

**How Should States Manage the Distributive Aspects of Resource Revenues?
Some Considerations**

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Prof. Michael Ross
UCLA Department of Political Science
mross@polisci.ucla.edu

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Abstract

I discuss two policy questions about the distribution of oil and gas revenues. First, what is the best way for governments to manage their petroleum revenues: through a specialized fund; through federal arrangements that divide revenues or taxes among levels of governments; through a “direct distribution” scheme; or simply through general revenues? Second, how can any of these revenue-distribution arrangements be made institutionally, and intertemporally, stable?

Following a highly selective discussion of each issue, I conclude by suggesting there is little *prima facie* evidence for optimism about any of these approaches. I also suggest that regardless of the institution, intertemporal stability is important, rarely achieved except in monarchies, and may be inadvertently undermined by reform efforts.

I conclude by arguing that it would be foolish to recommend any single, one-size-fits-all solution for the distributive problems that petroleum exporters face. As a second-best alternative, I recommend the adoption of general guidelines; the encouragement of innovation at the national level, based on these guidelines; and the establishment of an international system of performance-based ratings to encourage the adoption of better – if not best – practices.

If we use a broad measure of development progress – changes in the log of child mortality rates between 1970 and 2000 – we find enormous variation in the performance of oil and gas-exporting states (Figure 1). Indeed, oil and gas exporters tend to have *more* varied outcomes than non-exporters: as the dependence of countries on oil, gas, and other mineral exports rises, so does the standard deviation among states in changes in child mortality. Oil and gas revenues seem to magnify the ability of governments to do both good and bad things for their citizens.

This memo discusses two policy questions about the distribution of oil and gas revenues. The first question is, what is the best way for governments to manage their petroleum revenues: through a specialized fund; through federal arrangements that divide revenues or taxes among levels of governments; through a “direct distribution” scheme; or simply through general revenues? Second, how can any of these petroleum revenue arrangements be made institutionally, and intertemporally, stable?

Following a highly selective discussion of each issue, I conclude by suggesting that there is little *prima facie* evidence that one type of institution provides consistently better outcomes than the others. I note that oil and gas producers vary widely in their levels of development, government capacities, size of their reserves, and type and quality of their political institutions; and suggest it would be foolish to recommend any single, one-size-fits-all solution for the distributive problems that these countries face. Moreover, first-best solutions to these problems only work under conditions that are rarely met in even the most advanced countries.

As a second-best alternative, I recommend the adoption of general guidelines for distributional success; the encouragement of innovation at the national level, based on these guidelines; and the establishment of an international system of performance-based ratings – similar to ratings produced by Transparency International– to encourage improved practices.

Before proceeding, it is important to note that oil booms have important distributive consequences through mechanisms that are *not* addressed in this paper. Perhaps the most important are Dutch disease effects that lead to the crowding-out of agricultural and manufacturing exports. Any crowding-out of labor-intensive sectors can have adverse distributional consequences. A booming agricultural or manufacturing sector provides many economic opportunities to low-skill workers; a booming petroleum sector offers them few opportunities, except through government transfers or rent-seeking. When a booming petroleum sector crowds out agriculture or manufacturing exports, the opportunities for the poor can drop sharply. The dangers of crowding-out are illustrated by the case of Nigeria, where petroleum exports virtually extinguished industrial and agricultural exports, beginning in the 1960s (Figure 2). One result was a sharp rise in Nigeria’s gini coefficient (Table 1).

Improving the distributional consequences of oil and gas booms, hence, goes far beyond the issue of revenue deployment. Still, revenue use is important and can sometimes offset the adverse effects of crowding-out, excessive volatility, and other consequences of oil and gas dependence.

1. How Can Oil and Gas Revenues Be Best Distributed?

Oil and gas revenues are both volatile and exhaustible; moreover, in some states they constitute a large fraction of government revenues. The economic challenges of

managing these revenues are, in themselves, intrinsically complex; moreover, these challenges vary according to the size of these revenues as a fraction of the economy, the size of the nation's reserves, the state's choice of revenue-collection tools, and many other dimensions.¹ The political aspects of revenue management add further layers of complexity, uncertainty, and often, instability.

