

Fiscal Rules for Natural Resource Funds: How to Develop and Operationalize an Appropriate Rule

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Key messages

- Natural resource funds by themselves do not guarantee sound macroeconomic management. In fact, they may complicate budgeting and make public spending less accountable.
- Fiscal rules—multiyear constraints on government spending or public debt accumulation—can help commit successive governments to stable macroeconomic policy, which is necessary for growing and diversifying an economy dependent on large, finite and volatile natural resource revenues. While some natural resource funds are governed by fiscal rules while others are not, fiscal rules generally improve government performance and public financial management.
- The Alaska (USA), Chile, Ghana, Kazakhstan, Norway, Timor-Leste, and Trinidad and Tobago natural resource funds are governed by fiscal rules that generate savings in years when oil, gas or mineral prices or production are high.
- The design of fiscal rules should depend on context; no single rule is appropriate for every country. For example, if a country needs financing for development projects and has the “absorptive capacity” to implement projects proficiently and efficiently, then the government may wish to spend more and save less. However, the government may also wish to save a significant fraction of resource revenues to generate a buffer in case of economic disaster or unanticipated downturns in oil, gas or mineral production or prices.
- In order to function properly, fiscal rules must be designed with specific objectives in mind (e.g., to address absorptive capacity constraints; to stabilize the budget), there must be political consensus on their suitability and they must be enforced through independent oversight.
- Most natural resource funds have deposit and withdrawal rules, which usually operationalize a fiscal rule. Their details matter a lot since they can sustain or undermine fiscal rules.

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What are fiscal rules and why are they useful?

Resource-rich countries often face three major macroeconomic challenges: Dutch Disease, short- to medium-term pro-cyclical fiscal policy and long-run boom-bust cycles.

During peak production on a new mine or oil or gas field, usually several years after production starts, a government may be flooded with a sudden cash windfall. Often, the government spends this entire windfall, without saving a portion. While government officials, politicians and the general public may expect spending to improve schools, electricity and other public services, the

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result instead may be a rise in domestic wages and prices without any substantial development outcome. Alternatively, the inflow of money can lead to exchange rate appreciation, which can harm domestic exporters. Together, these effects can cause a decline in non-oil or non-mineral industries and a lower standard of living for those disconnected from the resource sector. This is commonly known as Dutch Disease.¹ There is strong evidence of Dutch Disease effects in Azerbaijan, Iran, Russia, Trinidad and Tobago and Venezuela, as well as at the subnational level in Brazil, Indonesia and Peru.

The extent of the damage caused by the Dutch Disease depends in part on the absorptive capacity of the economy and the government. If the economy and the government can easily absorb the inflow of cash, then the Dutch Disease can be mitigated. The ability to overcome the Dutch Disease depends, in part, on the existence of local public sector expertise to plan budgets, appraise projects and carry out public tenders efficiently, as well as the number and quality of engineers, construction workers, teachers or doctors to absorb new government spending.²

Second, governments are often disposed to spend what they receive in revenues. Since oil, gas and mineral prices and production are highly volatile, most resource-dependent governments exhibit “pro-cyclical fiscal policy,” a tendency to increase spending when revenues go up and decrease spending when revenues decline. Temporary windfalls generate substantial incentives to spend now when revenues are high, leading to poor public expenditure decisions—for example, construction of concert halls, new airports and other legacy projects—and poor quality infrastructure since it takes time to adequately plan and execute projects. When revenues decline, governments often face debt crises or are unable to pay for government salaries or operations and maintenance of new infrastructure. The impact on the private sector can be equally devastating as businesses invest when they receive government contracts and scale back or go bankrupt when government contracts dry up.

Third, oil, gas and minerals are finite resources. Some large mines or oil fields only generate significant revenues for a decade, while others produce for several. Yet many resource-rich countries do not save or invest for the benefit of future generations when they are receiving their revenue windfalls, leading to a long boom period followed by an economic recession or even a depression. Nauru, a country rich in phosphates, is a case in point. It consumed its mineral wealth rather than saving or investing it. Following the start of large-scale production, Nauru went from one of the world’s poorest nations to one of its richest, with GDP peaking at \$25,500 per citizen (2005 dollars) in 1973. By 2007, it had once again dropped to one of the world’s poorest, with GDP less than \$1,900 per citizen. The economy never recovered.

A fiscal rule is a multiyear constraint on overall government finances defined by a numerical target (see Table 1 for examples). Fiscal rules can act as a commitment mechanism, binding successive governments to a long-term budgetary target and therefore a long-term vision of public financial management.

