iisd International Institute for Sustainable Development / Institut international du développement durable

http://www.iisd.org

National Revenue Funds

Their efficacy for fiscal stability and inter-generational equity

Samuel G. Asfaha

August 2007

© 2007 International Institute for Sustainable Development (IISD)

Published by the International Institute for Sustainable Development

The International Institute for Sustainable Development contributes to sustainable development by advancing policy recommendations on international trade and investment, economic policy, climate change, measurement and assessment, and natural resources management. Through the Internet, we report on international negotiations and share knowledge gained through collaborative projects with global partners, resulting in more rigorous research, capacity building in developing countries and better dialogue between North and South.

IISD's vision is better living for all—sustainably; its mission is to champion innovation, enabling societies to live sustainably. IISD is registered as a charitable organization in Canada and has 501(c)(3) status in the United States. IISD receives core operating support from the Government of Canada, provided through the Canadian International Development Agency (CIDA), the International Development Research Centre (IDRC) and Environment Canada; and from the Province of Manitoba. The institute receives project funding from numerous governments inside and outside Canada, United Nations agencies, foundations and the private sector.

International Institute for Sustainable Development
161 Portage Avenue East, 6th Floor
Winnipeg, Manitoba
Canada R3B 0Y4
Tel: +1 (204) 958–7700
Fax: +1 (204) 958–7710

E-mail: info@iisd.ca
Web site: http://www.iisd.org/

Samuel G. Asfaha is a Programme Officer of the Trade for Development Programme of the South Centre, an intergovernmental think-tank of developing countries based in Geneva, Switzerland. The views expressed in this paper are those of the author and do not necessarily represent the views of the South Centre or its member states. The author is very thankful to Oli Brown and Alec Crawford of IISD for their thoughtful comments. Any remaining inaccuracies, mistakes or omissions are solely the author's. The author can be contacted at samuelasfaha@hotmail.com.

Tackling Commodity Price Volatility

This paper is published as part of a larger project, sponsored by the Norwegian Government, on policy options to tackle the problem of commodity price volatility. More research and papers can be found at http://www.iisd.org/markets/policy/price.asp

Contents

Boxes

Executive Summary

Several governments in developing countries heavily depend, either directly or indirectly, on the export of a few primary commodities for revenues. However the prices of these commodities exhibit both excessive short-term volatility and long-term decline. The booms and busts in commodity prices are asymmetrical both in duration and amplitude. For most commodities, busts tend to be longer in duration and higher in amplitude. These stylized facts of short-term and long-term commodity prices have several developmental impacts on commodity-dependent countries. In these countries, commodity price fluctuations culminate in cycles of booms and busts in government revenues. If government expenditures closely trace government revenues (i.e., an expansion in spending during booms and a contraction during busts), the result is fluctuations in government expenditure.

The main developmental implications of pro-cyclical expenditures—i.e., those expenditures that closely trace revenues patterns—are, among others: "go-stop" public investments (over-ambitious projects during booms which may get abandoned during busts); excessive investment on hastily executed and low-return projects; expenditure entrenchment; debt accumulation; a loss of competitiveness in manufacturing (i.e., the Dutch disease effect); a weakening of institutions and systems that support innovation and entrepreneurial development; and weak transparency and accountability.

Expenditure-smoothing through de-linking government expenditure from revenue is therefore critical. National revenue funds (NRFs) have been seen as viable mechanisms to do so. NRFs take two forms: stabilization funds (also called rainy-day funds) and savings funds (or future generation funds).[1] Stabilization funds aim to smooth government expenditure by accumulating savings during booms to serve as a buffer against future price drops. Saving funds aim at accumulating savings for use by future generations. Botswana, Norway and Alaska have often been cited as countries and states that have used NRFs to successfully manage their resources. Not all examples are successes, though; countries such as Oman and Venezuela have used revenue funds in the past but have not prudently managed their oil revenue. This is mostly due to non-adherence to NRF rules (including frequent changes to the rules).

Several studies show that stabilization funds cannot on their own address the problems associated with revenue volatility. The key determinant for the success of NRFs is the political-economic environment in which they operate. In other words, the political-economic incentives that governments face are central to how well revenue from natural resources is managed. Thus, the critical question in the design of an NRF is how to use the NRF as leverage to shape the political-economic incentives of governments. The model that the World Bank used in Chad was to impose a national revenue management law as loan conditionality. However, repeated breaches of the law by Chad and the government's attempt to change the law and abolish the future generation fund, alongside recurring tension between the two parties, has already signalled that externally imposed models are difficult to sustain and typically doomed to fail.

We agree with the view that, in countries where the political-economic incentives that governments face may not foster prudent revenue management, NRFs should not be used to impose optimal expenditure paths. In such countries, NRFs should instead be

[1] A combination of these two types of funds is also common.

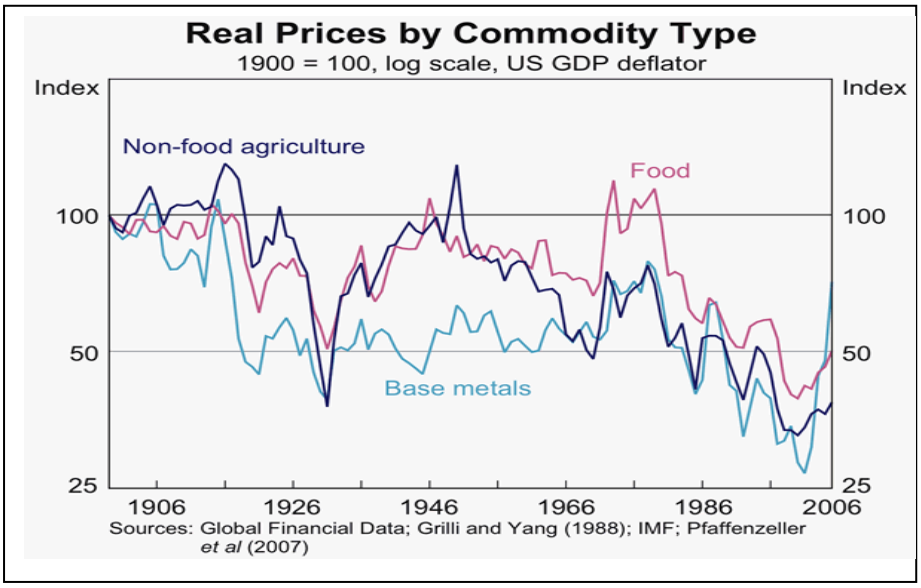
used as policy tools for re-aligning the diverging interests of governments, influential groups and society at large. We believe that nation-wide multi-stakeholder consultations are the way to go about it. We argue that recent advancements in democratization in several countries and increased internal and external pressures are among the reasons why multi-stakeholder consultations on resource management are feasible. We also argue that nation-wide multi-stakeholder consultations may pave the way for revisiting earmarked distribution patterns. Any multi-stakeholder consultation should target three important issues: establishing a national revenue management law which is acceptable to all stakeholders; establishing a multi-stakeholder independent oversight and monitoring committee to ensure checks-and-balances and compliance with the national revenue law; and giving the law constitutional status, to protect it from amendment or override by a single entity.

1. Introduction

Many developing countries depend on the export of a few primary commodities for a substantial share of their revenue.[2] However commodity prices are notoriously volatile. This is illustrated in Figure 1, which shows a century-long movement in long-term real prices (as adjusted by U.S. GDP deflator using the year 1900 as a base-year) for three groups of non-fuel primary commodities: food commodities; non-food agriculture commodities; and base metals.[3] Two observations stand out for each group of commodities: long-term real commodity prices have been historically declining and prices exhibit short-term volatility.

The figure confirms Deaton and Laroque's (1992) observation that real commodity prices are often dominated by long slumps punctuated by sharp upward spikes. In other words, real commodity prices trend downwards in the long-term while interrupted by short-term volatilities.

Figure 1



Source: Reserve Bank of Australia, Bulletin, April 2007

Understanding the properties of short-term price volatility (i.e., the booms and busts) is important. In 1999, Cashin et al. examined the nature of commodity booms and busts for 36 non-fuel primary commodities. Two of their findings were: (i) for all but five of the 36 commodities (sugar (U.S. price), sugar (international price), beef, lamb and coconut oil), price busts lasted longer than price booms; and (ii) the magnitude of price falls in a slump is slightly larger than those of price rise in subsequent booms. The findings show that, on aggregate, commodity price booms and busts are asymmetrical

[2] For example, former UN Secretary General Kofi Annan, in his report to the 58th session of the UN General Assembly, observed that as many as 38 developing countries are dependent on a single commodity for more than 50 per cent of their income, while 48 depend on only two (see at http://info.worldbank.org/etools/docs/library/57495/sgreport.pdf).

[3] These commodities are composed of 11 food commodities (bananas, beef, cocoa, coffee, lamb, maize, palm oil, rice, sugar, tea and wheat); seven non-food agricultural commodities (cotton, hides, jute, rubber, timber, tobacco and wool); and six metals commodities (aluminium, copper, lead, nickel, tin and zinc). Prices have been adjusted to reflect inflation.

both in their duration and amplitude. In terms of duration, the same study found that, on average, the length of a typical commodity price slump was over 10 months longer than the typical length of price booms, giving an average cycle (peak-trough-peak movement) of about 68 months (five years and eight months).

Commodity busts cause a fall in government revenue. The extent of the fall is determined by the magnitude of the commodity price drop and the importance of the commodity in the government's fiscal structure. The two prevailing trends in commodity prices have at least two major implications on the short-term export revenues earned by commodity-dependent countries. First, fluctuations in real commodity prices imply that commodity revenues fluctuate in the short-run with likely deteriorations in the long-run. Second, periods of lower revenue tend to dominate periods of higher revenue. This long-term price decline is much higher when measured relative to prices of manufactured goods. This situation leads to a deterioration of commodity terms of trade, i.e., the purchasing power of a unit of commodity vis-à-vis a unit of manufactured good. World Bank estimates suggest that between 1970 and 1997 the decline in terms of trade deprived the non-oil exporting countries of Africa of an equivalent of 119 per cent of their combined annual gross domestic product in lost revenue.[4]

The rest of this study is organized as follows. Section 2 briefly outlines the major challenges associated with commodity price volatility and the challenges that governments in commodity-dependent developing countries face. Section 3 discusses the paradox of low economic growth in several resource-rich countries and highlights the causes of this paradox. Section 4 deals with the various policies put forth to address the paradox of growth in resource-rich countries. Section 5 discusses the role, from a theoretical angle, of national revenue funds (NRFs) as instruments for revenue stabilization and inter-generational equity. Section 6 identifies and briefly discusses the factors that determine the success or failure of NRFs, with an emphasis on the political-economic incentives of government expenditure. In Section 7, we argue for nation-wide multi-stakeholder approaches to establishing national revenue management laws. Section 8 provides a conclusion and recommendations.

