

The Subnational Resource Curse: Causes, Consequences and Prescriptions

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Contents

1	Introduction.....	3
2	From National to Subnational: Theory and Evidence for the Resource Curse.....	5
2.1	Economic Explanations	5
2.2	Political Economy Explanations	8
2.2.1	Rent-seeking Politicians	9
2.2.2	Weak Taxation and Fiscal Independence.....	10
2.2.3	Rent-seeking Social Groups and Entrepreneurs	13
2.2.4	Concluding thoughts	13
2.3	Conflict Explanations.....	14
2.4	Conclusion.....	14
3	The Subnational Resource Curse: Decentralization and New Dynamics.....	16
3.1	Decentralization in Practice: The Experiences of Peru and Indonesia.....	19
3.2	Conclusion.....	21
4	Policy and Development Interventions for Mitigating the Subnational Resource Curse.....	24
4.1	Transparency & Accountability.....	24
4.2	Capacity-building	25
4.3	Local Resource Funds.....	26
4.4	Direct Cash Transfers to Citizens	26
4.5	Assessing the Effectiveness of Interventions.....	27
5	Conclusion: New Aspects of an Old Paradox.....	29
	References	31

1 Introduction

It is widely believed that natural resources can be detrimental to development and good governance. A vast literature on the resource curse has linked ‘point-source’ (geographically localized) natural resources like oil, gas and minerals to slow economic growth (Auty 1993; Sachs and Warner 1997; Sachs and Warner 2001); corruption and patronage (Leite and Weidemann 1999; Robinson et al. 2006); the under-provision of public goods (Tornell and Lane 1998; Tornell and Lane 1999), authoritarianism and, in democracies, weak accountability (Ross 2001; Ross 2004a); and conflict and civil war (Collier and Hoeffler 2004; Fearon and Laitin 2003). Much of the debate over whether the curse exists, and why, has focused on the country-level.² In recent years, however, the wave of decentralization and democratization in resource rich developing countries has raised new questions: Is there now such a thing as a *subnational* resource curse? If so, in what ways is it similar to or different than the national-level resource curse? And, what are the most effective strategies for mitigating it?

The goal of this paper is to attempt to answer these three questions, with a focus on resource rich developing countries that have recently undertaken fiscal or political decentralization. The decentralization trend in recent years has been embraced in the wake of what many believe was a long tenure of bad centralized governance in the developing world (Bardhan 2002). The promise of decentralization lies in its ability to improve the provision of public goods and services and make government more responsive and accountable to citizens by bringing state and society into closer proximity (Bardhan 2002; Tiebout 1956). For resource rich countries, it has also often meant granting new responsibilities and resources to local governments where those resources originate. These local governments now stand to confront the challenges and reap the benefits of resource wealth, but the political and socio-economic consequences of this shift are not yet well understood.

Recognizing the possible susceptibility of local governments to the resource curse, the Revenue Watch Institute and Open Society Institute Local Government and Public Service Reform Initiative (LGI) have, since 2008, conducted a project focused on combating the resource curse at the subnational level. This pilot project has taken place in Indonesia, Nigeria, Peru, and, most recently, Ghana. This paper aims to provide a framework for understanding the subnational resource curse and to help inform the work of these organizations and others interested in tackling this new dimension of the resource curse.

I make four main points in this paper. First, the subnational resource curse is not necessarily a “thoroughly modern resource curse” (Arellano-Yanguas 2008) in that the many of the general causal mechanisms developed for the country level apply to the local level as well. The subnational resource curse differs in important ways from the national resource curse, however, in that the relationship between the central and local governments takes center stage. At the country level, there is no higher level of government that can set policy to minimize the resource curse. Yet, the central government can

² For good review articles on the resource curse, see Ross (1999) and Rosser (2006).

play this role vis-à-vis local government and the way in which it sets and enforces policy can either mitigate or exacerbate the subnational resource curse. Local governments, for their part, bear a greater share of responsibility for development under decentralization and its success depends on whether it has the will and ability to navigate relations with the center, producing firms, and citizens.

Third, there is much to be learned about the resource curse in general by investigating it at the subnational level. At least two major challenges confront research on the resource curse. For one, the resource curse logic implies a strong causal relationship between natural resource wealth and underdevelopment, but the empirical research has struggled to provide strong evidence substantiating these causal claims and test rival mechanisms.³ Empirical tests to date have primarily employed cross-national regressions, which raise concerns about how well key concepts are measured by aggregate data and how successful various statistical estimation strategies perform in identifying true causal relationships. The second challenge has been theorizing the relevant contextual factors that mediate the impact of the resource curse and to test them. Recent studies have made progress in confronting these challenges by studying the resource curse using subnational variation within large decentralized countries. The best of these studies employ strong strategies for causal identification, better data, and a more controlled analysis of contextual factors to provide more conclusive evidence on the resource curse (Snyder 2001). While a notable drawback is that results obtained in one country cannot be generalized to others, more research along subnational lines would be welcome.

Finally, there already exists a number of promising proposals for how to combat the resource curse at the national level, and many of these apply to the subnational level as well. More rigorous impact evaluations would greatly facilitate understanding of the consequences of the resource curse, and how to combat it. Randomized evaluations—which identify program impacts by comparing ‘treatment’ and ‘control’ groups—are especially necessary. Such evaluations should aim to shed light on: (1) effective strategies for combating the resource curse; and (2) whether resource wealth affects the effectiveness of development interventions more broadly. Clearly, not all policy and development initiatives lend themselves to randomized evaluations. But moving from thinking of policy prescriptions at the national level to how they might be tested at the local level presents exciting new opportunities for advancing knowledge of what works, and why.

³ By strong causal identification I refer to the notion that understanding how X (say, oil) causes Y (say corruption) requires ruling out that: (a) Y is actually affecting X (reverse causality, or endogeneity), and (b) that Y is actually being caused by some other variable Z that is not accounted for. The gold standard is using techniques that apply (or mimic) experimental conditions. In an experiment, the units of interest (say countries, or local governments within a country) would be randomly assigned to a ‘treatment’ group that gets X (oil) and a counterfactual ‘control’ group that does not. Since randomization ensures that the two groups are alike in every way prior to the allocation of oil, any difference between the groups can be attributed solely to oil (Brollo et al (2010) approximate this). Since such experimental conditions are hard to accomplish in practice with natural resources, the most frequently applied approach has been to use exogenous variation that affects X and only affects Y via X (an instrumental variables approach).

This paper proceeds by first reviewing, in Section 2, the theory and evidence for the general causal claims behind the resource curse. I discuss each of the three major schools of explanations—economic explanations, political economy explanations, and conflict explanations—and hypothesize how each might operate at the subnational level. I then turn in Section 3 to considering what is different about the subnational resource curse, namely how it shapes, and is shaped by, new relationships between the central government, local governments, producing firms and citizens. I illustrate this discussion with reference to Peru and Indonesia as case studies. Finally, in Section 4, I discuss the implications of the subnational resource curse for policymakers and development organizations seeking to design appropriate initiatives to combat it.

2 From National to Subnational: Theory and Evidence for the Resource Curse

Research on the resource curse has generally deployed three types of explanations for why natural resource wealth causes under-development: (1) economic explanations that examine how resources affect prices and economic production; (2) political economy explanations that bring the political behavior of politicians and citizens to the forefront; and (3) conflict explanations that highlight how natural resources initiate or prolong civil strife. In this section, I review the major causal mechanisms and empirical evidence for the resource curse at the national level, and discuss how each of these explanations offers hypotheses for how the resource curse can work at the subnational level.

2.1 Economic Explanations⁴

While it was initially believed that natural resources would be a golden egg for many developing countries, since the 1950s economists have raised concerns about the impact of reliance on commodity exports on economic growth. One concern was a decline in the terms of trade (the ratio of exports to imports) over time. It was feared that countries reliant on commodity exports would experience a reduced ability to purchase manufactured goods over time, widening the development gap between industrialized and developing nations.⁵ Another major concern has been commodity price volatility, which causes sharp fluctuations in revenue, makes economic policy more challenging to manage, and hurts investment. Scholars have debated inconclusively the extent to which these mechanisms hurt long-run growth in resource rich countries (Ross 1999).

Beginning in the early 1980s, experts have increasingly investigated a phenomenon known as “Dutch Disease”, a phrase coined to characterize the experience of the Netherlands following their natural gas

⁴ I would like to thank Martin Ardanaz, Walker Hanlon and Pierce O’Reilly for helpful discussions on this section.

