

Chapter Fifteen: Reflections on Oil and Gas in Federal Systems

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This book has presented case studies of oil and gas in twelve federations. Each chapter has considered how a country's federal system has arranged and influenced the management and development of its petroleum sector as well as how the existence of a substantial petroleum sector has influenced the federal system itself. The chapters have also explored in some detail what the ownership and fiscal arrangements are for the petroleum sectors.

The twelve federations vary in myriad ways—politically, socially and economically. While they all are constitutionally federal, they range from a virtually unitary regime in Venezuela to Canada's decentralized arrangements. Some have parliamentary democracies and others presidential systems (and Russia a hybrid model). Their democracies may be long established and robust or more recent and fragile. Some of these federations must manage very large populations—India being the largest democracy in the world—while others, such as Australia, have populations that would fit into a corner of India's largest state. Our sample includes some of the richest countries in the world, along with middle income and some very poor countries. With so many variables in such a small sample, any attempt to sort out clear patterns of cause and effect must be very tentative. Moreover, we are dealing with very complex interactions and feedback effects in which the federal arrangements may affect the management of the oil and gas sector while the dynamics the sector itself affects the federal system.

[A] Factors Affecting the Political Dynamics of Oil and Gas in Federations

While much of the study has described and analyzed the management and fiscal arrangements around oil and gas in these countries, it is worth starting this chapter with some broad reflections on factors affecting the political dynamics of oil and gas in federations. What are the forces that make oil and gas a salient political issue in a country? That promote centralized or decentralized control? That shape the pattern of resource revenue sharing amongst producing regions and the rest of the country?

The hallmark of federations is their constitutional division of powers between two (or more) orders of directly elected government. Federal constitutions set the basic rules of the political game, including the allocations of management and fiscal responsibilities in relation to the petroleum sector. But constitutions operate within a broader political, economic and social context, so their rules can be interpreted, bent or changed to reflect the larger forces operating in the society. Some federal constitutions were written before the emergence of the petroleum industry or any focus on subsurface resources, while others reflect clear consideration of the issue by the constitutional drafters: the former tend to favour constituent unit control, while the latter tend to favour central control. Whatever the constitution provides, the issue is whether its

allocation of responsibilities is consonant with the political forces active in the country or whether it is in tension with them. In the latter case, politics can be expected to challenge and modify the practical meaning of the constitution: it may be that the federal government plays a larger role in relation to the sector, but equally, it may be that the oil-producing constituent units manage to win a management role or a special share of resource revenues. Thus constitutions matter, but they are only part of the story¹.

It is natural that the political salience of upstream petroleum issues in a federation is strongly influenced by the size of the sector relative to the national economy. And it follows that the more politically salient the sector, the more likely a federal government is to play or seek to play a key role, whatever the constitution provides. In addition, a federal government is more likely to assert its leadership when the resource is concentrated in less populated constituent units, so that we would expect the greatest federal government dominance of the industry where it is most important to a national economy and where it is most concentrated in less populated constituent units.

The twelve federations vary across a spectrum from petro-federations, where petroleum is primordial in the political and economic life of the country, to federations where it has a much lesser role. We might distinguish four different groups:

- Nigeria and Venezuela have economies that are clearly dominated by petroleum. This is reflected in the sector's high share of GDP, but more fundamentally in its dominance of foreign exchange earnings and of government revenues.
- Petroleum is also exceptionally important in Russia, Malaysia and Mexico, but not fully dominant. Mexico is characterized as having an "oil state but not an oil economy" in that the sector plays an outsized role in financing government. It is also vital for Russian public finances and is at times very important in Malaysia.

In these five countries, petroleum is almost always at the centre of the national agenda in one way or the other. These federations are also characterized by the federal government's strong control over the petroleum sector. In most cases, strong central control was clearly established in the constitution, often before the industry was important. In Malaysia, the strong centralization reflected the generally centralized character of the federation, despite the provinces being "owners" of the petroleum resource, while in Russia central control has been asserted after a period of relative decentralization during the transition to democracy. While control of the petroleum industry is strongly centralized in all these federations, the allocation of petroleum revenues varies. The constituent units where petroleum is produced get almost no fiscal advantage from petroleum production in Venezuela and in Mexico. In Russia, they get no petroleum revenues as such but enjoy a significant fiscal advantage because of the allocation of income taxes based on derivation. In Malaysia they get half of the royalty, which is small relative to petroleum revenues generally, but significant relative to other states given the paltry

level of state finances. Of the five petro-federations, only Nigeria provides producing states with a significant special share of petroleum revenues, so that their per capita fiscal advantage can be an order or magnitude or more that of non-producing states.

- In Canada and Brazil the petroleum sector is a small part of the national economy, but petroleum issues, especially around revenue sharing, have sometimes been important and at other times been quite marginal, in national politics. In both countries, high oil prices, the prospects of developing huge resources (the oil sands in Canada and the offshore in Brazil), and the challenge of climate change are bringing petroleum issues back onto their national agendas. Management arrangements are centralized in Brazil and decentralized in Canada, while the allocation of petroleum revenues in both countries has largely favoured the producing regions.
- Finally, in five other federations— Argentina, Australia, India, Pakistan and the United States— the upstream sectors are a relatively small part of the national economies, though in the United States its absolute size is huge. The upstream petroleum sector's management or revenues can be a significant issue for certain regions, and often a major element in their relations with the centre, but it is normally of limited national importance. Four of these five federations actually import oil and in some cases the national government has been preoccupied with energy security.

Not just the relative size, but also the regional concentration of the petroleum industry can influence how petroleum issues play out within a federation. High regional concentration is particularly stunning in Russia, where two tiny constituent units dominate the production of oil and gas respectively; this helps explain the centralization of government control and revenues in Moscow. Significant regional concentration of production characterizes virtually of the federations, where typically the largest part of production comes from constituent units representing less than 10 or 15 per cent of the population. Only in Pakistan, where the upstream sector is quite small, is most production located in provinces that constitute a significant (but still minority) share of the population.

While it might be expected that in the event of conflict around petroleum management or revenues issues, the interests of the majority of the population would trump those of the constituent units where production takes place, this has not always been the case. For example, Alberta won major concessions regarding export taxes and export controls in Canadian constitutional and trade negotiations. The country's East coast provinces, which have petroleum production in their offshore regions, have been able to wrest the petroleum revenues and most management control from the federal government. The Nigerian producing states won similar concessions in terms of sharing offshore revenues. The US petroleum-producing states won the

right to the petroleum revenues collected from federal lands within their borders. The Argentine petroleum-producing provinces won control of the upstream sector through a revision to the constitution. And Baluchistan recently won an extremely lucrative revision to the petroleum revenue sharing arrangements in Pakistan. In all of these cases, we are seeing the familiar story of a strong, focused producer interest trumping a rather diffuse and unfocussed consumer or non-producer interest. The producing constituent units have won concessions despite their small size because national politicians needed their support (in some way or other) and felt they could make strategic or tactical concessions without paying too great a political price elsewhere. However, the producing constituent units' advantages can be vulnerable when the stakes rise and take on national importance. This happened in Argentina with the export tax and is driving Brazil's current difficult debate on sharing petroleum revenues, given the lucrative prospects of the offshore.

[B] The Assignment of Petroleum Powers in Federations

The academic literature on federalism contains a good deal of theoretical reflection on the criteria for assigning different types of legislative, revenue and administrative responsibilities to the different orders of government². In the case of natural resources, there is a general, though not unanimous, view amongst experts in fiscal federalism that natural resource revenue raising powers are better assigned to the federal government because:

- The very uneven distribution of natural resources, including petroleum, can give rise to significant regional disparities if constituent units control the revenues, whereas the federal government can address national disparities through its own spending or transfers to the constituent units if it controls the revenues;
- It is easier for federal governments, with their diversified revenue base and easier access to capital markets, to deal with highly volatile petroleum revenues than for constituent unit governments to do so;
- If petroleum revenues are very large, their management needs to be integrated into the broader macro-economic management of the economy;
- Constituent units typically need greater stability in revenues than national governments because of their smaller revenue base, frequently limited access to debt markets, and the nature of their spending in areas such as education and health;
- There is more likely to be coherence in natural resource policy, avoiding distortions and competitiveness across regions; and,

- As a practical matter, some developing countries may lack the capacity to have a decentralized system of resource management and taxation.