Crudely speaking, there are two dimensions along which states vary, in their assignment of petroleum revenues: the degree to which they employ specialized funds; and the degree to which they divide funds between central and local governments. Recently, there has been interest in a third type of arrangement: the direct distribution of funds to citizens, a method employed by the US state of Alaska and the Canadian state of Alberta.

Specialized Funds

At first glance, specialized funds seem to have both economic and political advantages. Economically, they can help smooth out the volatility of petroleum revenues, and hence enable the government to use them countercyclically; and when oil supplies are limited, they can save revenues for future generations. Depending on how the assets are used, a fund might also help dampen real exchange rate volatility and the Dutch disease. Politically, these funds are superficially attractive, since they appear to make oil revenues more transparent, and insulate them from corruption and political pressure.

Operationally, specialized funds vary along several important dimensions, including:

- the method of obtaining revenues;
- whether they emphasize stabilization, savings, or both;
- whether their assets are held domestically or abroad;
- whether or not they are integrated into the budget process;
- whether expenditures can be made directly from the fund;
- how much discretion funds have in their spending: are expenditures allocated according to a pre-set formula (“earmarking”)? Can they make off-budget expenditures?
- whether they are institutionally separated from the general budget – with their own bureaucracy and governance – or if they are merely a “virtual fund”;
- if they are governed separately, whether they are managed by an independent institution (e.g., an autonomous central bank) or politically-appointed officials (e.g., the finance minister).

How have these funds fared in practice? Many studies have looked at the performance of specialized funds in both petroleum and other resource sectors. In general, the assessment is dismal. Studies of the oil booms of the 1970s by Gelb and Associates (1988), Auty (1990), and Karl (1997) provide no evidence that specialized funds helped states manage their windfalls.

Looking at commodity windfalls more generally, Collier and Gunning (1999) offer little evidence that funds helped the 19 countries in their sample manage windfalls from a wide range of mineral and agricultural goods. A World Bank study of agricultural

¹ Many of these issues are addressed in the excellent papers collected in Davis, Ossowski, and Fedelino [2003]. This section draws on several of these papers.

stabilization funds in 18 states – echoing earlier studies by Bates (1981), Lele and Christiansen (1989) and others – suggested they were rarely insulated from political pressures, and were often used procyclically, for political patronage, and to facilitate transfers from the poor to the rich (Schiff and Valdes 1992).

More recently, Davis et al. [2003] conduct several econometric tests – using small samples of countries² with and without specialized funds – and conclude that the creation of a fund had no impact on government spending in these cases: it produced neither better nor worse fiscal practices. They note that even when funds are governed independently, governments can often find ways to exploit them, for example, by borrowing or running down state assets, or by amending their rules. Even in states with prudent fiscal policies, like Norway and Chile, it is not clear that the petroleum funds had any causal effect: good fiscal policies seemed to precede the funds and were not measurably effected by their creation.

There are even arguments that specialized funds are harmful: if they are governed independently from the national budget, it can complicate the government's macroeconomic planning; and if a fund is not sufficiently independent, it can be used by politicians to make off-budget transfers for political or personal gain. Even when funds are designed to guard against political interference, they may not be intertemporally stable: they are commonly dismantled when a government wishes to realize the political gains from disbursing these funds.³ Specialized funds, suggests Collier, typically facilitate the transfer of resource rents from prudent governments (who design and nurture these funds) to imprudent ones (who realize the gains from dismantling them).

Perhaps the clearest “lesson” from these studies is that funds are no better than the governments that exist alongside them. Governments with poor fiscal policies *ex ante* do not seem to benefit from the creation of specialized funds. Even well-designed funds – ones that are governed by autonomous bodies with strict mandates – are not intertemporally stable, and may have perverse effects.