⁵ This is typically called the Prebisch-Singer thesis for two economists who independently came up with the idea at the same time. See Singer (1950) and Prebisch (1950)

discovery in the 1960s. The Dutch Disease refers to a macro-economic process in which a natural resource shock (discovery or a price shock) triggers an appreciation in the real exchange rate, the reallocation of factors of production, and de-industrialization. In the case of the Netherlands, the gas boom caused a rise in demand for Dutch currency, which triggered an appreciation in the real exchange rate via the nominal exchange rate, making Dutch exports more expensive abroad and causing the manufacturing sector to contract. Dutch Disease is not unique to oil or gas shocks but could arise whenever there is an inflow of foreign exchange, for instance from other primary commodities (minerals), foreign aid, or remittances.

Cordon and Neary (1982) provide a classic formulation of how Dutch Disease works, which helps to shed light on how it might operate at a subnational level. Consider an open economy with three sectors: the oil or resource sector (a 'booming' tradable sector, where prices are set internationally), a manufacturing or agriculture sector (which becomes a 'lagging' tradable sector, where prices are also set internationally), and a non-tradable sector (say construction or services) consisting of goods that must be produced locally. They identify two separate channels by which resource booms harm the lagging sector. According to the *resource movement* (or *resource pull*) effect, the positive shock to the booming sector shifts labor into that sector and away from the lagging sector—a direct allocation of resources away from manufacturing or farming. According to the *spending effect* (also often called the *wealth effect*), the booming resource sector also increases demand for non-tradables. Since non-tradables have to be produced locally, labor and resources shift into that sector and wages and other costs of inputs (such as land) rise. The rising price of these inputs further squeezes the lagging sector.

Numerous studies have further developed the macro-economy behind Dutch Disease, but views on the extent to which it is a concern for developing countries remain mixed. On one hand, as Ross (1999) points out, some of the assumptions underpinning these theories, such as full employment, generally do not hold in developing countries. Another critique is that the Dutch Disease simply represents the shift to a new economic equilibrium based on a change in underlying fundamentals and does not necessarily imply lower long-run economic growth (Magud and Sosa 2010). In a recent review of the Dutch Disease literature, Magud and Sosa (2010) point out that most studies have focused on proximate outcomes, showing (as predicted by Dutch Disease) that revenue booms cause price changes and factor reallocation. These studies have not, however, succeeded in showing the link between Dutch Disease and lower long-run economic growth. In order for Dutch Disease to result in lower economic growth, there would have to be proof, for instance, that the lagging sector is intrinsically better for the economy, for instance by introducing new technology or learning-by-doing. Moreover, studies that have demonstrated a robust negative correlation between resources and economic growth—and have argued for a Dutch Disease interpretation of these outcomes—cannot persuasively rule out rival mechanisms (Gylfason et al. 1999; Sachs and Warner 1997; Sachs and Warner 2001).

Dutch Disease could also theoretically operate at the subnational level. Dutch Disease is triggered by an appreciation in the real exchange rate (defined as the value of goods and services that can be purchased

domestically versus abroad). In the case of the Netherlands, as discussed above, this occurred via an appreciation in the nominal exchange rate. While the nominal exchange rate story does not make sense at the subnational level, subnational governments could still experience a sharp rise in local price levels due to the inflow of money from the booming sector.⁶ Following the logic of the *wealth effect* described above, the inflow will increase demand for non-tradables, driving up their price. While labor migration or reducing unemployment could offset the increase in wages, prices for factors like land and water will also rise relative to previously (and to other subnational units not experiencing a boom).⁷ Similarly, the *resource pull* effect could operate at the local level, drawing resources away from the lagging sector.

There are many ways in which a resource boom could be good for local governments, for instance by providing the revenue and access to credit that can fund long-run growth and development. But resource curse dynamics help to highlight some of the challenges that local governments might face. First, the local economy could suffer a loss in diversity insofar as factors are allocated away from manufacturing or agriculture and into the booming sector or non-tradable sector. As more resources get drawn into the booming sector—and if the non-tradable sector becomes highly specialized to support the booming sector—it could become harder for the locality to weather adverse commodity shocks.⁸ Similarly, where resource booms are temporary, governments need to plan for the eventual dislocation of labor and capital that will occur as the booming sector expends itself. Second, if the lagging sector brings more gains to productivity (due to the use of technology, for instance), then increased reliance on the booming or non-tradable sector could cause overall productivity to suffer. Third, while resource booms can cause wages to rise, some groups in the population will inevitably get left behind and will be hurt by rising local prices.

Some scholars have empirically investigated such dimensions of the Dutch Disease at the local level to explain variation in development across resource rich and non-resource rich localities within the same country. Caselli and Michaels (2009) examine why windfall gains from oil at the municipal level in Brazil do not appear to translate into higher levels of social welfare. Arguing that natural resource endowments are plausibly exogenous (necessary for causal identification), they leverage the fact that Brazil has both onshore and offshore oil and find some evidence that onshore oil causes a resource pull effect—there is a minor reallocation of local productive factors from industrial to non-industrial activities. They find no evidence for the *wealth effect*, measured by a declining labor supply or an increase in wages.

⁶Since subnational economies are typically small relative to the national economy, a boom in one locality would not necessarily cause a change in the nominal exchange rate. Moreover, if resources caused an appreciation in the nominal exchange rate, the change would affect the country as a whole and not just the producing region.

⁷The real exchange rate is only relevant across currencies. But you could think of a rise in local prices at the subnational level as equivalent to an appreciation in the real exchange rate when the exchange rate is fixed between subnational units (\$1 USD in Texas=\$1 in California, but a boom in Texas would cause prices in Texas to rise).

⁸On the other hand, if the lagging sector is agriculture and subject to adverse shocks of its own, then the expansion of the resource sector could actually help weather crises in other sectors.

In an earlier paper by one of the authors, Michaels (2007) investigates how natural resources explain variation in economic performance at the county-level in the southern United States from 1890-1990. He tests three economic channels: resource-based specialization and slow industrialization (or de-industrialization), a slower accumulation of education, and increased income inequality. He finds that from 1940 onwards oil abundance slowed the expansion of the manufacturing sector as a fraction of employment but not the overall size. Michaels attributes this to the fact that oil counties experienced more population growth, which increased demand for local tradable goods. He also finds counties had higher per capita spending on education but over time the accumulation of educated workers slowed. Finally, Michaels (2007) finds that per capita income in oil counties was significantly higher than for oil-poor counties. He concludes that, overall, while there were some costs to resource-based specialization (e.g. slow education accumulation), the long term benefits outweighed the costs at the local level in the United States.

While debate over the implications of Dutch Disease persists, experts agree that governments have at their disposal the policy means to counteract it. The pain associated with the Dutch Disease at the subnational level could be mitigated by investing in diversifying the local economy; improving human capital (through education, health) and infrastructure; developing a system of social insurance to minimize suffering due to volatility or transitions from the booming sector once resources are depleted; or providing extra assistance to segments of the population who risk getting left behind and face high prices, for instance through housing subsidies for the poor to offset increasingly expensive land. Governments at national and local levels vary greatly in their will or ability to put in place the kind of sound systems to manage the economy that minimize the threat posed by Dutch Disease. This realization has caused experts to increasingly turn their attention to the political determinants of sound economic management, discussed next.

2.2 Political Economy Explanations

Scholars are increasingly turning to explanations for the resource curse that specifically take the political determinants of development into account. There are at least three main political economy arguments that have received significant attention in the literature. One focuses on how revenue windfalls induce corruption and rent-seeking behavior by politicians. Another emphasizes that revenue windfalls reduce the state's fiscal reliance on taxation, which weakens incentives for government to build strong and democratic institutions. Whereas these two explanations pertain to how windfalls make it harder for citizens to constrain politicians from bad behavior, the third suggests that citizens and social groups exacerbate the resource curse by competing over access to the funds, which results in the sub-optimal investment in public goods and the dissipation of benefits from resource booms. These approaches help to shed light on how and why resources cause 'bad governance', including authoritarianism and, in democracies, weak accountability, corruption and political patronage, and the under-provision of public goods and services. They also provide the political foundations for poor economic development and conflict.

2.2.1 Rent-seeking Politicians

One of the most enduring explanations for the resource curse is that revenue windfalls undermine good governance by inducing corruption and rent-seeking behavior by politicians. Of all the mechanisms that have been proposed, this one enjoys both strong theoretic and empirical support. Rents exist when the value of a resource exceeds the costs of bringing it into (and maintaining it in) production, creating an excess value that politicians (entrepreneurs or citizens, as described below) can capture (Humphreys et al. 2007). Whereas economic explanations like those discussed in Section 2.1 measure the resource curse as the ratio of resource exports to total exports, or resource revenues to GDP, what is of interest here is the size of rents up for grabs. For instance, Leite and Weideman (1999) find that corruption *as a rent-seeking opportunity* is part of the link between natural resources and poor economic growth in a cross-national study.

