a relatively minor affect on the net worth as long as the rate of price increase is lower than the discount rate. By contrast, changes in the price trend and the cost level will have a direct effect on earnings in the near future. In fact, the future price of the resource is determined by market prices and production costs of alternative products, which is largely a *technological* issue.

Governments can manage net-worth uncertainty through the combination of a depletion policy to maximize the net worth, an appropriate royalty-*cum*-tax regime, sales of property rights, and investment of proceeds in activities unrelated (or possibly negatively related) to the resource market. In any case, it is prudent to adopt a risk-averse attitude with regard to spending oil revenues.[9] A sanguine spending policy implies reallocation of resources from manufacturing to service industries, a process that can be costly to reverse. If the consumption level is raised in anticipation of future resource revenues and it turns out that the net worth of the resource sector is less than assumed, then a painful readjustment will have to be endured. To lower consumption may be difficult enough, but reindustrialization to strengthen export capacity is even more difficult. By implication, it is necessary to avoid resource dependence, while setting aside a major part of the earnings for investment abroad, until the net-worth risk diminishes.

The option of raising the royalties and lowering the tax rate helps dampen the influence of price fluctuations on revenues. Selling the resource on long-term contracts reduces the risk, but is feasible only for some commodities, say for natural gas, but not for oil. The net-worth risk can be reduced by speeding up depletion and by reducing the reserves left to compete with substitutable products in the future. Even if rapid depletion (usually subject to limitations) increases costs, the present value of reserves might still increase.

The option of diversifying through transformation of the natural resource wealth into alternative assets, thus reducing resource dependence, calls for large-scale sales of property rights and purchase of financial and real assets.

Although a country with a large resource endowment can hardly achieve the sale of a major part of its endowment (lacking sufficient market breadth),[10] even a smaller disposal would be a step toward risk spreading, leaving the country with the task of investing substantial funds over a limited period of time in financial assets abroad and/or real assets at home. For proper risk spreading, the value of these assets should be negatively correlated with the resource market. However, domestic investment opportunities may be limited by absorption capacity and foreign investments may be exposed to political risk.

Is there a role for fiscal rules?

Discussion of the use of resource revenue revolves mainly around the level of *permanent income*, defined as the expected return on the remaining resource reserves (plus the return on accumulated assets from resource revenue). This is the income level that obtains without reducing the overall resource wealth over time. In the early phase, with low extraction, the permanent-income rule thus calls for borrowing against future earnings, which in turn are used for amortization in the mature to terminal phases. Permanent income is, however, an elusive concept. As the valuation of the natural resource wealth in practice fluctuates over time, the permanent income must be expected to vary over time.[11]

Simple intertemporal optimization models support using the permanent-income rule, thus leaving all generations with the same benefit from the nonrenewable resource.[12] Equalizing incomes equalizes marginal utilities and appears fair from an intergenerational perspective. If the international rate of interest is higher than the rate of technological progress plus the population growth rate, the preferences for equity among generations within a Ramsey-type growth model require transfers from later to earlier generations. Abstention from consumption, obviously, increases the stock of reserves available to later generations. If the preference for intergenerational equity is high enough and the interest rate is not too high, the optimal solution is for consumption to grow over time, but less than production.

However, the permanent-income rule is limited in several respects. First, the rule does not pay sufficient attention to the uncertainty of future revenue flows: it counts resources in the ground as equally certain as holdings of riskless financial assets. Second, the rule ignores future expenditure commitments, including contingent liabilities associated with the social security system, which tend to expand over time. Social transfers are broadened to become universal benefits. Demographic pressures further boost benefits. And third, in spite of its intended fairness, the permanent-income rule does not take into account the costs of industrial restructuring mentioned earlier. Arguably, uncertainty in these areas calls for a cautious use of resource revenue whereby spending is allowed to increase only as the uncertainty vanishes.