Fiscal rules are necessary given the finite and destabilizing nature of oil, gas and mineral revenues. They can discourage overspending and waste by limiting a government’s ability to grow expenditures too quickly. They can encourage governments to employ “counter-cyclical fiscal policy” to mitigate the negative effects of revenue volatility (see Figure 1). And they can enhance the credibility of a government’s commitment to stable fiscal policy, thereby stimulating

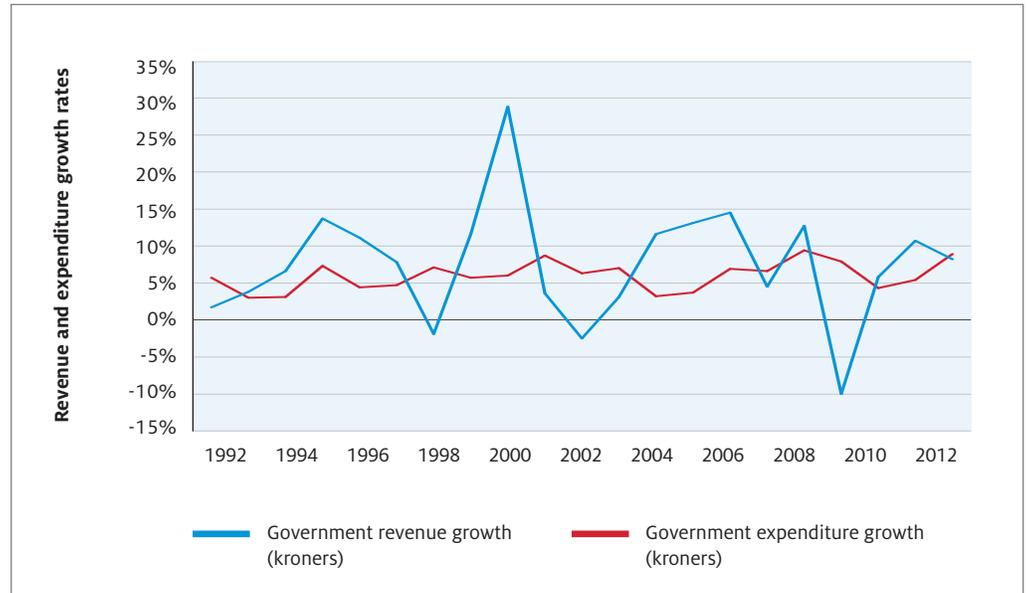
1 Dutch Disease refers to the negative effects on domestic trading industries, deindustrialization and resource dependence that can occur as a result of real exchange rate appreciation (rising prices/wages or a nominal exchange rate appreciation).

2 Dutch Disease may also be mitigated in three other ways: fiscal sterilization (the government saving resource revenues in foreign assets through a natural resource fund), monetary sterilization (the central bank saving resource revenues as foreign currency reserves) or revenues exiting the country through capital flight.

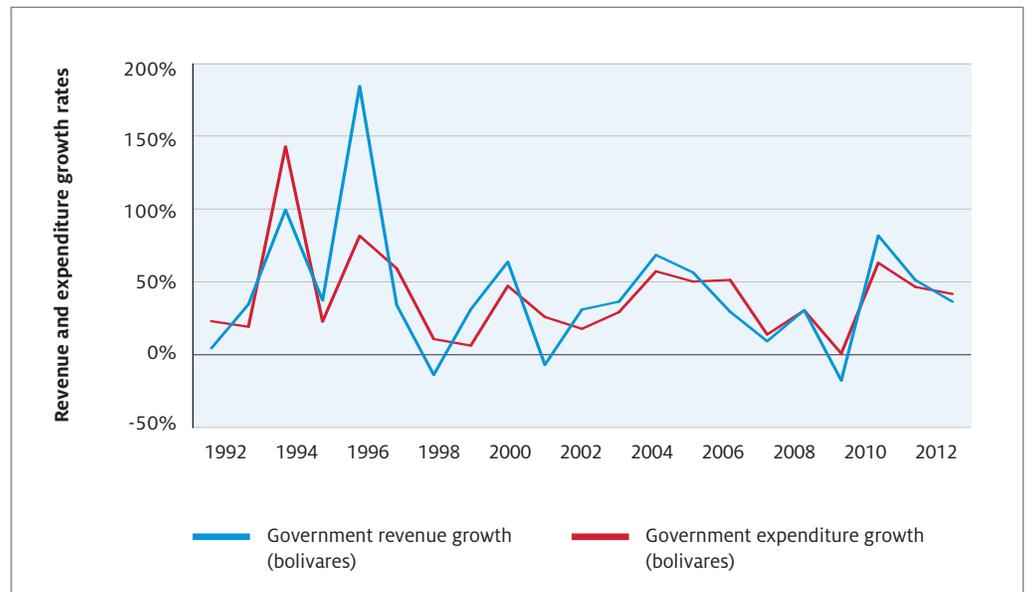
private investment. That said, in order to function properly, they must be designed with specific objectives in mind (e.g., to address absorptive capacity constraints; to stabilize the budget), there must be political consensus on their suitability and they must be enforced. Enforcement can be encouraged through formal agreement between political parties, independent control over the fiscal framework, judicial oversight, legislative oversight, independent audits, international peer pressure or having a well-informed and engaged citizenry and media to pressure the government to abide by its own rules.