[4] World Bank, 2003.

2. Challenges of Commodity Price Volatility

Excessive volatility of commodity prices has had severe developmental implications for commodity-dependent nations, with cycles of booms and busts in real national incomes creating problems for macroeconomic management.[5] In several developing countries, exports of primary commodities contribute to a substantial share of government revenues directly (e.g., dividends and royalties) and/or indirectly (e.g., income tax and export tax). As a result, many governments in commodity-dependent developing countries face extremely variable revenues due to recurring phases of commodity booms and busts.[6] This revenue instability can be short-term or long-term. Short-term instabilities are a result of drastic volatility of commodity prices. Concerns related to long-term instabilities arise for non-renewable commodities such as oil and gas, which are subject to depletion and cannot be indefinitely exploited. Renewable commodities are affected by long-term instabilities for two reasons. First, long-term prices for commodities relative to manufacturing tend to fall, and with them revenue earnings from those commodities. Second, some commodities, particularly raw material commodities, have increasingly faced the threat of substitution due to new scientific developments in biotechnology and nanotechnology.[7]

Short-term revenue instability presents serious challenges for macroeconomic planning, particularly for fiscal policy management. If expenditure patterns follow revenue patterns, cycles of booms and busts in commodity prices get translated into cycles of booms and busts in fiscal expenditures. As a result, fiscal policy becomes pro-cyclical, implying that spending goes up (and taxes go down) in periods of booming prices and spending goes down (and taxes up) in periods of price busts. Such patterns of expenditure are common in developing countries,[8] and are associated with poor fiscal management.

The macroeconomic and fiscal policy challenges are further pronounced by the uncertainties surrounding the long-term sustainability of some natural resources. Countries that depend on the exploitation of non-renewable commodities, such as oil, gas and minerals, face a trade-off between current and future revenue. This implies that governments in non-renewable-commodity-dependent countries are not only faced with questions of inter-temporal budget constraints but also of inter-generational equity.[9]

---

[5] See Mehrara and Oskoui, 2007; He and Westerhoff, 2005; and Dehn, 2001

[6] Humpreys and Sandbu, 2007.

[7] See South Centre, 2005.

[8] In a study conducted on a sample of 56 counties (20 industrial and 36 developing countries), Talvi and Végh (2005) found a positive correlation of 0.53 between government revenue and government consumption for developing countries, compared to a correlation of nearly zero for G7 countries and positive 0.25 for non-G7 industrial countries. The result shows that for every one dollar increase (decrease) in government revenue in developing countries, government consumption increases (decreases) by 0.50 cents; in non-G7 industrial countries consumption changes by only 0.25 cents while government consumption in the G7 is almost de-linked from revenue. For more, see Sanchez de Cima, 2003; and Alesina and Tabellini, 2005.

[9] Inter-generational equity refers to the right of future generations to benefit from natural resources.

A government that depends on a few commodities for a large share of its revenue faces three critical challenges:[10]

i. buffering itself from excessive short-term revenue volatility, i.e., short-term fiscal stabilization;
ii. protecting the wider economy, in particular the manufacturing and agriculture sector, from contraction, i.e., Dutch Disease; and
iii. establishing strong socio-economic institutions for economic and revenue-base diversification.

In addition to these three challenges, governments will face two more critical challenges if the commodity which it depends on for revenue is non-renewable:

iv. insuring itself against the long-term decline of revenue due to the likely depletion of resources, i.e., inter-temporal fiscal constraint; and
v. ensuring inter-generational equity.

[10] These are in addition to environmental concerns and concerns of conflict over control of mineral resources.

3. Natural Resource Wealth and Development

Several studies have documented a strong negative correlation between economic growth and natural resource wealth.[11] This negative correlation is often termed the "resource curse." Nigeria, the world's seventh largest oil producer, is often seen as one notorious example. As Weinthal and Luong (2006) documented:

> Its [Nigeria's] government has accrued $350 billion in oil revenue since independence, and yet its economy has shrunk; in purchasing power parity (PPP) terms, Nigeria's GDP per capita was $1,113 in 1970 but only $1,084 in 2000, and during this same period, its poverty rate "measured as the share of the population subsisting on less than US$1 per day increased from close to 36 percent to just under 70 percent.

The resource curse has been mostly studied in the context of booms in mineral commodities, particularly oil and gas. This is essentially due to two factors. First, oil and gas prices are more volatile than other commodities; Dehn (2001) found oil and gas prices to be twice as variable as those of other commodities. Second, mineral commodities such as gas and oil in general generate higher income than primary agricultural commodities, and are thus more alluring to rent-seeking behaviour. However, the difference in correlations of natural resource wealth and growth between mineral and non-mineral commodities is essentially one of degree. The factors that cause the resource curse are similar for all commodities and have to do with the management of the windfall revenues associated with commodity booms.

Obviously, this is a paradox. Why would natural resource wealth be correlated with low instead of high economic growth, when higher revenue from natural resources might mean a relaxation of fiscal, savings and foreign exchange constraints? Several academics and policy-makers have pondered this question for decades. The general conclusion is that the resource curse is mainly a result of poor management of windfall revenues associated with commodity booms: the unwise use of large windfall revenues contributes to economic degeneration.

The literature on development has vastly documented that commodity booms and busts are often badly handled.[12] But while booms may not translate into sustained higher incomes, busts almost always cause long-lasting detrimental effects.[13] In an important empirical study, Little et al. (1993) reviewed the experiences of 18 developing countries that experienced favourable terms of trade shocks (relative increases in their export prices) during the 1974 to 1989 period. The results show that these countries did not grow more than countries that experienced negative terms of trade shocks during the same period. There are two major causes for this: (i) the poor management of windfall revenues from the commodity booms and (ii) the loss of competitiveness in non-booming industrial and agricultural sectors—a phenomenon known as Dutch Disease.[14]

[11] See, Auty, 1998; Sachs and Warner, 1995 and 1997.

[12] See Gelb, 1988; and Bevan et al., 1989 and 1993.

[13] Collier, 2002.

[14] The term "Dutch Disease" originated in the Netherlands during the 1960s, when the high revenue generated by its natural gas discovery caused detrimental effect on the competitiveness of its other export sectors and deterioration in economic growth.

3.1 Poor management of windfall revenue from commodity booms

Most governments find it hard to resist the temptation of spending windfall commodity revenues. This spending often fuels government expenditure on the current account and on low-return public investment programs. Competitive rent-seeking behaviour is, by and large, the engine that propels the spending binge associated with commodity booms. As the *Economist* (1995), cited in Talvi and Végh (2005), states:

> The trouble is that the lure of those fat rents can be hard to resist. The upshot is routinely an outbreak competitive rent-seeking. The power centre in any resource-rich country soon notice that the profits from capturing a slice of the rent from natural resources beat those of any possible alternatives…Experiences bears this out. In Mexico in the 1970s, politicians and firms battled over the state's oil revenue. So it was in Venezuela, Nigeria, and several other big exporting countries. Nor is the experience restricted to oil exporters. Other resource-rich countries have blown the proceeds of their wealth in competitive rent-seeking: Australia and Brazil are outstanding examples.

3.1.1 Expansion in current account expenditure

Most governments, particularly in developing countries, operate on short time horizons. This leads them to seek to extend their tenure or enhance their image by expending windfall revenues on public consumption or the bureaucracy.[15] Both democratic and authoritarian governments are generally pre-occupied with short-term political success, and most find it attractive to use windfall revenues for short-term political gains.[16] Often, this involves an expansion of current account expenditures. In most cases, a substantial proportion of this expansion takes place in the form of higher salaries and wages, and current transfers and subsidies (on goods such as food, fertilizer or petroleum);[17] for political reasons, it is often difficult for governments to reduce these expenses once the boom dies down. In other words, the expansion in current account expenditures tends to be less flexible downwards, and gets entrenched. This was the case in Sri Lanka following the mid-1970s and mid-1980s tea, rubber and coconut boom; in Malaysia following the early 1980s increase in petroleum price; and in Kenya following the coffee boom of the mid-1970s.[18] In addition, Cameroon, Colombia, Costa Rica and Cote d'Ivoire each saw public expenditure overtake revenues during the mid-1970s coffee boom.[19]

3.1.2 Investment on low-return and over-ambitious projects

Deaton and Miller (1996) observed that governments may squander windfall revenues on hastily executed programs that involve projects that earn a low return and are irreversible. Of course, a portion of the revenue increase from commodity booms may go to good public investment projects; the right kind of public investments are indeed desirable and needed. However, in many countries such investments involve over-ambitious projects that are abandoned halfway through when revenues decline. As the *Economist* (1995), cited in Talvi and Végh (2005), observes, most public investment projects associated with

[15] Gupta and Miranda, 1991.

[16] Talvi and Végh, 2005.

[17] Gupta and Miranda, 1991.

[18] Tea, rubber and coconut accounted for bulk of Sri Lanka's export earnings with tea alone accounting for two-third; petroleum accounted for a third of total export earnings in Malaysia in the 1980s; and coffee accounted for a third of Kenya's export revenue.

[19] Little et al., 1993.

commodity booms in most countries were found to yield minimal, zero or, in few cases, even negative rates of return. Building on this observation, Talvi and Végh (2005) argue that such public investments should be viewed as falling essentially into the same category as government consumption, since non-productive investment will not generate future consumption.[20] In essence, most of the public investment associated with the commodity booms ends up as "dead."