Thus, fiscal policy in economies with nonrenewable resources must contend with the additional tasks of phasing in the resource revenue, reallocating over time the resource earnings relative to the depletion and earnings profile, and protecting against the destabilization and possible default due to unfulfilled expectations. Questions about the rationale and design of rules-based fiscal policy to cope with these tasks follow naturally from the earlier mentioned considerations. Specifically, can fiscal rules be designed in line with an optimality consideration? The short answer is that a rule can be derived for setting government expenditure, taking into consideration the expenditures in the previous year, the macroeconomic adjustment costs of changing the expenditure level, and adverse price movements reflected in default risk.[13]

If there is no claim on optimality grounds, however, what then is the role of a fiscal rule? Can fiscal rules help in providing a better policy framework and focus attention on the longer-term issues that so easily fade into the background?[14] As suggested earlier, a balanced-budget rule might not be a desirable option for two reasons. First, an economy drawing down natural-resource wealth, taking the depletion rate as given may have good reasons for intertemporal redistribution of the liquidated wealth, including to generations living beyond the terminal phase of exploitation. Second, even absent intertemporal concerns, a balanced-budget rule would need to be modified (by specifying it in terms of, say, a structural balance) to avert the procyclical impact of high volatility in resource earnings; in other words, revenue use would have to be decoupled from the current resource earnings.

An alternative approach pursued in a number of resource-abundant economies (most recently adopted, for example, in Ecuador) consists in accumulating part of the resource revenues in a stabilization fund, for smoothing the impact of short-term volatility, or in an endowment fund, for promoting long-term sustainability.[15] A fund can make the treatment of resource earnings more visible, if subject to strict transparency requirements and if transfers between the fund and the government budget are embedded in a coherent macroeconomic framework. Because a basic function of the fund is to cover the budget deficit (while reflecting changes in government net financial worth), the fund cannot be separated from budgetary operations. Thus, potentially, the fund becomes the centerpiece of any effort to establish fiscal rules to ensure stability in the short run and sustainability in the long run.

Resource endowment and socioeconomic setting

For a better understanding of the evolution of rules-based policies in Norway and Venezuela, it is useful briefly to review the experience and setting of each of these major oil-endowed economies. A comparison of key social, economic, and institutional characteristics is particularly relevant.

Although a latecomer as a petroleum producer (commencing in the early 1970s), Norway has become the second largest oil exporter in the world, with large petroleum earnings relative to a small population. Oil production in Norway started as part of a diversified economy with public finances characterized by high levels of taxation and expenditure. A significant manufacturing sector was, unlike in most OECD economies, complemented with abundant fish, hydroelectric power, and forest resources. The emergence of the oil and gas sector crowded out manufacturing activity, though without creating much unemployment.

Prior industrialization of the economy helped prevent greater oil dependency during the period of most turbulent price fluctuations. The increase in oil revenue over time, particularly throughout the 1990s, supported a sharp increase in government commitments to generous welfare services and in labor costs required to produce such services. The establishment of the State Petroleum Fund (SPF) in the early 1990s was an attempt to come to terms with these commitments through a long-term policy for using the remaining petroleum wealth.

Social homogeneity, relative income equality, and general support of the welfare state, which was part of the post–Second World War political legacy, may have helped cope with the early challenges of the petroleum era. By the same token, the accelerated aging of the population provides an added dimension to the judicious medium- to long-term management of the resource wealth.

By contrast, in Venezuela, large-scale oil drilling began in the 1920s amidst a poor rural setting as the country was in the process of political unification. In 1958, Venezuela became one of the founding members of OPEC established to coordinate production in the international market. Through the 1960s, oil-export revenue supported urbanization, industrialization, and overall economic development.

The oil boom of the 1970s strengthened the dependence of public finances and of the economy on oil exports. The unfavorable consequences of oil dependence became evident when oil revenues fell in the mid-1980s. Since then, a short-term view has prevailed in policy decisions, and reforms to reduce oil dependence have generally been postponed or only partially implemented. Over the last two decades, the Venezuelan economy has exhibited to an extreme extent the stylized features discussed earlier for emerging market economies with nonrenewable resources, resulting in a very poor overall performance.