Against this, there are arguments for some decentralization of control and benefits to constituent units because:

- Many of the most immediate impacts of resource development are felt in the producing regions;
- The immobile character of natural resources means that local control and taxation is technically feasible; and,
- The producing region may face investment needs for infrastructure or incur environmental costs because of the industry's activities.

Floating above all of these arguments are larger considerations of “whose resource is it?” Inhabitants of producing regions can feel strongly that they have some proprietary claim—whether in the constitution or not—while national politicians and citizens and other regions may equally feel that the resource should be a national treasure and shared. In some federations, there is a consensus—one way or the other—on this issue, while in others it is hotly disputed. While the preponderant view amongst fiscal federalism experts is that central control of petroleum management and resources is preferable in a federation, this argument is stronger when the resource is more important relative to the economy and for total government revenues. In other words, the trade-off will depend on particular country situations. Moreover, whatever the arguments for national control, the case studies show that populations of the producing regions can be strongly impacted by industry activities, sometimes very negatively, so that they have a strong interest in some voice or role, which overbearing central governments have often neglected, especially in the petro-federations.

Each federation has its own history and the allocation of responsibilities for the petroleum sector often reflects these histories more than abstract concepts of how powers should be assigned. The older federal constitutions, dating from the eighteenth and nineteenth centuries, were written before the “age of oil”, when sub-surface resources of all kinds were either ignored or of largely local interest. These older constitutions tended to give responsibility for such resources to constituent units, often because the federation had been formed by a “coming together” of previously independent colonies or states, which brought their resources into the union with them³. The more modern constitutions, particularly those which reflect a national revolution or the emergence from twentieth century colonial rule, tend to favour strong federal governments with significant powers over the resource sector⁴.

While the primary or explicit responsibility for natural resources may be constitutionally with one order of government in a federation, there can be other powers assigned to the other order of government that also bear on resource management, e.g. environmental regulation,

surface land use, or revenue raising. Moreover, constitutions can be subject to shifting interpretations over time, and they can be bent, twisted and even trumped by politics. Finally, constitutions can be amended if they stand in the way of strong political forces: thus the Russian constitution was progressively modified over the last decade to give the federal government overwhelming authority over the petroleum sector and the Mexican constitutions extremely restrictive provisions regarding ownership of the resource were written into the constitution after the revolution of 1938. With this cautionary background, we can review how different federations manage petroleum resources, extract revenues from them, and share the benefits.

[C] Ownership and Management of Petroleum Resources

It is frequently assumed that constitutional “ownership” of natural resources by an order of government determines, or is at least closely related to, the management of the resource and its revenue benefits (Boadway and Shah). One of the most interesting findings of this study is how often this is not the case. This should perhaps not be that surprising in that private ownership of a property may carry highly variable rights in terms of ability to develop or use the property; in addition, governments may tax the property and thus capture many of its revenue benefits. In federations, there is no consistency in how ownership of natural resources is assigned to orders of government and the legal, financial and political significance of ownership can differ greatly. Table 15.1 gives a schematic overview of the situation for onshore ownership, management and revenues in the twelve federations.

Table 15.1: Onshore Ownership, Management and Revenue Assignment for Petroleum in Twelve Federations

	Ownership	Resource Management	Resource Revenue
Argentina	provinces	provinces	provinces/federal
Australia	states	states	states
Brazil	federal	federal	states/federal/municipal
Canada	provinces	provinces	provinces
India	states	federal	federal/states
Malaysia	states	federal	federal/states
Mexico	federal(nation)	federal	federal
Nigeria	federal	federal	federal/states
Pakistan	joint	federal	provinces
Russia	joint	federal	federal
United States	states/federal/ private	states/federal	states/private
Venezuela	federal	federal	federal

In most federations, the “ownership” of sub-surface resources is established in the constitution, but this can be different from the powers of resource management and resource revenue determination and collection. The table shows first that ownership of onshore resources is with the constituent units in most federations, but with the federal government in Brazil, Mexico, Nigeria and Venezuela. The United States is an outlier in that ownership of onshore resources can be either state or federal, depending on whether the land is state or federal, and (a consequence of the old common law tradition) ownership of subsurface resources is typically private when under private land⁵. Russia and Pakistan are also exceptions in that ownership is deemed to be joint amongst the federation and the constituent units.

A government’s ownership of the resource does not necessarily mean it will have control over the resource or be the principal beneficiary of the resource rents coming from its resource. In eight of the twelve federations, the principal responsibility for resource management goes along with resource ownership, but in four cases it does not: in India and Malaysia, the federal government manages the resource owned by the constituent units, while in Pakistan and Russia, the jointly owned resource is managed by the federal government. Ownership is obviously not an absolute and means quite different things in different federations⁶. It is perhaps one of the more surprising findings of this study to see how little the constitutional ownership of natural resources can mean in some federations, especially where the ownership is assigned to the constituent units.

While it can be a complex matter to calculate the precise sharing of resource revenues amongst governments in a federation (and this can be changeable as prices and policies evolve), the basic picture for each country emerges fairly clearly. The table shows that in only six of the twelve federations does the government which is the resource owner usually receive the principal share of resource revenues, excluding normal taxes on the sector that other industries would pay. (The table accounts only for the initial flows, which may be substantially revised when the larger system of fiscal transfers and equalization is considered.) In India, Malaysia, and Russia, the federal government receives the larger share (or virtually all) of onshore resource revenues even though the resource is owned by the constituent units or jointly (as in Russia). The situation is exactly the opposite in Brazil and Nigeria, where the states (and in Brazil, the municipalities as well) receive a larger share of resource revenues than does the federal government, despite federal ownership, with the producing states being especially favoured. Similarly, the US federal government, which has large land holdings in certain states, has given up its resource revenues to the states where these lands are located. In Argentina, the federal government receives the larger share of petroleum revenues when prices are high because of the export tax, but otherwise the producing provinces do.

Table 15.2 shows that this separation of ownership, management and revenue benefits continues out into the offshore regions. In all federations, the federal government is deemed to own (or perhaps “effectively own” given the stipulations of the UN convention on the Law of the

Sea) the offshore, including the vast economic zone, because the offshore lies outside the boundaries of the constituent units⁷.

Table 15.2: Offshore Ownership, Management and Revenue Assignment for Petroleum in Twelve Federations

	Ownership	Resource Management	Resource Revenue
Argentina	Federal	federal	federal
Australia	Federal	joint	federal
Brazil	Federal	federal	states/federal/municipal
Canada	Federal	provinces/joint	provinces
India	Federal	federal	federal
Malaysia	federal/states	federal	federal
Mexico	Federal	federal	federal
Nigeria	Federal	federal	federal/states
Pakistan	Joint	federal	federal
Russia	Federal	federal	federal
United States	Federal	federal	federal
Venezuela	Federal	federal	federal

Thus constitutional control of the offshore rests with the federal governments. This is true even in Malaysia despite the ownership of the offshore by the Borneo states and in Pakistan, which recently approved a constitutional change to joint ownership. However, the federal government in Canada has ceded by legislation (not constitutionally) effective management and the revenues of its offshore resources to the two provinces with offshore production in a classic case of a focused regional interest trumping a diffuse national interest. Australia has developed a joint management regime for the offshore, though the federal minister retains primacy. US states have no control of the offshore as such, but several have been instrumental in forcing offshore moratoriums by denying effective land access, as well as lobbying in Washington. In Brazil, the federal government owns and controls the offshore, but the states (especially the adjacent states) and municipalities get most of the revenues.

The key resource management powers include the issuance of licenses with the associated conditions to explore and develop the resource, but other jurisdictional handles can be important in the management of the resource. Most notable are land use permits, which can give constituent unit governments a role in some decisions (as in Malaysia), and regulations around environmental protection and local benefits. Thus, in a number of federations where one government controls the main resource management powers, the other order of government may have some role in regulating petroleum activities, but these secondary powers seem almost always to have been used for their intended purpose, and not as a backdoor to managing the resource as such. Thus they have not constrained the lead of the government—whether federal

or constituent unit—that is the resource manager to pursue its policies, so long as certain standards relating to land use, the environment and perhaps local benefits have been met.