Federal Arrangements

In some states, revenues from petroleum are split between central and subnational governments – either by some form of revenue-sharing (whereby central government revenues are disbursed to local governments), or because local governments have the constitutional right to levy certain types of petroleum taxes or royalties directly.

Different arrangements vary along several dimensions:

- how much fiscal autonomy is held by subnational governments;
- whether subnational governments, in addition to the central government, actually administer taxes and royalties, or simply receive transfers;
- if subnational governments receive transfers, the basis or formula for the transfers.

² Those with specialized funds were Chile, Norway, Kuwait, Oman, and Papua New Guinea. These were matched with seven comparable states without specialized funds.

³ I have elsewhere called this process “rent-seizing” – efforts by state actors to gain the right to allocate rents. Ross (2001) examines many cases of rent-seizing and suggests it follows certain patterns.

Recent studies by McLure (2003), Ahmad and Mottu (2003), and Brosio (2003) all argue that the management of oil revenues should be centralized. Central governments typically have a greater capacity to handle the volatility, and uncertainty, of petroleum revenues; to administer complex types of taxes, such as taxes on resource rents; to implement countercyclical fiscal policies; and to reduce inequalities between resource-rich and resource-poor regions, which in turn, can help avert the regional misallocation of labor and capital. When subnational governments levy taxes or royalties, they may create inefficiencies by overlapping with national levies. Fiscal discipline may be even poorer at the subnational level than the national level. And the capacity of any subnational region to efficiently absorb new investments from windfall spending will be less than the national capacity to do so.

Subnational governments are clearly entitled to revenues that compensate them for the social, environmental, and infrastructure costs of oil and gas extraction. But beyond these, the arguments in favor of subnational petroleum taxes are political: local peoples often claim ownership of these resources, and may threaten secession if they get less than they seek. Moreover, the constitution may stipulate that they have the right to levy certain kinds of taxes within their jurisdictions (Ahmad and Mottu 2003). Local governments find oil and gas taxes attractive, because they are taxing an immobile asset, and the costs are typically borne by those who reside in other jurisdictions (Brosio 2003).

Most of the oil-rich Middle Eastern countries are unitary states and have fully-centralized revenue systems; the United Arab Emirates is the sole exception. Outside the Middle East, however, both unitary states (Colombia, Ecuador, Kazakhstan) and federal states (Mexico, Nigeria, Russia, Venezuela, and Indonesia) employ some form of revenue-sharing (Ahmad and Mottu 2003). According to Brosio (2003), there is a global trend towards the decentralization of petroleum and other mineral rents.

Ahmad and Mottu (2003) argue that the first-best arrangement is full centralization of all oil revenue, with well-designed transfers to subnational governments. Recognizing that this is often politically untenable, their second-best recommendation is to allow subnational governments to levy relatively small, stable types of petroleum taxes – such as production excise taxes – while the national government levies taxes and royalties that capture the more volatile forms of revenue. They also suggest any subnational petroleum taxes be supplemented by more stable revenue sources. They prefer this to revenue-sharing arrangements, which they fear will allow subnational governments to avoid accountability, complicate the central government's macroeconomic planning, fail to provide subnational governments with stable financing for local public services, and finally, fail to satisfy separatist demands.

While Brosio (2003) agrees that full centralization is the first-best solution, he favors a revenue-sharing arrangement as the second-best alternative. He argues that collecting and administering taxes is too complex for most subnational governments to carry out, at least in developing states. He also points out that it makes it more difficult to equalize revenues across subnational jurisdictions, and it impinges on energy policies, which are typically the responsibility of the central government.

The case for generously sharing oil revenues would be strengthened if there was evidence it helped avert secessionist movements. Although no systematic analyses have yet been carried out, there is no *prima facie* reason to believe that these arrangements influence the likelihood of violent conflict.