One thing to note is that rent-seeking is not unique to natural resource revenues. In fact, as far as most rent-seeking mechanisms are concerned, natural resource rents are a special case of windfall gains or ‘unearned’ income (Moore 1998).⁹ Natural resources are thus similar to foreign aid and (for subnational governments) central transfers in that all can be amenable to rent-seeking.

Rent-seeking is a problem for governance in both democracies and non-democracies, although it is likely to go more unchecked in the former. Theorizing the link between revenue windfalls and authoritarianism, Acemoglu et al (2004) argue that natural resources enable dictators to stay in power longer by providing them with funds by which to bribe social groups with patronage and private goods. In democracies, good governance—government that works effectively and in the best interest of citizens—requires electing ‘good’ (honest and hard-working) politicians while constraining ‘bad’ (dishonest and lazy) politicians by punishing poor performance at the polls (Besley 2006). It has become increasingly apparent in newly decentralized democracies that institutions are weak and that elections do not ensure that governments are accountable to citizens. A core obstacle to effective accountability is that politicians have their own interests *and* they have an information advantage over citizens. In windfall environments, politicians might have better information, for instance, about the total size of the budget and the share of revenue spent on citizens (versus stolen or wasted). The well-known danger presented by information asymmetries between politicians and citizens is the foundation for the emphasis on transparency as a cornerstone of good governance.

A lack of transparency is a central theme in theories elaborating how revenue windfalls undermine political accountability in democracies. Robinson et al (2006), develop a theory in which long-run resource booms increase the value of holding office for politicians. Politicians therefore have a greater

⁹ Windfall gains share the feature of a disproportionate revenue-to-cost ratio, distinguishing them from profits associated with the normal production of goods and services in the economy (Dalgaard and Olsson 2006).

incentive to divert revenue from public goods to fund patronage (doling out excessive civil servant jobs) to secure their re-election. The authors argue that the extent to which politicians can do this depends on the quality of pre-boom institutions, including a free media (transparency) and a meritocratic civil society system. Brollo et al (2010) predict that revenue booms give politicians larger budgets to control and “more room to steal” precisely because of the information problem between politicians and citizens. Worryingly, they also predict that illicit opportunities to take rents attract more dishonest types to run for office *and* make it easier for dishonest incumbent politicians to get re-elected.

Brollo et al (2010) provide a strong test of their theory at the subnational level in Brazil. They do this by using a feature of the Brazilian fiscal system that creates localized experimental conditions, generating substantial confidence that they are actually identifying the *causal* impact of windfall gains. Their findings reveal that a 10 percent revenue boom increases corruption by 17 percent, reduces the share of candidates with university education by seven percent, and raises incumbent re-election probabilities by seven percent.¹⁰ Interestingly, these results help to reveal the complex ways in which the resource curse might operate. Another study that uses the same research design finds that the same revenue booms at the municipal level in Brazil *increase* public education spending and literacy rates (Litschig 2008). Taken together, the findings highlight the fact that revenue booms could result in more public spending and better welfare outcomes for citizens *while still being sub-optimal*. Since revenue booms expand the size of the pie, politicians can both provide more to citizens and steal more at the same time. This implies that evidence that windfall gains improve welfare should not be taken as a sign that government is performing to its maximum ability.

Another set of studies uses variation in oil output and royalties at the municipal level in Brazil to identify impacts on corruption and politicians’ political behavior. In their study of the lack focused at the municipal level in Brazil, Caselli and Michaels (2009) find evidence that revenue booms result in significant increases in spending on a variety of public goods and services (infrastructure, education, health), but that higher spending does not demonstrably translate into higher citizen welfare. They provide anecdotal evidence that suggests that the revenue booms were in part stolen or misused. Monteiro and Ferraz (2009) also find evidence that revenue windfalls (specifically changes in the value of oil royalties) increase patronage (civil service employment), corruption and a decline in candidate quality. In sum, while it is difficult to generalize the findings in these papers beyond Brazil, these studies represent a major advance in illuminating the impact of resource booms on political rent-seeking with direct relevance to the subnational level.

2.2.2 Weak Taxation and Fiscal Independence

¹⁰ For a study that uses the same research design and corroborates findings on the impact of revenue booms on incumbent re-election, see (Litschig 2009).

Another long-standing explanation for the resource curse is that revenue windfalls enable government to avoid the kind of broad-based taxation that empowers citizens and pushes them to demand policy responsiveness. When government depends for revenue on broad-based taxation, citizens can credibly impose high political or collection costs on government (by tax evasion, protest or electoral punishment). To reduce these costs, politicians have an incentive to provide citizens with goods or services or to accept constraints on government power in the form of greater transparency or accountability (Levi 1988). Taxation induces a revenue bargaining process between state and society, which can result in a fiscal contract whereby “governments sell services for revenue” (Timmons 2005). Since revenue windfalls obviate the need for taxation and the formulation of a fiscal contract, society is predicted to be more apathetic and politicians are freer to serve their private interests.

One core focus in the unearned income approach investigates the link between natural resources and authoritarianism. Not only do dictators who enjoy access to revenue windfalls face less public pressure but also they can use those funds to buy political support or invest in a coercive apparatus. This was the dilemma described by scholars of the rentier states of the Middle East where authoritarianism and under-development were pervasive (Beblawi and Luciani 1987; Mahdavi 1970).¹¹ Rentier states were contrasted to the historical experience of state formation in early modern Western Europe, where taxation and democratization appeared closely linked.¹² As Huntington (1991) summarized:

Oil revenues accrue to the state: they therefore increase the power of the state bureaucracy and, because they reduce or eliminate the need for taxation, they also reduce or eliminate the need for the government to solicit the acquiescence of its subjects to taxation. The lower the level of taxation, the fewer the reasons for publics to demand representation.

The unearned income logic has also been extended to explain the link between revenue windfalls and weak political accountability in democracies. The underlying logic is the same: taxation is conducive to accountability by giving citizens incentives to be active keepers of the public purse and by giving politicians incentives to be responsive (Moore 1998; Moore 2001; Moore 2004; Moore and Rakner 2002; Moore and Schneider 2004). The notion that citizens are less willing or able to oversee the budget in windfall environments is also reflected in this statement on the Revenue Watch Institute’s website: “The connection between citizens and the public purse is weakest in resource-rich countries where the need for well-informed, vocal and active public oversight of government funds is greatest.”¹³

¹¹A rentier state is defined as a state in which the economy is dominated by the sale of relatively easy to extract resources for a large profit (a rent), where the profits accrue directly to the state or a small group of associated elites and where production does not include a large segment of society. For other classic examples of research on the rentier state in the Middle East, see (Anderson 1987; Chaudhry 1997; 1994)

¹²In particular, monarchs in European states (paradigmatically Britain) eventually conceded to strengthen parliamentary institutions in exchange for regular access to tax revenues needed to survive what was ongoing Darwinian military competition (Bates and Lien 1985; Brennan and Buchanan 1980; North and Weingast 1989).

¹³ <http://www.RevenueWatch.org/our-work/issues/revenue-transparency.php> (accessed December 23, 2008)

A third focus of the unearned income approach is on state capacity. Tax collection entails building an efficient bureaucracy capable of assessing citizen income, collecting revenues and penalizing non-compliance (Brautigam et al. 2008; Schumpeter 1918/1991). Fiscal dependence on tax revenue gives government incentives to minimize corruption in the tax bureaucracy and to increase its capacity to provide public goods efficiently and effectively. Revenue windfalls, on the other hand, produce a weak fiscal regime that is highly volatile and dependent on one sector of the economy (Jones Luong and Weinthal 2010).

In sum, the fiscal independence approach helps to explain why windfall-dependent governments invest heavily in coercive institutions while failing to develop institutions that are transparency, responsive, accountable and capable. Weak institutions also enable the kind of political rent-seeking discussed in the previous section. There is ample historic and case study evidence to support the fiscal independence story, but there is a surprising lack of strong empirical evidence identifying a general causal relationship. Several studies have attempted to identify the relationship between oil and authoritarianism. In one of the first large scale tests of the theory, Ross (2001) demonstrates that access to oil revenue (i.e. non-tax revenues) hinders the development of democracy using time-series cross-sectional data from 113 states between 1971 and 1997. He also finds evidence that taxation produces democratization, but that citizens are moved to action not due to an absolute increase in the tax burden but to an increase in the burden *relative* to the value of goods and services provided by the state in return (Ross 2004a). Haber and Menaldo (2009), in contrast, find no evidence that natural resources lead to authoritarianism.