[D] Petroleum Revenue Powers and Sharing

While one order of government may lead on determining and collecting petroleum revenues, it will not necessarily be the prime beneficiary of them because this will be established by the larger fiscal sharing arrangements and any specific rules for sharing resource revenues. The greater the importance of petroleum revenues, the greater are the political stakes relating to their allocation. However, there is no unique approach, even in heavily petroleum dependent federations, so the rules for the allocation of these resource revenues can differ to reflect constitutional provisions, the broader culture around fiscal sharing and equalization in the federation, and perhaps the depth of regional divisions (where deeper divisions may make the producing regions less inclined to share). Federations differ not only in their allocation of revenue powers between the two orders of government (e.g. in ability to determine royalties and profit taxes) but also in the rules of allocation of centrally collected revenues, where the principle of derivation may play a role in the allocation of some revenues to constituent units. Thus, in Brazil, producing states get a share of all resource revenues based on derivation, while in India and Malaysia they get a share of royalties only (which are only one, relatively minor stream of resource revenues), and in Russia the producing constituent units get no share of resource revenues collected within their boundaries but do get a share of income taxes, based on derivation. So the derivation principle varies not only in the extent of its application, but also in the form.

It is striking that in some highly centralized petro-federations, such as Venezuela and Mexico, the producing regions have not asserted much of a political claim to a special share, whereas they have in varying degrees in other petroleum rich federations, such as Nigeria, Malaysia, and even Russia. In these and the other federations, there appears to be a cultural dimension to how the population, in producing and non-producing regions, view resource revenue sharing, beyond whatever the constitutional provisions may be. Efforts to change a federation's approach to the sharing of resource revenue can be driven by the federal government or by either the consuming or producing constituent units, as was discussed above. Thus a wide variety of factors can determine where the main lead on resource revenues lies, the extent of conflict or controversy, and even the choice of taxes, levies and other instruments used by governments to extract revenues from the petroleum sector.

1. Assignment and use of revenue powers

Resource revenues can be collected in many ways: through corporate income taxes (which may have special provisions for profits from the petroleum sector), royalties (which is a very broad category and can include cash payments or production sharing), various licence fees,

land use fees, export taxes, and various special charges on the sector (Tordo). While royalties are normally considered a payment to the resource owner, in some federations there are royalty payments that flow (directly or through sharing rules) to governments that do not own the resource, and the resource owner may not set the royalty rate. Mexico does not use the term “royalties” at all. In countries where national oil companies are important (or even a monopoly), they may be subject to their own fiscal regime and make some payments to government through dividends or arbitrarily imposed levies. Our review has demonstrated a tremendous variety of arrangements around the collection of resource revenues by the two orders of government in federations.

A particular issue which can arise in federations is that the rules on who can impose particular taxes or levies and on revenue sharing can affect the incentives of the different orders of government to adopt or favour the use of certain taxes. The so-called “second generation of fiscal federalism” has focused attention on the incentive structures for certain types of behaviour by governments in federal regimes (Weingast). Thus, if a federal government is obliged to share taxes of a certain kind with constituent units but not to share those of another kind, it will have an incentive to make greater use of the latter because this will increase its own, non-sharable revenues and its discretion regarding public spending.

In Brazil, India, Malaysia, Mexico, Nigeria, Pakistan, Russia, and Venezuela the federal government has an effective monopoly over determining and collecting the imposts, whatever their form, which are most specific to the resource or upstream petroleum industries. While a federal government may determine and collect the resource levies, it may have an obligation to share certain of them. Thus in Malaysia, for example, the federal government determines the royalty rate, even for provincially owned resources, and the resulting revenues are then shared equally between the producing state and federal government. Similarly in India, where states own the onshore resource, the rate of royalty is determined by the Union government. In both countries, the federal government thus has an incentive to keep royalties low because they go to or must be shared with the producing states. By keeping royalties low, the federal government leaves fiscal room for it to introduce other levies through instruments that provide revenues it need not share: in India’s case, through the petroleum profit taxes and cess charges; in Malaysia’s, through the federal share of production or Petronas payments. These alternative instruments are just another form of resource rent collection, whose impact and design may be similar to royalties (which themselves can take many forms as a levy on the volume or value of production) but which are labelled differently and perhaps passed under different constitutional revenue powers. A dramatic example of using resource revenue diversion so as to limit the federal government’s obligation to share with the constituent units has been Venezuela, where the federal government has introduced surcharge royalties, which it does not share with the states, and increased off-budget revenues from around 1 per cent of ordinary revenues in 2003 to 42% in 2006, thus greatly diminishing the revenues that Venezuela’s states receive through the established sharing formula.

In Brazil, the petroleum rents are shared in different proportions with the states and municipalities (70 per cent of royalties; 50 per cent of special entitlements; 48 per cent of income tax) and only dividends from Petrobras are exclusively for the federal government. Thus, there is little room for the federal government to game the system (further constrained in that the income tax regime cannot have special levies on petroleum profits). For this reason, the Lula administration proposed a new production sharing agreement for most of the future production from the huge pre-salt fields offshore, in which royalties would be shared but profit oil would go to the Union. No deal had been reached by the end of his Presidency.

In Mexico and Russia, the federal governments do not appear to have had significant opportunities or incentives to favour certain revenue sources because they need not be shared. In Nigeria, the producing states get 13 per cent of petroleum revenues off the top, but the federal government has not been able to limit this, for example through profit taxes, so it has no incentive to favour one type of levy over another as a way to increase its share (or that of the non-producing states).

In some federations, another area where the federal government can potentially game petroleum revenues is through its determination of the projected price for oil and gas built into the budget, which determines the initial allocation of petroleum revenues to the constituent units. While some countries, such as Mexico, have formulaic approaches to determining this price, others have more discretion and practice appears biased towards low price estimates. This may be for prudential reasons, but it can also give the federal government greater discretion over the use of petroleum revenues. Thus in Nigeria, the federal government's determination of the budgeted price for oil has generated excess oil revenues part of which it has been able to divert to pay down debt, to build up the stabilization and savings funds, and to fund special projects. In Venezuela, the government typically bases the budget on low estimated prices, which determines the initial transfers to the states; there are supplementary transfers later, but the lag in payments is beneficial to the federal government, especially when inflation is high.

Another issue which arises in a number of federations where both orders of government can impose levies on the petroleum sector is whether they compete or cooperate. Argentina is the most striking case where both orders of government compete directly for resource revenues. While the provinces own the resource and levy royalties and license fees, the federal government has used its power to impose an export tax, which permits it to capture a good part of the resource rent using an instrument whose revenue proceeds it need not share with the provinces (unlike most other taxes). Moreover, an export tax creates a lower price for the resource at the wellhead, which lowers potential royalty revenues for the provinces. In Argentina, the two orders of government have not cooperated in their policies and the result has been both a reduction in royalties going to the provinces and a low level of investment in the industry, which is not sustaining production because of the burdensome fiscal take of governments. In Canada, there was a dramatic case of fiscal competition between the federal and Alberta governments in the early 1980s, after the second oil price shock. The Canadian federal government introduced

an export tax as a way to capture some of the resource rent going to the provinces and this produced a major crisis in relations between Ottawa and the producing provinces. The Canadian federal government no longer has the right to impose export taxes on petroleum – an outcome of a 1982 constitutional amendment. The Canadian federal government’s rules for corporate income tax levied on the oil sector have sometimes been competitive (as in not allowing the deduction of royalties as an expense) and at other times been cooperative (as in providing special write-offs for the development costs of the oil sands).

In other federations, cases where both orders of government make competitive levies on the petroleum sector seem relatively rare or minor. For example, in Venezuela, municipalities have sought to get some access to resource revenues through a tax on petroleum contractors, but these have been minor and may not be properly considered resource revenues. Australia had a major controversy in 2010 around the proposed federal super-profits tax on the resource industries, which represented a federal attempt to collect resource revenues (particularly from the coal and iron ore industries, but petroleum was affected) that might normally be considered the right of the states. The states’ objections were more about the potentially damaging effect on investment than about the federal-state revenue implications because the proposal had been designed to protect their existing royalties. The federal government greatly softened its proposal to mollify the states and industry.