Non-oil activity was incapable of replacing the dynamic effect of oil exports and fiscal profligacy. Public spending has deteriorated in quality, and remained above a sustainable level because non-oil revenue could not offset the fall in oil revenue; these trends have resulted in persistent financial deficits since the mid-1980s. Erratic fluctuations in the oil market, in public finances, and in the real exchange rate provoked a fall in public and private

Table 11.1 Norway and Venezuela: selected indicators, 2000

	Norway	**Venezuela**
General indicators		
Population (millions)	4.5	24.1
Old-age dependency ratio (percent of population)	15.4	4.4
GDP (billions of US$)	169.0	120.0
GDP per capita (thousands of US$)	37.3	4.9
External current account balance (percent of GDP)	14.0	10.9
Unemployment rate (percent)	3.3	13.2
Inflation (percent)	3.0	16.2
Oil sector indicators		
Production (millions of barrels per day)	3.3	3.2
Exports (millions of barrels per day)	3.1	2.8
Reserves (billions of barrels)	23.0	76.8
Reserves (years of production)	19.1	65.8
Oil revenue/fiscal revenue total (percent)	25.2	49.8
Oil exports/total exports (percent)	47.0	73.1
Oil GDP/total GDP (percent)	24.4	22.7
Oil investment/total investment (percent)	18.7	39.3

Sources: IMF and World Bank.

investment, particularly in the manufacturing sector, with adverse consequences on growth, productivity, formal employment, and poverty; thus overall economic activity has been insufficient to absorb a relatively young labor force.

A comparison of the Norwegian and Venezuelan economies, summarized by basic indicators, reveals important differences, particularly in terms of GDP per capita, the relation between oil production and reserves, and the share of oil revenue in overall government revenue (Table 11.1). However, equally important are the underlying demographic and social conditions. Arguably, contrasting socioeconomic environments are critical determinants of the design of the present institutional arrangements for the conduct of fiscal policy, as discussed in the following sections.

Norway's "bird-in-the-hand" approach

Successive oil shocks called attention to the macroeconomic exposure of resource abundance and led to the creation of the SPF as the basic tool for making the use of oil revenues more transparent, facilitating the decoupling of revenue use from revenue inflow, and ensuring an appropriate long-term allocation of revenue. Formally, the SPF can be viewed as a government account held with the central bank. The inflow accruing to the SPF is the government's *oil-related net cash flow*, in the event of a budget surplus, while

the outflow consists of transfers to the government budget to cover the *oil-corrected deficit*. The central bank invests the SPF funds abroad, increasingly in major stock markets.

Initially, long-term considerations for transfers from the SPF were used to set *target* levels in the macroeconomic surveys presented every fourth year to the parliament.[16] The final proposal for the use of oil revenues, incorporated in the annual budget bill, was expressed by the target level with changes due to cyclical considerations and "extraordinary transfers" decided in the budget process. The aim of the procedure was thus to ensure that the long-term policy considerations would provide a baseline for current budget decisions, with some latitude for modification for short-run reasons. The baseline was meant to prevent irresponsible fiscal decisions, but without encroaching on the parliamentary debate and approval. Any parliamentary decision with expansionary fiscal implications made outside the budget session had to be accompanied with an explicit decision to withdraw transfers from the SPF. However, this procedure never came into play as intended. The SPF (without any accumulated capital) existed only on paper until 1996, the first year with a fiscal surplus since 1990. Thereafter, the SPF increased substantially, and by the end of 2001 it had a value close to 60 percent of non-oil GDP (about US$80 billion).

In 2001, a new regime was enacted, supplementing the SPF with an explicit fiscal rule to replace the political-institutional procedure, intended to strengthen the decoupling from current revenue. This rule is based on a "bird-in-the-hand" approach, whereby the use of oil revenue must be determined by the liquidated resource wealth accumulated in the SPF.[17] The underlying arithmetic splits total revenue into oil-related revenue (R_1) and other revenue (R_2), and total expenditures likewise into oil-related expenditure (C_1) and other expenditure (C_2). The design of the fund requires identification of the oil-related components in the budget, which in principle comprise the government share of the petroleum rent, though in practice the more directly observable oil-related net cash flow ($R_1 - C_1$) is used.[18] Oil-related revenue consists of taxes and royalties, return on accumulated assets, plus other oil-related revenue. The oil-related expenditure is comprised of items related to oil development and production, including government capital injections. The overall surplus is thus

$$S = R_1 + R_2 - C_1 - C_2. \tag{1}$$

The *oil-corrected deficit* (D_2) is

$$D_2 = C_2 - R_2 = R_1 - C_1 - S. \tag{2}$$

For the SPF, established at $t = 0$, the stock of accumulated capital at the

beginning of period t is given by the equation

$$F_t = (1 + r_{t-1})\, F_{t-1} + (R_{1,\,t-1} - C_{1,\,t-1}) - D_{2,\,t-1}. \tag{3}$$

