

# Confronting the Oil Curse

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## Abstract

Does a strong natural resource endowment tend to promote growth and development or to retard it? In particular, is oil a blessing or a curse? Cross-country studies suggest that the impact of resources depends on initial conditions: exporters with stronger institutions and more human capital are less likely to experience a “resource curse”. Oil exporters face distinctive challenges. Potential “governance deficits” in the face of large point source rents may cause slower growth and extreme revenue volatility exposes countries to increased uncertainty and instability that can offset the benefits of mineral wealth. The paper presents lessons from past experience, provides a comparative analysis of exporters' trajectories through the start of the current oil boom, and considers approaches towards creating agents or restraint and mechanisms of accountability that can help to support better policies for managing oil rents and spending it more effectively.

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## I. Introduction

Does a strong natural resource endowment tend to promote growth and development or to retard it? In particular, is oil a blessing or a curse? This old question, which has been debated for many years, is again topical. Following a twenty-year interlude of low commodity prices, the world is now seeing its third post-war resource boom. The first was in the 1950s, the second in the 1970s; this time round, prices began to increase in the early 2000s. By 2008, many had reached all-time highs before retreating. The boom has not been confined to one commodity or to a single group. Crop prices have soared, including for maize, wheat and rice; metals prices have also risen, including for copper and steel. The most noteworthy increases have been for oil. Prices tripled from \$20 to \$60 per bbl between early 2003 and mid-2005; a second phase gathered steam after early 2007, and saw prices rocket to over \$140 per barrel in 2008 before falling back to half their peak later in the year.

Part of the price increases can be attributed to the weakness of the Dollar, but in real terms the changes in terms of trade between commodity producers and consumers have

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been impressive, especially for oil (Figure 1). For oil alone, resource transfers have been on the order of two percent of global GDP. OPEC revenues have soared, exploding from little over \$100 billion in the early-mid 1990s to an historic high of about \$1.2 trillion in 2008. This figure needs to be seen in the context of inflation and high population growth however. Expressed in constant-price dollars per capita, net OPEC exports in 2008 may be slightly lower than the peak reached at the height of the previous boom (Figure 2).

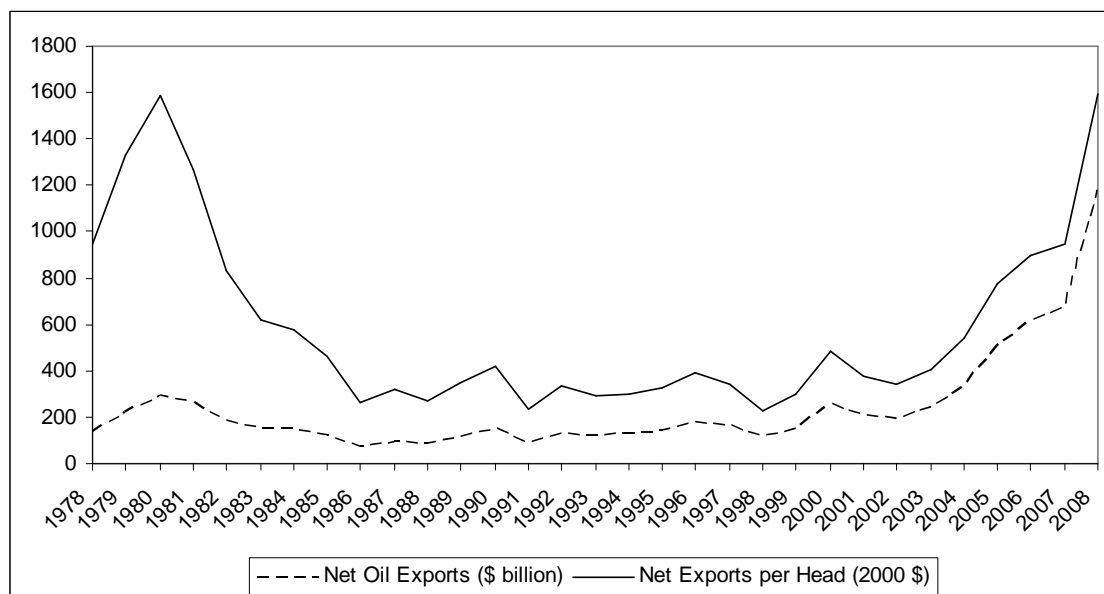
**Figure 1**  
**Resource Price Trends: 1960-2007 price trends since 1970**

	1970	1980	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007
World Bank commodity price index (1990 = 100)												
Agriculture	163	175	100	112	90	84	93	95	98	106	116	131
Metals and minerals	144	120	100	87	85	80	78	82	105	133	198	220
Petroleum	19	204	100	64	127	113	117	126	154	218	258	279
Relative to MUV-Index (1990 = 100)												
Agriculture	*	2.22	1.00	0.96	0.93	0.89	1.00	0.95	0.92	0.99	1.06	1.18
Metals and minerals	*	1.52	1.00	0.74	0.88	0.85	0.84	0.82	0.98	1.24	1.82	1.98
Petroleum	*	2.58	1.00	0.55	1.31	1.20	1.26	1.26	1.44	2.04	2.37	2.51
Memo: MUV G-5 index	*	79	100	117	97	94	93	100	107	107	109	111

\* MUV G-5 index for 1970 is being reviewed.

Source: World Development Indicators, World Bank

**Figure 2**  
**OPEC: Net Oil Exports and Constant-Dollar Exports per Head**



Source: US government

After a two-decade hiatus with stagnant investment in resource sectors, many developing countries have also been seeing a surge in resource development, including investments from new Southern players such as India, China and Brazil. While oil output is stagnating or declining in many mature fields, Angola, Sudan, Brazil and other countries are expanding capacity. Ghana, Uganda and others will soon become producers.<sup>2</sup>

These events have naturally renewed interest in the potential of resource-based development. Will windfalls be used to support long-term growth and poverty-reduction or will the “resource curse” prevail? And are gains permanent or temporary – are we at last in a Club of Rome scarcity scenario or will substitution, new discoveries, and improvements in yields and recovery rates once again depress commodity prices back towards their long-term trends? The picture is perhaps least clear for hydrocarbons because of the increasing concentration of reserves in a few countries, mostly in OPEC.<sup>3</sup> National oil companies now control 90 percent of global oil reserves and 75 percent of production, and the numbers are similar for natural gas.

Traditional development economics emphasizes three important constraints to accelerated growth and improved living standards: domestic savings, exports and fiscal revenues. A strong resource base can relax all three simultaneously; linkages to resource-based sectors can also spur upstream and downstream industries. There are certainly successes, including Australia, Canada, some of the Scandinavian countries, as well as a few developing countries, like Botswana, but poor outcomes in many resource-rich countries show that the outcome varies widely. With so many cross-country studies of the impact of resources on development available, it seems more useful to overview the debate and selectively interpret the empirical results than to provide another one. This is done in Section 2. Cross-country studies confirm the importance of path dependence; that the resource curse is conditional rather than absolute, and they raise some questions on the directions of causality between resource dependence, governance, economic diversification and development progress. But this does not negate the point that resource wealth creates difficult problems for many exporters, and that what should be a blessing often turns out to be a curse, especially for countries starting out with poor initial conditions.

Section 3 focuses on oil, an extreme in the “resource spectrum”. Even relative to other commodities, direct linkages are few, prices are volatile, and massive point-source rents provide a prize for rent-seeking activities and corruption. Comparative data indicate that the oil exporters have underperformed relative to other countries, and certainly relative to potential. The section then focuses on two particular factors that shape performance. The first is a “governance deficit” that extends across all dimensions of governance and seems

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<sup>2</sup> The scramble has been particularly acute in Africa as exemplified for example by the 2004 visit of China’s Premier Hu Jin-Tao to Gabon and the recent announcement of a major agreement between the Democratic Republic of the Congo and China to exchange mineral exports for \$5 billion in development assistance. Oil is one of the few commodities for which Africa’s share in global trade has increased in the last decades. The region has accounted for a quarter of all recent oil discoveries-- by 2008 ExxonMobil is expected to produce more oil in Angola than in the US.<sup>2</sup> Even now, it supplies over a quarter of China’s imports and will soon provide more than a quarter of US crude imports. The resource investment surge is not confined to oil or even to minerals: for example, Mozambique has recently, received over 100 applications for large-scale sugar-based ethanol investments in the north, while Tanzania is fielding a similar number for investments in the south.

<sup>3</sup> Since 1980, global oil reserves have increased by 81 percent. OPEC’s reserves have more than doubled, while reserves of OECD countries EU countries have declined, by 27 and 39 percent respectively.

to be similar for oil exporters in different regions. Recognizing that the relationship between governance and growth is a very contentious one we find that a simple regression using governance ratings made around 1982 can predict most of their growth shortfall thereafter.

The second main factor is extreme macroeconomic instability. While oil reserves represent wealth they also expose countries to increased uncertainty and instability. Under plausible conditions, losses from the latter can offset gains from the former. Using a very simple stylized model, we consider the choices faced by oil producers uncertain of whether the current boom is temporary or long-lasting. Simulations suggest a high payoff to prudent spending over the first several years of the current boom, even if there is a substantial probability that prices will stay high for an extended period. We also consider the implications of having short-horizon governments with a high rate of time preference, and of failure to recognize macroeconomic adjustment costs and absorption constraints when making spending plans. The last feature, in particular, can severely reduce the “value” of a windfall, or even turn it negative.

Section 4 revisits five debated issues in managing oil-rich countries. What factors encourage windows of opportunity to strengthen governance and institutions? Can natural resource funds play a constructive role? Can transferring oil wealth to citizens help strengthen domestic accountability and also build human capital to complement resource wealth? Can external pressure to strengthen governance be useful? And can oil wealth be used to support economic diversification? There are no formulaic answers to these questions, but country cases suggest the possibilities.

Section 5 concludes.

## **II Resources and Development: A Brief Overview.**

The extensive literature on resources and development proposes several dimensions of a “resource curse” or “generalized Dutch Disease” syndrome. Appreciation of the real exchange rate by resource exports may suppress other exporting sectors with increasing returns or more potential for learning by doing than resource extraction; over the long run, this slows growth.<sup>4</sup> Terms-of-trade volatility may cause risk-averse investors to specialize prematurely in non-traded sectors; this further increases export concentration, volatility and specialization, reducing growth (Hausmann and Rigobón, 2003). A high proportion of natural rent in the economy may also encourage rent-seeking, reducing transparency and deteriorating governance. In modest cases rent-seeking could simply sustain poor policies that delay the maturation of infant industries (Auty, 2001); in extreme cases, it may combine with other grievances to fan and sustain civil conflict (Collier 2007).

Three main complications arise in assessing how general the “resource curse might be. Measures can differ, both for resources and outcomes. Should resources be measured as dependence—the resource-intensity of exports, GDP or employment in resource-related sectors—or as abundance—levels of reserves or exports per head? Should the impact be measured on incomes, on GDP growth, or on broader developmental outcomes? Second,

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<sup>4</sup> Real exchange rates do appear to be quite responsive to resource exports; for oil exporters, Korhonen and Juurikkala 2007 find a consistent relationship between real the exchange rate and oil prices with an elasticity of about 0.4.

country heterogeneity: performance may be conditional, for example, on institutional quality or human capital. In this case, are resources the problem, or is the problem the lack of complementary factors? Third, causality: if natural resource dependence is statistically associated with low human capital investments and bad institutions, which way might the causality run? These three problems are discussed in turn.

**Measurement Issues.** Part of the controversy concerning the existence (or not) of a resource curse appears to relate to the measure of resources. Many studies using dependence measures such as resource shares in exports or GDP have found a negative resource-growth relationship. Sachs and Warner 1997, for example, found that developing countries that had a high ratio of natural resource exports to GDP in 1970 tended to grow more slowly than other developing countries during the subsequent 20-year period. Using cross-section and panel regressions, Gylfason, Herbertsson and Zoega (1999) also find an inverse relationship between the size of the natural resource sector and economic growth. Gylfason (2001) finds significant negative correlations between the share of the primary sector in the labor force between 1965 and 1990 and several variables including GNP per capita growth between 1965 and 1998; secondary school enrolment; and Transparency International's corruption perceptions index for the year 2000.