There is also still a lack of concrete causal evidence that taxes strengthen political engagement and accountability while windfalls undermine it.¹⁴ In a recent project, conducted in collaboration with the Indonesian partner organizations in the RWI and OSI-LGI supported subnational resource curse project, I test the central assumption that taxation strengthens—and revenue windfalls undermine—citizen mobilization and demand for good government (Paler 2011). The goal of the project was to investigate the most effective strategy for mobilizing grassroots support for good governance reforms in Blora—a newly resource rich district in Central Java, Indonesia. Specifically, we questioned whether: (1) taxes create a stronger incentive than windfalls for citizen monitoring and sanctioning of government; and (2) that sources of revenue (whether windfalls or taxes) condition the effectiveness of transparency. To answer these questions, we conducted a novel experiment in which we developed four versions of a public awareness campaign on the local budget. The versions varied (in an over-lapping way) whether participants were in: (a) a windfall or tax environment, and (b) a high or low transparent public spending environment. Randomly sampling 1863 citizens in Blora and randomly assigning them to one of the four campaign versions, we used surveys and actual participation in a ‘good governance’ postcard campaign to measure differences in political engagement across the four experimental groups. The results provide the first causal, individual-level evidence that increasing transparency in windfall environments can have

¹⁴ Note, the Brazil studies discussed in Section 2.2.1 do not rule out this rival mechanism.

a big impact on citizen political engagement but that citizens are indeed more motivated to monitor, participate, and sanction when they pay taxes.

2.2.3 Rent-seeking Social Groups and Entrepreneurs

Another long-standing class of explanations suggests that the actions taken by citizens and social groups can actually contribute to the resource curse rather than help to alleviate it. The basic notion is that social groups compete over an exhaustible pool of resources (i.e. the budget). Groups either want funds to be invested in public goods (which will benefit everyone) or want to appropriate those funds for their own interests (for instance by lobbying politicians). Bigger revenue booms produce group competition for a bigger piece of the pie, which leads to the dissipation of resources. This logic has been used to explain why countries with revenue booms sometimes run current account deficits, and use deficit spending for consumption or low-quality investment rather than to generate future economic growth (Svensson 2000; Tornell and Lane 1998; Tornell and Lane 1999). While subnational government might be legally restricted in their ability to run deficits or borrow, this effect could still manifest itself as over-spending in private goods and the dissipation of revenue windfalls.

Another society-centered explanation focuses on rent-seeking entrepreneurs. The basic logic is that natural resource wealth induces entrepreneurs to engage in rent-seeking (e.g. lobbying to secure contracts or special concessions) related to oil production, which reduces their investment in the productive economy (Baland 2000; Torvik 2002). For Mehlum et al (2006) whether entrepreneurial rent-seeking occurs depends on whether pre-boom institutions protect the private sector. Unfortunately, there has not been substantial empirical testing of these theories, which makes it hard to draw conclusions about the impact of group or entrepreneurial rent-seeking on to the resource curse.

2.2.4 Concluding thoughts

Political economy explanations for the resource curse are sobering. For one, they highlight the dangers of rent-seeking associated with political access to substantial revenue windfalls, of which natural resource wealth is only one variety. The vast majority of local governments in decentralized countries depend for revenue on central transfers. Such local governments *all* might suffer from a resource curse. Nevertheless, it is possible that natural resource wealth poses a bigger problem. First, capital intensive, state-owned natural resources like oil and minerals create more opportunities for rent-seeking than labor intensive natural resources like agriculture (Leite and Weidemann 1999). Second, while transfers can be ear-marked by the central government and conditionalities attached to aid, natural resource revenues typically enter local budgets without constraints, plausibly making them more susceptible to rent-seeking. Third, natural resource windfalls can be subject to greater volatility and unpredictability than central transfers or foreign aid. Bigger and more volatile booms plausibly increase the information problems between politicians and citizens, the former by giving politicians more room to steal and the latter by making it harder for citizens to get a clear picture on the true cost of public goods from year to

year. Volatility could also tax the capacity of governments to manage local development in places where under reliance on taxation already contributed to the weak development of bureaucratic institutions. Overall, rent-seeking explanations for the resource curse give rise to important concerns about the extent to which decentralization in developing countries can deliver on its promises for better service delivery and accountability, especially in resource rich localities.

2.3 Conflict Explanations

The empirical correlation between natural resources and civil war onset and duration is well-established. Reviewing the literature, Humphreys (2005) catalogues several rival mechanisms for conflict onset (see also Ross (2004b)).¹⁵ According to the *greedy rebels* mechanism, domestic groups try to capture natural resource wealth for themselves by gaining power over the state or seceding from it. Conflict could also emerge due to *greedy outsiders*—outside corporations or states who foster civil conflict to increase their access to resources. Natural resources can also produce or exacerbate *grievances*, arising from social inequality, vulnerability to volatility, wealth inequality, forced migration and environmental degradation, or ethnic tensions. Following the logic of the fiscal independence argument outlined above, natural resources can *weaken state institutions*, which could make them less responsive and more coercive, or simply less capable of governing effectively. There could also be a conflict outcome related to *Dutch Disease*—natural resources could weaken internal trade and trade is positively associated with social cohesion and peace.

Natural resource wealth can also give rise to a wide range of social tensions short of all out war that can undermine economic and political development. In the context of decentralization, these tensions can emerge within resource rich localities, among subnational governments, and between the central and local governments. Arellano-Yanguas (2008) argues that there is an obvious subnational resource curse in Peru attributable to the rise of new actors at the local level—local governments, mining companies and activist movements. A major contributor to conflict is the weak central state, which in itself is due to a long history of mining exploitation under colonialism. The central government has done a poor job negotiating with the mining companies at the national level and of ensuring a balanced redistribution of natural resource wealth. Local governments, for their part, lack the capacity to manage revenue windfalls. Social grievances are on the rise, fueled by unfulfilled expectations about the benefits of resource wealth, popular beliefs that the central government and mining industry are in cahoots, and confrontations with mineral companies. In sum, Peru appears to provide a notable example of how natural resources contribute to conflict and the emergence of a subnational resource curse.

2.4 Conclusion

¹⁵ I focus on conflict onset mechanisms here because the subnational resource curse project of RWI and OSI-LGI is primarily at work in states that are not caught up in civil war.

There are numerous hypothesized ways in which natural resources cause under-development and bad governance. The three main approaches to understanding the resource curse at the country level—economic, political economy and conflict explanations—all present plausible hypotheses for the subnational level. Notably, recent studies have examined the subnational resource curse by comparing municipal governments in Brazil and have, in particular, provided empirical support for the claim that windfalls contribute to corruption, political rent-seeking and other democracy deficits (Brollo et al. 2010; Caselli and Michaels 2009; Monteiro and Ferraz 2009). This research also demonstrates how carefully designed studies that take advantage of variation at the subnational level in large federal states with natural resources can test central theories of the resource curse. Unfortunately, these studies do not rule out the possibility that revenue windfalls operate through reduced tax effort. This indicates the need for more research that can discount rival mechanisms to truly deepen understanding of how the resource curse works.

While understanding the specific mechanisms that cause the resource curse is vital to determining how to combat it, it is also important to acknowledge that the impact of resources varies in different contexts. While countries such as Nigeria illustrate the detriments of natural resource wealth, others such as Botswana, Indonesia, Canada and Norway are generally praised for their management of their bounties (Rosser 2006). Numerous studies have suggested that the quality of pre-boom institutions in a country plays an important mediating role in the severity of the resource curse. Robinson et al (2006) point to institutions that make patronage more costly, like a free media and merit-based civil service. With their focus on what incentivizes entrepreneurs to engage in rent-seeking versus economic production, Mehlum et al (2006) highlight the need for ‘producer-friendly’ institutions, such as those that protect investment. Experts disagree over exactly which institutions matter, but those governing political accountability, transparency and a free press, administration and the bureaucracy, and the rule of law present the strongest candidates. While politicians with access to natural resource wealth might want to weaken strong institution (or prevent them from evolving in the first place) it will likely be harder for them to do so where they are deeply rooted before the boom takes place.

Just as different contextual factors contribute to variation in the severity of the resource curse at the country-level, we can expect variation at the subnational level, both *within* countries and *between* them. Local government institutions in developing countries are typically weak, both in terms of capacity and accountability. In Section 4 I return to a discussion of how strengthening transparency and linkages between constituents and politicians can play an important role in promoting the objectives of decentralization and diminishing the subnational resource curse. It is important to recognize that the subnational resource curse differs from the national resource curse in at least one important way—it is determined in part by the relationship between central and local governments and the nature of fiscal and political decentralization. Since the emergence and severity of the subnational resource curse depends on these factors, we turn to that next in Section 3.