To fulfill the requirements of decoupling and gradual phase-in, the fiscal rule sets the target for the oil-corrected deficit equal to the real return on the capital of the petroleum fund:

$$D_{2,\,t}{}^{*} = r_t\,(F_t) \tag{4}$$

where r_t is the actual rate of return on the fund portfolio.

Condition (4) is a sustainable rule for determining the use of oil revenue, as it takes into account future uncertainties to a large extent. In essence, the stochastic properties of the oil price fluctuations, that is, whether the oil price fluctuates as a random walk, is mean reverting, or follows a more intricate stochastic process, become negligible. The rule works to ensure a gradual phasing in of oil revenue, thus limiting the macroeconomic impact. Although the rule may seem overly conservative, especially in comparison with the permanent-income rule, it can accommodate the explicit and implicit future fiscal commitments built up over time.[19]

However, the rule as set out in (4) is crude in the sense that it pays no attention to the cyclical situation and ignores the risk of unanticipated changes in the return on the SPF portfolio.[20] Therefore, a modified rule, accommodating cyclical fluctuations and uncertainty in the return, determines instead the target in terms of the *cyclically adjusted oil-corrected deficit*[21]

$$D_{2,\,t}{}^{\#} = r_t{}^{*}(F_t) \tag{5}$$

where $r_t{}^{*}$ is the rate of return on the fund portfolio.[22] This includes in addition an escape clause stating that abrupt changes in the target deficit, say by a fall in stock values, is to be smoothed out over a number of years. Hence, utmost attention is paid to smooth phasing in of the oil revenue.

A remaining question is whether the rule will contribute to macroeconomic stabilization or will accommodate a continued fiscal expansion and thus an overheating of the economy. The theoretical prediction is that the expansion will lead to increasing costs through wage increases and currency appreciation. The ensuing shift away from the production of tradables due to reduced cost competitiveness will eventually take place in step with the fiscal expansion and when the boom peters out. Overshooting in the wage level is to be expected, followed by increased unemployment at a later stage. The gradualism inherent in the rule – notwithstanding its slight procyclical bias during prolonged expansions or recessions – is, however, key to letting the adjustment run with the least possible overheating and overshooting. Moreover, the primarily long-term role of the fiscal rule is well complemented

by the inflation-targeting regime that has been adopted as the context for monetary policy.

The combination of the fiscal rule with an oil fund has become the cornerstone of Norway's fiscal policy, developed on the basis of a wide political consensus following three decades of oil production. Although well designed for Norway, the remaining problem with the fiscal rule may well turn out to be political. In particular, it may be increasingly difficult to prevent increases in public expenditures for laudable purposes above and beyond what the rule prescribes, especially during a prolonged period of high oil prices and/or high returns on the assets accumulated in the SPF.[23]

Venezuela's "birds-in-the-bush" approach

In Venezuela, the level of proven oil reserves and the associated risk imply that fiscal policy has to focus on long-term growth and fiscal sustainability. Although the Norwegian approach has been taken into account in Venezuela's recent fiscal reform, initial socioeconomic conditions impose certain limitations on the design of the fiscal policy framework. Indeed, a different approach to oil-risk management is called for, particularly because the extreme oil dependence exacerbates the requirements for stabilization; lacking stabilization, oil dependence is likely to affect economic growth adversely. More important, unlike in Norway, Venezuela's non-oil fiscal revenue alone is insufficient to support the country's development needs in education, health, social programs, and infrastructure.