Figure 1:
Effects of Fiscal Rules or
Lack Thereof on Revenue
and Expenditure Volatility
in Norway and Venezuela

Norway



Venezuela



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In general, there are four types of fiscal rules. They are explained in Table 1 along with examples from resource-rich countries.

Table 1:
Four Types of Fiscal Rules

Sources: NRG; Budina et al., "Fiscal Rules at a Glance: Country Details from a New Dataset" (IMF Working Paper 12/273, 2012).

	Explanation ³	Example	
Balanced budget rule	Limit on overall, primary, or current budget balances in headline or structural terms	Chile (statutory since 2006) Mongolia (statutory since 2010; effective in 2013) Norway (political commitment since 2001)	Structural surplus of 1 percent of GDP with an escape clause. What constitutes a "structural balance" is informed by a 10-year forecast of copper and molybdenum revenues as determined by an independent committee. Structural deficit cannot exceed 2 percent of GDP. Non-oil structural deficit of the central government cannot exceed 4 percent, which is the expected long-run real return on sovereign wealth fund investments. The fiscal guidelines allow temporary deviations from the rule under specific circumstances.
Debt rule	Limit on public debt as a percent of GDP	Indonesia (coalition agreement since 2004) Mongolia (statutory since 2010; effective in 2014)	Total central and local government debt should not exceed 60 percent of GDP. Public debt cannot exceed 40 percent of GDP.
Expenditure rule	Limit on total, primary, or current spending, either in absolute terms, growth rates, or in percent of GDP	Botswana (statutory since 2003) Mongolia (statutory since 2010; effective in 2013) Peru (statutory since 2003; rule changed in 2009)	Ceiling on the expenditure-to-GDP ratio of 40 percent. Expenditure growth limited to non-mineral GDP growth. Real growth current expenditure ceiling of 4 percent. Exceptions made if Congress declares an emergency.
Revenue rule	Ceiling on overall revenues or revenues from oil, gas or minerals	Alaska (statutory since 1976) Botswana (political commitment since 1994) Ghana (statutory since 2011) Kazakhstan (government policy since 2010) Timor-Leste (statutory since 2005) Trinidad and Tobago (statutory since 2007)	50–75 percent of oil revenues minus income tax and property tax enters the budget; the rest is saved in the Alaska Permanent Fund, which saves some revenues and disburses the rest directly to citizens. Mineral revenues may only be used for public investment or saved in the Pula Fund. Maximum 70 percent of seven-year average of petroleum revenue enters the budget. Maximum 21 percent is allocated to a Stabilization Fund. Minimum 9 percent is allocated to a Heritage Fund for future generations. Percentages subject to review every three years. \$8 billion USD plus/minus 15 percent (depending on economic growth) of petroleum revenue is transferred from the National Fund to the budget annually. Revenue entering the budget from the Petroleum Fund cannot exceed 3 percent of national petroleum wealth. Exceptions made if the government provides a detailed explanation to parliament and certain reports. Maximum 40 percent of excess oil and gas revenue above estimated revenue is used to finance the budget; the rest goes into the Heritage and Stabilization Fund. An 11-year revenue average is used for budget estimates.