On the other hand, studies that have used abundance measures, such as net resource exports per head have found positive associations between natural resources and growth. Lederman and Maloney (2007) suggest that Sachs and Warner's finding is not robust to when resources are measured in terms of abundance. Using net exports of natural resource-intensive commodities per worker they fail to find a negative impact of resource abundance on growth.<sup>5</sup> Indeed, "wealth of nations" that distinguish natural capital, produced capital and other capital (the last estimated as a residual) find that all types of capital, including natural capital (cropland, forests and sub-soil mineral assets), are larger, relative to population, for countries with higher PPP income per head (Table 1). Natural capital increases from \$3,588 in low-income countries to \$20,227 in high income countries. These data hardly suggest that low-income countries are locked into their status by an excess of natural capital. However, other categories of capital increase far more rapidly across the income progression, suggesting complementarities and indicating the tendency for countries to diversify away from reliance on natural capital as they grow richer.

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<sup>5</sup> While stressing the abundance measure, Lederman and Maloney (2008) also note that between 1980 and 2005 GDP per capita grew far more slowly in net natural resource exporters (0.6 percent) than in net natural resource importers (2.2 percent), suggesting a negative effect of natural resource dependence on growth.

**Table 1**  
**Capital Per Head: Intangible, Produced and Natural**

	Capital Per Head (2005 US Dollars)			
	Total	Intangible	Produced	Natural
Low income	9,007	3,849	1,571	3,588
Lower middle income	22,082	9,444	5,885	6,754
Upper middle income	87,640	54,097	15,802	17,741
High income	563,907	446,637	97,043	20,227
Major oil producers	45,413	3,363	11,217	30,833
World (non oil)	119,834	91,488	21,223	7,123
World	113,325	83,780	20,348	9,197

Source: World Bank Estimates (2008)

Considering growth-based studies, Maloney (2001, p. 1) criticizes cross-section analyses such as those by Sachs and Werner (1997) on the ground that ‘growth processes take place across the very long run and probably cannot be convincingly summarized by cross section regressions of one highly turbulent 20 year period at the end of the 20<sup>th</sup> century’. Using Sachs and Warner’s dataset and measure of natural resource abundance (natural resources as a share of GDP), Manzano and Rigobón (2007) investigate whether cross-section results are robust to a panel regression approach, which allows the possibility of controlling for such country characteristics as large debt overhangs. They find that these, rather than natural resource abundance, are at the source of low growth performance, and suggest that the resource curse is primarily related to imperfect credit markets. Similarly, Lederman and Maloney (2007) suggest that Sachs and Vial’s (2001)’s finding that the share of natural resource exports in total exports has a negative impact on growth arises because they do not control for export diversification. The latter is suggested to be the main structural feature of international trade associated with economic development. When diversification is controlled for (by including the Herfindahl index of export concentration in Sachs and Vial’s regression), the negative effect of natural resource abundance on growth disappears.

Finally, it is often been suggested that natural resource exporters are “rich countries with poor people” (Stiglitz 2007) with wealth concentrated within the hands of a small elite. It may be therefore be better to use developmental outcomes and poverty reduction as measures of success rather than growth-based measures. And, as Gylfason (2001) notes, there may also be trade-offs between short term and long term outcomes. In the short run natural resources can provide nations with substantial wealth; however in the long term they may slow development and lower incomes below those of resource-poor countries. Whether the overall effect is positive or negative would depend on, among other things, the rate of time preference.

**Country Heterogeneity.** What explains why resources seem to be a blessing in some countries but a curse in others? Two main factors emerge from the literature: human

capital and “governance capital”: the quality of governance and institutions available to complement natural resources.

Bravo-Ortega and de Gregorio (2007) argue that it is not resource abundance *per se* that determines a country's growth opportunities but the human capital stock present in a resource abundant country. The larger a resource abundant country's human capital stock, the more positive is the marginal effect of natural resource abundance on growth. Lederman and Maloney 2007 echo this message, noting that rich countries that have successfully used their natural resources to further developmental outcomes, such as Australia and Norway, have done so on the basis of an expansion in their levels of human capital. This suggests strong complementarities between natural resources and human capital, and potentially diverging outcomes across natural resource exporters.

Similarly, a substantial body of literature suggests that differences in the quality of institutions between successful and less successful resource rich countries are at the root of their diverging growth paths. Mehlum et al (2006) find, for example, that the quality of institutions is critical in determining whether countries avoid the resource curse or not-- natural resources are only found to have a negative impact on growth performance among countries with inferior institutions. What kinds of institutions are important? Collier (2007) suggests that the issue is not simply whether countries are democratic. Without effective checks and balances on power, competition for natural resource rents can make democracies malfunction. Unlike normal taxation, they do not invite public scrutiny and political accountability, and therefore encourage the emergence of patronage politics. Eifert, Gelb and Tallroth (2003) distinguish “factional” democracies from “mature” democracies, and argue that highly personalized politics and rent-seeking in the former result in short-horizon, patronage-driven electoral competition and non-transparent allocation of rents.

Human capital and governance capital would of course be expected to impact on performance, including through affecting the potential for export diversification. While it is sometimes argued that Africa's continued concentration on natural resource exports partly explains the large shortfall in economic performance relative to Asia, and that active support should be given to enable diversification towards manufactures, studies also suggest that Africa's low human capital to natural resources ratio is a major determinant of export structure (Wood and Mayer 1998). Even if African countries improve their levels of education substantially, other countries will do the same and it will take a long time until Africa's comparative advantage changes. Moreover, to the extent that the argument is based on the proposition that real resource prices decline over time, Cuddington, Ludema and Jayasuriya (2007) find no evidence of a downward trend in natural resource prices, contrary to Prebisch (1950); while there is evidence for a downward price shift in 1921, commodity prices are found to follow a random walk. Although export diversification may be good for growth, African countries may not need to shift their exports towards manufacturing in order to escape a “resource course”<sup>6</sup>.

**Causality.** Let us finally consider the causality between resource dependence and the two complementary factors discussed above: human capital and governance capital. Which way might the relationships run? Does low human capital lead to specialization in

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<sup>6</sup> Auty 2001 offers seven reasons explaining why natural resource abundance will negatively impact economic development in the presence of an intellectual climate that favors forced industrialization policies.

natural resource exports, or does specialization in natural resources lead to reduced investments in human capital? Causality can run both ways, and if low initial levels of human capital discourage the effective use of resource rents, country paths could diverge ever-further. However, this is not inevitable; Stijns (2006) finds that, on average, per capita rents from natural resources are positively related with human capital accumulation.

Similarly, two-way causality between resources and political institutions may also cause countries with modest initial differences to diverge further. Botswana (further discussed below) had developed good institutions before developing minerals and has used mineral wealth to further strengthen capacity. On the other hand, highly corrupt countries with weak institutions and poor infrastructure may have little alternative to specializing in enclave natural resource exports and experience further institutional deterioration.

**A Bottom Line?** Whether studies find a generalized “natural resource curse” depends, to some extent, on the measures they use and how they account for factors such as human capital and “institutional capital” which appear to be important complementary to natural capital in determining development outcomes. Their influence can be felt through a number of channels, including whether the country can diversify away from resource-based sectors. Initial conditions are important, and causality can run both ways: just as resource wealth may lead to weaker governance, some countries are probably specialized in resources because of low levels of human capital and poor governance.

Resource rents themselves may therefore not be the problem: the question is whether a country has the complementary human and institutional capital to manage them. But this qualification makes the resource curse no less real for many countries.

### **III The Case of Oil Exporting Countries**

Oil exporters constitute a particularly important segment of developing countries. Almost 30 developing countries are now heavily dependent on oil exports. In Sub-Saharan Africa, oil exporters account for about a third of total population and land area.

#### **3a How well have oil exporters performed?**

Hydrocarbons might be expected to create an extreme case of a “resource curse syndrome”. Many exporters are highly specialized; fuels constitute over three quarters of exports in 16 of the 28 exporters listed in Table 2. Linkages are small. Production is often an enclave and although costs can be as low as a few dollars per bbl high-cost extraction usually involves levels of technical sophistication far above the capabilities of poor countries. Offshore production can spur the growth of an associated industry in countries like Norway or Brazil, but few developing countries will be able to take full advantage of linkage potential.<sup>7</sup> Oil exporters also look quite distinctive on measures of national wealth. The estimates in Table 1 indicate that, relative to other countries, they have not complemented their hydrocarbon reserves with other forms of capital.

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<sup>7</sup> There will, of course still be some direct linkages in any producing country. One common linkage involves the real estate market, where demand emanating in part from the oil industry can drive up rents and prices for certain segments to extreme levels, as is now the case in Angola. Hard-mineral extraction usually has a richer set of linkages, including, in many countries, the employment impact of artisanal mining.

**Table 2**  
**Share of Fuels in Exports:**  
**Selected Countries**

	<b>Fuels (% of total)</b>	
	<b>1995</b>	<b>2006</b>
Algeria	95	98
Azerbaijan	66	85
Bolivia	15	52
Cameroon	29	62
Colombia	28	40
Congo, Dem. Rep.	..	35*
Congo, Rep	88	..
Ecuador	36	59
Egypt, Arab Rep.	37	56
Equatorial Guinea	..	95*
Gabon	83	86
Indonesia	25	27
Iran, Islamic Rep.	86	83
Kazakhstan	25	69
Kuwait	95	..
Libya	95	..
Nigeria	96	..
Norway	46	68
Oman	79	95
Papua New Guinea	38	..
Russian Federation	43	63
Saudi Arabia	88	91
Sudan	0	87
Syrian Arab Republic	63	40
Trinidad and Tobago	48	76
Turkmenistan	77	..
Venezuela, RB	77	93
Yemen, Rep	95	94
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<b>Regional Aggregates</b>		
Europe and Central Asia	22	32
Middle East and N. Africa	73	76
Sub-Saharan Africa	37	..

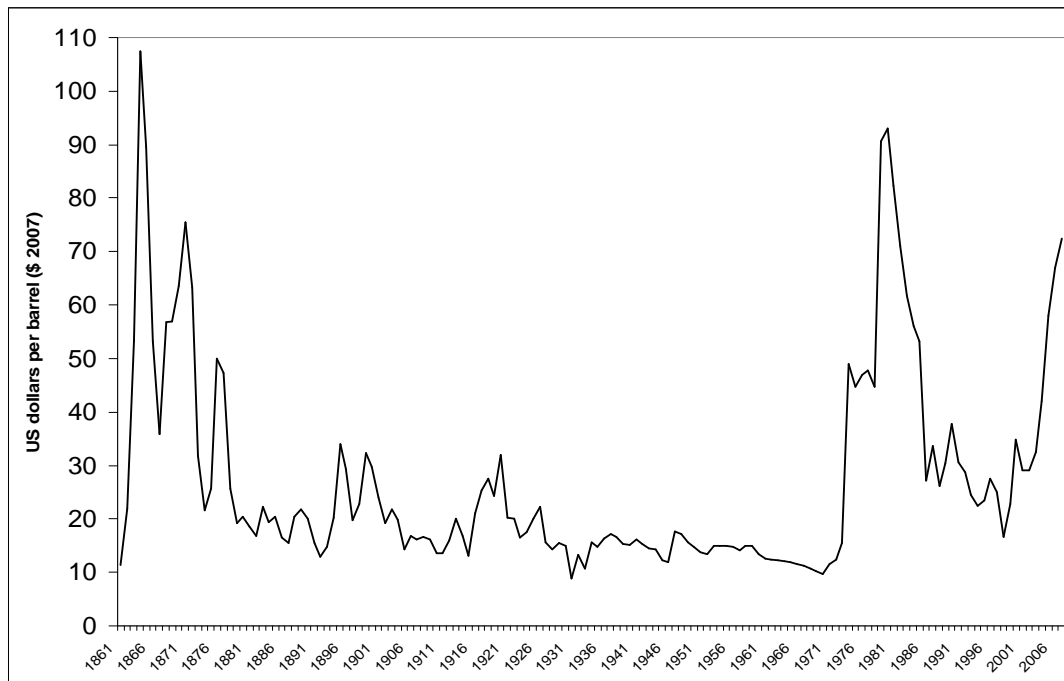
\* Estimates

Source: World Development Indicators, World Bank

Even by the standards of commodity prices, real oil prices are exceptionally volatile. Considering real oil prices back to the 1860s (Figure 3), there has been little long-run trend but the coefficient of variation is 0.7. Prices have also been very difficult to forecast; since the start of the 1970s none of the major turning points in the market has been widely predicted. Since the start of the current oil boom, futures prices have been flat, extending the current price out to as much as ten years. While real prices cannot strictly conform to such a random walk process because of some lower and some upper bound, estimated prediction models do little or no better than a random walk; in a careful

study of the statistical properties of oil price series, Hamilton 2008 finds that the random walk hypothesis cannot be rejected.