Achieving stability has been a major challenge for Venezuelan policymakers. Attempts to deal with the volatility of oil revenue by creating or reforming various oil stabilization funds (1990, 1998, 1999, and 2001) have been disappointing. The first stabilization fund was never really implemented; the second never accumulated funds since it came into effect during a period of very low oil prices. The third fund accumulated deposits (US$7 billion in savings in 2001), but at a low benchmark price (US$9 per barrel) with half of the oil revenue above that price to be saved in the fund, which meant that an excess of savings had been accumulated when prices began to decline in 2001. The fund was reformed at the end of that year and no contributions were required in 2002.

The most recent fiscal reform envisaged a two-pronged approach at the outset by initially assigning the stabilization and saving functions to two separate funds, thus deferring the full implementation of an integrated savings fund to the future. The reform is based on the 1999 Constitution and the 2000 Organic Law of Financial Administration of the Public Sector (LOAF). The constitution states that the revenue from exploitation of the subsoil must be used first and foremost to finance fixed investment, and education and healthcare expenditure. Accordingly, the LOAF establishes the Macroeconomic Stabilization Fund (FEM) and the Intergenerational

Savings Fund (FAI). The FEM is intended to stabilize public expenditure and thus to contribute to macroeconomic stability, and the FAI to maintain fiscal long-term sustainability and intergenerational equity – both funds to be supported by pending legislation.

Agreement has been reached on the design of simple and symmetric norms for contributions and withdrawals: a "moving average" benchmark for the FEM and a dynamic "permanent income" method for the FAI. The *stabilization norm* establishes a benchmark based on a moving average of past oil revenue: when actual revenue is above the benchmark, the excess is deposited in the FEM; when actual revenue is below, a withdrawal is permitted to meet the fiscal adjustment requirement, with a ceiling of up to 50 percent of the assets accumulated in the fund. Contributions and withdrawals from the FEM are integrated within the budget. Any additional transfer, due to unforeseen increase or fall in oil revenue, has to be approved by the national assembly.

The *savings norm*, based on the principle of intergenerational equity, is intended to bring about an intertemporal redistribution of oil revenue by saving part of the revenue in the FAI during the maturity phase in order to guarantee future generations a similar per capita revenue from the fund. Estimates of permanent revenue, based on projections of production, prices, costs, and taxation, vary over time, as pointed out earlier, according to new information available on the evolution of these variables, policy decisions, and new estimates. Thus the norm can be considered to be dynamic in the sense that the estimates need to be reviewed regularly. Transparency in the application of the norm is to be ensured by an independent technical board, created by law, responsible for estimating the permanent level of oil revenue.

Political support for the FAI is rather timid. Heeding critics' arguments that this is not the appropriate time for full and immediate implementation of a savings mechanism, the LOAF requires that, during the first ten years of operation, a declining portion of the contribution to the FAI be deducted for investments with intergenerational characteristics, particularly in high-yield non-oil-related projects (in infrastructure, education, and healthcare), so as not to concentrate the burden of the reform on present taxpayers. As a matter of fact, the size of the present non-oil deficit (about 10 percent of GDP) implies that in the foreseeable future, Venezuela will need to follow such a "birds-in-the-bush" approach.[24]

Like Norway's SPF, the FAI is expected to spread the risk of the oil wealth by investing the accumulated funds in a diversified portfolio of long-term financial assets abroad, not correlated with the value of oil reserves, placed in escrow for a 20-year period to insure an adequate buildup. In the future, the FAI is envisaged to absorb the stabilizing function and, in this respect, the FAI will be similar to the actual SPF. During the transition, a connection between the FEM and the FAI has been established by setting a ceiling on the accumulation in the FEM, above which the excess savings will be transferred to the FAI or used for public debt restructuring.

Differences in initial conditions, as compared to the Norwegian case, argue also for a different set of macrofiscal rules geared to the objectives of stability and sustainability. In Venezuela, it is necessary to cope with the prevailing deficit bias, asymmetric liquidity constraint, and procyclical borrowing, as well as to safeguard the effectiveness of the stabilization fund. The 1999 Constitution provides the basis for the necessary legal and procedural elements to promote these goals by establishing through the LOAF a multiyear budgetary framework (MBF) and fiscal rules that require the observance of ordinary balance and limits on current expenditure and borrowing. In addition, the LOAF sets the principles that should govern fiscal management: efficiency, solvency, transparency, and responsibility.