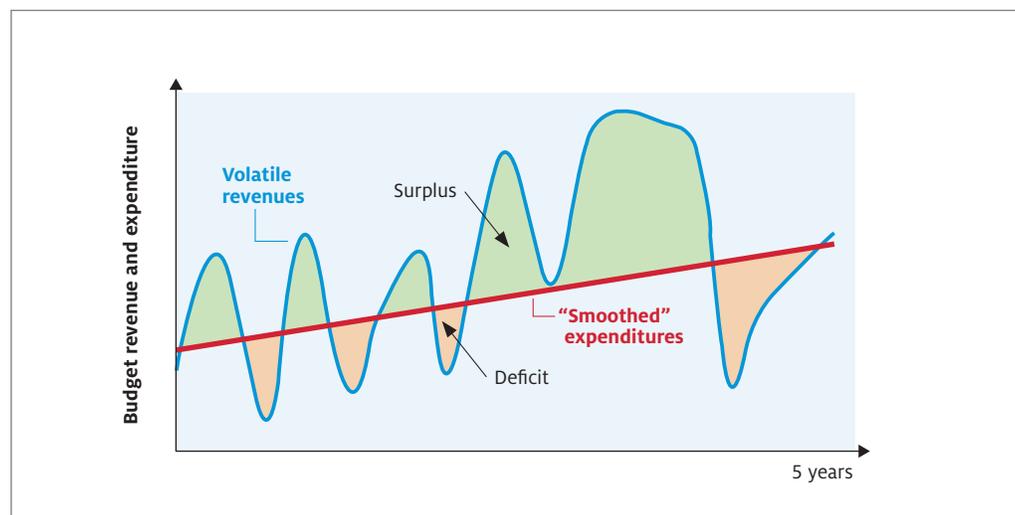
³ Overall fiscal balance means that expenditures equal revenues; primary fiscal balance means that total expenditures minus interest payments on debt equal revenues; current fiscal balance means that total expenditures minus spending on capital expenditures equal revenues; headline fiscal balance refers to expenditures equaling revenues at any time; structural fiscal balance refers to expenditures equaling revenues when the economy is working at "potential" or full capacity; a deficit refers to when expenditures are greater than revenues; a surplus is when revenues are greater than expenditures.

Employing a fiscal rule in a resource-rich country will likely generate periods of fiscal surplus and deficit (see Figure 2). For example, let us assume that Peru's government spends exactly what it receives in revenue in 2012 (i.e., it is in "fiscal balance"). If revenues grow by 5 percent in 2013, but the rule says that the government cannot increase expenditures faster than 4 percent per year, then Peru must decide what to do with the surplus revenue. Given the fiscal rule that limits additional spending, it only has three choices: lower taxes, use the surplus to pay down public debt or save the surplus in a sovereign wealth fund. Lowering taxes during a temporary windfall period may prove fiscally unsound in the long term and the country may already be in a sustainable public debt position, as is the case in Peru. Thus some fiscal rules can give rise to sovereign wealth funds/natural resource funds. In Peru's case, the government has chosen to pay down the public debt; however, discussions are now taking place on creating a natural resource fund.

Of course, some governments have established sovereign wealth funds without enacting fiscal rules or complying with existing rules. However, in these countries, macroeconomic and fiscal policy may be inconsistent, leading to volatile budgets, exchange rates or inflation (e.g., Kuwait), fiscal policy may be less credible, leading to weak private investment (e.g., Mexico) and government spending may be less accountable to the public, leading to poorer public investment decisions and execution (e.g., Azerbaijan).

In short, natural resource funds in and of themselves do not affect the pattern of government behavior. However, under the right circumstances, fiscal rules can give rise to natural resource funds, which in turn can provide a source of financing to support a steady scaling up of public investment, help stabilize budgets, and provide an endowment for future generations.

Figure 2:
Effects of an Expenditure
Growth Rule—Periods of
Surplus and Deficit



What is an appropriate fiscal rule for a resource-rich government?

There is considerable academic debate around the appropriate fiscal rule for resource-rich governments. The International Monetary Fund (IMF) has previously advocated for the so-called permanent income hypothesis (PIH) rule, which limits spending from oil, gas or mineral revenues in any given year to the interest accrued on all oil, gas and mineral wealth. The idea is that, since oil, gas and minerals are nonrenewable, consuming them today is unfair to future generations. In short, the subsoil asset should benefit current and future generations equally.