**Figure 3**  
**Long Run Oil Prices: 1981-2007**



Source: BP Statistical Review

The range of uncertainty reflected in the spread of futures prices is enormous. For an exporter like Nigeria, with oil valued at \$100 per bbl and futures prices ranging from \$50 to over \$150 per bbl, the difference between prices at the high end and the low end of the spectrum would be equivalent to a difference of 50 percent of GDP. Starting from a price of \$115 per bbl, Hamilton 2008 concludes that four years into the future we should not be all that surprised to find the price of oil as low as \$34 or as high as \$391 per bbl.

Table 3 shows the growth of oil exporting countries for which consistent data are available over the period 1965-2007, breaking out the period into booms and busts which coincide with spells of high and low oil prices. Over the 32 year period, the oil exporters grew more slowly than either middle-income countries or low-income countries, even though the definition of the latter group involves a degree of self-selection bias towards slow growth. Norway, a high-income exporter, escaped this fate; among the countries selected, Indonesia also did better than average.<sup>8</sup>

<sup>8</sup> Elbadawi and Kaltani (2007) find that over the period 1971-2005 GDP per head in oil exporting countries grew at about half the rate in non-oil-exporters.

**Table 3**  
**Growth in GDP and Absorption per Head:**  
**Oil Exporting and Other Countries**

	1965-72	72-81	81-90	90-02	02-07	1972-07
Growth Rates GDP/head (Annual Average, Percent)						
Selected Oil Exporters*	4.1	2.6	-1.5	0.7	3.9	1.4
MICs	3.5	3.0	1.7	2.6	6.1	2.8
LICs	1.9	0.5	0.7	1.0	4.0	1.6
Memo: Norway	3.2	4.0	2.6	3.1	2.1	2.9
Growth Rates, Real Absorption/head (Annual Average, Percent)						
Selected oil exporters**	5.2	5.4	-3.4	0.6	5.8	1.6
MICs	2.8	4.0	0.9	2.5	5.9	2.8
LICs	--	0.5***	0.9	2.5	6.9	2.0
Memo: Norway	4.5	4.4	1.4	3.0	4.4	3.0

\* Algeria, Cameroon, Ecuador, Gabon, Indonesia, Iran, Nigeria, Saudi Arabia, Syria, Trinidad and Tobago, Venezuela

\*\* Algeria, Cameroon, Gabon, Indonesia, Iran, Syria, Trinidad and Tobago, Venezuela

\*\*\* Set equal to GDP growth at 0.53

Source: World Development Indicators, World Bank

Table 3 also confirms the tendency for oil exporters to alternate periods of shorter booms, with high but not spectacular growth rates of GDP, with prolonged slumps marked by stagnant or declining GDP per head. This supply-side pattern mirrors the even larger swings in the rhythm of real absorption, usually led by swings in public spending. For exporters with consistent data, the average annual growth of real absorption per head swung from 5.4 percent in 1972-81 to -3.4 percent in 1981-90. For many countries, real absorption per head halved over this decade. Real absorption per head was static over the subsequent decade and then boomed again at 5.8 percent as prices soared after 2002. Overall, as with GDP/head, absorption per head grew more slowly for the oil exporters than for other countries.

Development indicators in areas such as education and health tend to be lower for oil exporters than for other countries (Ross 2003, Gylfason 2004), adding further support to the proposition that poor growth performance is partly due to lack of investment in complementary forms of capital. To assess the magnitude of such differences, Table 4 summarizes regressions for infant mortality (in deaths per thousand), expressing this as a function of 2005 GDP per head in Purchasing Power Parity dollars, an oil exporter dummy and regional dummies. Mortality is about 20 per thousand higher for oil exporters than for non-exporters at comparable levels of income. This is a very large difference; the infant mortality rate of a typical oil exporter corresponds to that of a non-oil-exporting country with only about 40 percent of the GDP/head in PPP terms. Including regional dummies shows up a large and significant coefficient for Sub-Saharan Africa, but only slightly softens the oil effect, even though many exporters are in that region.

**Table 4**  
**Infant Mortality:**  
**Oil Exporters and Other Countries**

Dependent variable: Infant mortality		
	Full country sample	Developing countries only
Log of GDP	-22.17*** (1.351)	-16.02*** (2.156)
Oil dummy	19.11*** (4.601)	17.23*** (4.819)
Africa		42.47*** (5.742)
East Asia and Pacific		0.132 (6.356)
South Asia		13.81 (8.944)
Europe and Central Asia		1.056 (5.488)
Middle East and North Africa		2.657 (7.229)
Constant	224.9*** (11.61)	159.0*** (18.79)
Observations	180	143
R-squared	0.606	0.717

\*\*\* Significant at 0.01 level, \*\* significant at 0.05 level, \* significant at 0.1 level  
Standard errors in parentheses; GDP refers to 2005 PPP GDP per capita

Source: World Development Indicators, World Bank

This does not, of course, provide a picture of a counterfactual. Some oil exporting countries with a very limited basis of other resources, including several in the Middle East and North Africa, are surely many times better off in material and social dimensions with oil than they would have been in the absence of oil. However it further confirms the observation that many oil exporting countries have done poorly on development indicators--certainly less well than might have been expected given their resource endowments.

### **3b Is growth in oil-exporting countries reduced by a “governance deficit”?**

Many commentaries, in particular Karl (1997, 2003, 2007, 2007a), have drawn attention to the low quality of governance in oil exporting countries and the implications for development. Such an outcome might not be surprising, because of the magnitude of the common-property problem posed by “point-source” rents. As well-expressed by George Soros in Humphreys et al 2007, poor governance can be seen as a two level principal-agent problem: between the ultimate principal (the citizen owners of the resource) and their agent (the host government), and between the host government (acting as principal on behalf of the citizens to manage and spend oil income on behalf of the population) and the national and foreign oil producing companies (the ultimate agent).<sup>9</sup>

Whether governments can successfully play this double role depends on whether they have the capacity and knowledge to act as effective principals and their accountability to the citizenry.

**Capacity and knowledge.** There has been a sea-change in the oil industry since the early 1970s. Growth in the number of oil companies and the breakout into oil service companies has created more sources of expertise and advice than before. Except perhaps for the most technically demanding fields, the sector has therefore become more contestable. This can help reduce information asymmetry; it enables the ministry responsible for oversight of the oil sector to have better access to the information and expertise needed to negotiate and monitor contracts that are fair and that do not lock in conditions when changed circumstances call for fundamental revisions<sup>10</sup>. Though still an issue especially for very new small producers, the capacity problem should have become less serious over time.

**Accountability.** The more serious problem is the weakness of the mechanisms that constrain governments to be accountable to their citizens. Governments can collude with the oil companies against their citizens to conceal oil income; budget management and spending priorities might not be in the best interests of a broad spectrum of citizens. The larger the natural rents, the greater will be the pressures underlying these principal agent problems. Incentives will be stronger to obscure information, to design more complex contracts and budgetary arrangements to limit transparency, and to steer oil revenues

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<sup>9</sup> Although the question is not directly discussed in this paper, it is useful to ask: Who actually is the ‘principal’ that the government is serving? What does citizen ownership of national resources really mean? Are reserves owned on a uniform per head basis? Should they mainly be owned by the citizens in resource-rich regions of a country? Do only current citizens own the resources, or are they partly owned by unborn generations of citizens? Is it realistic to expect the ownership concessions given to foreign oil companies to remain unchanged when market conditions change dramatically in an unexpected way? The answers to these questions should shape critical elements of policy, such as the balance between spending oil revenues and saving them, and the degree to which revenue allocation follows the principle of derivation, providing more to producing regions. But there is often a lack of consensus on such questions, and often the questions are not posed clearly at all. Lack of clarity on what resource ownership really means can paralyze policy and lead to costly gaming, whether between central and provincial governments (as in the current struggles between central and local governments in Bolivia and Ecuador) or between governments and oil companies (Venezuela, Russia). It can also encourage non-transparent systems of allocating rents that avoid posing the questions too starkly.

<sup>10</sup> Norway initially offered generous terms on North Sea contracts but as experience was gained with extraction the terms of contracts were tightened. Zambia provides a contrasting example; agreements negotiated during a period of low prices resulted in little revenue increase after 2004 despite soaring prices because of caps on the levels of prices that could be used to escalate taxes. Poorly designed agreements have an additional cost; they hinder efforts at transparency because governments are reluctant to disclose agreements that in hindsight appear over-generous.

towards special groups. Ross (2001), Sala-i-Martin and Artadi (2002) and World Bank (2003) find that, controlling for incomes and population size, oil rents have strong explanatory power in accounting for weaker governance in the Middle East. They find that there is little difference in the quality of administration between oil- and non-oil countries, but that public accountability in oil-reliant countries is systematically lower than in non-oil countries.

It is often argued that oil revenue in the budget lessens the need to tax, further weakening checks and balances and reducing the pressures for good policies and responsiveness to citizen needs (Collier, 2007). Resource revenue also enables critics to be bought off, further muting demands for accountability<sup>11</sup>. From this perspective, optimal policy would be to distribute all rents to citizens and rely on a normal tax system for public revenues, even if taxation involves deadweight costs.

**Is there evidence for a governance deficit?** To assess how serious an oil rich country governance deficit might be, we regress each of the six clusters of one composite set of governance indicators, the 2008 Worldwide Governance Indicators (WGI), on a common set of explanatory variables: the level of PPP income/head in 2005 dollars, and an oil export dummy. Table 5 summarizes the results, which show a common pattern across the indicators. Higher ratings are associated with higher income and also with non-oil-exporting country status. The magnitudes of the negative oil dummies are comparable across the governance dimensions: about 0.8 - 1.0 units on the scale [-2.5 – 2.5].<sup>12</sup> These coefficients are large; around three times the typical standard error for an individual country estimate following the WGI methodology.<sup>13</sup> A typical oil exporter has a governance score corresponding to that of a far poorer non-exporter, with barely 25 percent of the level of GDP/head. This ratio is low for all dimensions, and lowest for voice and accountability: Figure 4 shows the picture for this indicator, distinguishing oil exporters and other countries.

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<sup>11</sup>Schubert, 2006 cites the interesting example of Kuwait. Before the discovery of oil its economy - and the maintenance of the ruling Al Sabagh's family - was reliant on taxes from the merchants of the pearl trade. After the discovery of oil the Sheikh disbanded the previously influential merchant's assembly and eliminated taxes. To consolidate his power he arranged jobs for the pearl merchants, provided free health care and education – essentially buying the opposition and making compliance more cost-effective than dissent.

<sup>12</sup> Langbein and Knack 2008 critique the concept validity of the WGI, and argue that they do not in fact correspond to six distinct dimensions of governance. This is of less concern in the present context, where the WGI are taken as a broad overall composite of views on governance.

<sup>13</sup> Country standard errors as estimated by the WGI methodology are usually in the range of 0.25 – 0.35, depending on the number of sources available for any governance indicator and country.