Specifically, the LOAF defines the constitutional rule of *ordinary balance* at the central government level over the medium term. For this purpose, ordinary revenue is given by current revenue adjusted by contributions and withdrawals from the FEM, which accumulates surpluses during booms and finances deficits in recessions. Ordinary spending is equivalent to current revenue, thus preventing cuts in infrastructure investment in recessions. This is, in essence, a medium-term golden rule, adjusted for net transfers from the oil stabilization fund.

The LOAF provides transitory provisions for a gradual implementation of the MBF and the macrofiscal rules. The proposed phase-in includes a transition period 2002–04 for the reform of public finances, including tax reform, to reduce the non-oil deficit in convergence to the ordinary-balance rule by the end of the period. For the period 2005–07, the first MBF, covering three years and based on oil-related and macroeconomic projections, will come into full force.

In spite of the critical assessment of stabilization funds in solving the fiscal problems of economies with nonrenewable resources,[25] and the earlier-mentioned preference for expenditure limits by some experts, the prevailing trends in Venezuela's public finances suggest that a stabilization fund is a promising tool in the recently enacted institutional framework. In Venezuela, non-oil public sector deficit has been a primary source of money creation and of macroeconomic disequilibria.[26] The stabilization fund, in combination with the ordinary balance rule, is crucial for preventing fiscal procyclicality, which an expenditure rule alone cannot achieve.

Furthermore, an adequate implementation of the FEM is necessary along with effective macroeconomic policy coordination. As regards the latter, the Constitution requires the executive branch and the central bank to formulate an annual policy agreement, presented along with the annual budget law to the national assembly. The Annual Policy Agreement Framework Law should be fully phased in by 2005, when the first MBF comes into effect.

In sum, full commitment to the fiscal rules and the oil funds should significantly strengthen Venezuela's public finances. The FEM and the annual policy agreement constitute the instruments for stabilization in the short

term; as a complement, the FAI and the fiscal rules contribute to sustainability in the long term. Although the Constitution and the LOAF establish an adequate institutional framework in which Venezuela can move toward macroeconomic stability and sustainability, a broad social consensus and the political will are yet to emerge for the implementation of the reforms and the commitment to comply with that framework.

Concluding remarks

The experience of economies with abundant nonrenewable resources often points to an overall lack of fiscal discipline, as well as weak and inefficient resource management. The central challenge has been to move from one-sided concern with the use of resource revenue for enhancing expenditure toward the pursuit of macroeconomic stability and sustained growth. A well-calibrated combination of resource management, possibly through a resource account or fund, and of macrofiscal rules, can promote the realization of these goals. However, there is no unique recipe for coping with resource-related uncertainties. Management of resource-related revenue and outlays, as well as of the resource fund, should take into account socioeconomic and institutional conditions. Although in principle various options for fiscal rules may be considered as long as they are conducive to sustainability and growth, rules have to be designed and made operational for the circumstances of each country.

The example of Norway illustrates the advantages of a "bird-in-the-hand" approach consisting of an oil savings account plus a macrofiscal rule that limits the (cyclically adjusted) fiscal deficit to the return on assets accumulated from liquidated resource wealth. This approach decouples the use of revenues from fluctuations in the net revenue derived from the resource depletion. Norway focuses primarily on net-worth risk through saving oil revenue in a unique fund and setting a simple and transparent rule to accommodate fluctuations. Such an approach is applicable in economies where the fiscal situation allows the effective operation of a savings fund, built up largely from sales of a significant part of the resource wealth.

The recent Venezuelan fiscal reform can be characterized as a "birds-in-the-bush" approach. Against the backdrop of poor macroeconomic performance, lack of fiscal discipline, and a decline in GDP per capita during the past two decades, Venezuela has had to assign priority to macroeconomic stability through the management of cash-flow risk. In addition, faced with the need to finance acute requirements for spending on education, health-care, social programs, and infrastructure, Venezuela has been obliged to forego at this time the creation of an oil savings fund. Instead, it has opted to temporarily separate stabilization and saving functions, while combining them with a rules-based fiscal framework, leaving for the future the gradual implementation of a savings fund.