Certainly the danger of secessionist conflict is real in petroleum-producing regions, particularly when the country is poor, and the region is peripheral, mountainous, and harbors people who consider themselves linguistically or ethnically distinct from the majority population. Econometric studies by Fearon (2004), Fearon and Laitin (2003), Humphreys (2003), De Soysa (2002), and Collier and Hoeffler (2002) all find a correlation between the production (or export) of oil, and the risk of civil war. Table 2 lists ten cases of violent separatist movements in regions with significant oil, gas, or other mineral wealth. Although none of these movements were caused solely by mineral wealth, in each case separatist advocates appeared to believe that resource revenues would raise the benefits, or lower the costs, of independence (Ross 2003).

Do any of the tax or revenue-sharing formulas reduce this danger? There is no systematic evidence one way or the other; case studies could be used to justify either position. In East Malaysia, for example, the absence of a separatist movement in this high-risk, oil-producing region, could be attributed to the existence of a federal government, democratic elections, and a formula that grants five percent of the revenues to oil-producing states. Yet in neighboring Indonesia, revenue-sharing with the rebellious state of Aceh – which has recently escalated to 70 percent of the government’s net public income from Aceh’s natural gas – seems to have done little to pacify the region, which continues to be mired in civil war.

Direct Distribution

The failure of specialized funds – coupled with new concern about both the “resource curse,” and the management of Iraq’s oil revenues – has sparked interest in an alternative institutional arrangement: the direct distribution of revenues to the population (see, for example, Birdsall and Subramanian 2004; Palley 2003).

Direct distribution arrangements have been in place in both the US state of Alaska and the Canadian state of Alberta. The older of these – the Alaska Permanent Fund – has been in place since 1976 and is widely perceived as a success. The fund receives about one-fifth of the state’s oil revenues (along with other discretionary transfers from the state budget), and annually distributes a share of the accrued interest to all state citizens, in the form of a dividend.

Several advocates have argued that a similar fund should be set up in Iraq, arguing that such a fund would:

- keep at least part of the state’s oil revenues out of the hands of unreliable politicians;
- create a second-best mechanism for hedging against price volatility – one that relies on citizens instead of governments;
- gives citizens a more direct stake in their government’s performance, and hence, force the government to become more less corrupt and accountable;
- alleviate regional grievances.

I am skeptical about the feasibility of direct-distribution plans in developing states, and suspect they would face some of the same problems as specialized funds: they would be subject to corruption and political interference, and they may not be intertemporally stable. In addition, they may be complex to administer, as they require that the state retain a large, reliable database cataloguing all of its citizens. They offer no obvious solution to regional grievances, since those who live closer to the oil’s source – in Iraq,

for example, the Kurds and the Sunnis – still will claim the right to a larger share of the funds.

In disbursing rents around the country, a direct distribution plan could also disperse rent-seeking activities. Some observers imply that in the developing world, national politics is characterized by corruption and coercion, but local politics are characterized by fairness, equity, and transparency. This is untrue. In many poor countries, coercive organizations exist at all levels of society: case studies have shown that protection rackets, shakedown operations, for-profit rebel armies, and similar mafia-type organizations can extract rents at the local level. To imagine what decentralized rent-seeking might look like, consider states with large deposits of alluvial diamonds, like Sierra Leone, Liberia, Angola, and the Congo: each suffers from grassroots-level rent-seeking and endemic conflict.

2. *How Can Rent-Distribution Institutions Be Made More Stable?*

It is easy to design institutions to manage oil windfalls, as long as we rely on some combination of implausible assumptions:

- That the rule of law prevails;
- That the government itself is law-abiding;
- That a government's technical and administrative capacities are sufficiently high;
- That certain state institutions can be protected from political interference, even when politicians have large incentives to dismantle them;
- That the state is continuously governed by wise leaders for a long period of time;
- Or failing this, that governments with revenue surpluses will be willing to surrender part of their sovereignty to an international institution that will constrain them, even if it means losing office.