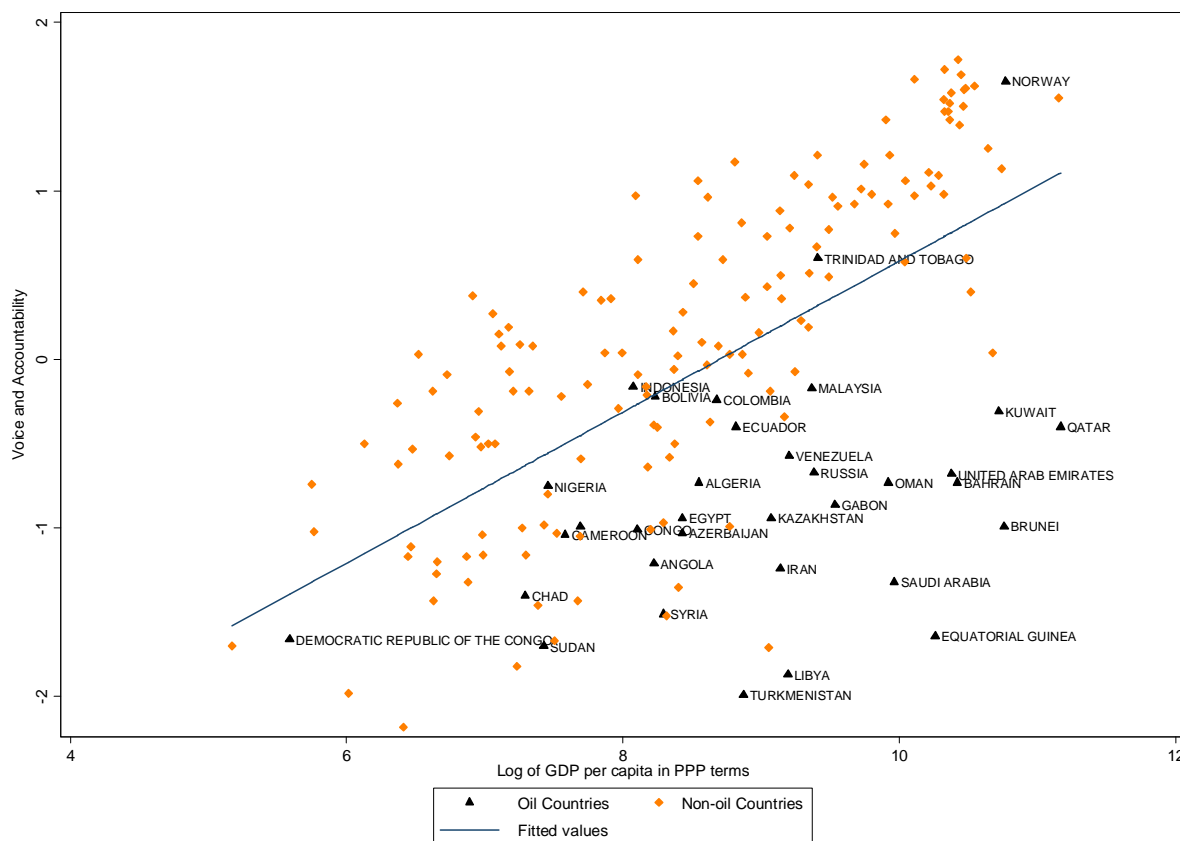
**Table 5**  
**Worldwide Governance Indicators: Fuel Exporters and Other Countries**

<b>Worldwide Governance Indicators</b>						
	(1)	(2)	(3)	(4)	(5)	(6)
	Voice	Stability	Effectiveness	Regulations	Law	Corruption
<b>All Countries</b>						
Log GDP	0.494*** (0.0344)	0.463*** (0.0383)	0.615*** (0.0283)	0.607*** (0.0273)	0.586*** (0.0307)	0.594*** (0.0321)
Oil dummy	-1.170*** (0.119)	-0.868*** (0.132)	-0.826*** (0.0980)	-0.824*** (0.0940)	-0.834*** (0.106)	-0.805*** (0.110)
Constant	-4.074*** (0.296)	-3.868*** (0.329)	-5.141*** (0.244)	-5.068*** (0.235)	-4.927*** (0.265)	-4.982*** (0.276)
Observations	182	182	182	181	182	181
R-squared	0.601	0.488	0.737	0.747	0.686	0.672
<b>Developing countries only</b>						
Log GDP	0.457*** (0.0609)	0.618*** (0.0684)	0.542*** (0.0469)	0.552*** (0.0526)	0.521*** (0.0513)	0.446*** (0.0486)
Oil dummy	-0.914*** (0.137)	-1.031*** (0.154)	-0.725*** (0.105)	-0.745*** (0.118)	-0.829*** (0.115)	-0.738*** (0.109)
Africa	-0.200 (0.163)	0.483*** (0.183)	0.109 (0.125)	0.0324 (0.141)	0.289** (0.137)	0.123 (0.130)
East Asia and Pacific	-0.237 (0.180)	0.639*** (0.203)	0.122 (0.139)	-0.118 (0.156)	0.448*** (0.152)	-0.0748 (0.144)
South Asia	-0.623** (0.243)	-0.422 (0.273)	0.0919 (0.187)	-0.0597 (0.210)	0.274 (0.205)	-0.0517 (0.194)
Europe and Central Asia	-0.499*** (0.157)	-0.303* (0.176)	-0.195 (0.121)	-0.232* (0.136)	-0.196 (0.132)	-0.290** (0.125)
Middle East and North Africa	-0.851*** (0.205)	-0.0968 (0.230)	-0.0266 (0.158)	-0.205 (0.177)	0.357** (0.173)	0.138 (0.164)
Constant	-3.554*** (0.531)	-5.256*** (0.596)	-4.649*** (0.409)	-4.613*** (0.459)	-4.646*** (0.447)	-3.879*** (0.424)
Observations	143	143	143	143	143	143
R-squared	0.513	0.488	0.599	0.569	0.531	0.493
<b>Sub-Saharan Africa only</b>						
Log GDP	0.331*** (0.0819)	0.532*** (0.0914)	0.384*** (0.0643)	0.368*** (0.0627)	0.374*** (0.0592)	0.316*** (0.0548)
Oil dummy	-1.073*** (0.224)	-1.248*** (0.250)	-0.852*** (0.176)	-0.761*** (0.172)	-1.031*** (0.162)	-0.951*** (0.150)
Constant	-2.805*** (0.588)	-4.101*** (0.656)	-3.368*** (0.462)	-3.248*** (0.451)	-3.253*** (0.425)	-2.771*** (0.394)
Observations	46	46	46	46	46	46
R-squared	0.412	0.512	0.514	0.494	0.588	0.566

\*\*\* Significant at 0.01 level, \*\* significant at 0.05 level, \* significant at 0.1 level  
Standard errors in parentheses; GDP refers to 2005 PPP GDP per capita

Source: Worldwide Governance Indicators, World Bank

**Figure 4**  
**Voice and Accountability:**  
**Fuel Exporters and Other Countries.**



Source: Worldwide Governance Indicators, International Comparison Project, 2008 round

These results are reasonably robust when regional dummies are included and not dependent on any particular region. As shown in Table 5, confining the sample within Sub-Saharan Africa oil exporters also score low on governance indicators. The nine African oil exporters with average GDP/head of \$979 (at market exchange rates) score on average around the lowest decile on governance indicators. In contrast, a set of eleven low-income non-oil African countries, with average GDP/head of only \$300, that have grown relatively rapidly over the last decade score around three deciles higher. To cite Karl, 2003, the oil exporters are truly “the bottom of the barrel”.

Oil, it could be argued, is not integrated into the rest of the economy in the first place, so that it is unreasonable to benchmark governance estimates to the level of income per head including oil. Some governance discount might therefore have been expected, but its estimated magnitude is far larger than what would be found if governance levels corresponded to the size of the “non-oil” economy. This becomes less surprising when it is recalled that most of the “non-oil” economy in oil exporters is dependent on oil revenues and oil-led spending, so that any true non-oil economic base that might depend on the quality of governance is far smaller.

What might such weak governance mean for growth performance? This question raises a contentious issue, the nature of the causal relationship, if any, between governance (as measured by various indicators) and growth. A full discussion of this topic is beyond the scope of this paper.<sup>14</sup> One approach to the problem of identification, which attempts to reduce the problem of a possible “virtuous feedback loop” running from income levels to governance is to consider the relationship between governance measured at a point in time and subsequent growth. Table 6 summarizes the results of a simple growth regression covering 108 countries for the period 1982-2006. The explanatory variables are country ICRG ratings made around 1982 and the level of GDP/head in 1982.<sup>15</sup> The sample of 108 countries includes 22 oil exporters.

As expected, growth is negatively associated with GDP/head in 1982 and positively associated with the 1982 ICRG ratings. Dividing countries into two groups, oil exporters and others, and averaging shows that the oil exporters started out with initial incomes a little higher than the non-oil countries and with initial ICRG ratings a lot lower. They then grew considerably more slowly than the non-oil countries. As shown in Table 6, the growth differential between these two groups is well predicted by the estimated equation, mainly through the effect of the different ICRG ratings at the start of the period. Conditional on constant ICRG scores, in a long run equilibrium where oil and non-oil countries grow at the same rate, GDP/head would be about \$10,000 lower in the oil exporting countries

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<sup>14</sup> Kaufmann and Kraay (2002) use 1995 PPP GDP per capita and the WGI indicator “Rule of Law” for the period 2000/01 to consider the causal relationship between governance, income and growth, by relying on instrumental variable models and non-sample information. Using non-sample information as an approach to identify causal effects requires judicious assumptions regarding the extent of measurement errors and the importance of omitted variables. As in Acemoglu, Johnson and Robinson (2001), settler mortality (including many imputed values) is used as an instrument for governance. Given strong assumptions, the model shows (a) a positive causal effect of better governance on per capita incomes, and (b) a weak and sometimes negative causal effect running in the opposite direction from per capita income to governance. This second result suggests the absence of “virtuous circles” in which higher incomes lead to improvements in governance. Kaufmann and Kraay suggest state capture by elites as the likely channel for the partial second effect, which they assume will be dominated by the first effect in most cases. While they provide intuitive arguments, they candidly refer to the links between state capture and the negative feedback between incomes and governance as “quite speculative”.

<sup>15</sup> We are grateful to Stephen Knack for these results.

**Table 6**  
**Actual and Predicted Growth Rates, 1982-2006:**  
**Oil Exporters and Other Countries**

Countries	Growth Averages			
	GDP82	ICRG82	Predicted Growth 82-06 (%)	Growth 82-06 (%)
All	7.78	27.7	1.46	1.41
Oil	7.87	21.6	0.97	0.72
Non Oil	7.76	29.3	1.59	1.58

Note: Predicted growth rates for 82-06 are based on the following regression:

Dependent Variable: Growth of GDP/head, 1982-2006

Constant	-0.285	(-0.83)
GDP/head 1982	-0.060	(-2.09)
ICRG 1982	0.080	(4.82)
R-squared	0.184	

Robust t-statistics are in brackets.

Source: World Development Indicators, calculations by Stephen Knack

The individual data provide a picture reasonably consistent with this result. There are few oil exporters with growth rates predicted to be high relative to the average of about 1.5% for non-oil-exporters: Malaysia (commonly recognized as a success among oil exporters) and Norway (commonly taken as the "model" oil country) are two of these.

These conclusions do not of course mean that any governance discount can automatically be imputed to the impact of oil. As noted previously, export structure and resource dependence are partly endogenous: some countries with low governance indicators may emerge as specialized oil exporters because other industries cannot survive. Global energy concerns have also been pushing hydrocarbon development towards "frontier" countries with low governance scores, providing an additional impetus for them to become exporters. However, the results do provide support to the proposition that oil exporting tends to be associated with poor governance, and that this may explain part of the disappointing growth performance of these countries.

### **3c Coping with extreme volatility**

Compounding the governance problem is the tendency towards extreme boom-bust cycles caused by wide oil price swings and exacerbated by pro-cyclical access to capital markets. The destructiveness of these cycles is clear from many cases. Mexico borrowed against expectations of increasing real oil prices after 1981 and suffered badly when these expectations turned out to be far off track. Hausmann 2001 notes that between 1920 and 1980 Venezuela was one of the fastest-growing Latin American economies, with growth averaging 6.4 percent. But following several euphoric years after 1974, it experienced a sharp decline, with output per head halving over the next two decades. Nigeria offers a third example, with "voracious" spending increases outpacing revenue increases up to 1984, followed by sharply lower spending debt-constrained spending thereafter (Budina and van Wijnbergen 2008). Simulations with a multi-sector computable general equilibrium model indicate that optimal savings for a capital importing oil exporter

during the 1973-81 boom would have been about 80% of incremental revenues (Gelb and associates, 1988). However, while some countries saved part of their windfall abroad (Indonesia) and some dis-saved (Algeria, Nigeria), on average, the exporters saved little. Simulations also showed that the cost of over-optimistic spending during the boom years could be enormous for an oil exporter, easily turning the value of a windfall into a net loss.

How have oil exporters been responding to the current boom? Recent data compiled by the IMF (IMF 2007)<sup>16</sup> paint a picture up to the end of 2006, finding that a typical exporter had spent about 60 percent of the estimated increase in permanent income, valuing reserves at the current price. This indicates a more cautious approach to spending than in the past oil boom. However, they also show wide variation in spending patterns between countries, and suggest that those with poorer governance were spending more aggressively, relative to their wealth windfall, than those with stronger institutions. Moreover, as in the 1973-81 boom there may be a lag between incomes and spending. By the end of 2006, capital spending was growing, on average, at an annual rate of 30 percent, and was on a strongly accelerating trend. Applying reasonable ratios between capital and current spending, such an increase in capital spending, if maintained for five years, would lock in recurrent budget obligations of 5-10 percent of GDP. It will therefore be interesting to revisit spending levels in relation to income, especially considering the second price hike after 2007 and the subsequent decline, when more data is available.