Three major factors may explain the low returns of public investment projects associated with commodity booms. First, because of competitive rent-seeking behaviour, a substantial share of public investment may find its way to projects that generate short-term political gains to governments rather than to projects that generate high economic returns. Second, as commodity prices fall and revenues wane, good public investment projects may often get abandoned or take too long to complete. This "go-stop" nature of public investment is common in most developing countries where government revenue exhibits high variability. However, revenue variability *per se* is not the cause of this "go-stop" nature of commodity boom associated public investment. It is rather the combination of the revenue variability and the pro-cyclicality of fiscal policy—fiscal management in which government expenditures closely track revenues—that leads to poor management of windfall revenues. Both revenue variability and pro-cyclical fiscal policy are common in developing countries.[21] Third, government agencies in charge of macroeconomic stabilization (typically ministries of finance) may lack control over government spending agencies. Spending agencies may include housing and urban development agencies, health and social welfare agencies, public works and transportation agencies. A lack of transparency and timely information on expenditure by the spending agencies also makes effective regulation difficult in developing countries.[22]

3.1.3 Foreign debt accumulation

Several governments tend to increase external borrowing on the strength of a booming commodity. Usui (1997) rightly dubbed this as "boom-based borrowing capacity," because the borrowing capacity of booming countries might be improved drastically as they appear more attractive to lenders in donor countries. Hence, commodity booms in some countries fuel the debt accumulation process. In addition, governments may regard positive shocks as permanent and negative shocks as temporary. As a result they may tend to finance their deficit by borrowing when revenue starts to fall during busts. The debts often become unsustainable and debt servicing enormous when the bust hits and revenues fall.

Mexico is a case in point.[23] The oil boom of the 1970s and the tripling of oil production and exports allowed Mexico to reap immense profit; between 1977 and 1982, the country earned US$40 billion in oil revenues. This revenue was in turn matched by US$40 billion in foreign borrowing. By 1982, when oil prices plummeted and the world interest rate rose, almost 45 per cent of Mexico's oil revenue went to service its external debt. During that same year, its current account deficit was an unsustainable US$10 billion, forcing Mexico to devalue its currency by 46 per cent. The unsustainable debt and current

[20] For example, according to estimates, 75 per cent of public investment project in Nigeria associated with commodity booms are non-productive (Economist, 1995, cited in Talvi and Végh, 2005).
[21] See Talvi and Végh, 2005.
[22] See Premchand, 2000; and Kopits, 2000.
[23] See Library of Congress Country Studies, 1996.

account deficit finally precipitated to Mexico's default and the country's debt crisis.[24] This is not an isolated case. Nigeria found itself in a similar position in 2004; the country's total external debt was over $35 billion, the largest debt burden in Africa.[25] With persistent fiscal deficits and access to foreign borrowing declining, governments such as these are forced to cut back on their expenditures. This often involves cuts to important social projects such as infrastructure, education and social health, and hurt economic development in the long run.

3.1.4 Institutional weakening

Large windfall revenues may also weaken institutions such as tax systems. This is particularly the case for commodities whose proceeds directly accrue into government coffers. Direct income from commodities can reduce the government's incentives to establish robust systems and institutions for tax collection and tax-base diversification. Direct commodity incomes are less hassling and costly for the government, both economically and politically, than collecting tax revenue from the public. As a result, such governments depend less on taxes and their citizenry, and are therefore less pressed to provide for their needs.[26] As Kalzuzhnova and Kaser (2005)[27] observe, there is a degree of reciprocity between a government's tax collection and the social services it provides to the business and the household sector; such reciprocity is often ignored by a government that exacts its dues from "gifts of nature." Therefore, to the extent that commodity booms engender rent-seeking and patronage networks, they encourage little investment towards institutions of innovation and entrepreneurial development.

3.2 Dutch Disease

The second aspect of the negative terms of trade and poor economic performance associated with commodity booms has to do with what economists call the "Dutch Disease." Dutch Disease refers to the diminishing competitiveness of a country's manufacturing and agricultural sectors (i.e., sectors outside of the booming commodities sector) as a result of domestic currency appreciation in periods of commodity booms.[28] There are two channels through which Dutch Disease affects the export sector: the "spending effect" and the "resource movement effect,"

3.2.1 Spending effect

The spending effect refers to the shrinking of the export sector due to declining competitiveness, a result of the real exchange rate appreciation that is caused by commodity booms. The dynamics of this are different in flexible and fixed exchange rate regimes, but the effects are the same. The real exchange rate between two countries

[24] See Warner, 1993.

[25] See IMF, 2004.

[26] Instead, if the proceeds from commodity directly accrue to the producers/exporters, the government may have higher incentive to establish effective tax systems and institutions in order to generate higher revenue. In addition, the government will have the incentive to put institutions and systems that support and promote innovation and entrepreneurial development, since higher incomes to innovators and entrepreneurs means higher tax-base and therefore higher government revenue.

[27] Kalzuzhnova, and Kaser, 2005.

[28] Real currency appreciation is not necessarily restricted to commodity booms. It could be caused by all sources of capital inflow that substantially increase the domestic supply of foreign currency hence the demand for domestic currency. Such sources may include aid, foreign debt and foreign investment.

measures the price of a basket of goods and services in one country relative to a basket of goods and services in the other country. According to Krugman and Obstfeld (2003:411), the real exchange rate is "a broad summary measure of the prices of one county's goods and services relative to the other's." In contrast, the nominal exchange rate is a measure of the relative price of two currencies.[29] In other words, the nominal exchange rate measures how much of another country's currency a unit of one's currency buys.

In flexible exchange rate regimes—where exchange rates are determined by market forces—real exchange rate appreciation happens through the appreciation of the nominal exchange rate. In commodity-dependent countries, nominal exchange rate appreciation can occur with an increased inflow of foreign exchange into the domestic economy as a result of a commodity boom. This drives up the value of the domestic currency (in terms of foreign currencies), and decreases the relative value of the foreign currency. As a result, a unit of foreign currency now buys less domestic currency, and therefore fewer domestic goods and services (with domestic prices remaining the same), than before.

In fixed exchange rate regimes—where exchange rates are not allowed to vary with changes in demand and supply—real exchange rate appreciation happens through higher domestic prices, although the nominal exchange rate remains unchanged. The dynamics are as follows. The boom raises revenue due to the higher foreign exchange inflow. At the fixed exchange rate, there is now more cash to spend than before. As spending goes up, domestic prices increase. With higher prices for domestic products, a unit of foreign currency can now buy fewer goods and services in the domestic economy than it could before.

In both cases, the real appreciation of the domestic currency—i.e., higher prices of domestic goods and services relative to foreign goods and services—weakens the competitiveness of the country's exports. The danger is that even when the real exchange rate returns back to, or even below, its initial level after the price slump, it is difficult for a country to regain its competitiveness and lost market share.[30] The temporary expansion in the non-tradables sector (see definition below) during a boom could permanently cost a country its competitive position for its goods and services in both domestic and foreign markets.

[29] For more discussion, see Krugman and Obstfeld, 2003:411-420.

[30] This is mainly due to the existence of sunk-cost of market-entry (such as for example costs of advertising, market research and creation of marketing networks which cannot be recovered on exiting from market), a notion that economists call trade hysteresis. Hysteresis is a name given to an effect which remains after its causes are removed. High and unrecoverable entry-cost implies that once a firm enters a market it has a tendency to stay. A real exchange rate appreciation may cause foreign firms to enter domestic markets. The existence of large sunk-cost of entry means that the firms may not exit when the real exchange rate depreciates by equivalent unit. For detailed and technical discussion, see Baldwin, 1990.

3.2.2 The resource movement effect

The resource shift effect refers to a shift of labour and capital from the production and trade of export goods—other than the booming commodity and in particular the manufacturing sector—into the non-tradables sector, mostly services.[31]

The dynamics of this effect are that a portion of the higher revenues associated with the commodity boom may be spent on domestic goods and services. Studies show that governments have strong incentives to spend much of the windfall revenues on domestic non-tradables,[32] on what are called "white elephant" projects. These grandiose and ambitious infrastructure and housing projects are often handpicked for political rather than economic reasons.[33] As a result, the price of non-tradables increases relative to the price of tradables. Because the prices of tradable goods such as manufactured and agricultural products are determined on the international market, the increased demand for domestic goods pushes up the price of non-tradables like real estate.

The result is that domestic relative prices are altered in favour of non-tradables. This in turn may imply, respectively, higher relative wages and profits for the labour and capital employed in the non-tradables. As a result, labour and capital may start to move out of industrial and agricultural sectors into the non-tradables sector. The extent of this movement depends to a large degree on factor mobility.

[31] Non-tradable goods refer to goods that by their very nature cannot be profitably transported across borders. The sectors include transportation, real estate properties and tourism services such as hotels and recreation centres; these sectors are relatively less traded across boarders.

[32] Some examples of these include the man-made river in Libya, the largest airport in Saudi Arabia, mountain top resorts in Venezuela and the new capital city—Abuja—in Nigeria.

[33] See Sala-i-Martin and Subramanian, 2003; and Eifert et al., 2002.

4. Preventing and Curing Resource Curses

Several studies have been conducted on policy options for dealing with the resource curse. However, no consensus has been reached among observers and policy-makers. In fact, some observers are pessimistic about commodity-wealth—particularly mineral-wealth—and regard it as an unconditional antecedent to poor economic growth.[34] Other observers argue that with the right policies and institutions, resource abundance can be a blessing; they see the resource curse as not only preventable but also curable.[35] The latter group of observers view political will by governments and functional institutions with transparency and accountability as critical factors for preventing and curing resource curses. However, there is no consensus even among this group about the specific set of policies that could create appropriate political incentives for the development of transparent and accountable institutions.

Several policies and mechanisms have been put forth to deal with the resource curse. The most common ones include economic diversification; macroeconomic stabilization policies (such as avoiding excessive debt accumulation and avoiding investing beyond the domestic absorptive capacity); compensatory finance (such as the IMF compensatory finance fund and the EU's STABEX and FLEX mechanisms); market-based risk hedging instruments such as futures and options; revenue stabilization funds (e.g., those employed in Botswana, Chile and Norway); and the direct distribution of resource revenues to citizens (e.g., the Alaska fund). The results of these interventions have been mixed at best.