Import charges and quantity constraints on petroleum imports are now infrequent, but they played an important role in aiding the petroleum sectors in the United States and Canada in the early post-war decades by shoring up prices at a cost to consumers and to the benefit of oil companies and the producing states and provinces. They have also been used by some developing countries, such as India and Pakistan, as a source of fiscal revenues and a way to protect the local industry. While they put an extra burden on consumers, they can accelerate development of domestic production and raise the revenues of governments from the upstream sector.

A narrow focus on revenues and revenue instruments for governments can miss a big part of the story in some federations, where significant resource rents never appear in the fiscal accounts of governments. This can happen because the revenues get diverted into “off budget” accounts or held by a state-owned national oil company. It can also arise when retail prices are held down (very dramatically so in Venezuela), so that resource rents are not collected by governments, but rather distributed to consumers as subsidies. Such practices can be important in federations where the federal government is meant to share resource revenues with the constituent units because it can significantly shrink the shareable pot or where constituent units have direct access to resource revenues, e.g. royalties, and find that their potential take is reduced by low prices, as in Argentina. Of course, in some countries there is a desire to protect very vulnerable poor people from high costs for fuel, but controlled prices are not a very efficient method for doing this and they can result in distortions in federal fiscal arrangements for resource revenues.

Finally, an emerging area for potential interaction of federal and constituent unit fiscal regimes affecting the resource sector is climate change. Federal governments in all cases appear to have the power to impose regulatory regimes, such as cap-and-trade, or special environmental taxes, such as carbon or greenhouse gas levies. While no federation has yet implemented a greenhouse gas regime, Australia had planned to bring in a cap-and-trade regime in 2010, which was then re-scheduled to start in 2012, and is now uncertain. These regimes are controversial, not least because of their potential impacts on the economics of the petroleum sector and the distributional consequences of the climate change measures. Some American states and Canadian provinces have been considering and even introducing climate change regimes, including cap-and-trade (and in the case of British Columbia a carbon tax), but they are sector neutral and not targeted at the upstream petroleum sector and will have limited impact on it given their current provisions.

2. Sharing revenues: Are resource revenues special?

Federations have different philosophies regarding revenue sharing in general and resource revenue sharing in particular. In many federations the constituent units heavily dependent on transfers from or tax sharing with the federal government, but in some others, the constituent units are largely self-financing. Some federations are strongly equalizing—in that they try to ensure that all constituent units meet at least a national standard in terms of their fiscal means, after transfers—while others tolerate major fiscal disparities. In addition to the general approach to revenue sharing, some federations have special arrangements for sharing—or not sharing—resource revenues.

The general arguments regarding sharing in federations have to do with equity, efficiency and the nature of federal systems. The logic of centralizing key revenue sources in federations is stronger than for centralizing spending (Boadway and Shah), so in all federations there is a “vertical imbalance”, with the federal government raising more revenues (through taxes and debt) than it spends directly. The extent of this imbalance varies tremendously depending of the allocation and value of different tax bases as well as of expenditure responsibilities. In any case, all federal governments share certain revenues with the constituent units or make transfers to them, which may be conditional or unconditional. The philosophies underlying such sharing or transfers vary greatly amongst federations. In some, there is a fairly developed notion of equalization, with fiscal arrangements designed into a fairly coherent architecture, while in others major differences in fiscal capacity across constituent units are accepted as the product of a series of criteria or programs than do not cohere into any particular design.

A key question in either kind of regime is how to treat the allocation of natural resource revenues and whether they should be treated differently from others. In particular, should the constituent units where petroleum or other natural resources are produced be given a special fiscal benefit because of the resource extraction within their territory? As always, there are arguments for and against:

For:

- In federations where the constituent units “own” the natural resources, some will claim that this should give them a material advantage, as ownership usually does. However, we have seen that this issue is more than legal because even where the constitutional ownership is federal, whether onshore or offshore, constituent units have often laid claim (successfully on occasion) to a special share of revenues raised within their borders or in the adjacent offshore areas; even in these cases, the claim is probably linked to some sense of proprietorship.
- Producing regions should get a special share as compensation for local environmental damage, for infrastructure costs associated with servicing the industry, and for the investments needed to prepare for the time when the resource is depleted. In practice, these concepts have not been operationalized in any of the federations under study (though they were built into the design of the regime in Chad and account for very small payments in Mexico).
- Resource revenues are a depleting, capital asset and should not be treated the same as income or other current revenues.
- Where resource management and taxing powers are decentralized, constituent units need the incentive of some net fiscal gain from their taxing of the resource industry if they are to have appropriate taxation and royalties. Otherwise they will under-tax the industry and seek to extract benefits in some other manner, such as local industrial benefits.

Against:

- A dollar extracted from the resource industries is not fundamentally different from a dollar extracted from any other industry. If there is concern about a depleting asset, let the resource in the ground be converted to capital in the bank which provides a continuing stream of income. But that income should be treated as other income.
- The producing regions usually enjoy significant employment and investment benefits and do not need special fiscal benefits in addition.
- The fiscal imbalances between rich and poor constituent units in a federation could become economically distorting if resource rich regions receive too much net benefit and are able to offer significantly more attract combinations of enriched government programs and lower taxes. This could led to “fiscally induced migration”, causing a net loss in welfare to the country.

Actual experience suggests that these philosophical and technical arguments often matter less than the political culture and traditions of the federation. Regional claims to a special share will

be stronger depending on supportive constitutional provisions, strong regional identities, and other constraints on centralization. Some federations that have sharing of centrally collected revenues invoke the “derivation” principle to justify giving a special share of resource revenues to producing regions. This poses the question as to the appropriate application of the derivation principle to different sources of revenue. While the derivation principle is often applied to natural resources, it can apply to other revenues. In Russia, for example, the derivation principle applies to income taxes but not to resource revenues. Sharing according to derivation can conflict with sharing according to such principles as efficiency and equity based on various measures of need.

The petro-federations differ in the extent to which they allocate a special share of oil and gas revenues to the petroleum producing constituent units versus the others:

- Malaysia: Provides half of the gross royalty of 10 percent to producing states. Given that the states have such a small share of spending responsibility, even this small amount gives the three producing states a significant fiscal advantage over other states. They also benefit from other transfers that take into account their large area, lower level of development and small population, so that after all transfers, their revenues per capita vary from some 300% to 600% more than the average revenue per capita for the non-producing states.
- Mexico: The federal government pools normal resource revenues with other revenues and its transfers provide no special allocation of these to petroleum producing states. However, when petroleum prices are above the budget reference price, the producing states do receive a small extra share of petroleum revenues, which has never been of more than marginal significance.
- Nigeria: Has a special allocation for resource revenues, whereby producing states receive 13 percent of resource revenues emanating from their territory and the adjacent shallow offshore areas. Remaining resource revenues are pooled with all other revenues and allocated according to population, equality of states, internal revenue generation, land mass, terrain and population density. The ultimate result is that the nine oil-producing states receive over fifty per cent of all revenues and have an average per capita allocation 350 percent larger than the non-producing states. The largest per capita allocation to a state is many times that of the smallest per capita allocation to a state.
- Russia: While Russia’s thinly populated producing regions received a major part of petroleum revenues early in this century and enjoyed per capita revenues many times the national average, even at low prices, their preferential treatment has been progressively cut back, so that now they get no share of petroleum revenues as such. They do, however, benefit from the fact that the general Russian fiscal regime includes a derivation principle for sharing certain taxes so that regions with high personal and corporate

income taxes—including the petroleum producing regions—enjoy an advantage. In addition, the federal government makes equalization transfers. The net result is that the few, small producing regions have revenues per capita comparable to those of Moscow and St Petersburg and as much as five times per capita those of the least endowed regions.

- Venezuela: Under the Special Allocations Law, petroleum revenues representing about 4 percent of ordinary federal revenues are distributed to the states: 70 percent to the producing states and 30 percent to the others, which gives the producing states a very modest advantage. The greatest disparities within Venezuela's fiscal regime are at the municipal level, where revenue capacities vary dramatically because of local tax bases. In recent years, the federal government has worked to limit the amount that it must share with the states.