How much should exporters be saving, considering the great uncertainty over whether high prices are temporary or longer-term? Spending decisions by oil countries are increasingly benchmarked on the permanent income approach, which relates the target primary non-oil deficit to the permanent income expected from oil; the sum of returns on savings out of past oil income and future income expected from reserves still in the ground. These benchmarks, together with associated “stress testing” of spending policies against varying revenue projections, can provide a useful guide to prudent spending decisions. They do not however, provide guidance on how cautious spending patterns should be in the face of uncertain future revenues.

In determining the right degree of caution, it is important to factor in absorption constraints and macroeconomic adjustment to positive and negative demand shocks. There is considerable support for an asymmetric response, suggesting a supply curve that kinks in response to large booms and busts. For the US economy, Cover (1992) finds that positive money-supply shocks have no effect on output whereas negative shocks do have an impact; for the Middle East, Kandil (1999) finds a similar result, with demand fluctuations leading to greater average inflation and lower average growth.<sup>17</sup> Collier and Venables (2008) summarize research on the impact of large terms of trade gains and losses on developing countries. They abstract from the income effect accruing directly from changes in the terms of trade and find asymmetric adjustment: favorable shocks do not have significant effects on growth, but adverse shocks reduce output. For a typical African country, a terms of trade loss of 10 percent of GDP reduces growth in the following year by 3.6 percentage points. The implications of asymmetry are clear: under-

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<sup>16</sup> This summary also draws on more recent information in Rolando Ossowsky: Presentation to PREM week, World Bank, April 2008.

<sup>17</sup> Reflecting macro level behavior, at a micro level Kandil (2006) also finds asymmetric responses for 28 two-digit Standard Industrial Classification (SIC) industries in the US.

spending when prices are high can incur a small loss of welfare, but over-spending during a boom can be costly, especially if financed by borrowing.

A full analysis of spending decisions would need to take many country-specific issues into account. These include the options for spending (including investments, subsidies and direct transfers to the population) the effectiveness of spending, which is likely to fall as levels rise, the costs imposed by sharp reductions in over-extended spending levels (investment wasted because of shortages of complementary recurrent resources) and the macro-economic costs of adjustment to sharp declines in demand, as well as the opportunity cost in terms of additional reserve accumulation and investment income foregone.<sup>18</sup> Here we consider a very simple stylized model that focuses on two effects: efficiency losses when public spending levels are very high and macroeconomic losses due to sharp cutbacks in the level of spending.

The model involves three periods: period 0 is pre-boom, and sets the historical base for public spending; period 1 is the boom, lasting  $N_1$  years and period 2 is the uncertain post-boom future, lasting  $N_2$  years. The country faces an inter-temporal budget constraint: total spending over all years cannot exceed total revenue received. We assume a non-oil economy of 100 in each year and express oil income relative to this level. This therefore abstracts from population and non-oil GDP growth, and there is no second-period payoff to possible first-period investment. However, to partly compensate for this savings abroad yield no return either.

In a fully-specified model, the utility function would value a (possibly discounted) sum of annual utilities of consumption, but this would require setting out the detail of how oil-led spending affects the entire macro-economy. In the simple reduced-form model here, valuation is directly on "net" public spending, with utility represented by the log of net spending to allow for diminishing marginal utility. Spending in each year is weighted by the number of years to form the aggregate utility in each period.

Net spending allows for two types of efficiency losses. First, beyond a moderate level of spending, the efficiency of spending begins to decline according to a quadratic function. We do not have good estimates of the parameters of such a cost function, which will depend on, among other things, the quality of public management. But at some level of very high spending (here set at 40% of non-oil GDP) the marginal value of spending can reasonably be assumed to approach zero. Second, asymmetric adjustment is assumed, with losses due to sharp declines in spending. The estimates provided in Collier and Venables (2008), are used to calibrate the macro-adjustment cost in the reduced-form model.

What does such a model suggest about spending decisions during a boom when the post-boom outlook is very uncertain? We take  $N_1$  as 5 years and  $N_2$  as 20 years, and start from a baseline where revenues are steady at 10 percent of non-oil GDP. Spending is optimized for two revenue profiles, a short boom, with oil revenues at 10, 30 and 10 percent of non-oil GDP in the pre-boom, boom and post-boom periods respectively, and a long boom, with the revenue profile 10, 30 and 25 percent. Total spending is constrained to equal total income over the period. This implies a downward bias for the estimate of

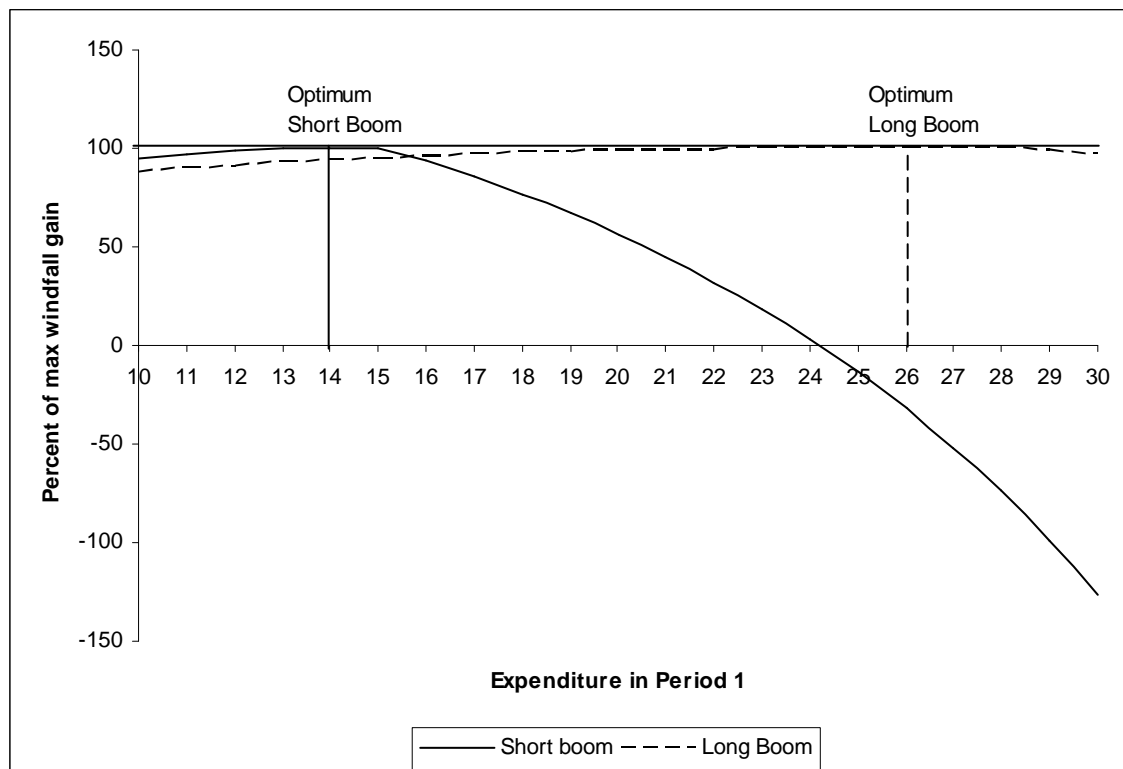
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<sup>18</sup> Many of these issues are considered by Engel and Valdés (2000). The model used by Gelb 1988 also incorporates some of these options, including the domestic pricing of energy over the boom-bust cycle.

optimal savings if absorptive capacity is a severe constraint over the period as a whole or if the horizon of 25 years is too short.

In the case of the short boom, the optimum is to spend 20 percent of incremental oil revenues (or just under 50 percent of total oil income) during the boom years and save the rest. For the long boom, it is optimal to spend 80 percent of incremental oil revenues or about 85 percent of total income (Figure 5). The losses due to misjudging the nature of the boom are asymmetric. Slow initial spending results in only a small loss of the potential value of the long boom; in the opposite case, over-optimistic initial spending results in the loss of most of the potential value of a short boom. If each scenario is expected with a probability of 0.5, the expected welfare-maximizing spending level, at about 22 percent of incremental boom income, is not much higher than the optimal spending level for the short boom. As in Gelb and associates 1988, the value of a short boom is severely negative at very high levels of spending, and even more so if spending is further boosted by borrowing. For the stylized exporter, after several years of high prices optimal savings abroad would cumulate to some 80 percent of GDP.

**Figure 5**  
**Percentage of Maximum Windfall Gain:**  
**Short Boom and Long Boom**



Source: Model Simulations

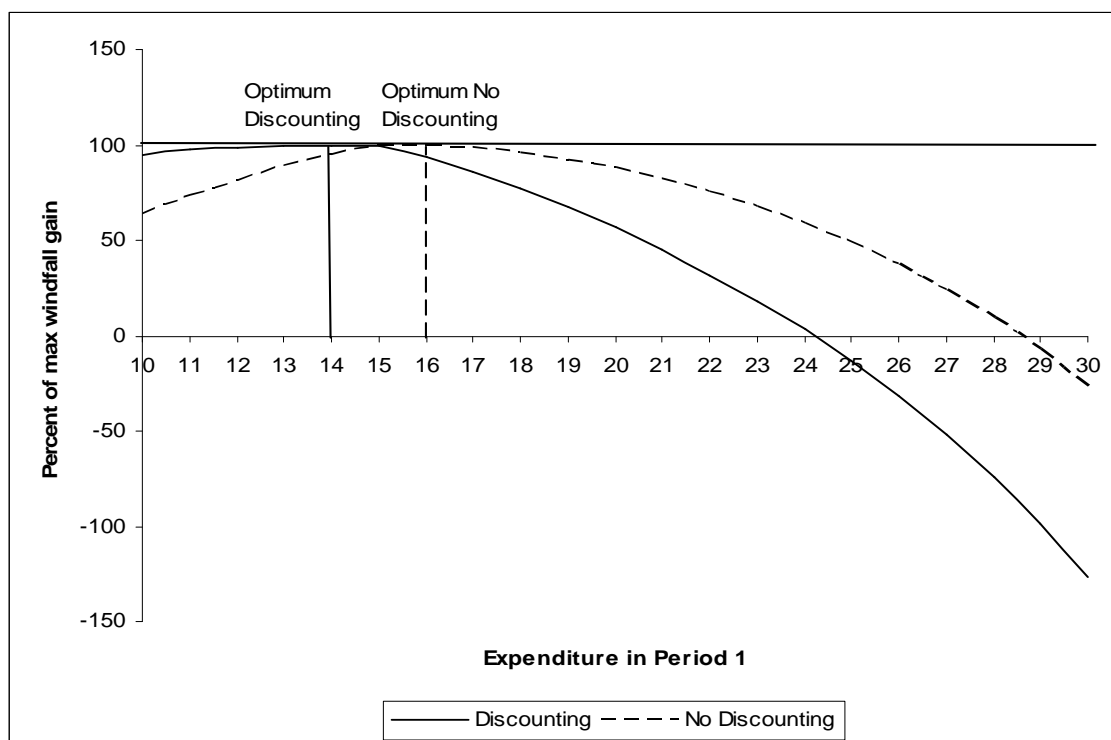
**Table 7**  
**Payoff Matrix: Percentage of Maximum Windfall Gain**  
**Short versus Long Boom: Expectations and Reality**

<u>Expectation</u>	<u>Reality</u>	
	Short boom	Long boom
Short boom	100%	94%
Long boom	-32%	100%

Source: Model Simulations

Spending decisions are inherently political, however. Government may have a short horizon, and discount future welfare. Using a discount rate of 10 percent somewhat increases period 1 spending, but the heavy weight of the long, post-boom period in total welfare means that moderate levels of discounting are not likely in themselves to lead the economy into a serious problem (Figure 6). Only when the political horizon is very short (discount rates of 30 percent and above) does period 1 spending rise towards the level of revenues.