3 The Subnational Resource Curse: Decentralization and New Dynamics

One of the most important ways in which the subnational resource curse differs from the national centers on decentralization and its implications for relations between the central government, local governments, producing firms and citizens. Unfortunately, how the subnational resource curse shapes, and is shaped by, decentralization has not received much attention to date. There is a sizeable academic literature on decentralization, but it has generally over-looked any special issues associated with resource wealth (Bardhan 2002; Wibbels 2006). A handful of studies have described arrangements for revenue-sharing that have clear implications for the prospects of a subnational resource curse (Ahmad and Stern 1991; Brosio 2003; Brosio 2008; McLure 2003). These studies acknowledge that how resources affect subnational political and development depends on whether decentralization arrangements were institutionalized pre- or post-boom. Yet, we generally lack a theory of how resource booms and decentralization arrangements (whether exogenous or endogenous to the boom) affect the emergence and or severity of the subnational resource curse. Country studies, for instance of Peru (Arellano-Yanguas 2008), Russia (Desai et al. 2005; Freinkman and Plekhanov 2009) and Indonesia (Bahl and Tumennasan 2004), shed light on how fiscal decentralization in rentier regions contributes to the subnational resource curse. While the patterns revealed in these specific cases are telling, they have also not yet contributed to a more general theory of the link between resources, fiscal decentralization and the subnational resource curse. While it is beyond the scope of this paper to do such theory-building, this section reviews this literatures just described to illustrate how resources and fiscal decentralization can interact in mitigating or exacerbating the resource curse at the local level.

Decentralization is primarily about “how the vertical distribution of authority and representation of subnational interests affect interest aggregation and policy-making in political systems” (Wibbels 2006). Falleti (2005) distinguishes three types of decentralization: (1) *administrative decentralization* involves transferring the administration and delivery of social services to subnational governments; (2) *fiscal decentralization* is the set of policies that increase local control over revenue; and (3) *political decentralization* entails the devolution of political accountability to subnational government, for instance by enabling direct elections of local executives and legislators. These three types of decentralization need not all proceed together nor at the same pace. This raises questions, like: Why do countries ever decentralize in the first place, and why are some countries more decentralized than others?

Answers to these questions provided by the general literature help to shed light on the role that natural resources might play in the decentralization process. Decentralization has been described as a solution for countries with a high degree of religious or ethnic diversity, which risk dissolving or becoming ungovernable if localities were not granted greater autonomy. Natural resources can also fuel separatism, as in the case of Aceh in Indonesia, and make decentralization an expedient choice for

central governments. Bahl (2004) suggests that there is a correlation between natural resources and decentralization. Furthermore, the degree of decentralization depends on subnational governments' bargaining power vis-à-vis the center and each other. Natural resources could give remote and sparsely populated regions more power at the table than they would have otherwise. Or, they could increase the power of already influential regions, which can produce political and fiscal institutions under decentralization that exacerbate inequality and regional divisions (Beramendi 2007). Additionally, complex systems of fiscal federalism, revenue-sharing and intergovernmental transfers obscure linkages between taxing and spending, which can hurt accountability and generate public pressure for over-spending. Revenue-sharing arrangements and the role of the central government are particularly important in countries with resource rich localities.

How resource revenue is allocated to local governments is a critical aspect of fiscal decentralization in resource-rich countries and is plausibly a powerful determinant of the resource curse at the subnational level. Among experts of resource revenue assignment, there is an overwhelming consensus that centralizing the collection of resource revenue is the best option for developing countries (Ahmad and Mottu 2003; Brosio 2003; McLure 2003). The main arguments in favor of centralization are directly relevant to the resource curse:

- (1) Volatility/Revenue Stability:** Local governments require a stable source of income to fund local development. The central government is better positioned to manage the volatility associated with high reliance on resource revenues. National governments rely less on the resource sector as a share of GDP, they have more non-resource revenue upon which to rely, they have greater access to credit markets for borrowing and can run deficits, and they have higher quality bureaucratic personnel and administration to oversee revenue collection. These arguments for centralizing resource revenues speak directly to concerns associated with the economic explanations for the resource curse discussed in Section 2.1.
- (2) Redistribution/Equalization:** Point source natural resources tend to be concentrated in specific geographic regions, which can result in major economic disparities between producing and non-producing regions if all the wealth accrues to the former. It is the role of the central government to ensure that revenues are distributed horizontally to minimize regional inequalities and ensure some minimum level of public goods and services for all local governments. Equalization plays an important role in preserving the country by mitigating conflict between local governments, or between local governments and the center. At the same time, the terms of horizontal redistribution can be a great source of violence and acrimony, with Nigeria being a classic case.
- (3) Inefficiencies and rent-seeking:** As discussed in Section 2.2, windfall revenues can result in inefficiency and corruption. While these problems can plague government at the national level, subnational governments typically have weaker capacity to plan and spend revenue windfalls.

Moreover, while political decentralization is supposed to strengthen the accountability of the state to citizens by enabling the latter to elect their leaders and punish bad performers, there are numerous obstacles to effective accountability. Citizens often lack access to information on what government is doing and politicians rely on patronage and clientalism rather than policy promises to secure election.

(4) Complex tax administration: Managing natural resource income and rent taxes is complex and subnational governments in developing countries typically do not have the administrative capacity to do this effectively.

In sum, the more fiscally dependent subnational governments are on resource wealth, and the more that wealth is concentrated in producing regions, the greater the risks of a subnational resource curse.

Yet, if natural resource wealth is indeed a source of pressure for decentralization, it should come as no surprise that resource rich regions demand a direct share of the bounty. Local producing regions feel entitled to a share of the wealth and that they should be compensated for the exploitation of their 'heritage' (Bahl and Tumennasan 2004). Subnational governments also hold that they deserve to be compensated for the costs of infrastructure and environmental risk associated with extraction (Brosio 2003). And decentralization gives them the means to press these demands. The questions then become: By what method should subnational governments access resource revenues, and what share of the revenue should they receive?

McClure (2003) and Ahmad and Mottu (2003) provide clear descriptions of the pros and cons of different subnational revenue-sharing arrangements (reproduced below in Box 1 and Table 1) and categorization by country (reproduced in Table 2). The literature makes several recommendations. First, while royalty taxes offer subnational governments a relatively straightforward way to collect revenue on local resources, they should be avoided because they create production disincentives. Second, levying income and rent taxes on natural resource wealth is complex and subnational governments in developing countries do not typically have the administrative capacity to do this effectively. This partially explains why, of the federal countries, only the United States and Canada use this system. Third, sharing arrangements based solely on derivation (returning wealth to its region of origin) can result in vast horizontal inequities across subnational governments. The conclusion is that the optimal solution is the kind of revenue-sharing whereby the central government collects resource revenue and distributes (a small) share of it back to producing regions (Brosio 2003). While the decentralization literature might argue that such reliance in intergovernmental transfers hurts accountability, it also might be the lesser of two evils in developing countries with resource-rich regions.¹⁶

¹⁶ There is a related question about how non-resource tax bases should be assigned to subnational governments. While taxes should be collected by the most efficient level of government (typically the central government) (Brosio 2006), accountability dictates that local governments bear some responsibility for the burden they impose on their citizens. It would therefore seem important that subnational governments have control over some tax base (property taxes, for instance). There might have to be

3.1 Decentralization in Practice: The Experiences of Peru and Indonesia

How variation in fiscal decentralization arrangements contribute to the subnational resource curse becomes apparent when contrasting the cases of Peru and Indonesia.¹⁷ Arellano-Yanguas (2008) argues that there is a subnational resource curse in Peru largely due to the weakness of both the central and local governments. According to the author, the central government has four main weaknesses: (1) weak democracy and political instability; (2) a fractured central state that politically neglects remote regions; (3) low planning and implementation capacity; and (4) a heavy reliance on ad hoc policies. The public also widely believes that the central government colludes with mineral companies at its expense, undermining the state's legitimacy.

The revenue-sharing arrangements between center and resource rich local governments exacerbate the curse. Nearly the full government share of the mineral income tax gets returned to the originating region. Vast regional inequality is the result: in 2006 more than 75 percent of total resource transfers went to just 8 of 25 regions; moreover rapidly rising prices meant these eight regions received more than 61 of total central government transfers in that year (Arellano-Yanguas 2008). For their part, the mineral companies have taken on a greater role in local development and have acquired substantial power over local governments. Public anger over mining has fueled an increase in violent conflict at the local level, with the central government unwilling or unable to play a strong mediating role. The low capacity of local governments and pressure to spend revenues quickly results in a lack of meaningful investment in infrastructure and human capital and the general dissipation of the bounty from minerals. In sum, Arellano-Yanguas (2008) describes a decentralization of the resource curse in which subnational governments, mining companies and citizens are the primary players at the local level and the central government plays no constructive role in mitigating the attendant problems.