The petroleum-dominant federation where these distributional issues are the most contentious is probably Nigeria, whose producing states consistently argue that they are not getting a fair share. This complaint may have its roots in the memory of once receiving 50 percent of petroleum revenues (when production was very small) compared with the current 13 per cent, but the absolute amounts then were a small fraction of those today. The Nigerian case demonstrates that even a generous sharing of revenues with the governments of oil producing regions may produce little benefit for the local population. The oil producing states in Nigeria have had much higher revenues than other states, but have squandered their wealth through vast corruption and waste. The deep unrest in the Delta reflects very low human development indices, a despoiled environment, appalling infrastructure and public services, and a shocking contrast between a wealthy elite and the rest of the population. The state governments have had virtually no accountability for their use of funds, whether to their populations or to the federal government. The federal government too has lacked strategic leadership and vision in its regulation of the industry and its own direct programming in this physically challenging region.

The sharing of petroleum revenues is naturally not usually very contentious in federations where they are a small part of total government revenues. To the extent that it has been an issue, it has often been pushed most by the producing regions which are seeking to protect or maximize their local benefits—the concentrated producer interest against the diffuse consumer interest. Thus the American producing states were able to win the right to petroleum revenues from federal lands within their boundaries. Similarly, two of Canada's small East coast provinces were given the right to offshore petroleum revenues, their cause being aided by their relatively poor status (at the time) within a rich federation as well as by the political salience of the issue with their voters. The successes of Assam and Rajasthan in India, Balochistan in Pakistan, Nuequen and Chubut in Argentina in winning fiscal concessions at different points from their central governments also reflect what can be the advantage of small, concentrated interests in a context where the stakes are relatively minor at the national level.

Brazil is an interesting case where certain states (and municipalities) got a major fiscal advantage from the allocation of petroleum revenues written into the constitution in 1988 when these were relatively small, but where the debate has changed dramatically with the prospect of much larger revenues. The Brazilian case is distinctive in that the resource is federally owned and managed, but most petroleum revenues flow to the states and, uniquely, the municipalities. Petroleum revenues going to the states and municipalities have now grown to over \$7 billion, with over 80 percent benefitting two states, Rio de Janeiro and Espirito Santo, which are relatively well off compared to the average Brazilian state. Moreover, most of these revenues are derived from offshore production, which is often at a great distance from the states' coasts. The allocation to municipalities produces weird results based on orthogonal lines projected into the offshore, demonstrating the arbitrary basis of the formula. The issue was already festering before the discovery of huge pre-salt deposits in the offshore, which brings the prospect of a whole new fiscal context, with ever greater revenues concentrated in a few states and municipalities. This is forcing a difficult national debate on the appropriate sharing of resource revenues in Brazil, made more difficult in that the revenue sharing formula was constitutionalized. There may be a lesson here that it is better to deal with these issues through constitutional principles, followed up by laws that can reflect changing circumstances.

Canada has smaller regional disparities than Brazil and a more coherent fiscal architecture than Brazil, with an equalization regime that brings the poorer provinces up to a national standard fiscal capacity. The fiscal advantage of petroleum rich provinces, notably Alberta, has normally not been so great as to cause a major political issue. However, the federation was put under considerable stress after the second oil shock in 1979 because of Alberta's soaring revenues which took its fiscal capacity to over twice the national average; the federal government brought in drastic measures to try to gain access to the resource rents (largely through an export tax) and to promote petroleum exploration on federal lands in the North and offshore. The combination of sharply falling oil prices and political opposition soon led to that program's undoing. However, the issue of fiscal balance between Canada's provinces has started to reappear with higher prices, the massive growth in Alberta's production, and the rise of new resource rich provinces.

3. Sharing petroleum revenues versus broader fiscal sharing

There is a difference between the allocation of petroleum revenues or revenue powers amongst governments and the net impact of these allocations once other fiscal arrangements are considered. The approaches vary greatly amongst federations, both in terms of the broader architecture of their fiscal transfers and how petroleum revenues are treated within this.

- Australia exemplifies a strongly equalizing fiscal regime, where the fiscal benefits that petroleum producing states is effectively “netted out” by the broader approach to fiscal transfers. The federal government makes transfers to the states based on an elaborate calculation of their fiscal capacity and their spending needs. Even the richest states

receive the majority of their revenues from the federal government and the effect of federal transfers is to bring all states to essentially the same level based on a national standard of fiscal capacity and expenditure need. States with resource revenues have these calculated as part of their fiscal capacity and so they are netted out (on a dollar-for-dollar basis), so that over-time there is little or no net advantage from such revenues. “Over-time” is important because the system is based on calculations that have leads and lags, so depending on where petroleum revenues are in the cycle, a producing state may enjoy a short-term advantage (when petroleum revenues rise) or suffer a short-term disadvantage (when they fall). Thus for Australian states, having resource revenues can contribute to their degree of fiscal self-sufficiency, but it does not add to their long-term net fiscal capacity. It also provides them with little incentive to pursue revenue benefits from the industry as opposed to other benefits, such as jobs and local procurement.

- Canada too has an equalization program, but it is quite different. Federal transfers to the provinces are much less significant than in Australia and the equalization program accounts for only about twenty percent of total transfers. It provides a pool of funds that brings provinces with low fiscal capacity up towards the national average fiscal capacity. A major issue in Canada has been how to treat resource revenues in relation to equalization eligibility. Should resource revenues be excluded or discounted from calculations of eligibility for equalization payments? Canadian policy has varied over time from complete exclusion to complete inclusion and is currently at 50% inclusion. This means that a poor province with petroleum revenues would receive larger equalization payments than one with a similar fiscal capacity, but no petroleum revenues. Most of the provinces with significant resource revenues are not now equalization receiving. Under the equalization system, richer provinces are not “equalized down”, so for provinces that are above the equalization standard, having resource revenues does provide a net fiscal advantage. Some are concerned that the equalization regime does not address this, but it would be difficult for that federal government, which has no direct access to petroleum revenues, to pay for a substantially enriched equalization regime. Canadian experience also shows that there are technical and incentive issues in measuring resource revenue capacity as part of an equalization regime. It can be difficult to measure resource revenue capacity, as opposed to actual revenues. If actual revenues (or something close to them) are fully netted out in determining a producing constituent unit’s entitlement for transfers from the federal government, then it will have no incentive to optimize these revenues (the Australian problem). This suggests that some special treatment of resource revenues may be justified in the case of equalization receiving provinces.
- None of the other 10 federations has an equalization program as such. Argentina, Brazil, India, Malaysia, Mexico, Nigeria, Pakistan, Russia, the United States, and Venezuela all have significant transfers to or tax sharing with their constituent units, some of which is

based on formulae (and some of which is more discretionary, especially conditional transfers). However, in none of these cases do the petroleum revenues of a constituent unit (whether major as in the Nigeria, Mexico and the United States or minor as in Malaysia, Mexico, Pakistan and Venezuela) affect the other transfers they receive, at least in any formal, formulaic way. Thus petroleum revenues can make a great difference in the fiscal means of different constituent units in federations where constituent units have large petroleum revenues.

[E] Managing the Broader Economic Impacts of the Petroleum Sector

Mexico, Nigeria, Russia and Venezuela—face a different order of challenge from the others in terms of macro-economic management given the volatility and uncertainty of petroleum revenues. In addition, there are some constituent units in other federations—Alaska, Alberta and Assam are examples—which can also face special challenges of fiscal management associated with their high dependence on petroleum sector revenues.

These challenges include how to deal with the “oil curse” or risk of “Dutch disease”, whereby other sectors are crowded out. There is a significant weight of opinion amongst experts that having a large petroleum sector can be a real asset, and not a curse, even in poor developing countries, if they have good quality governance (Arezki and van der Ploeg; Collier, van der Ploeg and Venables) and focus on developing a medium to long-term investment policy (Brahbhatt and Canuto). But good governance is not easy in poor developing countries with a dominant oil sector which can be an invitation to waste, corruption, cyclical swings and excessive dependence (Collier and Hoeffler).