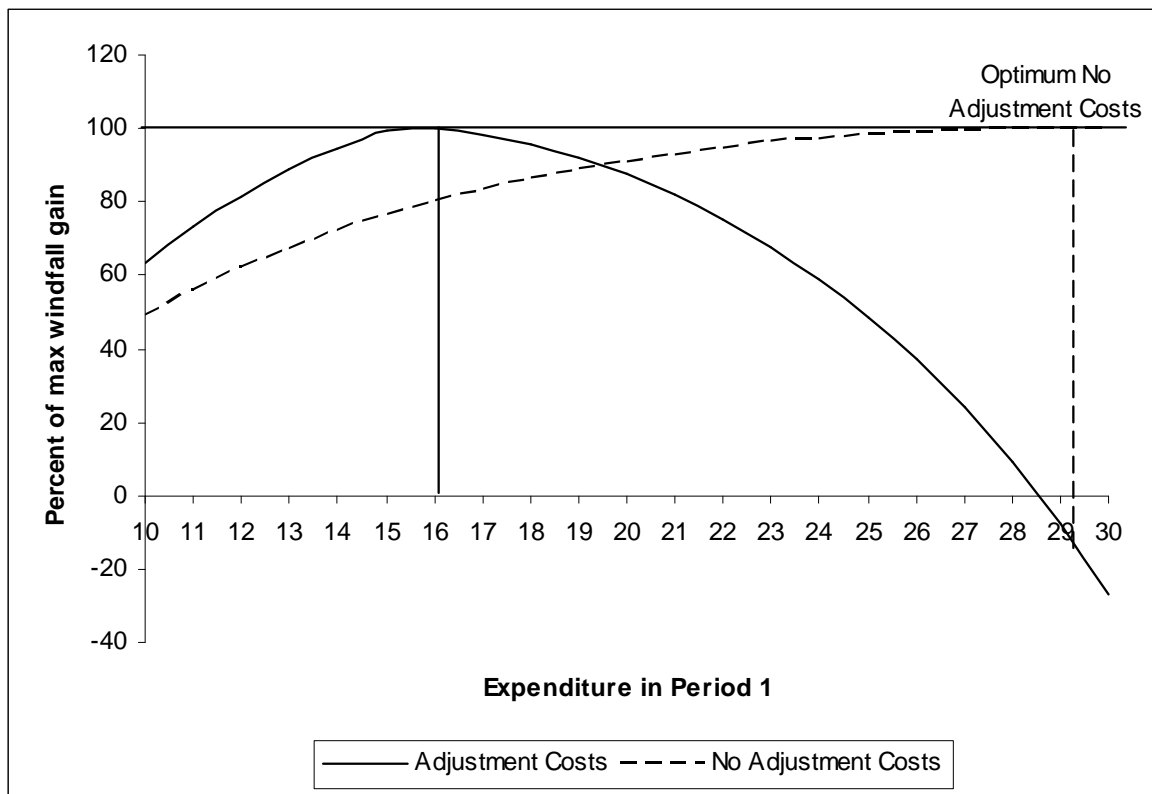
**Figure 6**  
**Percentage of Maximum Windfall Gain:**  
**With or Without 10 Percent Discounting**



Source: Model Simulations

More problematic is the possibility that policymakers might not factor adjustment costs and macroeconomic adjustment costs into their spending decisions. When budget discipline is weak, congestion costs will be seen as external to any individual decision-maker. Corrupt officials may also be more interested in spending for its potential to generate lucrative contracts than its effectiveness. They may not believe that macro-adjustment costs will bind if spending declines sharply, perhaps because (against the evidence) they expect high investments in the boom period to pull the economy through any post-boom demand slump. The combination of such factors with political discounting or over-optimistic projections of oil incomes is disastrous: in the first period government spends heavily, resulting in a catastrophic contraction in the second period and turning the potential windfall into a sizeable loss (Figure 7). Disseminating the experience of other countries and strengthening constituencies and institutional arrangements to sustain cautious spending is therefore key to realizing the potential value of oil windfalls.

**Figure 7**  
**Percentage of Maximum Windfall Gain:**  
**Discounting and Ignoring Adjustment Costs**



Source: Model Simulations

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Only a few countries, notably Mexico, have tried to hedge oil price risk through futures contracts, forward markets, commodity swaps and bonds or other instruments. Several factors constrain this option, in particular the asymmetric nature of the political payoff. Profits realized have little visibility and political benefit, but losses open up officials to charges of misusing public money, allegations of corruption and investigations by special committees (Daniel 2003). Addressing this problem requires educating lawmakers on hedging, including presenting strategies as an integral part of the budget process.

#### **IV. How Could Natural Resources be Used More Effectively?**

This section considers a number of questions that many policy advisors have asked and that (most) resource rich governments should ask themselves sooner rather than later. Where is the starting-point for good policies? Can this only come from a legacy of strong institutions, or is it possible for countries to break free of the path dependence associated with poor initial institutions? Will oil funds support the strengthening of checks and balances? Can the transfer of rents to citizens both improve accountability and help to build human capital to complement natural resource wealth? Can external pressure encourage reform? And, can resources be used to support economic diversification? In all of these areas there are no formulae for success, but country cases suggest approaches.

##### **4a Windows of opportunity**

Countries starting off from strong institutional conditions can clearly expect to have a more positive range of alternatives for using oil rent than extremely institutionally challenged countries, such as Chad or Equatorial Guinea.<sup>19</sup> However windows of reform arise in weaker settings and the question is whether they can be sustained to create a virtuous cycle.

**The institutional heritage.** Botswana is perhaps the most striking case of an initially poor mineral exporter with strong initial institutions. Acemoglu, Johnson and Robinson (2003) suggest that the foundation was laid before the discovery of diamonds. Inclusive traditional institution placed constraints on political elites and there was minimal disruption to these traditions by colonial rule; powerful cattle-based rural constituencies had an interest in protecting property rights; post-independence political leaders were also willing to place national interest above tribal interests. Particularly noteworthy was Seretse Khama's initiative in assigning sub-soil mining rights away from the tribes and towards the state, in this way heading off tribal contestation for revenue and cementing a common national interest. Botswana then used its diamond income well to further strengthen institutions and capacity. It remunerated civil servants adequately and employed a corps of foreign advisors to work alongside domestic officials, rather than rapidly indigenizing the civil service and lowering its quality. More recently, government sought and obtained a sovereign debt rating even though Botswana had no immediate need to borrow. The rating was seen as a commitment device, to alert citizens by signaling policy slippage by future governments.

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<sup>19</sup> Equatorial Guinea has been cited as an extreme case where oil rents sustain a pathology of authoritarian rule, instability and underdevelopment, from which it is difficult to exit. McSharry 2006 analyses the political economy of oil in Equatorial Guinea, suggesting that the extraordinary weakness of government institutions and the dearth of social programs make it less likely that the government will be able to buy the acquiescence of the population in the same way as, for example, Kuwait or Saudi Arabia

**Anticipating oil rents: the first window of opportunity.** Following the adoption of its Oil Revenue Law in 2004, Sao Tome has been at the forefront of efforts to anticipate oil rents and to lock in the strong institutions needed to manage them.<sup>20</sup> In addition to setting out arrangements for saving and spending, the Law requires full transparency; the responsibility is on firms to disclose all relevant material to a public information office; if they fail to do so they risk losing their contracts. It also mandates powerful oversight mechanisms which include a broad base of constituencies, which are seen as helping to make up for the deficit in government institutions. The National Assembly is required to hold yearly public sessions to discuss oil and gas policy. Ministers, investment committee members, the Auditor General and the Oversight Commission, which consists of 11 members, including three from civil society, are required to be present to answer questions. The Commission members are selected or elected by a diverse range of constituencies, including trade unions, business associations, local governments, the National Assembly, including opposition groups, and the judiciary. Only one member is directly appointed by the President.<sup>21</sup> The Commission has wide powers, including investigating complaints and hearing, judging and enforcing proceedings relating to violations of the Law.

**After the rents: other windows.** Even mineral countries with a history of instability and fractious politics can experience windows of opportunity for good management. The experiences of Chile, Malaysia and Indonesia (at least during the first decade of the Suharto government) suggest a number of common elements that can support good management: first, having twin goals—accelerating development and sustaining economic and social stability; second, a fairly broad basis of support for such goals; and third, close relationships between politicians and technocrats equipped to deal with complex problems of resource management.

Technical capacity has traditionally been strong in Chile. In the early 1970s the country suffered both serious macroeconomic instability and social polarization. The period after the 1970 election of the Allende government and the September 1973 Pinochet coup was particularly traumatic; in 1973-75 the consumer price index rose by 3000 percent; this was followed by a deep debt crisis and economic contraction in the early 1980s. Unemployment levels reached 33% by 1982. Following the return of civilian rule in 1990, the traumatic experiences of the two previous decades underpinned widespread consensus around preventing further disruptive boom-bust crises and avoiding conditions that might precipitate the political instability that could lead to a return to military government. The result was a broad constituency in favor of both economic stability and public debt reduction. The strength of this consensus is demonstrated by Chile's current response to spiraling copper prices and the exceptional accumulation of surpluses in its copper stabilization fund after 2005. Net public debt fell to minus 14 percent of GDP by 2008. Nevertheless, sustaining these policies has required continuous efforts by the technocracy to reach out to elected officials and explain the implications of over-spending.

At least during the first part of the Suharto period—a phase classified as “reforming autocracy” by Eifert et al (2003), Indonesia offers another interesting example of cautious and flexible macroeconomic management -- implemented without a dedicated fund,

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<sup>20</sup> This commentary draws on the extensive discussion of the Oil Revenue Law, as well as related laws in other countries such as East Timor and Chad, see Bell and Faria 2007.

<sup>21</sup> Proposals to include international participants in the Commission were debated but in the end rejected.

without transparency, and even in violation of fiscal rules. As in post-Pinochet Chile, the Suharto government came into power with a huge stake in stability. The last years of the “Guided Democracy” of the Sukarno period had been increasingly chaotic, including rice riots and ethnic rioting. The 1975 crisis of Pertamina, the national oil company, reinforced the caution of the government, and added to the credibility of the technocrats – a very stable team of economic advisers widely known as the “Berkeley Mafia”<sup>22</sup>. This team proved to have both great permanence and leeway to shape policies. Through the oil booms of 1974-81, the government formally adhered to a balanced budget law. However, without disclosure to the public or the parliament, bureaucratic controls were applied to slow actual spending, creating a *de facto* surplus and doubling reserves. Indonesia also managed its spending programs with great flexibility. As oil prices fell after 1981, the government moved aggressively with a drastic re-programming of its development spending, cancelling projects, cutting subsidies and spending, as well as stabilizing the real exchange rate through progressive devaluation.

Malaysia, another success case, has faced a threat to social stability from either of two paths: growth with Malays politically dominant yet economically disempowered, or economic collapse caused by excessively redistributive policies. Neither of these options was attractive, leaving effective economic management and reinvestment of rents to encourage growth, especially employment for Malays, as the only option (Abidin 2001; Rasiah 2006).

Chile, Indonesia and Malaysia are clearly very different cases, yet they have some common features, including a strong urge to maintain stability and a good appreciation of the risks in managing resources. Another common feature has been the power of constituencies rooted in non-oil tradeable sectors. In Botswana, these were the traditional chiefs and cattle owners; in Chile they included a range of other resource-based commodity exporters developed over the years of low copper prices (see below), in Malaysia tin and rubber producers were influential. Agriculture played a similar strategic role in Indonesia, because of its importance in sustaining rural incomes and social stability. Similarly, in Norway, fishing and other decentralized industries supported cautious spending policies; these interests have been important forces for stability; they have helped to restrain sharp exchange rate appreciations that would damage the sectors concerned.

Nigeria’s recent economic reforms offer further insights into the factors that can stimulate reforms. Contrasting Nigeria and Indonesia, Lewis (2007) notes the importance of social divisions, distinct institutional interests and competitive patronage in preventing successive Nigerian regimes from providing consistent, credible signals to private investors. This also resulted in the creation of a diffuse, rent-seeking business class. But dismal economic performance had come in for mounting popular criticism. During the first democratic government of President Obasanjo, initial intentions of economic reform withered in a political quagmire, and the political goodwill gained by the democratic government had not proven sufficient to secure debt relief from Nigeria’s creditors, which was an important objective. There was a growing concern that two democratic terms might conclude without leaving behind a significant positive legacy. A small team of able technocrats was installed after Obasanjo’s re-election, and given strong backing for an unprecedented program (Okonjo-Iweala and Osafo-Kwaako 2007).

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<sup>22</sup> Pertamina had been under the management of a military associate of the President, so that its crisis – which required a \$1 billion bailout --

Macroeconomic, budgetary and fiscal management were rapidly strengthened and due process mechanisms were instituted to increase the value for money of public procurement. Fiscal transparency and accountability was also promoted, including the publication of accounts and the disclosure of fiscal transfers made to sub-national governments. Reform momentum was sustained in various ways, including the development of national and state-level development plans (NEEDS and SEEDS). It is too early to forecast the eventual result of the reforms, but fully reversing them will not be easy.<sup>23</sup>

The Bretton Woods Institutions were conspicuously absent from these home-grown processes, which were designed to emphasize domestic ownership and help develop a national consensus. To sustain domestic support for reforms, Nigeria resisted creditors' desires for a formal IMF program. The outcome was the development and first application of the Policy Support Instrument (PSI), to support low-income countries that did not want IMF financial assistance but rather the Fund's seal of endorsement of good management, to be provided to creditors and donors, multilateral development banks and financial markets.