The picture in Indonesia is dramatically different than in Peru, but even the presence of a strong central state cannot fully quell concerns about a subnational resource curse. Indonesia is often praised as one of the countries that avoided the resource curse at the national level in the 1970s and 1980s. Yet, its decentralization since 2001 has provided new opportunities for the localization of the resource curse. Following the collapse of Suharto in 1998 after more than 31 years of centralized rule, Indonesia set in motion a "Big Bang" decentralization that went into effect in 2001.¹⁸ To overcome concerns about

incentives for subnational resource rich governments to collect taxes, since natural resource revenue-sharing can undermine tax effort (Ahmad and Mottu 2003; Bornhost et al. 2008). There is also likely a need for oversight of local taxation to protect against predation. Desai et al (2005) find in Russia that regional economies dependent on local tax revenue encouraged local business while governments with access to revenue windfalls expropriated revenue from local firms. Nevertheless, insofar as taxation deepens accountability its dividends extend beyond generating government income, non-resource taxation and the local level merits consideration.

¹⁷ The discussion on Peru is based entirely on Arellano-Yanguas (2008).

¹⁸ The laws governing decentralization in Indonesia are No. 25/1999 on political and administrative decentralization and No. 34/2000 on fiscal decentralization.

breakaway regions, the program bypassed government at the provincial level and devolved substantial fiscal and political powers to the district level. Indonesia now has approximately 483 districts (Burgess et al. 2010), which receive more than 40 percent of total public funds to manage development at the local level in key sectors like education, health, capital investment, and industry and trade.¹⁹ Politics were also decentralized at the local level and Indonesians now directly elect legislators and (since 2005) district heads. Electoral participation is still relatively high; voter turnout in the 2009 national parliamentary elections was estimated at 71 percent and average turnout in local elections was estimated at 69 percent (Meitzner 2009).

Unlike in Peru, the central government in Indonesia remains relatively strong and revenue arrangements reflect its desire to redistribute across districts while also accommodating the demands of resource producing districts for a share of the wealth.²⁰ Nevertheless, the sharing of resource revenues with local governments creates the potential for a subnational resource curse. About ten percent of district governments are producers, which receive six percent of total government take for oil and twelve percent for gas.²¹ Moreover, to quell separatist conflict, both Aceh and Papua were granted special autonomy arrangements, with the provincial government in Aceh for instance receiving 55 percent of oil revenue and 40 percent of gas revenue. Bahl and Tumennasan (2004) roughly calculate that in 2001, 168 district received natural resource revenue that constituted less than 10 percent of their DAU transfers while 23 districts received amounts that were more than 100 percent of their DAU allocation. For some windfall revenues have resulted, at least anecdotally, in high levels of corruption and mismanagement.²² As the authors state with respect to corruption and rent-seeking: “We have no evidence of these effects for Indonesian local governments, but some would argue that their existence is a reasonable hypothesis. The introduction of natural resource revenue-sharing in Indonesia surely produced a windfall problem. Some local governments were overnight beneficiaries of a new revenue-sharing program, and the amounts received were in some cases quite significant” (Bahl and Tumennasan). The authors also argue that the reason that resource wealth will not be transferred inter-generationally in Indonesia is because local politicians are eager to spend the money in the present to their own political advantage, and the lack of expenditure monitoring makes this possible.

Indeed, on the expenditure side, many districts in Indonesia are plagued by corruption and poor budgeting. Common problems include weak capacity, rent-seeking, large allocations for routine

¹⁹Indonesia only had 292 districts in 1998.

²⁰ The main source of funding for districts are central government transfers through general allocation funds (the DAU), which on average finances more than 80 percent of district government expenditures (World Bank 2007). While the DAU is an unconditional transfer, district governments also receive an earmarked allocation (the DAK).

²¹ The oil-sharing division for Indonesia: 85 percent of government take goes to the center and 15 percent to local governments, of which six percent goes to the producing districts, 3 percent to the provincial government and six percent gets divided equally across other districts in the province. For gas, the sharing arrangements are 70 percent to the center and 30 percent to localities, or which 12 percent goes to producing regions, six percent to the provincial government and 12 percent gets divided equally among other districts in the province (Brodjonegoro and Martinez-Vazquez 2004)

²²One commonly cited example is Kutai Kartanegara (East Kalimantan), where natural resource windfalls are thought to have led to a profusion of corruption and patronage (Evaquarta 2010).

expenditures, poor reflection of policy priorities, and weak legislative oversight. There are a number of obstacles to improving the budgetary process in Indonesia. While the system contains a vehicle for participatory budgeting called the *musrenbang*, many are skeptical about the effectiveness of this mechanism.²³ Several NGOs in Indonesia conduct independent budget monitoring to increase public awareness of poor budgeting practices, but the problems are daunting (KOPPEL 2008; PBET 2008)

The possibility that the resource curse is being localized in Indonesia is also possibly attributable to the weak role of districts in non-resource taxation.²⁴ The central government is responsible for setting tax rates and collecting revenue. Overall, tax effort (especially income tax effort) is weak in Indonesia; large segments of the population have only had limited exposure to significant formal taxation (Bahl and Tumennasan 2004). District governments receive shares of their natural resource, income and property taxes but have limited authority to raise additional revenue through taxation (Brodjonegoro 2007; Fane 2003; Lewis 2003). Local governments do have authority to raise additional 'local own' revenue (*Pendapatan Asli Daerah*, or PAD), but this is only a small share of revenue at about only 8.5 percent of total district revenue (World Bank 2007). At the same time, weak oversight by the central government has led to the rise of myriad predatory fees at the local level. The most recent legislation in August 2009 rationalized the fiscal system, limiting local governments to a prescribed set of taxes and fees to minimize the proliferation of illicit fees and taxes (Buehler 2009).

3.2 Conclusion

The emergence of a resource curse at the subnational level is intimately related to the recent trend towards decentralization in developing countries. Decentralization presents a dimension of the resource curse that has not received attention in a literature that has primarily been focused at the national level. Little is known about how the resource curse shapes, or is shaped by, decentralization. Nonetheless, the experiences of Peru and Indonesia both lend credence to its existence at the subnational level, and suggest that its severity is determined in no small part by the role played by the central government (especially with respect to internalizing the negative aspects of resource wealth), and both the will and ability of local governments to use revenue windfalls wisely. Since local governments in developing countries are often lacking in both, the next section turns to a discussion of how policy and development initiatives can help mitigate the subnational resource curse.

Box 1: Methods for Oil Tax Assignment to Subnational Governments

Adapted from McClure (2003)

²³Musrenbang stands for *musyawarah rencana pembangunan* and refers to a series of consultative meetings on budget priorities that start at the village level and go up to the district level.

²⁴Bahl and Tumennasan (2004) also find that resource wealth and non-resource taxation is negatively correlated in Indonesia, indicating the two are substitutes.

- **Royalties:** A common method of natural resource taxation at the subnational level, royalties are levied as a constant monetary value (specific royalty) or as a constant percentage of output value (ad valorem royalty) (Brosio 2006). While royalties are popular because they are easy to administer, they also can create disincentives for producers to slow extraction or not extract the optimal amount.
- **Subnational (income or rent) taxation/Shared tax bases:** When subnational governments levy taxes on natural resources situated in their jurisdiction. Subnational governments can determine the tax bases and rates (possibly with some constraints). The tax base can also overlap with the national government. Unless severely restricted this approach provides maximum subnational autonomy in taxation of oil and is used in the United States and Canada (McLure 2003). The problem is that these taxes are very difficult to administer directly at the local level and provide a highly unstable source of income for local governments.
- **Subnational surcharges:** Subnational governments collect surcharges on the national tax (or the federal government can collect it for them). Subnational autonomy is greater if the surcharge is levied on the national tax base than on the amount of the national tax.
- **Tax-sharing:** Oil revenue is collected by the central government and redistributed to subnational producing jurisdictions where the subnational government share is related to the oil revenue originating in its territory (the derivation principle).
- **Revenue-sharing:** Oil revenue is collected by the central government and redistributed to producing and/or non-producing regions on the basis of a formula. The central government can use this arrangement to offset horizontal regional inequalities due to the high concentration of natural resources in specific jurisdictions.