A central difficulty for fiscal planning is the uncertainty of petroleum prices and revenues. Government spending in resource dependent economies tends to be pro-cyclical and destabilizing because of the enormous pressures to spend during commodity booms. Booms are followed by painful busts, with major fiscal cuts. Petroleum rich federations can face the added problem of uncoordinated fiscal policies amongst the central and constituent unit governments and this can be aggravated if transfer regimes are poorly designed. A natural response for federations that are highly dependent on petroleum is to centralize fiscal management: thus it is no surprise that the five petro-states are amongst the least decentralized of our twelve federations⁸¹. In all five cases, the federal government dominates revenue raising (both resource revenues and others). In Malaysia and Venezuela, the federal government also dominates government spending (over 80 percent in each case), so their fiscal management is quite unitary in nature. Mexico and Russia have highly centralized revenue collection, but somewhat less centralized spending, with significant federal transfers to the constituent units. Finally Nigeria

also has highly centralized revenue collection, but quite decentralized spending because about half of all revenues are shared with the states and municipalities.

In principle, medium-term fiscal frameworks with projections for several years based on transparent macroeconomic and policy assumptions and including stress tests should help the fiscal planning of highly petroleum dependent governments and make the future implications of current policies clearer (Ossowski et al). Stabilization funds can smooth spending over time. Monetary policy and the holding of some revenues abroad during high price periods can help manage the risks of exchange rate volatility or upward pressure. An overvalued currency can undermine investment in export industries and industries exposed to imports; at the extreme, it can cause whole sectors to atrophy and radical shifts in the regional balance of economic activity.

In federations, fiscal arrangement can also provide lower level governments with more stable revenues than central governments. In most of these federations the constituent units have very constrained access to debt, while the federal government is better placed to undertake counter-cyclical fiscal management, through both automatic and discretionary stabilizers. Constituent units also tend to have more stable spending responsibilities, e.g. on basic education and social services. Thus the design of transfer regimes to the constituent units is important: where transfers are significant, they should be relatively predictable and constant for base programs. The federal government should assume lead responsibility for counter-cyclical management (which may include some specific transfers to the constituent units for counter-cyclical programs, e.g. on infrastructure).

With these considerations as background, we can review the track record of the petro-federations:

- Venezuela has had virtually no fiscal smoothing, with expenditures closely tracking revenues. There was a feeble attempt in the late 1990s to create a stabilization fund, but it has amounted to nothing. Moreover, the country has a very poor record in terms of the quality of public investments. Transfers to the states are minor and falling but they have varied pro-cyclically with oil prices.
- Malaysia has had stricter fiscal policies, with particular attention to balance of payments and inflation constraints, but it has not had a stabilization fund or very coherent stabilization policy. It has a very small savings fund. On the other hand, it has left substantial cash flow with Petronas (the national petroleum company) during high price periods and used the company as a source of stabilization revenues during periods of fiscal exigency. The company has not been cash constrained either at home or abroad, so it has maintained its investments and production. Transfers to the states are minor and for the most part not tied to oil prices (except royalties for producing states).

- Russia initiated a stabilization fund in 2004, after a period when surging petroleum revenues drove skyrocketing budgetary expenditures and a higher rouble. Revenues from export duties above a reference price were directed to the Fund, which put a minor brake on pro-cyclical spending. In 2008, this was divided into a Reserve Fund and a Wealth Fund; together they had assets of over \$200 billion by 2008. However, the crash in oil prices rapidly drained the stabilization fund, which could be depleted by the end of 2010. Moreover, the federal government has responded to the new fiscal climate by constraining transfers to the constituent units in a highly pro-cyclical manner, though such transfers remain significant.
- Mexico also created a stabilization fund in 2004, into which flowed revenues above budget projections. By the end of 2008, it had accumulated \$5 billion, far less relatively than in Russia. Mexico was partially protected from falling oil prices by a large hedging position, limiting the draw on the stabilization fund early during the downturn. Transfers to the states are set at 20 percent of the General Sharing Fund plus relatively small extra payments if the oil price is above the budgeted level. Given that 35 percent of government revenues normally come from petroleum, the transfer regime tends to be pro-cyclical.
- Nigeria initially used some of its very high petroleum revenues after 2000 to pay down large external debts. Then in 2003 it established an Excess Crude Account, into which it directed revenues above the budgeted (and normally conservative) oil price; revenues above this price have been placed in the Account, which had accumulated \$20 billion by 2008. Any shortfall in revenue available for sharing because of a lower-than-budgeted price was made up from the Account. This arrangement contributed to spending smoothing. The federal government has managed the Excess Crude Account in defiance of a Supreme Court judgment, which has weakened its legitimacy. Nigeria had also accumulated large foreign exchange reserves (about three times the Excess Crude Account) before the downturn in oil prices. These arrangements served it well in 2008, when prices crashed, because the budget was based on a price near the low market level; there was a limited withdrawal from the Excess Crude Account. However, the states have contested the large amounts set aside both in the Excess Crude Account and for other federal deductions and have succeeded in getting more and more funds released, so that the account was largely depleted by 2010. Thus while Nigeria has had periodic success in establishing stabilization arrangements, it has been hampered by the constitutional arrangements and the lack of a federal-state consensus on fiscal responsibility or stabilization measures.

The other federations face fewer macro-economic issues associated with petroleum revenues. In Argentina, Australia, India, Pakistan, and the United States volatile petroleum revenues are of minor macro-economic importance at the national level. In fact, the causality has gone more the

other way in Argentina, where the country's macro-economic difficulties led to the federally imposed export tax, which seriously impacted the upstream petroleum sector as well as the provinces which collect royalties. In India and Pakistan, it has been the high level of dependency on oil imports and their fiscal exposure to regulated or protected prices which have posed the major challenge in managing fiscal cycles, not fluctuating revenues from domestic production.

Brazil and Canada lie in a grey zone. Volatile petroleum prices and revenues can sometimes be an issue for macro-economic management, though in both countries the bigger issue has been the sharing of revenues. Brazil's potentially huge revenues from the pre-salt discoveries have already been affecting the macro-economic situation because this has been a factor behind the large financial inflows that have been putting the currency under strong pressure. The federal government has proposed a fund for petroleum revenues, which would be largely invested offshore to limit the appreciation of the currency, though this presents its own problems because international interest rates are significantly below domestic ones. The current highly unequal distribution of oil revenues to states and municipalities and the very pro-cyclical nature of the formula present considerable challenges for coherent fiscal management over the longer-term.

Canada, like Brazil, has a diversified economy with an important and dynamic petroleum sector. In recent years, volatile petroleum prices have been partly responsible for the dramatic fluctuations in the value of Canada's dollar against the US dollar and this has added uncertainty for longer-term private investors. Canada appears to be undergoing some significant economic restructuring in favour of the resource-rich, and especially petroleum-rich, provinces. As this happens, there may be major issues around fiscal sharing amongst provinces and perhaps on how to bring greater stability to the currency.

Even when petroleum revenues are relatively minor at the federal level, they can be very significant for certain constituent units, which then face issues of macro-economic management. In Canada, Alberta has a stabilization fund (called the Heritage Savings Trust Fund), whose total value is currently not much more than a year's resource revenues for the province; however, the province paid off its debt during high price periods, so it was well positioned to run a modest deficit during the recent downturns. Alaska, by far the most resource revenue dependent state in the United States, does have a fairly significant "Permanent Fund", with assets around \$23 billion, but state spending have been strongly pro-cyclical. Per capita expenditures are twice the national average, with a marginal return on these expenditures estimated to be about 65 percent of cost; thus arguably the state's savings should be considerably higher. There are no such stabilization or savings funds in a number of other constituent unit governments that depend heavily on petroleum revenues: Rio de Janeiro in Brazil, Assam and Gujarat in India, Bayelsa in Nigeria, and Baluchistan in Pakistan. Both Argentina and Russia have modest provisions for stabilization funds at the level of constituent units, but these have not been taken up. Thus, in general, petroleum dependent constituent units seem to make little or no provision for fiscal smoothing.