#### **4b Are resource funds the answer?**

Faced with the need to avoid boom-bust cycles and save for the future, many countries have instituted resource funds: Rietveld and Pringle (2007) identify 23 major funds for managing sovereign wealth; 14 are owned by oil exporters. These funds can vary widely across many dimensions, including around their objective (stabilization or long-term saving), the rules governing deposits, withdrawals and investments, and their degree of transparency. Funds are neither necessary nor sufficient to improve fiscal discipline; however they have several potential contributions, especially difficult conditions of low levels of transparency, weak governance and ineffectual parliamentary constraints on the executive.

Funds can increase transparency. Benchmark yields can be presented alongside the returns from fund investments, to help convey the effectiveness of investment management. Most funds provide public accounts, and some post full information on the internet. This can help to underpin wider understanding of the spending, savings and investment decisions of the government.<sup>24</sup>

Funds can also widen accountability mechanisms. All embody "vertical accountability", embedded in the reporting arrangements to the responsible government minister; some also mandate "horizontal accountability" to a wider audience through two mechanisms. Elected officials independent of the government may receive regular reports, and information on balances, earnings, deposits and withdrawals may be made generally available. Funds can be designed to share decision-making power among a range of interest groups independent of the government. In Norway, for example, although the administration of the fund is under the Central Bank, decisions on transfers must be

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<sup>23</sup> The benchmark oil price, above which tax revenues must be saved rather than spent, was recently raised from \$40 to \$53 and then to \$59. While this opens the way to spending increases, it is still below most medium-term price projections and less disruptive than shelving the fiscal rule altogether or drawing down reserves.

<sup>24</sup> Lacking such transparency, in Indonesia, checks and balances proved insufficient to prevent the reforming autocracy from degenerating into a kleptocracy as the interest groups surrounding the presidency narrowed.

approved by parliament, raising the prospect of scrutiny by (usually strong) opposition parties; in Sao Tome, civil society representatives sit on the Petroleum Oversight Committee. In contrast, spending decisions in Kazakhstan and Azerbaijan are essentially those of the President.<sup>25</sup> The funds therefore do not impose major additional spending constraints in these two countries, which are known for their strong executive arms.

Funds can engage citizens directly, as the ultimate agents of restraint: Alaska's Permanent Fund was designed "to be saved from the ravages of mendacious politicians" (Cowper 2007). In this respect the fund has been very successful: politicians have vied with each other to protect its integrity. Despite a severe fiscal squeeze on state finances caused by the imprudent abolition of the state income tax, the popularity of the direct dividends paid by the Fund to state residents, up to \$2,000 per head, has discouraged proposals for raiding the savings.

Finally, funds can be identified with particular objectives to create support for saving. Because of the length of the oil price cycle, even funds set aside to smooth booms and busts will need to cumulate to substantial levels, sometimes to levels greater than GDP. Sovereign wealth and asset/liability management services are increasingly used by resource exporting countries. As in Botswana, the prospect of higher returns on a transparently managed reserve fund can help justify saving and insulate wealth management from politics, even if the fund is not a "lock box" with formal withdrawal rules. Funds can also be linked to more tangible objectives to increase public understanding of the need to save. In Chile, the objective of paying down public debt was important in sustaining adherence to the fiscal rule. In Norway, the prospect of escalating pension and health payments to an ageing population was cited to justify the creation of the petroleum fund in 1990<sup>26</sup>. In countries with youthful populations, funds could be set up to guarantee the future education of all citizens (see below).

Nevertheless, resource funds are neither necessary nor sufficient to sustain good macroeconomic management in volatile mineral economies (Davis et al 2003). When the institutional environment is weak funds can be subverted, through rule changes, expropriation, or borrowing against the saving of the fund, as for example in Venezuela (Eifert et al, 2003). In particular, as shown most recently by the case of Chad (discussed below), the formal mechanisms of a fund cannot substitute for the absence of effective checks and balances in society.

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<sup>25</sup> In Kazakhstan for example, the management of the oil fund is performed by the National Bank. The President decides the composition of the Management Council that oversees the operation of the Bank and approves all reports, and also chairs the Council. Since the President has the powers to dismiss other members, his decision is binding.

<sup>26</sup> In 2006 the Government Petroleum Fund changed name and it is now called the Government Pension Fund.

#### 4c Can distributing oil rents improve accountability and build human capital?

Since citizens own the oil resources<sup>27</sup>, why not distribute the benefits directly back to them? As well as improving accountability (through encouraging citizens to monitor oil income and forcing government to rely on normal taxation for revenues) this might widen the opportunity to citizens to invest in human capital to complement resource wealth, rather than concentrating access within a small elite. But few if any developing exporters copy the Alaska model of payments made to individual citizens on a transparent basis of oil income or the returns on oil income invested in a fund.

Many exporters do distribute oil rents to their citizens, but in indirect ways. The most prevalent method is to hold down domestic prices of petroleum derivatives and natural gas to well below world market levels. The fiscal costs can be substantial, on the order of several percentage points of GDP. Cheap energy policies tend to be regressive, inefficient and difficult to reverse, at least until spiraling domestic demand (including demand inflated by smuggling) makes them unsustainable.<sup>28</sup> Another indirect way to pass on rent income to firms and citizens is to lower the burden of non-oil taxes. This too does not provide for a transparent linkage between tax relief and size of rents, but a low-tax environment could be a useful part of a strategy for improving the business climate and encouraging diversification. Sooner or later, however, most oil exporting countries will need to turn to their non-oil tax systems to finance spending programs, so that a low-tax period should be used as an investment to improve administration, encourage compliance and broaden the tax base. Few countries follow this path. Least prudent is perhaps Alaska's approach of eliminating taxes rather than just lowering rates.

Direct transfers to citizens can be provided through different mechanisms. Some Middle East producers, for example, may offer grants to newlyweds towards the purchase of housing; community-based programs may provide another way to distribute oil rents effectively and create a constituency with an interest in their effective management (Moreen 2007). Community-based programs have been used effectively on a large scale in Indonesia where INPRES programs absorbed almost one fifth of domestically funded development spending, providing low-wage rural employment in construction projects. Similar projects at the village level provided only materials, requiring the communities to contribute unpaid labor. Together these projects created some 1.5 million person-years of employment in the early 1980s, equivalent to almost 3 percent of the labor force.

Recent evidence of the positive impact of direct transfer programs suggest that more attention should be given to this approach. From their piloting in Mexico's *Progres*a program and Brazil's *Bolsa Familiar*, conditional cash transfer schemes have increased their prominence; they are now being implemented in at least 14 developing countries and, most recently, in New York City. They provide payments to poor families conditional on specified child behavior, such as attending school or receiving essential

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<sup>27</sup> At least that part of the resources that are not owned by foreign companies. For further discussion, see Stiglitz 2006.

<sup>28</sup> In March 2005 Indonesia instituted the first fuel price increase in 14 months for gasoline and diesel, through the cost of kerosene, a socially sensitive commodity, was kept at only one third of the cost of production. In the previous year fuel subsidies had mounted to almost \$7 billion and were clearly unsustainable. Demand growth was 15 percent per year, even as total fuel production slowed to 1 million barrels per day.

health services, including vaccinations. While the outcomes of these transfer systems can vary depending on their design and country conditions, ongoing impact evaluations suggest that they can be an effective way to widen access to a range of services, especially for countries with limited capacity to deliver such services in traditional “top-down” ways. In addition, careful evaluation of some unconditional programs, such as South Africa’s Child Support Grant (CSG), suggests that if appropriately targeted they too can have a positive impact.<sup>29</sup>

Whether such programs are effective however, and at what level of decentralization, will depend on institutional conditions. Since transfers tend to shade into entitlements over time and household and sub-national budgets face great difficulties in adjusting to very large income shocks, stabilizing public spending seems essential. Programs need to embody design elements that reduce the prospect of capture by local elites (Platteau 2004). These can include transparent reporting on allocations made and received, monitoring the uses of funds, or allocating some resources to traditionally less powerful groups, such as women.<sup>30</sup> New technology, including biometric information systems, could also be used by some exporters to implement transfer programs more efficiently to distribute part of the oil rents to citizens.<sup>31</sup> The distribution of oil rents to citizens and communities will not provide a panacea to all of the problems plaguing oil countries. However, direct or community-level distribution could be useful in reducing the buildup of large ineffective central programs widening access to resources and building human capital; if transparently linked to revenues, they may also help build a constituency for good management.

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<sup>29</sup> The CSG is targeted to “follow the child” and is received almost exclusively by women, as the primary caregivers. The projected gain in lifetime earnings of the children receiving the grant significantly exceed the costs (Aguero, Carter and Woolard, 2007). Such programs could be carefully considered by cash-rich oil exporting countries with widespread poverty and modest capacity to implement conventional programs.

<sup>30</sup> Transparent transfer programs can also be a cost-efficient way of overcoming systemic leakage of funds in service delivery. For example, in Uganda tracking surveys made in 1996 showed that local bureaucrats were capturing 80% of non-wage education spending. After an information campaign, both nationally and at the district and school level, a repeat survey showed that schools now received over 90 percent of their allocations. This remarkable improvement was achieved through government’s efforts to disseminate information both through the media and systematically by posting public spending information at schools (Reinikka 2003).

<sup>31</sup> Many countries are currently implementing or planning to adopt biometric documentation, including identity cards and passports, for security and other reasons. South Africa has implemented the world’s largest biometric identification system, the Home Affairs National Identity System (HANIS), covering some 43 million citizens. In addition to aiding the fight against crime, systems of this type can be used to target transfer programs more effectively. Biometric identification raises a number of problematic issues, including privacy and the intrusiveness and accuracy of the systems used to record biometric information. Corporate Watch, 2006, notes that the most reliable finger-print systems currently in use have an accuracy of “only” 96.8 percent. While this may not be sufficient for certain applications, it would seem to be adequate to determine eligibility for a range of transfer programs and superior to other systems available.

#### 4d Can external constraints be effective?

While leadership must come from within, the external global framework for good governance can make the task easier or more difficult. This framework, still embryonic in many areas, includes programs to develop norms for revenue transparency such as the Extractive Industries Transparency Initiative (EITI) and Publish What You Pay (PWYP), anti-money-laundering legislation, anti-corruption conventions (including the African Union convention) and approaches to combat high-level corruption such as the Stolen Assets Recovery Initiative (StAR). At least 51 countries are using an EITI template for increasing transparency within their extractive sectors.

“Soft pressure” from such a framework can be useful. In Nigeria for example, international benchmarks were invoked to motivate reforms. Comparisons showed how far Nigeria—proud to be Africa’s most populous country-- was lagging behind; for example, even combined, its many small banks were smaller than the fourth-largest bank in South Africa. International initiatives, notably the EITI where Nigeria became the leading country, also played a reinforcing role, by providing standards to endorse governance reforms, and a forum for the recognition of Nigeria’s progress in improving transparency. Karl 2007 notes some other partial successes, including encouraging greater transparency in Angola.<sup>32</sup>

“Hard pressure” or direct conditionality may be more difficult to sustain. Chad’s Petroleum Revenue Management Program, an agreement with the World Bank, stipulated that 76.5 percent of direct petroleum revenues (royalties and dividends) would be earmarked for priority sectors and for community programs in the oil producing region. Ten percent would be set aside in a reserve fund, and the rest be available for the general budget. It also created a civil society oversight body, the *College de Control* (CCRSP). The agreement was interrupted in January 2006, following the passage of legislation that departed from the agreement. This breach of contract triggered a freeze on the movement of certain of Chad’s oil revenues in its Citibank escrow account. In July a memorandum of understanding between the World Bank and Chad opened the way to a modified program. While increasing the proportion of revenues to the general budget to 30 percent and widening the range of eligible sectors for the remaining spending, the scope of agreement was extended to include indirect oil revenues (taxes), and it also provided for the strengthening of the College oversight mechanism. This proposal failed too. In September 2008 the Bank withdrew from the pipeline agreement and Chad fully pre-paid the loan, from revenues swollen by high oil prices.