These are, of course, implausible. It is extraordinarily difficult for governments – even in advanced industrialized democracies – to design institutions that constrain their successors, when their successors have incentives to dismantle them. Intertemporal savings plans – where government funds are sequestered for future use – are especially difficult and have very high failure rates.⁴

In the absence of unrealistic assumptions, how can the quality of government rent-holding and rent-distribution institutions be improved? One way is to promote – or at least, to not undermine – their stability. Institutions that optimize other values – efficiency, equity, etc. – may have little value if they are constantly being changed. The volatility of oil revenues already makes long-term planning difficult; when revenue-distribution funds also become volatile, the problem is compounded. Reforming these institutions can inadvertently undermine their subsequent stability, by validating the belief that the current system is temporary. This belief can become self-fulfilling, since it raises the expected utility of lobbying for further changes.

The Nigerian system for distributing oil funds has become lodged in this type of trap: since 1946, the government has changed its distribution formula at least 18 times,

⁴ Perhaps the main exception is in monarchies – where the ruler has a very low discount rate, and treats oil revenues as his personal property.

about once every three years. Groups that wish to improve their share continue to believe – with much justification – that agitating for further reforms will bear fruit. In at least this case, getting the distribution formula “right” is probably less important than making it stable.

Perhaps institutions simply grow more stable simply by aging: over time, actors may develop vested interests in maintaining the status quo; the expected value of lobbying to change these institutions will drop, which in turn, will help reinforce the institution’s reputation for stability. If this is true, then launching new reform initiatives could have significant costs, in reducing the perception – and subsequently, the reality – of institutional stability.

3. Tentative Recommendations

The petroleum-exporting states vary widely in their levels of development, in the size of their reserves and revenues relative to the non-petroleum economy, in the type and quality of their political institutions, and in their risk of violent conflict. Since all of these parameters may influence the type of distributional problems – and hence, the appropriate institutional solutions – that these states face, it seems foolish to seek a single, one-size-fits-all model for managing windfalls.

Even if all of the variation in initial conditions could be overlooked, it would be hard to know what model to recommend. Specialized funds have not visibly improved the management of oil windfalls in the states that employ them. While centralized revenue management seems wiser than federal arrangements, many states have adopted the latter approach out of political necessity and are unlikely to change course. Direct distribution schemes have worked well in the US and Canada, but in countries where the rule of law is scarce, they may create more problems than they solve. Even the process of institutional reform has a cost, since it may reduce the subsequent stability of the institutions it alters.

Perhaps a better approach would be encourage a kind of reputational competition among the governments of petroleum-exporting states. This might entail, for example:

- setting out guidelines – for transparency, independent audits, freedom from political interference, distributional fairness, the efficient conversion of oil revenues into public goods, etc.;
- encouraging countries to find appropriate ways to meet these goals;
- establishing an international system to rate the annual performance of petroleum-exporting states, based on these criteria. This could be modeled on Transparency International’s perceived corruption index, and publicized in similar ways.

Ultimately, this type of rating system could – like the US government’s Millennium Challenge Account – be tied to aid, or perhaps, to loan guarantees from export credit agencies. It could also help mobilize private sector initiatives: western energy firms are increasingly under pressure to pay more attention to the welfare of those who reside in oil-exporting countries. Objective performance measures might give these companies further incentive to help these states better manage the perils of oil wealth.