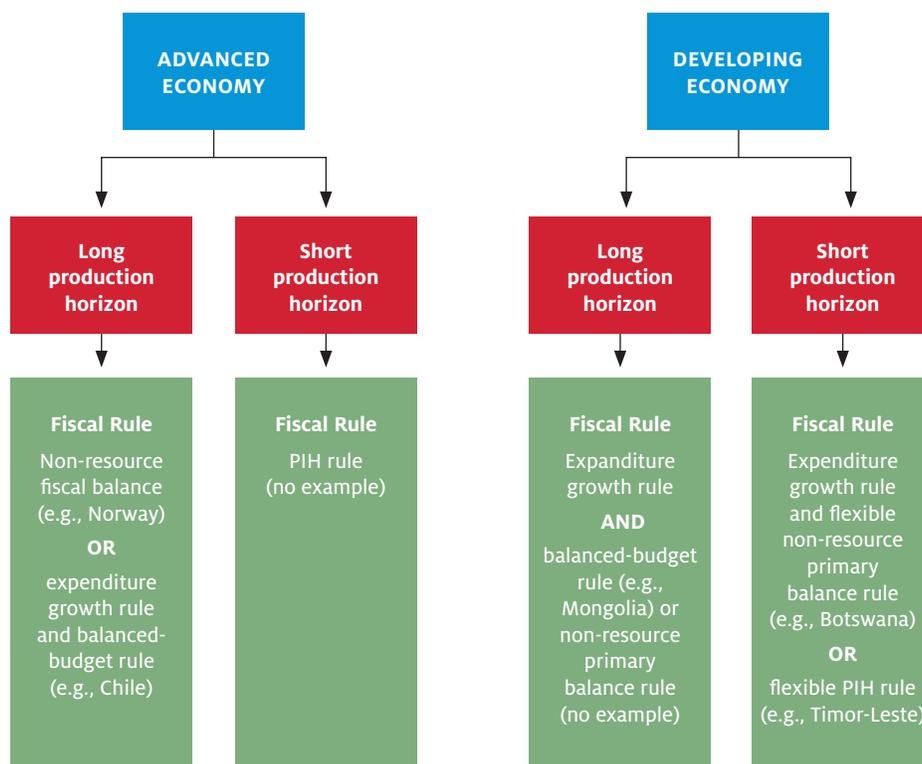
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Under this rule, extractive revenues would yield essentially the same amount of money for public spending for eternity, even though the original source of financing is finite (see Figure 4). This rule not only forces governments to save a significant proportion of natural resource revenue for future generations, especially at peak production, but also smooths expenditures, thereby addressing the budget volatility problem. However, the amount that governments are able to spend under the rule is susceptible to changes in oil, gas or mineral wealth estimates; governments can raise their price or production assumptions to make it seem like the value of all oil, gas or minerals is higher, thereby increasing the “fiscal space” available for current spending. Also, in developing countries that have significant infrastructure and social program financing needs, there may be good reason to increase spending in the early years of production to address development bottlenecks—like a shortage of electricity, clean water or qualified teachers—to spur growth and diversify the economy.

Recently the IMF’s views have shifted somewhat. Recognizing that capital-scarce developing countries require public financing to grow their economies, IMF staff is now advocating a two-tiered approach. Governments in advanced economies should employ a PIH rule if they have less than a couple of decades of production remaining but may wish to employ a non-resource primary balance rule (e.g., Norway’s rule) or an expenditure growth rule coupled with a “smoothed” balanced budget rule if they have long-lasting resources (e.g., Chile’s rule). Governments in lower-income countries without many years of production remaining should employ an expenditure growth rule coupled with a “flexible” non-resource primary balance rule or a PIH rule that allows a special allowance for more spending in early years of production, as in Timor-Leste. However, lower-income countries with many decades or even centuries of resources remaining may wish to employ an expenditure growth rule along with either a “smoothed” balanced budget rule, as in Chile, or a “flexible” non-resource primary balance rule (see Table 1 for explanations of the different rules). The IMF’s decision tree is provided in Figure 3.

Figure 3:
IMF Decision Tree on
Fiscal Rules for Resource-
Rich Countries

Source: Drawn from Baunsgaard et al. (2012)



While the IMF's advice is now more nuanced and adaptable than the one-size-fits-all approach it has applied in the past, several notable academics including Paul Collier, Jeffrey Sachs and Michael Spence have suggested fiscal rules that take a more development-related approach. Fiscal policy should not focus exclusively on fiscal sustainability and intergenerational equity. Resource revenues should be used to finance public investments in infrastructure, government institutions, and health and education first and foremost. It is true that fast scaling up of public investment can cause Dutch Disease if there is a lack of absorptive capacity; after all, increased spending can simply cause a higher demand for imports, appreciating the exchange rate or incentivizing local contractors to raise their prices rather than expand supply. However, if done properly, public spending can “crowd-in” private investment by creating an environment in which the private sector can become globally competitive.