The experience of Chad, and also of East Timor where an outwardly tranquil period was shattered by violence after April 2006, indicates how difficult it is to foresee conditions when negotiating such arrangements, and also to sustain them when domestic checks and balances are very weak in the producing country. Gould and Winters (2007) argue that once oil begins to flow, bargaining power shifts to the host government and that, in the case of Chad, several other developments further strengthened the government’s hand. These included unexpected security concerns associated with Darfur, growing interest in

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<sup>32</sup> For further discussion, and an overview of the evolving framework of global checks and balances, including anti-corruption conventions, the Extractive Industries Transparency Initiative and efforts to recover stolen assets see World Bank 2006, Karl 2007. Benchmarking approaches in general are becoming more widespread, for example, the use of the *Doing Business* ratings to spur reforms.

African oil by other countries, including China, and the desire of all parties not to see Chad become another failed state in a precarious region. The structuring of any further “pre-oil” agreements if producing countries show willingness to consider them, will therefore need to strike a balance between commitment and flexibility, to take into account the possibility of turbulent political conditions and likely changes in oil markets and some government priorities, as well as the changing power balance after oil begins to flow. The combination of these requirements is a tall order.

#### **4e Can countries diversify despite resource wealth?**

“Sowing the oil” has been an objective for many resource-rich mineral countries but only some have succeeded in diversifying their economies. Even in well-managed countries, appreciating real exchange rates can pull factors of production away from other export sectors; closing off the flow of imports will only result in higher prices for all domestic goods and services and less competitive conditions. Boom-bust cycles compound the problem by increasing price risk and further discouraging investments in other export sectors.<sup>33</sup> Diversification therefore requires a combination of three policies—a reasonable level of macroeconomic stability, a reasonably open trade policy, and the active use of resource rents to increase the productivity of other exportable sectors and reduce their production costs, whether by funding infrastructure, temporary subsidies or other methods.

Only a few developing resource exporters have been successful in this area. Coxhead (2007) reviews the performance of developing countries with a primary exports share of 60 percent or more of merchandise exports in 1971. Five of the countries that were more resource-dependent than the mean – Malaysia, Thailand, Chile, Indonesia and Sri Lanka—sustained high growth rates, at around 3.5% per head over 1975-2001; all these have diversified towards manufactures or, as in Chile, in widened their range of resource-based exports to include new and more sophisticated products. In other cases, resource-rich countries seem to have been slower to diversify. Auty (1990) found that industries tended to be more heavily protected in resource rich countries, and that they take longer to mature and “grow up”.<sup>34</sup>

Malaysia was fortunate in its rather diversified resource endowment, with rubber and tin, as well as forest products, which preceded oil as export staples. It sustained a high and relatively stable savings rate, and implemented land development and replanting schemes to expand and modernize the production of rubber and palm oil, as well as heavy investment in technology and infrastructure, especially energy, communications and transport. Although Malaysia did start out on a protectionist path in the 1960s, it maintained a relatively open trade regime, with domestic investments aimed at reducing production costs and increasing competitiveness. Chile offers several other examples of successful active public roles in helping to develop the salmon and wine industries, including encouraging technical development and adaptation, disseminating information on standards, providing infrastructure and information and coordinating numerous small

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<sup>33</sup> Hausmann and Rigobón 2003.

<sup>34</sup> A particular risk for large “mega-project” investments is the conflict of interest that can arise when a private partner with a small equity stake in a largely public project is also a major contractor or supplier. Profits from cost overruns can then more than compensate for equity losses. This creates incentives for over-optimistic feasibility studies and for downplaying the risks, with potentially huge losses for the government (Gelb 1988).

producers (Benavente, 2006 and Katz, 2006). Both of these cases involved developing long-term public-private partnerships such as those involving CORFO and Fundación Chile to help producers achieve critical mass and capabilities. Indonesia offers an interesting example of a low-income country's efforts to use its hydrocarbon resources to support agriculture. Good luck played a part in this success, which would not have been possible without the development of disease-resistant and high-yield rice varieties. But their diffusion would not have been possible without the unusually broad-based development policies followed by the government, including the use of oil income to develop natural gas resources, both for export to Japan and as an input to fertilizer production. Fertilizer was then distributed at subsidized prices, greatly boosting yields. In addition, measures were taken to prevent the real exchange rate from moving too far out of line, so limiting the adverse impact on agriculture and other non-oil traded sectors, and encouraging diverse exports.

Do such examples have lessons for other resource-rich countries? Clearly, the potential for diversification is affected by many factors, including the resource base, the capacities of the population and the quality of governance. Some countries, such as Botswana, score highly in many dimensions, but face particular geographical, ecological and skill constraints that make competitive diversification difficult to achieve.<sup>35</sup> Yet many countries do have diverse resource bases and a range of potential alternatives. The examples above suggest that diversification is not impossible.

## **V Conclusion and Policy Lessons**

Poppies cannot be blamed for heroin addiction. Neither can natural resources be blamed for the resource curse; the question is whether resource-exporting countries have the capabilities and institutions to effectively manage high levels of resource wealth or resource dependence. While some countries may have these attributes, many others do not, and these are typically the poorer ones. The observation that rich countries tend to have more absolute resource wealth per head than poor countries may be true, but it does not solve the problem.

Country heterogeneity is key to understanding the resource curse. Studies suggest that it is more likely to be felt by countries with low levels of human capital and institutional capital, two factors that complement natural resource capital in determining development outcomes. Country trajectories are probably path-dependent: those starting out from a strong foundation will be more likely to benefit from resource wealth than those with weak initial conditions. But in looking across countries it is also necessary to allow for two-way causality, from high resource dependence to weak institutions and vice versa: some countries are specialized in resource-intensive sectors because low levels of human capital and poor governance make other activities unproductive. Either causal chain can lead to associations between resource dependence, lack of diversification, volatility and poor performance.

Turning to the case of oil, exporting countries have grown more slowly than other countries and their development indicators, such as infant mortality, also lag those in

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<sup>35</sup> Despite a generally good investment climate, Botswana's industrial sector appears to be less competitive than those of other middle income countries World Bank 2007.

other developing countries at comparable income levels. They have suffered from dramatic “boom-bust” cycles that coincide with conditions in the oil market. The paper focuses on two possible channels by which oil wealth can reduce performance: poor governance and extreme macroeconomic volatility.

Estimates suggest a massive governance deficit in developing oil exporting countries, one that is not dependent on any one region. The deficit extends across various dimensions of governance including those relating to state capability; it is not confined to weak public accountability. The shortfall in the average growth of oil exporters behind that of other countries over the period 1982-2006 is well explained by a simple equation relating growth over this period to governance measures of around 1982. This does not, of course, imply that oil wealth causes poor governance. However, even though the relationship between governance and growth is contentious, it does suggest that the governance deficit is an important part of the growth story.

Oil dependence exposes exporting economies to enormous levels of uncertainty and potentially to extreme macroeconomic instability. For many producers the difference between recent high and low oil price scenarios translates into export revenue differences of 50 percent of GDP or more. Previous studies have documented the costs, in particular of over-optimistic spending during the boom phase of the cycle, and especially when this reinforced by pro-cyclical access to credit. The question raised here is how much exporters should save in the current situation where the length of the price boom is so uncertain. A simple stylized model incorporating absorption constraints and macroeconomic adjustment costs confirms the benefits of caution: even with a 50-50 chance that high prices will continue, the stylized country should save at least half of the revenues it receives over the first several years of the boom.

Spending decisions are political however. Governments may be myopic but if that is the only problem they will need to be very myopic indeed to cause much harm; moderate discounting does not shift the spending decision much because of the very high costs incurred in the post-boom period when boom-time spending is excessive. Worse is when decision-makers do not factor in absorption constraints (possibly because they value spending for corruption opportunities rather than effectiveness) or macroeconomic adjustment costs. This combination can induce huge macroeconomic cycles and is fatal for welfare. Developing an informed consensus on the opportunities and the risks is therefore essential. Even with an engaged government, the difficulty will be how to do this without creating euphoric expectations of enormous immediate income gains. Transparency will be critical for reaching broad consensus on policies, including the need to assure citizens that savings made when prices and oil rents are high are not going to be stolen.

Path dependence raises the difficult question of how to address the political and institutional causes of the resource curse in countries starting off with weak institutions. The experience of countries with strong initial bases, such as Norway or Botswana, cannot be replicated by countries with very different institutions. The problem is particularly complex because success requires a combination of accountability to the population at large and strong technical capacity, particularly to manage volatility over long-term cycles. Political competition without strong institutions will tend to be subverted by rent-seeking but, as in Indonesia, even a reformist autocratic regime with a strong management team is likely to be subverted in the end.

Windows of opportunity to put in place effective mechanisms for managing oil income may exist while oil rents are being anticipated, as in Sao Tome, or after oil begins to flow. Three cases, Chile, Indonesia and Malaysia, suggest some common elements in success: a shared concern to preserve stability and grow rapidly, an effective technocracy that engages closely with leaders and elected officials, and influential non-oil export sectors conscious of the dangers posed by unrestrained boom spending. All these countries offer lessons in diversifying exports away from a dominant resource. Nigeria offers more recent experience of how a window of opportunity to improve governance and economic management in an oil-dependent country can possibly be locked in for the longer-run, though it is too early to predict the long-run outcome of its reforms.

Resource funds are sometimes suggested as one way to improve accountability and stabilize spending. They can increase transparency and link savings to specified goals to increase support for fiscal caution; they can also help to widen checks and balances, whether through requiring parliamentary super-majorities for changes or horizontal accountability mechanisms to engage extra-parliamentary constituencies. Although they can offer distinct advantages, funds and formal rules are neither necessary nor sufficient. They can supplement other mechanisms of domestic accountability, but cannot substitute in cases where accountability is very weak.

Transferring resource rents to citizens has been suggested as another way to create incentives for accountability, including through requiring government to be dependent on non-oil taxes. While many governments do transfer part of the rent to citizens, this is usually through indirect and inefficient mechanisms, especially energy subsidies or inefficient domestic tax systems: an inferior alternative to investing in effective domestic taxation while rates can be held low. Few governments have ventured towards the Alaska model of transparent dividend payments to citizens.

This seems to be an under-exploited opportunity, especially if combined with recent improvements in the structure of transfer systems. Conditional cash transfer programs, for example, could reduce pressure for the buildup of huge, ineffective, centralized programs, help build a sense of ownership among the citizenry that would encourage greater public scrutiny of the use of oil funds, and also widen opportunities to create human capital to complement natural resource wealth. New approaches towards transfers, including those based on biometric identification, should have considerable appeal for cash-rich resource exporters. Combining these considerations, a resource fund designed to guarantee transfer payments to young citizens to finance their education might have political appeal in some countries with rapidly growing populations.

Finally, can external pressure force good governance on oil exporters? The evidence suggests that this is unlikely. “Soft pressure” and benchmarking to codes of conduct and transparency may help to create awareness and pressure for better governance. Global and regional frameworks for good governance are still embryonic--for example, despite some successes it is still very difficult to recover illicit funds deposited abroad by corrupt leaders. Pressure is unlikely to prove decisive in any particular case; yet the campaign for transparency can point to some achievements.

As shown by the case of Chad “hard pressure” or external conditionality faces severe limits in dealing with oil exporters. Sanctions are weakest just when they are most

needed, at the height of the oil price boom. Arrangements need to anticipate shifts in the balance of bargaining power when prices increase. Nevertheless, it might be possible to build in some strong sanctions into the rules governing withdrawals from an offshore fund. For example, rules could include provisions to freeze withdrawals in the event of a coup. Oversight bodies could include external members, at least for a fixed term, without compromising long-term sovereignty. One lesson from Chad is that oversight bodies should not depend on funding from the governments they are charged with monitoring. It may be over-ambitious to expect such agreements to directly reform governance in a profound way. A more modest goal might be to ensure that at least a part of oil income is used for developmental purposes, in ways that help create interests which one day will be able to provide stronger domestic checks and balances.

It is important that external efforts are not seen only as those of NGOs, some rich-country governments and development agencies. Efforts need to be made to gain buy-in from important new players, including India, China, other middle income countries and regional bodies in which producing countries participate. For African oil producers, the African Union could play an active role, pressuring countries to ratify its Anti-Corruption Convention, creating a supra-national dispute-settlement body, and stressing that heads of state are accountable, in addition to other public officials.<sup>36</sup>

Where does this leave us? At a technical level, the problems of managing natural resource wealth are better understood than before. We know more about the importance of complementing natural resource capital with human and institutional capital. Country experiences provide useful insights into how the various political and management challenges might be approached within different settings. Countries with high human capital and strong institutions can expect to benefit from natural resources. It is those exporters that start off with a reasonable baseline of human capital and institutional endowments which can be expected to benefit the most from the cases and lessons described in this paper. But these may be of little help in the most difficult cases: here, we are still woefully short of solutions.

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<sup>36</sup> Akre 2007.

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