Table 1: Four Methods of Assigning Oil Tax Revenues to Subnational Governments: Effects
(reproduced from Table 8.2 in McLure (2003))

Effects	Method of Revenue Assignment			
	Separate legislation and administration	Subnational surcharges	Tax sharing	Revenue sharing
Subnational fiscal autonomy over:				
Tax base	Yes	No	No	No
Tax rates	Yes	Yes	No	No
Administration	Yes	Possibly	No	No
Duplication/costs of compliance, admin	Potentially high	Low	Low	Low
Reduction of fiscal disparities	None	None	None	Possible

Table 2: Classification of Oil-Revenue Assignments in Unitary and Federal Countries
(reproduced from Table 2 in Ahmad and Mottu (2002))

	Full centralization	Full decentralization	Shared revenue bases	Revenue sharing
Unitary countries	Algeria Azerbaijan Bahrain Indonesia (until 2000) Iran Iraq Kuwait Libya Norway Oman Qatar Saudi Arabia United Kingdom Yemen			Colombia (D) Ecuador (C) Indonesia (since 2001) (C) Kazakhstan
Federal countries		United Arab Emirates (1/)	Canada United States	Mexico (C) Nigeria (D) Russia (D) Venezuela (D)

1/ Upward revenue-sharing arrangement
C: Centralizing arrangement
D: Decentralizing arrangement

4 Policy and Development Interventions for Mitigating the Subnational Resource Curse

In this section, I review policy and development interventions that could help to alleviate the resource curse at the subnational level. Given the growing autonomy of resource rich localities since decentralization, I focus on palliatives at the local level. Appropriate interventions should consider both (a) the lack of capacity at the local level to cope with revenue windfalls, and (b) the plausible lack of political will to manage resource revenues wisely in the context of rent-seeking opportunities and weak accountability. In particular, I discuss: (1) efforts to promote transparency and accountability; (2) capacity-building efforts for local governments; (3) local wealth accounts; and (4) direct cash transfers to citizens.

4.1 Transparency & Accountability

It is widely agreed that transparency is vital to mitigating the resource curse. Greater revenue transparency has topped the policy agenda for resource rich countries and has been the focal point of the Extractive Industries Transparency Initiative (EITI). While EITI promotes revenue transparency at the national level, local level governments do not automatically benefit from this. Moreover, the obstacles to revenue transparency at the local level are not fully appreciated. Often raised by local actor is the concern that self-interested actors at the national level are not being honest about subnational government take. While one might expect there to be no difference between resource transfers and other central transfers in this regard, transfers likely vary less from year-to-year, are possibly based on more transparent data. It is also possible that resource revenues are tabulated by a different government ministry—and one more prone to collusion with firms—than the ministries that administer standard transfers.

While revenue transparency is necessary, it is not sufficient for those seeking to combat corruption, rent-seeking and weak accountability; expenditure transparency is necessary as well. Kolstad and Wiig (2009) claim that the focus on revenue transparency as key to reducing corruption has been misplaced. They argue that instead transparency reform should focus on increasing access to information that reduces rent-seeking and patronage. Numerous recent studies, many using experimental methods, have shown that expenditure transparency can have a notable impact on political engagement, accountability and government performance. Reinikka and Svensson (2003) show that media access enabled parents and teachers to reduce local government capture of school funds from 80 percent to less than 20 percent in Uganda over a six year period (1996-2001). Using randomized audits at the municipal level in Brazil, Ferraz and Finan (2008) find that reports revealing corruption had a significant negative impact on incumbent reelection probabilities. In a transparent budgeting campaign in Mexico, Chong et al (2010) demonstrate that reports of corruption decreased turnout in municipal elections but that information on low allocations to poor areas increased turnout and decreased incumbent support. Similar results are

found by Banerjee et al (2010) who show that voters are sophisticated when it comes to judging politicians on their performance in different spending categories. Finally, Paler (2011) shows that expenditure transparency can have a significant impact on citizen political engagement and demand for good government in windfall environments, alleviating concerns that the lack of taxation weakens citizen incentives to act on greater transparency in public spending.

Crucially, while local government leaders have a strong incentive to promote revenue transparency vis-à-vis the central government and firms, they do not necessarily have an interest in improving expenditure transparency. Expenditure transparency constrains the ability of self-interested local leaders to engage in rent-seeking. This highlights the important role that civil society and the media play in investigating the use of budget funds and reporting it to the public. Moreover, in many developing countries citizens require not only better information but also better access to elected politicians. Programs that strengthen linkages between citizens and their elected representatives—such as SMS complaints systems or more traditional town hall meetings—are predicted to improve the bidirectional flow of information and generate pressure on politicians between elections. Information and communication are crucial elements of effective accountability and help strengthen the incentive for politicians to work in the best interest of the public.

Another arena in which information is important is in moderating public expectations about spending during booms (Gelb and Grasmann 2010). As discussed in the case of Peru (Section 2.3), natural resources can raise expectations about public spending, increasing pressure on politicians to spend unwisely, and make citizens more prone to punishing politicians if (even unrealistic) expectations go unmet. The threat of electoral punishment creates disincentives for politicians to engage in prudent spending. Public awareness campaigns that educate citizens about the size of annual resource revenue flows and the dangers of over-spending could result in more constructive pressure on politicians.

4.2 Capacity-building

Weak transparency and accountability speak to feeble *incentives* for politicians to use natural resource wealth wisely. It is also possible that local governments simply lack the capacity to manage large revenue windfalls, as described in the case of Peru (Section 3.1). While these concerns can be mitigated to the extent that revenue-sharing programs minimize the dependence of subnational governments on volatile sources of revenue, capacity-building at the local level can be vital. Local governments could benefit from assistance in areas such as planning, budgeting, spending oversight and tax administration. Moreover, local governments could be educated on the socio-economic consequences of resource wealth and encouraged to enact policies specifically designed to counteract the resource curse. Policies and programs that invest in infrastructure and human capital, diversify the local economy, provide social insurance for citizens in times of commodity downturns, and ensure that poor and marginalized segments of the population do not get left behind by rising prices, can help to mitigate negative aspects of resource wealth associated with Dutch Disease (Section 2.1)

4.3 Local Resource Funds

Natural Resource Funds (NRFs) have received much attention as a possible counterweight to the resource curse. NRFs are accountants, maintained separately from the budget, into which all or some share of natural resource revenues are automatically deposited. The primary goals of NRFs are to “facilitate the accumulation of large, volatile, and temporary revenues when times are good; stabilize public spending; and finance public spending when natural resource revenues are no longer flowing in” (Humphreys and Sandbu 2007). While NRFs have primarily been implemented at the national level—Alaska in the United States being the notable example—they could be used at the local level as well if the legal framework allows.

There is great variation in the extent to which resource funds succeed, however (Fasano 2000). Norway is often praised for its well-functioning NRF while Chad’s has proven a disaster. One common problem is that political leaders simply re-write the rules and raid the funds when they want to. Humphreys and Sandbu (2007) note that NRFs do not ensure responsible spending and argue that, unless funds get the political economy incentives right, they will not be effective. In particular, politicians facing political competition and a challenger with different priorities have an incentive to overspend in the short-run, even if they would prefer not to. They note that increasing the diversity of political constituencies involved in decision-making over the use of the funds, or outsourcing management of the fund to independent actors, can change the calculus for politicians. Resource funds also have the potential to increase revenue and expenditure transparency insofar as all deposits and transactions are made public knowledge. In short, despite their mixed track record to date, resource funds have potential at both national and subnational levels, but only if designers get the political incentives right.

4.4 Direct Cash Transfers to Citizens

Often discussed in relation to natural resource funds are proposals to transfer resource wealth directly to citizens, where revenues then may or may not be taxed back through the formal tax system. For Nigeria, Sala-i-Martin and Subramanian (2003) recommend direct transfers and no taxation “to replicate a situation in which the government has no easy access to natural resource revenue.” Sandbu (2006), in contrast, proposes a plan in which first distributing resource wealth to citizens and then taxing it back is exactly what produces better governance.

While inefficient on its face, the plan is well-motivated by theory. First, as discussed earlier (Section 2.2.2), taxation is viewed as central to strengthening citizen incentives to monitor and sanction government. Direct transfers convert natural resource wealth into individual income, and Sandbu predicts that this will motivate citizens to hold government accountable: “Tax payments are generally

perceived as a cost that people have to pay out of their earnings, and so people have an incentive to hold the government accountable for how it spends ‘their’ money” (Sandbu 2006). Paler (2011) provides the first empirical evidence to substantiate this claim that citizens indeed feel a stronger incentive to monitor and sanction government when they pay taxes than when revenue comes from windfalls. Sandbu (2006) also argues that direct cash transfers should have a transparency and information effect because transfers will enable citizens to understand revenue windfalls in *per capita* terms and, through firsthand experience, give them a better sense of the volatility inherent in natural resource income. By making citizens more willing and able to oversee spending, politicians face stronger incentives to perform well. Furthermore, the ability to access resource revenues *only* via taxation gives government a reason to build an efficient and effective apparatus for taxing and spending.

Moss (2011) further argues that the logic behind direct cash transfers from oil can be linked to that of conditional or unconditional cash transfer programs as a tool for poverty alleviation. Cash transfer programs, such as Mexico’s *Progresa-Oportunidades* program and Brazil’s *Bolsa Familia*, provide cash payments to low income families, typically in exchange for fulfilling education, health and nutritional requirements. Cash transfer programs have been accompanied by rigorous randomized evaluations, which have established their effectiveness at achieving welfare outcomes. The notion is that natural resource windfalls can be distributed like conditional or unconditional cash transfers to enable citizens to take advantage of public goods and services.