Economic diversification is the ultimate solution to the economic problems and shocks associated of commodity dependence. However economic diversification is a long-term process, and is thus not a fitting solution to the dire problems associated with short and medium term revenue volatility. Another intervention, the distribution of windfall revenues to citizens, may not be desirable to meet social objectives as it rests on the assumption that individual private citizens can save money or make investment decisions better than corrupt government bureaucrats.[36] This may not necessarily be the case. In the past, compensatory finance mechanisms had limited scope of product coverage and were found to be ineffective; cumbersome bureaucratic procedures and ensuing delays in the reimbursement of funds made these mechanisms pro-cyclical rather than counter-cyclical instruments.[37]

Are NRFs any better to prevent and cure Dutch Disease and the economic setbacks of revenue variability? The remaining sections of this attempt to answer this question.

[34] See, Auty, 1998; Sachs and Warner 1995 and 1997.

[35] See Beaulier and Subrick, 2006; Stiglitz, 2004 and Wright and Czelusta, 2002.

[36] See Collier and Gunning, 1996.; and Sala-i-Martin and Subramanian, 2003.

[37] See Kairi Consultants Limited, 1994.

5. NRFs as Policy Tools

NRFs are policy instruments that are intended to (a) insulate governments from the negative consequences of revenue variability and/or (b) to ensure inter-generational equity through saving part of the proceeds from non-renewable natural resources for future generations. In general, NRFs take two forms: "revenue stabilization funds"—also called "rainy day funds" (e.g., the Venezuelan Macroeconomic Stabilization Fund)—and savings funds, also referred to as "future generations funds" (e.g., Oman's State General Reserve Fund, Kuwait's Reserve Fund for Future Generations and Alaska's Permanent Fund). Stabilization funds serve as a buffer against revenue drops, while saving funds are for use by future generations. Norway and Chile both have NRFs that combine stabilization and saving objectives. Savings could aim at accumulating wealth for use by future generations to ensure inter-generational equity (e.g., Chad, Kuwait), or saving the wealth for a pension fund (e.g., Norway).

NRFs have been increasingly considered vital instruments for fiscal transparency and adherence to acceptable codes of fiscal management. The popularity of NRFs has recently grown with the establishment of national revenue laws in new gas producing countries such as São Tomé e Principe, Chad, Timor-Leste and Azerbaijan.[38] The establishment of the Extractive Industries Transparency Initiative (EITI) by the British government in 2002, the International Monetary Fund's *Guide on Resource Revenue Transparency*[39] and the Open Society's *A Guide to Monitoring Budgets and Oil and Gas Revenue*[40] all reflect the growing popularity of transparency and accountability in natural resource revenue management.

The popularity of NRFs is partially inspired by the notable successes of countries like Botswana, a resource-rich nation that has managed to evade the resource curse. Since the discovery of large diamond deposits in Botswana in the 1970s, the country has achieved strong and stable real GDP growth at an average rate of over eight per cent.[41] This healthy growth helped Botswana achieve a per capita income of US$4,500 in 2005, a far cry from its position in 1966 as the world's 25th poorest country.[42] Much of this success can be attributed to the fact that 80 per cent of the government's reserves were invested in long-term assets through the country's national revenue fund, the Pula Fund. Norway's Petroleum Fund, the Alaska Permanent Fund and the Heritage Savings Trust Fund in Alberta (Canada) are other notable examples of the successful use of NRFs to wisely manage natural resource revenues.

It is important to note that these governments are not the only ones with national revenue management laws in place; for example, both Venezuela and Oman have had NRFs for considerable periods. Why, then, have NRFs proved to be successful in some countries (Botswana, Norway and Chile, for example) and not in others? What lessons can be drawn from both the successes and the failures for the establishment of NRFs?

[38] The adoption of an NRF in Chad was the result of World Bank insistence that Chad put in place a fund for future generations as a precondition for World Bank financing of the Doba oilfield development and the Chad-Cameroon pipeline project.
[39] IMF, 2005a.
[40] Shultz, Jim, 2005.
[41] IMF, 2006.
[42] *Id.*

Before addressing these questions, we will first review the logic behind national revenue funds.

5.1 NRFs in theory

Stabilization funds aim to cushion fiscal policy from short- and medium-term revenue volatility. This revenue variability, combined with the long-term trend among commodities towards declining terms of trade, makes stabilization objectives all the more important in commodity-dependent developing countries. It must be said that the funds themselves do not stabilize commodity prices. However, if they de-link government spending from volatile commodity revenues they could prevent commodity price volatilities from translating into macroeconomic (particularly fiscal) instability.

At the heart of the fiscal stabilization objective of NRFs is the principle of expenditure-smoothing: making government expenditures stable across revenue booms and busts. Thus, stabilization funds serve as counter-cyclical policy instruments for smoothing expenditures by financing public investment during price busts and saving during periods of price booms. For this purpose, stabilization funds have a set of rules that define when savings and withdrawals should be made.

Stabilization funds may also be useful tools for an economy to avoid the worst effects of Dutch Disease. It does this if it caps the amount of windfall revenues that go into government coffers for spending. In effect, stabilization funds serve as an instrument of sterilization, an instrument that prevents the excess injection of revenues into the stream of government spending.

NRFs may also help resource-rich countries prevent debt. Such countries often get into debt because their governments tend to treat commodity price booms as permanent but price busts as transitory. As a result, they tend to borrow during both. By cutting the link between expenditure and revenue, NRFs can discourage governments from borrowing on the strength of commodity booms.

Similarly, savings funds may satisfy two optimal social objectives, particularly for non-renewable natural resources. First, to the extent that large savings are accumulated, such a fund could ensure cash for public investments long after the resources have been depleted. It may thus avoid, or at least reduce, the aforementioned "go-stop" public investments. Second, savings funds may ensure inter-generational equity, as they imply that current generations will not be able to consume all of the revenue generated from the exploitation of the given commodity. NRFs in Norway, Oman and Alaska require that their savings be invested in safe securities to generate additional income for future use.

By restricting the share of windfall revenues that goes to finance government expenditure, NRFs induce governments to establish and strengthen the tax administration. In Chad, for example, the oil revenue management law allows only oil revenue from taxes to go to the general budget for discretionary spending by the government (see Box 1). All remaining revenue is earmarked to "priority poverty reduction" sectors, to the development of the oil-extraction region and to the Future Generation Fund. According to the agreement, if the Chadian government wishes to increase its spending, it has to raise additional revenue from non-oil sources. It thus has to strengthen its tax system and diversify its tax-base.

In short, properly designed and enforced NRFs may help to cushion an economy from macroeconomic instability, avoid possible contractions of the tradables sector and ensure inter-temporal budget optimization, inter-generational equity and the effective development of economic institutions for revenue-diversification. Some aspects of a good NRF design include: clear criteria for saving and spending; built-in mechanisms for ensuring compliance, for preventing discretionary law amendments and releases of funding by governments; and transparency of both revenue and expenditure.

Box 1: The structure and operation of selected NRFs

i. Chad's National Revenue Management Law

In 1999, after the discovery of oil in Duba, Southern Chad, the government and the World Bank signed an agreement under which the Bank provided a loan of US$39.5 million to finance Chad's share in the Duba oil fields and the Chad-Cameroon pipeline.

As part of the agreement, the government of Chad accepted—as conditionality to the loan—a petroleum revenue management law. Under the law, all receipts from oil are deposited in an "escrow account" in London. The revenue from taxes collected will then be directly transferred from the escrow account to the government's treasury. Ten per cent of royalties and dividends is saved in a "Future Generation Fund" and invested in long-term investment portfolios, with the remaining 90 per cent transferred into a "special revenue account" in a private commercial bank in Chad, in the name of Chad's treasury.

The law earmarked 80 per cent of royalties and 85 per cent of dividends for "priority poverty reduction sectors": health and social affairs, education, infrastructure, rural development (agriculture and livestock), and environment and water resources. In addition, five per cent of royalties are allocated to poverty reduction in the petroleum-producing southern region of Chad. Finally, the remaining revenue (i.e., 15 per cent of royalties and dividends) is channeled to the general government budget for discretionary expenditure. After December 2007, this portion will be used to finance priority poverty reduction sectors.

The use of petroleum revenue by the Chadian government is subject to monitoring by a petroleum oversight committee (*Collège de Contrôle et de Surveillance des Ressources Pétrolières).* In addition, the government's spending program for "priority poverty reduction sectors" needs to be approved by the oversight committee before funds are released from the special account. The committee includes representatives of the government, parliament, supreme court and civil societies.

According to the original agreement, the government of Chad is not allowed to amend or waive the petroleum revenue management law. However, in December 2005 the Chadian government passed legislation to do just that; the proposed amendment would expand the share of royalties and dividends that go to the government budget from 15 to 30 per cent. It would thereafter include expenditures on defence and eliminate the future generation fund, with an immediate transfer of the US$37 billion in the fund to the general government budget for expenditure. The proposed amendment was strongly opposed by the World Bank and by domestic and international civil society. The Bank responded in January 2006 by suspending the disbursement of US$124 million in loans to Chad, and froze the country's US$125 million in assets in the London escrow account. Following the suspension, the World Bank and the Chadian government entered into a series of negotiations which led to the signing of a memorandum of understanding in July 2006 between the two parties. According to the memorandum, Chad agreed to commit 70 per cent of its budget spending to priority poverty reduction programs, and provided for long-term growth and opportunity by creating a stabilization fund. However, overall, the agreement led to a decrease in savings for both the future generation fund and for

poverty reduction in the oil-producing southern region, and accorded a larger share of oil revenue to the government.[43]

ii. Azerbaijan's State Oil Fund

The State Oil Fund of the Azerbaijan Republic was established in 1999 by a Presidential decree with the purpose of revenue stabilization and saving for future generations. According to the national revenue management law, the President of the Republic has the ultimate authority over all aspects of the Oil Fund's activities, including the approval of investment programs and budget, the formation of an investment strategy and selecting auditors for the annual audit. The President also has the power to liquidate and re-establish the Fund's regulation and management structure, which has three levels: the President, an Executive Director and a Supervisory Board. The Supervisory Board consists of 10 government officials and two members of parliament, and oversees the composition of the Oil Fund's assets and compliance of expenditure rules. The President has the authority to appoint and dismiss the Executive Director and Members of the Supervisory Board.