How much a government should spend on public investments or to boost immediate consumption for the poor and how much should be saved in financial assets (i.e., in a natural resource fund) should depend on two elements: the social return to public investment and the need for precautionary savings to buffer unanticipated downswings in government revenue. In short, if a country urgently requires public investment for the economy to grow, the government spends money well (i.e., there is high public sector absorptive capacity), and there is private sector capacity to build infrastructure and provide needed services, then the country is said to have a high social return to public investment. In this case, the government should spend more and save less. However, a government should actually save slightly more than a simple analysis of the social return to public investment would dictate since it will need a pool of funds to draw on to overcome cyclical downturns and prevent the boom-bust cycles so common in resource-rich countries (illustrated for Venezuela in Figure 1). Also, it may wish to offset the depletion of a finite asset and provide an inheritance for future generations.

Fiscal rules should therefore reflect national objectives and country circumstances. For example, if the objective is to stabilize the budget, the government could employ an expenditure growth rule. If the objective is to stabilize the budget and save for future generations, it could employ a PIH-type rule or a revenue rule that is dependent on a long-term average of resource revenues. If the objective is to stabilize the budget and provide financing for development in early years of production but still have a pot of money in case of cyclical downturns or emergencies, then the government could employ a more eclectic rule, such as depositing 70 percent of an 11-year average of mineral revenues in the budget and depositing the remaining amount in a Petroleum or Mineral Stabilization Fund, which would be used to make up shortfalls in expected revenue (see intermediate rule in Figure 4).

As a general guideline, the percentage saved should increase if there is a high expected rate of return on foreign investments, a fast depletion rate, or there is a large risk of negative fiscal or financial shocks to the economy. Conversely, fiscal space should increase as absorptive capacity rises, when there are significant development needs, when there is high absolute poverty, and if public debt is unsustainable and needs to be paid down (see Table 2). The domestic political situation should also be considered. If there is likely to be significant political pressure on the government to spend more, the fiscal rule ought to allow for extra fiscal space, as in the Ghanaian case. On the other hand, if future governments are likely to spend revenues more effectively than the current government, it may be worthwhile to constrain today's government's freedom to spend.

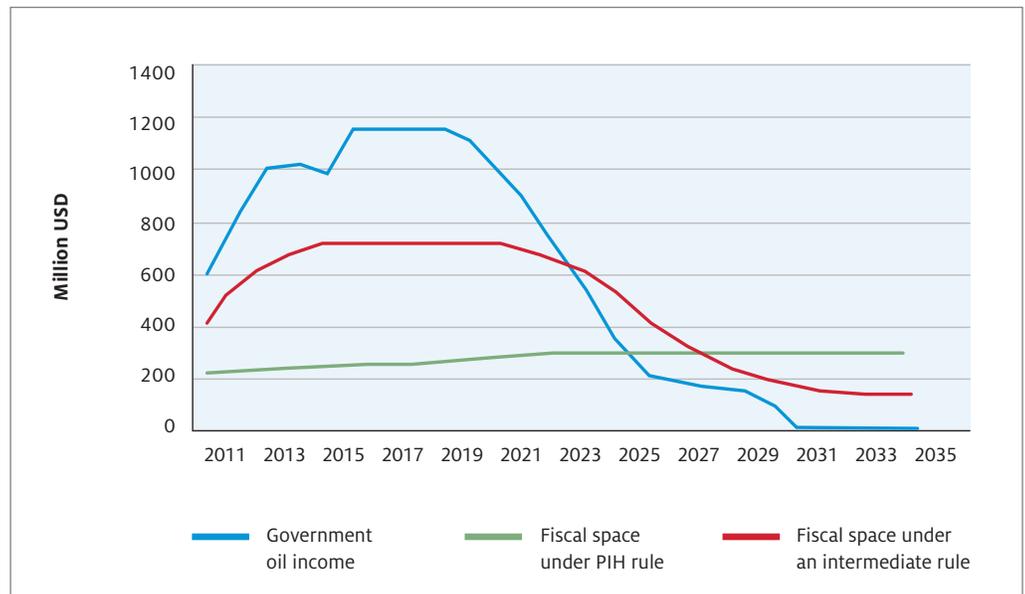
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Table 2:
Guideline for Designing a Fiscal Rule/Saving-Spending Ratio

Less Fiscal Space	More Fiscal Space
Low government capacity to spend effectively	High government capacity to spend effectively
Government performance not improving	Government performance improving
Low private sector absorptive capacity	High private sector absorptive capacity
Adequate public infrastructure and investment	Inadequate public infrastructure and investment
High rate of return on foreign investments	Low rate of return on foreign investments
Fast depletion rate	Slow depletion rate
High risk of negative economic, environmental or social crises	Low risk of negative economic, environmental or social crises
Low poverty rate	High poverty rate
Sustainable public debt path	Unsustainable public debt path

Finally, if fiscal rules are too flexible, then they cannot act as an effective commitment mechanism linking successive governments’ policies. If they are too rigid, then they will limit the government’s ability to respond to changing circumstances or the government will find a way around them. It is therefore crucial that they be designed appropriately, there is national consensus on the fiscal rules and they are enforced.