Figure 2: Nigerian Exports by Sector, 1962-2000

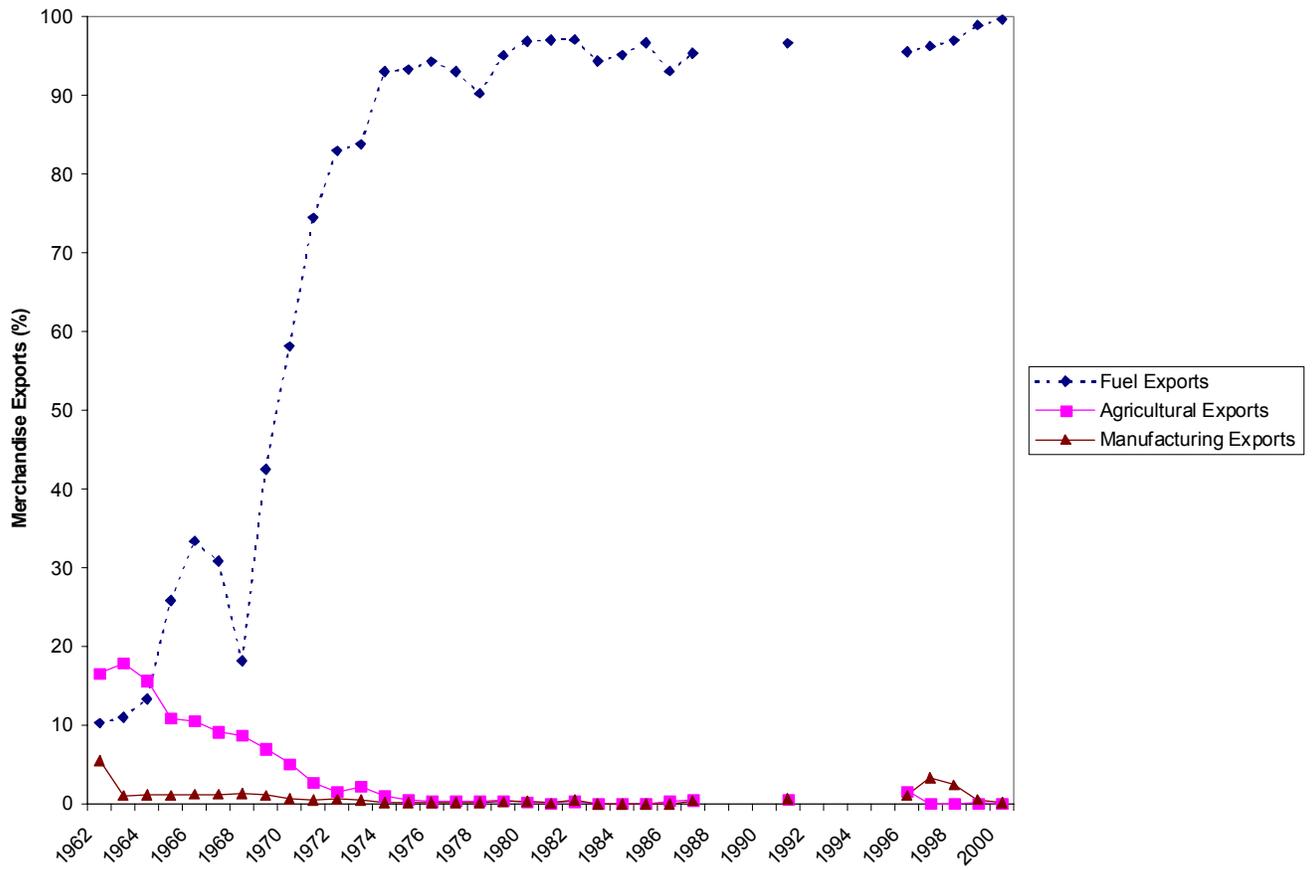


Table One: Nigerian gini coefficients over time

Year	Gini
1997	50.56
1993	37.47
1992	41.45
1991	45
1986	37.02
1985	38.68

Data taken from Dollar and Kraay 2002

Table Two: Oil/Mineral Resources and Secessionist Movements

Country	Region	Duration	Mineral Resources
Angola	Cabinda	1975-2002	Oil
Congo, Dem. Rep	Katanga/Shaba	1960-65	Copper
Indonesia	West Papua	1969-	Copper, gold
Indonesia	Aceh	1975-	Natural gas
Morocco	West Sahara	1975-88	Phosphates, Oil
Myanmar	Hill tribes	1983-95	Tin, gems
Nigeria	Biafra	1967-70	Oil
Papua New Guinea	Bougainville	1988-97	Copper, gold
Sudan	South	1983-	Oil
Yemen	East and South	1994	Oil