The Oil Fund's expenditure rules allow the government to invest in projects of national importance. However, no clear criteria for the selection of these projects have been developed. Additionally, the President has the authority to amend the Oil Fund's budget in case of the loosely-defined "pressing necessity." This leaves wide room for the President to amend the Oil Fund's budget. The fact that ultimate power over all aspects of the Fund's operation lies with the President gives little confidence for the sustainability of the Fund and its ability to de-link revenues from expenditures.

One positive development in Azerbaijan's oil revenue management system is its signing of the Extractive Industries Transparency Initiative (EITI) in November 2004. The signing was between the government of Azerbaijan, foreign and local oil companies and a coalition of some 32 local non-governmental organizations. The EITI urges governments to disclose the revenue that they receive from companies and for and companies to disclose all payments they make to governments. Thus, Azerbaijan's signing of the EITI fosters a certain degree of revenue transparency. The country published its EITI first report, which was audited by independent auditors, in March 2005, thereby becoming the first country to do so under the initiative (British Embassy Baku Press Release, 2005). Since then Azerbaijan has reported four times under the EITI, most recently in January 2007. The EITI does not, however, publish information on spending—which for Azerbaijan remains opaque.

iii. Alaska's Permanent Fund and Constitutional State Reserve Fund[44]

Alaska has two separate revenue management funds: the Alaska Permanent Fund (APF) and the Constitutional Budget Reserve Fund (CBRF). Both funds were approved as amendments to the state constitution. The APF was founded in 1976 as a trust to future generations. It aims to save a portion of oil revenues to create an investment base that generates income for future generations, who will see the natural resources depleted over time. Alaska's constitution requires that at least 25 per cent of all mineral lease rentals, royalties, royalty sale proceeds, federal mineral revenue sharing payments and bonuses received by the state be deposited into the APF. This must happen regardless of the oil market and the state's fiscal position. These rigid requirements have been criticized as major shortcomings for stabilization.

The APF has two components: principal and income. The principal is the permanent component of the fund. Any expenditure from the principal component requires a vote by the people. In addition to saving and investing for future generations, since 1982 the APF has allowed for the

[43] See Afrol News, 2006.

[44] This section intensively draws from Mahmudov, 2002.

distribution of a portion of the oil revenue to state residents. From 1982 to 2001, the Fund paid US$11 billion to citizens. In 2001 alone every Alaskan resident received about US$1,850 from the dividend program. This has reduced the savings that the state could have achieved both for stabilization and inter-generational equity purposes.

A second fund, the CBRF, was founded in 1990 with a goal of supplementing government revenue shortfalls. The constitutional amendment that created the CBRF requires the state to deposit all proceeds from settlements of tax and royalty disputes between the state and oil companies; in 2002, this amounted to US$240 million. The CBRF serves as an interest-free loan to the budget that must be repaid in years of fiscal surplus. Its assets can be appropriated for any public purpose by a vote of three-fourths of the members of each house of legislature.

5.2 The empirical evidence on NRFs and fiscal stabilization

The empirical evidence on the effects of NRFs on expenditure-smoothing and fiscal stabilization is ambiguous. For example, based on time-series data, Davis et al. (2001) found that government expenditures are less related to revenues in countries with NRFs than those without. This result was found to be true on average with variations across countries. However, measures of causality show that the funds did not have an identifiable impact on government spending. This suggests that countries with more prudent expenditure policies tend to establish NRFs, rather than NRFs leading to increased expenditure restraint.[45] Similar results were found by Crain and Devlin (2002).

Fasano (2000) examined the NRFs of Norway, Chile, Alaska, Venezuela, Kuwait and Oman and found mixed evidence in terms of the effect of NRFs on fiscal discipline, showing that there is a "difficulty in adhering to the operation rules [of the NRFs]." Based on this finding, Fasano concluded that stabilization funds cannot be a substitute for fiscal discipline; the author underlined that stabilization schemes have been more successful in countries with a strong commitment to fiscal discipline and sound macroeconomic management.

This brings out a fundamental issue with regards to NRFs: that the most popular solutions to the resource curse, of which NRFs are one, have had little success partly because they presuppose strong state institutions, which are absent in most of the developing world.[46]

Both Fasano (2000) and Weinthal and Jones Luong (2006) have attributed the experiences of resource-rich countries that succeeded in achieving fiscal discipline and inter-generational equity through stabilization and/or savings funds to their ability to prevent their governments from altering the budget or rules of the NRFs. Botswana's success in de-linking expenditures from revenues has been attributed to its requirements for parliamentary approval for any new public project.[47] Conversely, less successful experiences in Venezuela and Oman can be attributed to the frequent changes to fund rules and deviations from its intended purposes.[48] Humphreys and Sandbu (2007) attributed Chad's dismal fiscal management to the Chadian government, which preferred to change the rules of its fund than to adhere to them (see Box 1). As a result, strong legislative restrictions on governments discouraging overspending and the altering of

[45] Davis et al., 2001; and Devlin and Lewin, 2005.

[46] Weinthal and Jones Luong, 2006.

[47] See Weinthal and Jones Luong, 2004; Eifert et al., 2001; and Beaulier, S. A., Subrick, J. R., 2006.

[48] Fasano, 2000.

fund rules are seen as critical factors for the success of NRFs. That said, the Norwegian NRF makes such general conclusions impossible.

As Humphreys and Sandbu note, the Norwegian Fund imposes extremely weak restriction on policy-makers. Despite this, Norway has managed to achieve fiscal stability with high levels of savings. One reason for this is that the political system in Norway fosters transparency, making politicians aware of the political costs that imprudence in fiscal management would bear, particularly come election time. The country's stable and democratic political system also engenders long-term fiscal policies—a characteristic often associated with an incumbent government's confidence that successive governments will not substantially deviate from current spending patterns.[49]

As, UNCTAD (2006) succinctly puts it:

> Stabilization funds have generally, but not always, failed. There has been no discernible impact on government spending, no avoidance of price shocks including Dutch disease effects, and so on. In countries such as Oman and Venezuela, frequent changes to rules and deviations from objectives led to their funds' failure. In Alaska, easy access to the stabilization fund to boost the population's income postponed a response to the state's structural problems: falling oil production and inability to develop other sectors. In other countries, funds intended for earnings stabilization were simply no longer there when the need for stabilization came, as politicians had found other uses for them.

Two key lessons can be drawn from the empirical evidence:

i. the establishment of an NRF on its own does not necessarily guarantee prudent fiscal policy and does not necessarily ensure inter-generational equity; and
ii. NRFs are ultimately ineffective, even when designed perfectly, if robust institutions for ensuring a governments' strict observance of the fund's rules are absent. Political will and commitment to prudent revenue management by governments are critical.

[49] Theoretically, this can be expressed as a policy choice faced by an incumbent who knows that they will be in power for successive periods. Humphreys and Sandbu (2007) theoretically showed that such an incumbent has the incentive to choose the optimal spending path that efficiently satisfies the inter-temporal budget constraint. In contrast, the incumbent will choose a different spending path if they face a high risk of being voted out of office and replaced by a successor with a different expenditure plan.

6. The Determinants of the Successes and Failures of NRFs

NRFs in most developing countries are commonly afflicted by technical, institutional and political weaknesses.[50] These weaknesses are often inter-linked. However, well-designed NRFs may contribute to transparency and good fiscal policy by setting benchmarks against which governments may be assessed.

The design and operation of NRFs play an important role in their effectiveness as policy tools for stabilization and inter-generational equity. The design refers to the rules that govern how the NRF is operated and administered. Crucial to this are the nature of institutional development and the political system in which the NRF operates. The institutional aspect refers to the strength of regulatory institutions of transparency and monitoring that are necessary for the effective operation and administration of an NRF. The political conditions refer to the political will of governments to abide by the NRF rules and the extent to which the political system enforces those rules on the government.

In most authoritarian states, where checks and balances are generally absent, NRFs are often poorly designed and are under the direct or indirect control of governments. Such is the case in Azerbaijan (see Box 1). Due to the President's complete control over the operation of the fund, its effectiveness and sustainability are doubtful. In such countries, the establishment of NRFs may not be a guarantee for expenditure-smoothing and inter-generational equity. Moreover, these countries often design NRFs only for external political consumption—particularly for claiming fiscal responsibility and spending transparency.

Box 2: Scandal in oil revenue management in Kazakhstan

Kazakhstan established a National Oil Fund in January 2001 by Presidential decree. From the beginning, the Kazak government reiterated that the oil revenue would not be spent to cover current expenses, but would be accumulated in the Oil Fund to meet future needs and serve as a buffer against revenue drops. However, it did not take long before a scandal broke out; it was eventually revealed to Parliament that Kazakh authorities had transferred the proceeds of the sale of Kazakhstan's 20 per cent share in the Tengiz oilfield to a secret account in Switzerland. The Tengiz oil field is now majority-owned by ExxonMobil and Chevron; ExxonMobil has been implicated by two grand juries in the United States over bribes and other scandals in its dealings with Kazakhstan.

See, *Mahmudov, 2002, and Eurasia Insight, 2007*.

Political systems determine the degree of checks-and-balances—and hence transparency and accountability—in revenue management. In turn, political systems tend to be reinforced by the distribution patterns that they create. This can create a vicious cycle between political-economic incentives and rent management. NRFs, when well-designed with unambiguous savings and withdrawal mechanisms, can foster transparency and accountability, and may bring governments into the public spotlight. Thus, NRFs may influence the way governments manage windfall revenues and serve as benchmarks against which governments can be assessed. This depends on clarity, however. Had Chad's oil revenue management law been unclear, it would have been much more difficult to ascertain the extent to which the government's proposed amendment

[50] See Birdsall and Subramanian, 2004; Eifert et al., 2002; and Davis et al., 2001.

deviated from the original agreement's rules. Without clear benchmarks, pressure on the World Bank from civil society groups asking for the suspension of aid to Chad and the freezing of transfers from the escrow account may not have been forthcoming.