Figure 4:
Spending and Saving under Different Fiscal Rules



Operationalizing fiscal rules for NRFs: Deposit and withdrawal rules

In countries with natural resource funds, fiscal rules are often converted into two sets of operational rules known as deposit and withdrawal rules. Deposit rules define which oil, gas or mineral revenues are deposited into the fund and when. Withdrawal rules define how much revenue can be withdrawn from the fund in any given quarter or year and where the money goes.

Deposit Rules

Deposits are usually made by electronic transfer directly into the fund by the entity bearing the payment obligation or they pass through the national revenue authority before being deposited into the fund. Which payments are included depends on regulation or legislation. The most comprehensive rules require all extractive sector and related payments streams to be deposited. The full list can include:

- Interest on natural resource fund investments
- Bonuses (including signature, discovery and production bonuses)
- Royalties (including royalties-in-kind)
- Profit taxes (including windfall, resource rent, income and production taxes)
- Sales of “profit oil”
- Net consumption-based taxes (including excise, fuel and carbon taxes)
- Capital gains tax derived from the sale of ownership of exploration, development and production rights
- Withholding taxes
- Dividends from equity stakes or sales of state property
- Fees (including development, exploration, license, rental, and concession fees)
- Production entitlements (by value and volume)
- Transportation and terminal operations fees
- Customs duties/import and export levies
- Fines/penalties paid to government

Commonly, certain streams are excluded. For example, the Alaskan constitution does not require property taxes or income taxes to be deposited into the Alaska Permanent Fund. These two payments alone may represent up to two-thirds of petroleum revenue in any given year. Wyoming only requires a 2.5 percent excise tax on oil, gas and minerals to be deposited into its Wyoming Permanent Mineral Trust Fund.

Minimum deposits may also be required, especially in jurisdictions with expenditure growth or balanced budget rules. Wyoming, for example, must deposit 75 percent of the surplus over and above its Spending Policy Amount, which is a limit on expenditure growth. Similarly, Chile must deposit all mineral revenue that causes it to exceed the 1-percent-of-GDP-structural-surplus limit on spending.

Some governments also specify which companies are covered. In Kazakhstan, for example, the government sets the list of companies whose payments make their way into the National Fund. By changing the list every year, it can determine how much revenue is placed in the budget and how much is deposited into the fund. In addition, publicly owned companies may be treated differently from private companies. Payments from national oil companies (NOCs) or state-owned mining companies are usually deposited directly into the fund but may be subject to special rules allowing them to retain certain profits. For example, only 10 percent of the Kuwait Oil Company’s (KOC) profits are deposited into the Kuwait Investment Authority. The KOC retains costs, 50 cents per barrel and revenue from sales to refineries. The remaining amount is transferred to the government.

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Other deposit rules specify which stages among exploration, development, production, transportation, processing and export are covered. For example, the Timor-Leste revenue management legislation specifies payments “from all petroleum operations including prospecting, exploration, development, exploitation, transportation, sale or export of petroleum and other related activities.” In contrast, the Abu Dhabi Investment Authority simply states that deposits “are derived from petroleum revenues.”

Finally, some natural resource funds require that payments be made from non-extractive as well as extractive revenues. For example, proceeds from the sale of agricultural land are deposited into the Kazakhstan National Fund.

Withdrawal Rules

Withdrawal rules specify how often withdrawals can be made, where they must go, the amount of any transfer and whether they need to be approved by parliament. In terms of timing, withdrawals can be limited to a single annual transfer to the treasury (e.g., São Tomé and Príncipe; Trinidad and Tobago), limited to quarterly transfers to stabilize the budget (e.g., Ghana), or can be left to the discretion of the government (e.g., Brunei).

Transfers are usually made to the state treasury, though on occasion there are exceptions. The Alaska Permanent Fund disbursed just under 50 percent of deposits in any given year directly to households in the form of a citizen dividend. Interest from the Texas Permanent University Fund is disbursed directly to the University of Texas and Texas A&M University.