[F] Transparency and Accountability

Transparency and accountability are closely linked, but distinct, concepts. Transparency relates to the quality and scope of information available on the conduct of government, whereas accountability is a relationship between government office holders (whether the executive or legislative branch) and those who have oversight of them, whether voters or other office holders. Transparency is a necessary condition for satisfactory accountability. Accountability in federations is of the executive to the legislature, of elected politicians to their electors, and (on occasion) of constituent units to federal governments (e.g. with conditional grants).

Corruption is frequently associated with resource wealth, especially oil and gas, because it is easier for elites to siphon off large resource rents than to do so with taxes raised from the population. As well, resource companies can be very complicit in corruption as they compete for access to the resources and seek favourable terms. Corrupt practices include not just private enrichment but also diverting public funds into electoral fraud and illicit party funding. Are federations more prone to corruption than unitary regimes? While much of the literature suggests that they are, a recent extensive statistical study by World Bank experts (Ivanya and Shah), which examined the relationship between decentralization and corruption, concluded that when decentralization is associated with enhanced political accountability, it is strongly correlated with reduced levels of corruption. Transparency International does an annual report which ranks the countries of the world in terms of perceived corruption and federations appear throughout the list, from the best to the worst, suggesting they are no more or less corrupt than unitary regimes.

While it is hard to generalize about federalism and corruption, it is clear that petroleum wealth increases the risks of corruption, especially in poor societies. There are some indications that “resource-rich economies need a distinctive form of democracy with particularly strong checks and balances” (Collier). Measuring corruption is notoriously difficult, so such indicators as Transparency International’s Corruption Perceptions Index (Transparency International) need to be treated with caution, especially in terms of precise rankings. There is no straight line relationship in TI’s ranking between level of oil dependency and perceived corruption: Pakistan is one of the worst performers on TI’s index but it has a small petroleum sector, while petroleum rich Malaysia ranks fairly well. However, three of the poorest rankings are those of Nigeria, Russia and Venezuela, all of which are petroleum rich. Revenue Watch has now introduced a new index that looks specifically at the transparency of the resource sectors in 41 countries, including seven of this study’s twelve federations. It measures transparency in relation to environmental and social reporting, statistics, annual and financial reports and audits. Its rankings are quite different from TI’s perceived corruption rankings. Thus Russia, which rates very poorly on TI’s measure of corruption, is placed in the category of countries (along with Brazil, Mexico and the USA) which provide “comprehensive” information about the resource sector. Malaysia, which rates not badly on TI’s index, is deemed to provide only “partial” information about the resource sector, along with Venezuela and Nigeria. None of the

federations studied here are deemed to provide only “scant” information. However, it should be noted that the Revenue Watch methodology does not capture well lack of transparency in national oil companies or governments, so the assessments in its first report should be treated with caution.

Many federations share certain federally imposed and collected revenues with the governments of the constituent units. In Brazil, India, Malaysia, Nigeria, Pakistan, Russia, and Venezuela such sharing includes certain federally collected petroleum revenues⁹. Argentina and Australia share certain federal revenues, but exclude federal resource revenues (in Argentina’s case, the export tax) from this. In all cases of sharing, the governments of the constituent units have an interest in there being transparent reporting on relevant federal revenue collection and this appears to exist in most of the federations studied. The most notable exception is Venezuela, where internal checks and balances are badly eroded and federal revenues are far from transparent, and perhaps in Nigeria, where the states have, on occasion, challenged federal claims¹⁰.

While unitary regimes can have various institutional checks and balances to promote transparency and accountability *within* a government, federations can confront the issue of such arrangements *between* governments. There are two complementary questions:

- When the governments of constituent units receive funds from the federal government (either as shared taxes or as transfers) should they have any obligations for accountability or transparency to the federal government regarding their use of such funds in relation to the federal government?
- When the federal government collects shared revenues on behalf of the constituent units, should it have any obligations for accountability or transparency to them regarding these revenues?

While conditional transfers to constituent units, by their nature, make them accountable to the federal government for the use of the transfers, unconditional transfers and shared taxes flow into the general revenues of the receiving government and may have no accountability or transparency obligations. Most of the literature on fiscal federalism has been hostile to federal requirements directing how constituent units use shared revenues or transfers because they might distort priorities and accountability at the local level; however, a requirement requiring at least transparency on the use of transferred funds would not be subject to this criticism and such process transparency could enhance accountability by the governments of constituent units, not only within the broader federal system but also to their own publics.

In most of the high and some of the middle income federations studied, governments at both levels have adequate systems of transparency and accountability so that their systems does not need such reinforcement. However, in a number of federations the public accounts of the constituent units are far from transparent and there are major issues of corruption and weak

capacity. In Nigeria, most of the 36 state governments are funded almost entirely from taxes collected by the federal government in the petroleum producing areas concentrated in 6 states, so that most state governments not only do not raise any real revenue, but no significant revenue of any kind is raised within their borders; thus virtually all of their revenues come from outside the state. Yet even many of these states have resisted calls for greater transparency and most have resisted calls to adopt the strengthened transparency requirements that have been introduced at the federal level. The extent to which certain states abuse public funds is a major factor in bringing the broader regime of fiscal federalism into disrepute.

Thus there may be an advantage for some federations to consider new approaches to transparency and accountability. One model is Brazil's approach of a federally imposed regime regarding fiscal accountability. An alternative could be based on mutual checks and balances. Federal governments would give the constituent unit governments a role in ensuring that federal accounts are truly transparent, which would protect the constituent units' rights to revenue shares, while in exchange the constituent unit governments would accede to rigorous transparency with respect to procedures regarding their accounts.

[G]. Protecting the Environment and Local Communities

Responsibility for environmental issues in federations is often quite diffused. In the older federations, the environment was not a consideration when their constitutions were drafted and it is not a head of power; federal and constituent unit governments thus resort to a variety of jurisdictional headings to regulate the environment. Typically, both orders of government are involved, which makes sense in that environmental issues range from the international to the national to the more regional or local. However, central governments in federations often establish basic minimum standards even on issues that have a strongly local dimension, though constituent units may be able to impose higher standards.

This review suggests that the richer federations studied have arrangements for regulating the environment and dealing with local concerns which find broad public support. These include power sharing between orders of government as well as procedures for local involvement in decisions taken by the federal government. One of the most effective mechanisms is joint panels or commissions to conduct hearings on environmentally or socially contentious projects. Of course, there can still occasionally be major political disputes. In some cases, especially in the offshore, moratoria have been declared in recognition of local environmental or social concerns. Procedures are less satisfactorily developed, though improved, for the inclusion of aboriginal peoples in environmental regulatory processes, with due recognition of traditional or treaty rights. While environmental regulation of the petroleum industry in the high income federations has most often been shared, it has not been used as a backdoor to control the industry by the order of government lacking jurisdiction over the management of the petroleum industry. Often,

the greatest tension in richer federations is between environmental regulators and petroleum industry regulators within the same order of government—where the former may be viewed as obstructionist while the latter is viewed as insensitive to risks (as in the recent blowout off the US Gulf Coast).

The middle and lower income federations typically have weaker environmental regimes and less provision for public involvement. Some federal governments in these countries clearly give priority in managing petroleum activities to promoting development and revenue maximization, with little concern for local environmental and social issues. As well, there are cases—such as Russia, Mexico, Venezuela—where the national oil companies have chronically underinvested in new equipment, training, and transportation. While this has often been driven by fiscal efforts to squeeze the upstream too hard for short-term revenues for government, it can have major implications for environmental and social performance and set up conflicts between the central government and local regions. Malaysia seems to be a counter-example, where Petronas has usually been required to make relatively small dividend payments to government and thus been well funded to maintain high standards.

Climate change measures have not yet featured in most cases. The low and middle income federations have resisted assuming obligations in this regard, while even the rich federations have been very slow to develop policies with any bite. However, climate change policies can be expected to become increasingly important for the upstream in at least some of the federations. The logic of climate change policy, whether through cap-and-trade regimes or carbon taxes, is that the federal government should lead within a country (though in North America some states and provinces have been active given the lack of federal leadership). Measures to impose costs on carbon emissions are effectively a charge on a negative externality; in this case, the externality's negative impact is global. In the absence of global government, it is the highest level of government—the national government—which is best placed to address it, even when the constituent units lead in regulating petroleum activities. If the governments of the constituent units producing the emissions captured climate change charges, they could shift the fiscal burden on the industry from other resource revenue imposts and minimize their real impact. As well, regions with high and growing emissions will effectively be pushing up the cost of carbon for low emitting regions; while all regions will pay this cost, it is appropriate for the federal government to manage the regime. Of course, a federal government could always undertake to redistribute revenues from its carbon management or taxation regime to the constituent units on some equitable basis.