The international community could play a role in designing NRFs in countries with relatively weak political transparency. And while the EITI is a positive step towards improving transparency and accountability, it remains concentrated on mineral receipts; how countries spend their mineral revenues remains opaque. More can be done to encourage reporting in this area.

6.1 Common design problems in NRFs

NRFs in some developing countries are afflicted by poor design. The most common types of poor designs are described below.

6.1.1 Savings-based rather than expenditure-based NRFs

Typical NRFs require a certain percentage of commodity revenues be saved either for fiscal stabilization objectives or for future generations. And while governments could respect the "words" of NRF rules by putting aside the required share in a savings or stabilization fund, they can defy the fund's objectives by continuing to spend, through borrowing and using the money available in a savings/stabilization fund as collateral. As a result, a country with a savings fund could simultaneously, and somewhat paradoxically, accumulate both savings and debt. Future generations would then inherit debt and savings simultaneously. In effect, saving funds that do not directly restrict government expenditures in periods of high prices achieve little to nothing in terms of accumulating net savings for fiscal stabilization and inter-generational equity. As Fasano (2000:11) observes, the government of Venezuela "managed to accumulate resources into the fund consistent with the rules governing the fund, [but] such an accumulation was financed through government borrowing as the overall fiscal position remained in deficit in 1999."

6.1.2 Failure to target the minimum revenue generation for fiscal deficit financing from sources other than natural resources

Poor design is not limited to savings-based stabilization funds alone. Expenditure-based stabilization funds face similar problems if they focus on limiting the aggregate fiscal expenditure without setting limits on the maximum annual non-natural resource fiscal deficit. In other words, the fiscal rules should target the extent to which other sources of revenue such as taxes contribute to the government's budget. Countries such as Norway and Botswana have recognized the importance of targeting budget contributions from non-natural-resources. Norway's fiscal guidelines require that the non-oil government budget deficit be equal to the long-run real return on the assets of the Government Petroleum Fund (which in 2005, for example, was expected to be four per cent) (See IMF, 2005b).[51] Similarly, Botswana's government has attempted to expand non-diamond revenues; in 2003, it passed an Income Tax Amendment Bill to enhance enforcement and compliance under the Income Tax Act. In the same year, it extended withholding taxes to rental incomes from immovable property, to dividend incomes for all companies, and to interest incomes received by residents.[52] The cumulative goal of these

[51] IMF, 2005b.

[52] AFDB and OECD, 2004.

initiatives is to increase the government's tax collection and thereby reduce its dependence on diamond revenues.

6.1.3 Poor investment strategy

NRFs typically carry with them investment rules, with many even going as far as identifying specific financial securities for investment purposes.

Several countries invest a portion of their stabilization fund savings in U.S. treasury bills. Countries choose U.S. treasury bills because of their liquidity (short-term maturity) and low risk. It is desirable for countries to avoid engaging in very risky investment securities. A more desirable investment strategy combines investments in high return equities and in low-risk bonds. This implies investing a proportion of the savings in high-return stocks, while moderating the risk by investing the remaining savings in low-risk bonds. This combination helps to take advantage of high-return investments while moderating the overall risk of the investments. A good example of this is Norway's strategy (see Box 3). Norway aims to reap high financial returns by investing 40 per cent of the savings in its Fund in high-return equities, while moderating the risk by investing the remaining 60 per cent in fixed-income instruments. An additional moderation of risks could be achieved by investing in equities that are negatively correlated to the fiscal risk that a country faces.[53] For example, if a country that depends on oil for its revenue invests in securities which are negatively correlated with oil—in airlines, for example—it will obtain a low return on its investment when oil prices are high. However when oil prices are high, oil-producing countries do not need to rely on their investment income. It is when oil prices decline that negatively correlated investments become important—for their returns will increase as the commodity's price decreases. As a result, the investment yields low return when the country is not in need of the money and high return when it needs it, making these counter-cyclical investment strategies more desirable for expenditure-smoothing.

Box 3: Norway's Investment Guidelines

- The aim of the investment strategy is to achieve high financial returns subject to moderate risk.
- The Fund is only invested abroad in financial instruments, and acts as a financial investor with a small ownership share in individual companies.
- The Fund's financial results are primarily assessed in international currency terms, in order to gauge the development in the Fund's international purchasing power.
- Equities account for 40 per cent of the Fund's strategic benchmark portfolio, consisting of equities listed on exchanges in Europe (50 per cent), America/Africa (35 per cent) and Asia/Oceania (15 per cent). The Government has announced plans to increase the equity allocation to 60 per cent.
- Fixed income instruments account for 60 per cent of the strategic benchmark portfolio, consisting of fixed income instruments issued in currencies from Europe (60 per cent), America/Africa (35 per cent) and Asia/Oceania (5 per cent). Plans are for the fixed income allocation to be reduced to 40 per cent.

Norwegian Ministry of Finance,
http://www.regjeringen.no/Upload/FIN/Statens%20pensjonsfond/Fact%20sheet%20Pension%20Fund%20-%20Global.pdf

[53] See Rigobón, 2006.

6.1.4 Saving in national banks and investing domestically

Another common weakness in the design of NRFs in countries like Azerbaijan and Kazakhstan is the accumulation of the funds in national banks instead of escrow accounts and the investment of a substantial share of the fund in domestic securities.

National banks in politically unstable countries are often threatened by radical political change; international banks are not affected by such events. Therefore holding NRFs in international banks is more desirable not only for transparency in administration of the funds, but for cushioning the fund from internal political pressures and radical political changes. Similarly, investing NRFs in domestic securities may not necessarily be desirable, particularly for developing countries. First, in most developing countries, security markets are underdeveloped. Second, the choices of securities may be limited and may often result in a substantial portion of the investments going towards the low-return equities of inefficient state enterprises. Often, these investment decisions may have more to do with political patronages and rent-seeking behaviours than with the performances of the enterprises. Sao Tome e Principe, Norway and Chad are a few of the countries who invest their natural resource proceeds abroad.

6.2 Political incentives and institutional problems

In NRF formulation, design is one but not necessarily the most important determinant for expenditure-smoothing. Equally important are the political incentives that governments face in their fiscal expenditure choices, and the institutional environment in which they make the choices. The situation is akin to a constitution. Almost all countries in the world have constitutions. However, many governments do not respect their constitution and often act contrary to its word and spirit. The key challenge is therefore not merely in the drafting of a "perfect constitution" but properly implementing and enforcing it.

Strong and independent institutions for monitoring and enforcing government adherence to NRF rules are absent in most developing countries.[54] As a result, these governments can ignore the NRF rules and use the funds for their short-term political interests.[55] A perfectly-designed NRF will not automatically change the political incentives of governments. As Humphreys and Sandbu (2007) argue, when the political incentives for spending are overwhelmingly strong, an NRF is useful only insofar as its institutional procedures improve the political incentives facing policy-makers. As such, policy-makers have to consider the political and economic context when designing NRFs, or risk the tool's ineffectiveness.

The most fundamental question for policy-makers in natural resource-rich countries is therefore how to design NRFs that can alter the political incentives of governments. In order to appreciate and understand the critical role of political incentives in revenue management, it is often useful to undertake a comparative analysis of the political incentives that governments in countries with successful and unsuccessful records of rent management have faced. Such an analysis provides insight into the political-economic incentives that blocked overspending in successful natural-resource-rich countries, and how their absence results in poor revenue management in others.

[54] Weinthal and Jones Luong, 2006.

[55] See Eifert et al. (2001) for detailed discussion and specific examples.

6.2.1 Political systems and fiscal spending in selected countries

In an attempt to identify the factors that have helped some countries effectively manage their oil revenues, Eifert et al. (2002) documented the political-economy forces that shape fiscal policy and expenditure patterns across oil-exporting countries with widely differing political systems.[56] Political incentives vary across countries with different political systems, and lead to differences in natural-resource revenue management systems. Eifert et al.'s analysis shows that the effective management of natural resource revenues is often a result of favourable political incentives.

The success of Norway and Botswana has been attributed to their stable and democratic political systems. These political systems have fostered long-term decision-making through a broad consensus on key aspects of economic policy, including the use of windfall revenues and transparency and accountability.

For both countries, stable political systems dominated by a few parties (that do not primarily depend on charismatic leaders but rather on party reputation) combined with highly consensus-oriented, transparent and accountable parliamentary institutions to provide incentives for long-term decision-making on expenditure patterns. In addition, the presence of strong pro-stabilization constituencies in the form of employees, trade unions, business leaders and voters dependent on the non-oil tradables sector serve as a counter-balance to incentives for spending.[57]

By contrast, factional democracies like Ecuador, Colombia and Venezuela, countries under military rule like Nigeria (from 1966 to 1999) and "predatory autocracies"[58] like Chad have poorly managed their oil revenues.[59] The primary reasons for this are the absence of effective constituencies that restrain and smooth government spending, and political systems characterized by instability and patronage networks.

In such countries, more value is attached to patronage networks than to political reputations as means for obtaining and sustaining political power. As a result, government expenditure policies have short time-horizons and prioritize sustaining short-term political supports. The patronage networks, when combined with weak institutions of transparency and accountability, serve as disincentives for restraint on fiscal expenditure. These patronage networks often include powerful interest groups such as the army, politicians and government technocrats. In Ecuador and Colombia, for example, the revenue share of each interest group, including the military, has been earmarked in the budget (see Box 4), entrenching certain fiscal expenditures. This deep

[56] This section substantially draws from Eifert et al., 2002.

[57] Norway has the history of deciding expenditure patterns through a multi-stakeholder consultation. For example, in 1986, a commission composed of representatives from all political parties, labour, business groups, government officials and experts, through a multi-stakeholder consultation decided new policy guidelines that ensure the use of fiscal policy for counter-cyclical purposes. In the consultation, labour and business leaders agreed to wage moderation (see Eifert et al., 2002).

[58] Predatory autocracies are often defined as "state power that faces few constraints and the exploitation of public and private resources for the gain of elite interests is embedded in institutionalized practices with greater continuity of individual leaders. Such regimes are non-transparent and corrupt—little financial and human capital flows into productive occupations, whose returns are depressed by a dysfunctional environment" (see Ganesan and Vines, 2004).