Withdrawals can also be earmarked for development purposes. Withdrawals from Chile’s Pension Reserve Fund, not to exceed the fund’s investment returns from the previous year, must finance pensions, welfare and social security liabilities. Russia’s National Wealth Fund should be used to pay for pension liabilities. Ghana’s oil revenues must finance national development projects. Texas Permanent University Fund withdrawals must be spent on specific academic purposes such as scholarships, fellowships and student services. And Botswana’s mineral revenues must be spent on public investment. Regrettably, earmarking may be ineffectual since money is fungible; it is interchangeable with other money so it is rarely possible to monitor and verify compliance. For example, say Botswana collects \$10 billion non-resource taxes and spends \$1 billion on infrastructure. If it collects an additional \$1 billion in diamond revenues, this does not mean that it will spend \$2 billion on infrastructure. Instead, it may simply claim to spend the diamond revenue on infrastructure, maintaining the \$1 billion infrastructure budget, and shift \$1 billion in non-resource taxes from infrastructure spending to another line item, such as government wages.

Amounts permitted for withdrawal are usually determined by fiscal rules, which, where they exist, are more often than not legislated. In countries with expenditure or balanced budget rules (e.g., Botswana, Norway and Chile), withdrawals must not exceed the maximum budget deficit or minimum surplus.⁴ Countries with revenue rules have more varied withdrawal rules. In Trinidad and Tobago, for example, where the petroleum revenues collected in any financial year fall below the estimated petroleum revenues for that financial year by at least 10 percent, either 60 percent of the revenue shortfall or 25 percent of the fund’s balance can be withdrawn, whichever is the lesser amount. In Timor-Leste, the amount withdrawn in any given year cannot exceed 3 percent of national petroleum wealth, unless justification is provided to parliament. In Ghana, the Ghana Stabilization Fund has a different set of withdrawal rules than the Ghana Heritage Fund. In case of a greater than 25 percent shortfall in expected petroleum revenue in any given quarter, the lesser of either 75 percent of the estimated shortfall or 25 percent of the fund’s balance will be withdrawn from the Ghana Stabilization Fund. Withdrawals from the Ghana Heritage Fund can only

⁴ Norway’s balanced budget rule is a political commitment and has not been legislated.



be made once oil revenues are depleted and the two funds are merged. At that point, withdrawals cannot exceed the interest on the combined fund.

Some countries have specified the conditions under which exceptions to fiscal rules may be made. Statutory exceptions allow for flexibility while maintaining the long-term perspective prompted by fiscal rules. Timor-Leste, for example, allows for additional withdrawals from the Petroleum Fund provided they are justified to parliament. Norway's fiscal guidelines allow for deviations from their fiscal rule when the economy is working well below full capacity and when there are large changes in their natural resource fund's value. Ghana's parliament reviews the percentage split between the Stabilization Fund and the Heritage Fund once every three years.

While the countries mentioned have comprehensive rules, others' rules are constantly changing, are insufficient or simply do not exist. Kazakhstan, for example, has had three drastically different withdrawal rules since 2005, limiting the effectiveness of its fiscal rules as a commitment mechanism. Russia suspended its long-term non-oil deficit target of 4.7 percent of GDP and resulting withdrawal rules for its Reserve Fund in 2009. Abu Dhabi, Azerbaijan and Brunei simply have no withdrawal rules.

Conclusion

Countries rich in nonrenewable resources face a specific set of macroeconomic challenges associated with their unique nature: Dutch Disease, volatility and exhaustibility. Each in its own way can lead to wasteful spending or boom-bust economic cycles. In recognition of this uniqueness, many countries have established natural resource funds. However, these funds by themselves do not guarantee sound macroeconomic management—just the opposite: They may lead to less government accountability.

Fiscal rules are a key set of tools that resource-rich countries can use to promote sound macroeconomic management. They can help mitigate budget volatility, help governments save in case of emergency, help mitigate Dutch Disease or help benefit future generations. Most important, they can help commit successive governments to a common macroeconomic policy, bringing a

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long-term vision to government financial decisions in the countries that need it most. The challenge is in finding the right set of context-specific fiscal rules, generating consensus on the rule(s), effectively converting the rule(s) into operational deposit and withdrawal rules, and enforcing them.

Related readings

Baunsgaard, Thomas et al. "Fiscal Frameworks for Resource Rich Developing Countries." IMF Staff Discussion Note 12/04, IMF: Washington, D.C., 2012. <http://www.imf.org/external/pubs/ft/sdn/2012/sdn1204.pdf>

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