[H] Some Conclusions

This volume has provided a comparative analysis of oil and gas in twelve federations, each of which has its own complex story. It does not offer an easy common narrative or many universally applicable lessons¹¹.

It has been observed that federations are not difficult to govern because they are federations, but they are federations because they are difficult to govern (Watts). In practice, this difficulty varies greatly. Some are weakly democratic or have a very chequered history of democracy. Some are quite homogenous, while others have deep fault-lines. However, even in the least democratic and most marginally federal, there is a story to tell about the interaction of federalism and petroleum.

The first point, surely, is that the petro-federations are in a separate category. Their high dependence on petroleum creates a strong force for central control of the petroleum sector and federal dominance of fiscal management. All of the petro-federations are highly centralized and while in some cases this might have been true without petroleum, there is no doubt about the centralizing dynamic when petroleum is vital for the economy and public finances. Russia had been the exception to this centralization under Yeltsin who encouraged the federal constituent units to “grab as much sovereignty as you can”, but Putin’s push to centralize found little resistance. Federations where petroleum is less central to the national economy show more variety in the allocation of responsibilities between the centre and the constituent units and, in some cases, considerable tolerance of sub-national control.

The twelve federations have remarkably varied approaches to the allocation amongst governments of the ownership of petroleum resources, and of responsibility for their management, as well as the determination and sharing of petroleum revenues. While abstract arguments tend to favour federal governments playing the central role in managing and taxing the petroleum sector, this is less required in those countries with a high standard of living in all regions, or where the sector is a relatively small part of the economy. In fact, permitting local control in such cases may be most appropriate; certainly it has worked in several federations. This flexibility in federalism may be a political virtue, in that it permits countries to configure ownership, management and revenue arrangements in different ways to reflect their circumstances or histories.

Sharing can be handled very differently—whether sharing of petroleum revenues or fiscal sharing more generally. There are strong arguments for not permitting very large fiscal disparities between regions of a federation, but there is clearly political tolerance for some disparity in many federations and it may have its economic justifications as well. In the particular case of sharing petroleum revenues, acceptance of petroleum-producing constituent units having a greater share of the benefit than others may reflect the historical origins of the federation, long-standing constitution arrangements, or a political culture which accepts the

country's regional character and how fairness is defined—though such a fiscal advantage may be challenged if it becomes too large. By contrast, some other federations have constitutions and a political culture where natural resources, including petroleum, are defined as part of the national *patrimoine*, belonging equally to all. In these cases, even the producing regions may make little claim on special benefits. Where petroleum-producing constituent units do have direct access to petroleum revenues or a special share of them, the broader fiscal transfer (and equalization) arrangements may serve to counter-balance that advantage.

There are advantages in one order of government dominating access to petroleum revenues. Where this is not the case, there may be competition between the two levels. In practice, this has not been a frequent issue, perhaps because the stakes have not been large enough. However, in regimes where the petroleum producing constituent units have dominate access to petroleum revenues, there may be a need for cooperation in terms of the larger taxation regime, notably corporate income taxes. The issue of climate change could draw federal governments into cap-and-trade regulation or greenhouse gas taxes, which will create a further need for cooperation.

There is a general issue in highly petroleum-revenue dependant regimes for medium-term fiscal frameworks and smoothing mechanisms to deal with the uncertainty and volatility of resource revenues. This can be managed through stabilization funds or other techniques, such a debt management over the medium-term. In federations, constituent units usually have less ability to vary their expenditures in the short-term than do central governments, given the nature of their spending responsibilities. In many federations, they also have limited or no access to debt markets. Where there is resource revenue sharing, the design of federal fiscal regimes should take account of the extent to which the constituent units are capable of managing such volatility. This can be done in part by basing budgets on a modest projected oil price, with limited distribute of excess revenues, but in many federations the arrangements are highly pro-cyclical. In federations where the constituent units themselves impose the larger share of petroleum taxes, they should normally lead in developing policies and mechanisms to smooth spending. To the extent that the constituent units have significant fiscal discretion, there may be a need for cooperative mechanisms or other ways to promote fiscal coherence.

Petroleum-rich countries face particular risks in terms of corruption and bad investment, which justify special measures in terms of checks and balances and transparency. The political salience of the large redistribution of petroleum revenues amongst regions is a further reason for attention to such measures in some federations. There could be a mutual interest in developing enhanced transparency mechanisms, with shared check and balances, applying to both orders of government in countries with large petroleum revenues that are shared between governments, but no federation has gone in this direction.

Finally, it is important to develop political processes and regulatory regimes which recognize the national, regional and local interests in the activities and impacts of the petroleum sector. In too many federations, it appears that local interests get little hearing when the central

government manages petroleum activities. Local interests in producing regions relate especially to environmental impacts, local employment and industrial benefits, and the needs for local investment in infrastructure. Such regimes may be cooperative, but at a minimum should be reasonably inclusive.

Perhaps we should conclude with one word: balance. Federations by their nature are meant to balance national and regional interests and identities. There is no simple formula for the best balance because it must reflect the society in question. Managing petroleum resources and sharing their benefits and costs must be part of the balance that each federation will find. It will depend both on the nature of the country—its diversity, its constitutional traditions, its wealth and development—as well as on the nature of the resource that lies beneath its soil.

Endnotes

¹ While this volume has included detailed accounts of the technical and legal arrangements around oil and gas in each federation, it has also recognized the “centrality of politics” in how the story has evolved in each country. It is interesting to note that the World Bank has recently issued a report which emphasizes the need to go beyond the theoretical when considering matters of decentralization. (Eaton et al)

² For a review of the literature see Chowdhurie-Aziz et al. Boadway and Shah present the case for centralization quite powerfully.

³ In Australia, Argentina, Canada and the United States the original constituent units occupied only a part of the country’s eventual territory. At some stage, all had centrally administered territories which eventually became full states or provinces, with the same powers as the original ones (though in the US the federal government maintained ownership of vast lands in the West).

⁴ The issue is unsettled in Iraq and Sudan, both of which have adopted federal arrangements in the last ten years. The societies are deeply divided and oil is central to the national economy.

⁵ Canada too has some private ownership of subsurface resources, going back to land grants in the nineteenth century. It also has some federal lands, notably in national parks (which are closed to development) and lands reserved for Indians. In both Canada and the United States Indian lands fall under federal jurisdiction and are held in trust for the Indian bands or tribes. Some bands and tribes are now actively involved in the management of these lands, including the mineral resources, for which they receive the revenues.

⁶ Of course, ownership is not an absolute in many other instances as well: for example, an urban property owner may be severely limited regarding the use of the property because of zoning and other rules; governments may also have ways to expropriate some of the revenue or wealth benefits of property.

⁷ In a few federations the constituent units’ boundaries may extend to 3 or 12 miles into the offshore. In Malaysia, the Borneo states encompass the whole offshore region, which they are deemed to have brought into the federation.

⁸ Iraq and Sudan are highly petroleum dependent but are also deeply divided, immature federations, where the political imperatives to decentralize compete with the economic imperatives for central fiscal management. The issue is unresolved in both countries.

⁹ Technically, this is true as well in the Canadian offshore, where the federal government collects resource revenues which it then transfers to the relevant provinces.

¹⁰ In Sudan, there is evidence that the government in Khartoum under-reports its petroleum production and revenues, thus limiting the amount it is obliged to transfer to the Government of Southern Sudan. This under-reporting is estimated at around 5 percent of total production (Global Witness). The Revenue Watch report has a measure of transparency around transfers to sub-national governments, which rates Nigeria and Venezuela as less than fully transparent and gives Brazil, Russia, the US and Mexico full marks.

¹¹ For an overview that draws more heavily on the theoretical literature and is more normative see Chowdhurie-Aziz et al.

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