[59] For detailed discussion see Eifert et al., 2002.

entrenchment means that any attempt to improve transparency in budget allocation and fiscal expenditure reform meets strong oppositions from the powerful interest groups.[60]

Box 4: Earmarking in Ecuador

In Ecuador, despite a weak non-oil tax administration and high volatility in revenues, about 65 per cent of total tax revenues (including all oil revenues) were earmarked for specific programs or for transfers to sub-national governments in 1999. The earmarking system illustrates the strength of Ecuador's network of entrenched interests vis-à-vis the unstable central government. Its complexity and non-transparency has produced unforeseen and irrational distributions of oil revenue, the major beneficiaries of which have historically included the inefficient and overstaffed bureaucracy of PETROECUADOR, the military, and the civil service (World Bank, 1991). 14.5 per cent of all oil revenues were earmarked directly to the military in 1989, and 67.6 per cent were allocated to finance the public wage bill and other programs, notably the rural roads program, a politically important source of patronage. Earmarking in turn reduces the fiscal flexibility of the central government, locking in spending increases during oil windfalls and forcing drastic cuts in operating and discretionary expenditure during downswings.

Adopted from Eifert et al., 2002.

[60] In factional democracies and predatory autocracies, riots and strikes have been common responses that governments that attempt to reform transparency and fiscal spending face. The kidnapping of President Febes Codero of Ecuador by military paratroopers in 1987—which lead to the reversal of the process of reform—and the strong pressure that President Lusinchi of Venezuela faced from organized labour and business opposing his fiscal reform packages of 1984 are two examples.

7. A Nation-wide Multi-stakeholder Approach for National Revenue Management Laws

As discussed, NRFs do not necessarily guarantee prudent management of windfall revenues. This was clearly stated by Davis et al. (2001), who underscored that national revenue funds are neither an easy nor necessarily appropriate solution to the fiscal policy problems faced by natural-resource-rich countries. In most natural resource-rich countries the absence of effective political-economic incentives for prudent fiscal management are the primary causes for poor revenue management. How to influence the political-economic incentives of governments in such countries is a critical challenge.

Of course, there is no "one size fits all" answer to these questions; each case is unique, as the political-economy incentives differ from one country to another. Hence, no one model can be "copied" from one country and "pasted" on another. Therefore, each country should undertake its own assessment and establish the model that best fits its political and economic reality.

7. 1 The predicament of imposed models of national revenue management law

In countries where the political economic incentives do not foster prudent revenue management and with entrenched, influential interest groups who are reluctant to accept changes in the rent-sharing *status quo*, the ideal national revenue management law may not be one that imposes a socially optimal expenditure path. That path was, however, sought by the World Bank in its dealings with Chad, and was not entirely successful. The process of implementing an NRF suffered hiccups along the way and led to continuous tensions between the two parties. However, Chad's revenue law was initially hailed as a model for other countries. Is the model sustainable? Can it be replicated in other countries like Azerbaijan, Kazakhstan and Venezuela?

As an imposed model, it is unlikely that Chad's NRF is sustainable. This became evident early on, with the government's repeated attempts to re-write the conditions of the fund and discard the Future Generation Fund. Imposed models also raise questions of sovereignty: should the World Bank exercise a paternal role and impose "discipline" on "bad governments" by the use of "carrots and sticks"? Can World Bank experts better run country development programs from their offices in Washington, D.C.? In the context of the Bank's mixed reputation in many of the countries it seeks to help, these questions become more pertinent.

7.2 Nation-wide multi-stakeholder consultation as an alternative

In our view, the best alternative is to craft an NRF through a nation-wide consultation process. The aim should not be to identify the economically optimal spending path but rather to define a mid-point among the interests of government, influential interest groups and society at large. In other words, in countries where political economic incentives sterilize socially optimum spending rules, an NRF should opt for a second-best outcome.

In order to achieve this outcome, the national revenue management law should be drafted on the basis of a nation-wide multi-stakeholder consultation in an open and transparent process. This consultation should aim at three important issues: establishing a national revenue management law which is acceptable to all stakeholders; establishing a

multi-stakeholder independent oversight and monitoring committee in a way that ensures checks-and-balances and compliance with the national revenue law; and giving the law a constitutional status to ensure that no one entity can amend or waive the law.

7.2.1 Incentives for a nation-wide multi-stakeholder consultation

What incentive do governments and powerful interest groups have in accepting a nation-wide multi-stakeholder consultation if it means constraining their discretionary power in revenue management? Again, there is no simple answer to this question—it all depends on the political stability of the country. For one, governments may find it worthwhile to compromise their discretionary power for achieving political and social stability; as Collier and Hoeffler (2005) note, rent distribution is a major cause of conflict and social unrest in several resource-rich countries. Secondly, several resource-rich countries have achieved notable improvements in democratization, increasing the chances for governments and influential interest groups to accept a nation-wide multi-stakeholder consultation as a viable mechanism. Thirdly, political pressure from the international community and civil societies—such as Open Society's initiative on transparency and accountability—could push parties in the required direction. The World Bank, for example, could have asked Chad to initiate such a nation-wide multi-stakeholder consultation to carve out a national revenue management law. The Bank could have secured a seat in the consultation as an observer, or as a stakeholder by virtue of its lender status in the establishment of the Chad-Cameroon pipeline.

7.2.2 Key elements for the multi-stakeholder consultation process

The first step for the consultation process is to establish a multi-stakeholder drafting committee, formed with representatives from government (parliamentarians and representatives from regions where the natural resource is extracted or grown), civil society representatives, representatives of interest groups such as labour unions and the military, and ombudsmen to represent the interests of the public. It may be useful to also include non-voting observers such as representatives from international organizations. During the consultation, the media (both private and public) should be given access to the consultation and all documentation, and should be allowed to objectively report to the public. This would ensure the fairness of the process that establishes the national revenue management laws.

A nation-wide multi-stakeholder consultation for drafting the natural revenue management law may pave the way for revisiting earmarked distribution patterns. It would also ensure the establishment of a revenue law that will be accepted and legitimate for multiple stakeholders. Once drafted and agreed to at the national level, the law should be included in the constitution. Any amendment to the law must then require a constitutional amendment with a majority vote by parliament or by public vote, as appropriate. Giving the revenue management law constitutional status, rather than marking it a governmental decree, could be a strong deterrent to any unilateral attempt to change the law.

The design of the NRF should, *inter alia*, require that all revenue associated with the natural resource in question, including taxes, dividends and royalties, go to the NRF account. This would improve the tracking and transparency of revenues. In addition, the law should require that transfers from the NRF be on an annual basis and only be made to the government budget. All payments to interest groups, such as the military, should

be incorporated into government budget; in other words, there should not be multiple channels of transfer from the NRF. This is critical to ensure transparency and to monitor compliance with the NRF laws. The government's budget should be annually approved by a parliament. The NRF rules should also require periodical publication of transactions to and from the NRF, and require that the government sign into the EITI in order to promote transparency.

The establishment of a multi-stakeholder independent oversight committee is also crucial. The committee should work under the auspices of the parliament and should: have the right to investigate disbursements under the NRF; have access to all relevant documents related to revenue management; and be able to suspend transfers from the NRF to the budget should it find sufficient evidence of major non-compliance with the NRF rules. Members of the oversight committee should be appointed by parliament and should include non-voting observers from international organizations, national ombudsmen and UN ombudsmen. The non-voting members could ensure that the independence of the oversight committee is respected by the government and other stakeholders, and that it discharges its responsibility effectively. The UN ombudsmen may have the advantage of attracting media attention, and hence could be a factor for compliance to the NRF rule.

8. Conclusion and Recommendations

NRFs do not necessarily guarantee prudent management of windfall revenues, particularly in countries where political incentives in favour of long-horizon fiscal policies are weak or absent. In such countries, it is possible to have an NRF that prescribes socially optimum expenditure and saving patterns (i.e., the best policies for fiscal stability and inter-generational equity). However, the major challenge is how to ensure that governments in such countries adhere to the socially optimum expenditure patterns of the NRFs. In addition, NRFs cannot be substitutes for democracy, transparency and accountability. Their effect on fiscal policy is limited to the extent to which they affect political incentives in favour of transparency and accountability, the preconditions for long-term decision-making. In general, the prudent management of windfall revenues and political systems cannot be separated. Often, the degree of prudence in fiscal policy has a strongly positive correlation with levels of democracy, transparency and accountability.

As Humphreys and Sandbu (2007) rightly argue, in many countries the rationale for NRFs must not be to identify and prescribe socially optimum expenditure and saving patterns but instead to be a vehicle for institutional solutions that alter the political-economic incentives that governments face, so that their expenditure patterns are re-aligned to socially optimum paths. There is no one simple methodology to ensure this. In general, national revenue laws in such countries should result from nation-wide multi-stakeholder consultation processes that aim to revisit existing patterns of spending, including expenditure earmarked to influential interest groups, and to lock in, through constitutional amendment, the national revenue management law. This should be reinforced by establishing a multi-stakeholder oversight committee to monitor the operation of the fund and suspend any transfers from the NRF that do not comply with the fund's rules.

In general, commodity-dependent countries use a combination of instruments and strategies for the short-term stabilization of commodity prices and the direct distribution of investment returns to citizens. As such, NRFs should only be used where they are believed feasible. For the purpose of fiscal stabilization, NRFs should be expenditure-based and should target maximum levels of fiscal contributions from outside of its natural resource revenues. Such funds should have prudent investment strategies which include investing in low-risk securities that are negatively correlated to the risks associated with the major commodity resources upon which the countries depend. With careful design and thoughtful implementation, NRFs can then become one of the tools available to commodity-producing countries for tackling the volatile incomes which naturally derive from their chief exports. And with this comes the chance for economic development and, for many, a movement towards stability and prosperity.

References

AFDB and OECD, 2004, "African Economic Outlook," p. 67-78. Last accessed in July 2007, at http://www.oecd.org/dataoecd/44/59/32411892.pdf.

Afrol News, 2006, "Agreement with World Bank over oil revenue," July.

Alesina, A. and Tabellini, G., 2005, "Why is Fiscal Policy Often Procyclical?," National Bureau of Economic Research, Working Paper 11600.

Auty, R. M., 1998, "Resource Abundance and Economic Development," World Institute for Development Economics Research, Helsinki.