Fiscal reforms along these lines may serve to depoliticize the use of non-renewable resource wealth. Only a broad political support or consensus at the outset can help achieve these reforms. Such support is facilitated by the transparency, simplicity, and common-sense appeal of fiscal rules and resource funds. But this support must be sustained over a prolonged period. Although temporary abandonment of fiscal rules or violation of rules may seem reasonable in exceptional circumstances – most commonly, during an economic downturn – either would weaken the credibility of the rules-based framework. In neither Norway nor Venezuela can unlimited support and credibility be taken for granted; they must be earned and maintained through steadfast implementation.

Notes

1. We are grateful to George Kopits for suggesting a discussion of Norwegian and Venezuelan experiences in an integrated context. We are also grateful for comments from Sheetal Chand, Amalia Lucena, Oscar Salcedo, and Fernando Villasmil.
2. See, for example, Sachs and Warner (1995); Gylfason *et al*. (1999); and Mayer *et al*. (1999).
3. As argued by Gylfason *et al*. (1999).
4. Rodríguez and Sachs (1999).
5. Gelb and associates (1988) discuss the fate of selected countries through the oil booms and after. The Venezuelan case is also discussed in Rodríguez and Sachs (1999) and in Hausmann *et al*. (1993). The overestimation of future oil prices was shared by international forecasters; the mainstream of international oil forecasters predicted in 1980–81 that the oil price in 2000 would be about US$200 a barrel.
6. Lack of attention given to the fundamental uncertainty in long-range projections in oil-producing countries before the lessons learned in the early 1980s was widespread, for example, in the projections for Mexico in Brailovsky (1981).
7. Influential early contributions are Corden (1984), and Neary and van Wijnbergen (1986).
8. The argument follows Norman (1982).
9. Although this reasoning implies that the rate of depletion cannot be completely separated from the use of resource revenue, we consider the depletion rate as given.
10. See Hausmann *et al*. (1993: p. 127–8).
11. Cappelen and Gjelsvik (1990) studied counterfactually the consequences of a permanent-income rule applied to Norway in comparison with the "bird-in-the-hand" rule discussed later.
12. As in Engel and Valdés (2000).
13. Although apparently addressing cash-flow risk rather than net-worth risk, Hausmann *et al*. (1993) derive a spending rule for Venezuela in the form of a concise and transparent mathematical formula – a rare example of a spending rule derived from optimality considerations and yet simple enough to be adoptable by an enlightened political regime. Alternative approaches developed, for example, in Aslaksen *et al*. (1990), or the certainty equivalence approach in Aslaksen and Bjerkholt (1986) are less amenable to operational policy conclusions.
14. For a persuasive argument in this direction, see Kopits (2001a).

15. A fund stabilization scheme for Indonesia was proposed in Kopits *et al*. (1993).
16. Such macroeconomic surveys have been prepared since the 1950s, in recent decades also including macroeconomic projections 40–50 years ahead as background for discussing long-term policy issues.
17. Norwegian Ministry of Finance (2001a,b).
18. In the short run the cash flow may differ a great deal from the resource rent, but in accumulated terms they will approach each other.
19. Nevertheless, the IMF staff questioned whether the rule will be able to cope with future fiscal needs: "Absent an early pension reform, a desire to maintain the current share of non-pension public spending in GDP in the future – let alone to allow it to rise in line with the demands of demography – would force Norway to violate the fiscal rule and could thus result in the exhaustion of the fund before mid-century." (IMF 2001c).
20. Evidence of this risk is the loss of $10 billion incurred by the SPF in 2001.
21. The difference between $D_{2,\,t}^{*}$ and $D_{2,\,t}^{\#}$ also smoothes out income and outlay items, which can vary substantially over time, without cyclical importance.
22. The rate has been set in the Norwegian Ministry of Finance (2001b) at 4 percent under the assumption that it is to remain more or less constant over time.
23. Rødseth (2001).
24. Adapting the metaphor, this approach is based on the expectation of future returns, as compared to the more conservative Norwegian approach which is predicated on returns on already accumulated capital.
25. See Davis *et al*. (2001).
26. See Niculescu (1999).