Auty, R. M., 2004, "The Political-economy of Growth Collapses in Mineral Economies," *Minerals and Energy*, 19(4): 3-15.

Auty, R. M., 2006, "Natural resources, capital accumulation and the resource curse," *Ecological Economics*, 627-634.

Baldwin*, R., 1990, "Hysteresis in Trade," Empirical Economics,* Vol. 15(2): 127-142.

Beaulier, S. A. and Subrick, J. R., 2006, "Mining Institutional Quality: How Botswana Escaped the Resource Curse," *Indian Journal of Economics and Business*, 17(2): 103-115.

Bevan, D. L., Collier, P. and Gunning, J. W., 1989, "Fiscal Response to a Temporary Trade Shock: The Aftermath of the Kenyan Coffee Boom," *World Bank Economic Review*, 3(3): 359-378.

Bevan, D. L., Collier, P. and Gunning, J. W., 1993, "Trade shocks in developing countries: consequences and policy responses," *European Economic Review*, 37(2-3): 557-565.

Birdsall, N. and Subramanian, A., 2004, "Saving Iraq from its oil," *Foreign Affairs*, July/August: 77-89.

Brender, A. and Drazen, A., 2005, "Political budget cycles in new versus established democracies," *Journal of Monetary Economics*, vol. 52(7): 1271-1295.

Cashin, P., Liang, H., and McDermott, J., 1999, "Do Commodity Price Shocks Last Too Long for Stabilization Schemes to Work?," *Finance and Development*, September 1999.

Chelala, C. 2004, "The Boom that only Oils the Wheels of Corruption," *International Herald Tribune*, August 6.

Codon, W. M. and Neary, J. P., 1982, "Booming Sector and De-industrialization in a Small Open Economy," *Economic Journal*, 92: 825-848.

Collier, P., 2002, "primary commodity dependence and Africa's Future," World Bank, Washington D.C.

Collier, P. and Gunning, J. W., 1996, "Policy towards commodity Shocks in Developing Countries," IMF, Working Paper, WP/96/84, Washington D.C.

Collier, P. and Hoeffler, A., 2005, "Resource Rents, Governance and Conflict," *Journal of Conflict Resolution*, 49(4): 625-633.

Cordon, W. M., 1984, "*Booming Sector and the Dutch Disease Economics: Survey and Consolidation*," Oxford Economics Papers, 36(3): 359-380.

Crain, M. and Devlin, J., 2002, "Nonrenewable Resource Funds: A Red Herring for Fiscal Stability?," Draft working paper, World Bank, Washington D.C.

Davis, J. R., Ossowski, J. D. and Barnett, S., 2001, "Stabilization and Saving Funds for Nonrenewable Resources," IMF Occasional Paper, No. 205, Washington D.C.

Deaton, A. and Miller, R., 1995, "*International Commodity Prices, Macroeconomic Performance, and Politics in Sub-Saharan Africa*," Princeton Studies in International Finance, No. 79.

Dehn, J., 2001, "The effects on growth of commodity price uncertainty and shocks," World Bank Policy Research Working Paper, Vol. 2455.

Devlin, J. and Lewin, M., 2005, "Managing Oil Booms and Busts in Developing Countries," Aizenman, J. and Pinto, B., (eds.). "*Managing Economic Volatility and Crisis: A Practitioner's Guide*," New York, Cambridge University Press, 186-212.

Eifert, B., Gelb, A. and Tallroth, N. B., 2002, "The political-economy of fiscal policy and economic management in oil exporting countries," World Bank Policy Research Working Paper 2899, Washington D.C.

Eslava, M., 2006, "The Political Economy of Fiscal Policy: A Survey," Inter-American Development Bank, Working Paper No. 583.

Eurasia Insight, 2007, "Kazakh scandal throw spotlight on democracy," August 6, last accessed in July at http://www.eurasianet.org/departments/insight/articles/pp042802.shtml.

Fasano, U., 2000, "Review of the Experience with Oil Stabilization and Savings Funds in Selected Countries," IMF Working Paper.

Friedman, T. L., 2006, "The First Law of Petropolitics," *Foreign Policy*, (May-June): 28-36.

Ganesan, A. and Vines, A., 2004, "Engine of War: Resources, Greed, and the Predatory State," Human Rights Watch, World Report 2004, Available at http://hrw.org/wr2k4/14.htm, Last Accessed in March 2007.

Gelb, A., 1988, "*Oil Windfalls: Blessing or Curse*," New York, Oxford University Press.

Goldsmith, S., 2001, "The Alaska Permanent Fund Dividend Program," Paper presented in the conference on "Alberta: Government Policies in a Surplus Economy," University of Alberta, Edmonton, Alberta.

Gupta, S., and Miranda, K., 1991, "Commodity Booms and Government Expenditure Responses" IMF Working Paper 91/44.

He, X. Z. and Westerhoff, F. H., 2005, "Commodity markets, price limiters and speculative price dynamics," *Journal of Economics Dynamics and Control*, 29: 1577-1596.

Humphreys, M. and Sandbu, M. E., "Should you establish natural resource funds?," 2007, (eds.). Humphreys, M., Sachs, J. and Stiglitz, J., "*Escaping the Resource Curse*," New York, Columbia University Press.

IMF, 2004, "Nigeria: Selected Issues and Statistical Appendix," Country Report No. 04/242, August.

IMF, 2005a, "Guide on Resource Revenue Transparency," Washington D.C.

IMF, 2005b, « IMF Executive Board Concludes 2005 Article IV Consultation with Norway," Public Information Notice (PIN) No: 05/75, July 13.

IMF, 2006; "Botswana: 2005 Article V Consultation," Last accessed in July 2007 at http://www.bankofbotswana.bw/files/attachments/2005%20imf%20article%20iv.pdf.

Kairi Consultants Limited, 1994, "STABEX: Implications of the bottlenecks and delays of the framework of mutual obligations on ACP States," Tunapuna, Rep. of Trinidad and Tobago.

Kalzuzhnova, Y. and Kaser, M., 2005, "Prudential management of hydrocarbon revenue in resource-rich economies," Paper prepared for ECE Spring Seminar.

Kopits, G., 2000, "Transparency in government operations," Interamerican Development Bank, paper prepared for a conference on transparency and development in Latin American and the Caribbean. Last accessed in July 2007 at http://www.iadb.org/leg/Seminar/Documents/Transparency%20Kopitz%20Eng.pdf.

Krugman, R. P. and Obstfeld, M. 2003, "*International Economics: Theory and Practice*," Boston, Addison Wesley Inc.

Library of Congress Country Studies, 1996, "Mexico: Recovery and Relapse: 1976-82," last accessed in July 2007 at http://lcweb2.loc.gov/cgi-bin/query/D?cstdy:8:./temp/~frd_hTWX.

Mahmudov, M., 2002, "Practice and application of oil funds: Azerbaijan and Kazakhstan as case studies in addressing the "Dutch Disease," Duquesne University, Masters Thesis.

Mehlum, H., Moene, K. and Torvik, R., 2006, "Institutions and the Resource Curse," *The Economic Journal*, 116: 1-20.

Mehrara, M. and Oskoui, K. N., 2007, "The source of macroeconomic fluctuations in oil exporting countries: A comparative study," *Economic Modelling*, 24: 365-379.

Palley, T., 2004, "Combating the natural resource curse with citizen revenue distribution funds: oil and the case of Iraq," *Foreign Policy in Focus*, December: 1–12.

Premchand, A., 2000, "*Control of Public Money: The Fiscal Machinery in Developing Countries*," Delhi: Oxford University Press.

Rigobón, R., 2006, "Fiscal Response to Revenue Uncertainty," Mimeo, Massachusetts Institute of Technology (MIT).

Sachs, J. D. and Warner, A. M., 1995, "Natural Resource Abundance and Economic Growth," NBER Working Paper No. 5398.

Sachs, J. D. and Warner, A. M., 1997, "Sources of slow Growth in African economies," *Journal of African Economies*, 6: 335-376.

Sala-i-Martin, X. and Subramanian, A., 2003, "Addressing the Natural Resource Curse: An Illustration from Nigeria," IMF Working Paper, WP/03/139.

Sanchez de Cima, M., 2005, "The Political-economy of Pro-Cyclical Fiscal Policy in Mexico, 1970-1988," Centre for International Studies, University of California.

Sarraf, M., and Jiwanji, M., 2001, "Beating the Resource Curse: The Case of Botswana," World Bank, http://www.imf.org/external/pubs/ft/grrt/eng/060705.pdf.

Schuknecht, L., 1994, "Political Business Cycles and Expenditure Policies in Developing Countries," IMF Working Paper 94/121.

Shultz, J., 2005, "Follow the Money: A Guide to Monitoring Budgets and Oil and Gas Revenue," Open Society Institute, New York.

South Centre, 2005, "The Potential Impacts of Nano-Scale Technologies on Commodity Markets: The Implication for Commodity Dependent Developing Countries," Research Papers 4, Geneva.

Stiglitz, J., 2004, "We can now cure Dutch disease," *The Guardian*, August 18.

Talvi, E and Végh*, C. A., 2005, "*Tax base variability and procyclical fiscal policy in developing countries," *Journal of Development Economics*, 78: 156– 190.

UNCTAD, 2006, "Boosting Africa's Growth through Re-Injecting "Surplus" Oil Revenue: An Alternative to the traditional save and stabilize," *UNCTAD/DITC/COM/2006/10.*

Usui, N., 1997, "Dutch disease and policy adjustments to the oil boom: a comparative study of Indonesia and Mexico," *Resource Policy*, 23(4): 151-162.

Warner, A. M., 1993, "Did the Debt Crisis or Declining Oil Prices Cause Mexico's Investment Collapse?," World Bank, Working Papers 1102.

Weinthal, E. and Jones Luong, P., 2006, "Combating the Resource Curse: An Alternative Solution to Managing Mineral Wealth," *Perspectives on Politics*, 4(1): 35-53.

World Bank, 2003, "Global Economic Prospects 2003," Washington D.C.

Wright, G. and Czelusta, J., 2002, "Exorcizing the Resource Curse: Minerals as a Knowledge Industry, Past and Present," Working Papers 02008, Stanford University.