While a promising proposal, several concerns have been raised with respect to distributing resource revenue as direct transfers. First, these programs are designed to enable citizens to take advantage of already existing public services, but these services still need to be made available by government in the first place. Second, Gelb and Grasmann (2010) raise the possibility that direct transfers would encourage citizens to opt for leisure over income, discouraging labor supply and weakening incentives to upgrade skills. Gillies (2010) also notes that direct cash transfers could reinforce patterns of corruption and rent-seeking rather than alleviate them.

4.5 Assessing the Effectiveness of Interventions

The policy and development initiatives discussed here all seem promising, but little is known about how well they work in practice. In recent years, there has been a growing push in the development community for more rigorous impact evaluations of development interventions and for policy proposals that are better grounded in empirical reality. Much of this attention has been focused on promoting the use of randomized control trials (RCTs) (also called field experiments) (Committee on Evaluation of USAID Democracy Assistance Programs 2008; Evaluation Gap Working Group 2006).²⁵ Randomized

²⁵ The basic principle behind randomized impact evaluations is that understanding the impact of an intervention requires knowing what would have happened had the intervention not taken place. Once an intervention is implemented, however, it is not possible to go back and assess what would have happened to those who participated had they in fact not received the intervention. What is needed is a control group to serve as a *counterfactual* to the intervention group. Randomization is a

impact evaluations are not always feasible. Basic requirements—for instance, that the intervention is under the control of implementers and that there are a sufficiently large number of treatment and control sites—can be hard to fulfill. Nevertheless, it is often more possible than might be initially thought to design meaningful interventions.

While the number of impact evaluations is growing (Duflo 2007; Humphreys and Weinstein 2009), to date few have directly explored issues of central concern to those seeking to combat the resource curse. Impact evaluations that specifically address the resource curse could help identify: (1) which strategies (of those discussed above) are effective for combating the resource curse; and (2) whether resource wealth conditions the effectiveness of development interventions more generally. A few options include:

- **Transparency and public awareness:** Even as evidence that transparency strengthens citizen participation and accountability grows, little is known about how revenue and spending information mobilizes citizens to become more active keepers of the public purse. In order for transparency to reduce corruption and promote responsible management of resource revenues, citizens need the “*ability to process* the information, and the *ability and incentives* to act on the processed information” (Kolstad and Wiig 2009). Information and public awareness campaigns can experiment with strategies for strengthening both the will and ability of citizens to comprehend complex information on revenue and spending. Such campaigns could also explore if information helps build constituencies for responsible resource management and help moderate citizen expectations about the gains from revenue windfalls. Information and public awareness campaigns implemented at the individual or community level readily lend themselves to randomized evaluation.
- **Corporate social responsibility (CSR):** Corporate social responsibility programs are often used by the extractive industry to mitigate tension with local populations and to signal investment in local development. Despite their prominence, there is little concrete evidence of whether CSR programs work and why. Do social stability and welfare benefits come from the provision of material goods, or by establishing more sustained and constructive interaction between local communities and the extractive industry? CSR programs that randomly target local communities in different ways could help provide answers to these questions.
- **Citizen contributions to development:** The notion that revenue windfalls should be transferred directly to citizens and then taxed back by government is rooted in the assumption that paying taxes is salutary for citizen engagement, and collecting taxes is beneficial to government

process in which a pool of candidate participants is randomly assigned to ‘treatment’ and ‘control’ groups before the intervention (the treatment) takes place. Randomization ensures that, pre-treatment, these groups are balanced on all characteristics (e.g. education, income, political awareness) that might affect both the treatment and the outcome. Consequently, any post-treatment difference in outcomes across the groups can be attributed solely to the impact of the treatment itself.

responsiveness and capacity-building. It might be possible to test this proposal at a very local level using community-driven development projects. Community-driven development (CDD) initiatives have been heavily promoted in recent years by the development community; with the World Bank's portfolio at \$7 billion for these programs (Mansuri and Rao 2004). In CDD programs, villages or communities are typically provided with windfall grants (similar to resource revenues) and given the responsibility for project selection and monitoring. Such a setting could be used to test important assumptions and hypotheses underpinning 'oil to cash' proposals. A randomized evaluation of sufficient size could, for example, compare villages where (a) a local public good is funded entirely through a windfall grant, (b) a local public good is funded entirely through a grant that is first distributed to citizens and then collected back by government, or (c) a local public good is funded through a combination of windfall grant and citizen contributions from their own income. Alternatively, the share of required contributions from community members could be varied to help identify an optimal division between taxation and using cash transfers to enable take up of the public good. While such an evaluation might on the surface seem too remote from the resource curse in focusing on aid grants at the village level, it represents an innovative way to gain leverage on a prominent, but so far untested, policy prescription for combating the resource curse.

An evaluation along these lines could also help to answer questions about whether natural resource wealth conditions the effectiveness of transparency and democracy promotion efforts more broadly. The concern is that reliance on revenue windfalls contributes to citizen apathy and serves to detach politicians from society. Is the impact of transparency and democracy promotion efforts stronger or weaker in resource rich localities compared to resource-poor localities (Paler 2011)? This question could be answered by overlapping a treatment that varied the share of windfall and tax revenues in a local development project (as just described) with another treatment designed to strengthen transparency or accountability in the management of that project.

In sum, there are several ways in which more rigorous impact evaluations could be used to shed light on effective strategies for combating the resource curse at the subnational level. By specifically designing interventions to test policy prescriptions, or by implementing programs with rigorous impact evaluations attached, development and policy organizations are in an advantageous position to deepen knowledge of how the resource curse works, and how it can be overcome.

5 Conclusion: New Aspects of an Old Paradox

While the resource curse is an old paradox at the country-level, the wave of decentralization in resource rich developing countries in recent years raises concerns about a new localization of the resource curse at the subnational level. The emergence and nature of the subnational resource curse has not yet received substantial attention from academics or policymakers. This paper set out to inform the efforts

of international and domestic organizations working to combat the resource curse at the subnational level by aiming to answer three questions in particular: Is there now such a thing as a *subnational* resource curse? If so, in what ways is it similar to or different than the national-level resource curse? And, what are the most effective strategies for mitigating it?

This paper shows that, of the three schools of resource curse explanations—economic explanations, political economy explanations, and conflict explanations—all provide relevant hypotheses for how the resource curse might operate at the sub-national level. More empirical work needs to be done to identify how the resource curse works at the subnational level, and in what contexts. Fortunately, as several recent studies (primarily focused on identifying the resource curse at the municipal level in Brazil) have demonstrated, greater attention to the subnational level can provide valuable insights into how the resource curse works more generally.

This call for more research into general mechanisms at the local level tends to emphasize the ways in which the subnational resource curse is simply a new manifestation of an old paradox, however. Undeniably, what differentiates the resource curse at the subnational level is that it both shapes, and is shaped by, the evolving relations between the central government, local governments, producing firms and citizens under decentralization. The central government can play a significant role in mitigating the resource curse at the subnational level, especially by determining how resource revenues flow to rentier regions. Yet, as described in the case of Peru, a weak central government can also exacerbate the localization of the resource curse. Decentralization arrangements can be both a cause and effect of local resource wealth and future research on the subnational resource curse should also focus here.

Finally, not only has the attention paid to the resource curse at the country-level provided insights into the general mechanisms by which natural resources cause under-development but also into policy prescriptions that could alleviate it. Many of these policy and development initiatives—including those that focus on building transparency and accountability, strengthening government capacity, establishing natural resource funds, and providing direct cash transfers to citizens—apply to the local level as well. We should take advantage of this shift in focus to the resource curse at the local level to investigate which strategies for combating the resource curse are most effective. In particular, recent advances in using randomized evaluations to identify the impact of program interventions could fruitfully be brought to bear. Only in this way might the relatively recent localization of resource wealth at the subnational level provide new insights into how to address an old and persistent curse.

References

- Acemoglu, Daron and James Robinson and Thierry Verdier. 2004. Kleptocracy and Divide-and-Rule: A Model of Personal Rule. *Journal of the European Economic Association* 2 (2-3):162-192.
- Ahmad, Ehtisham, and Eric Mottu. 2002. Oil Revenue Assignments: Country Experiences and Issues. *IMF Working Paper*.
- Ahmad, Ehtisham, and Eric Mottu. 2003. Oil Revenue Assignments: Country Experiences and Issues. In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by J. M. a. R. O. a. A. F. Davis. Washington, D.C.: International Monetary Fund.
- Ahmad, Ehtisham, and N. H. Stern. 1991. *The theory and practice of tax reform in developing countries*. Cambridge [England] ; New York: Cambridge University Press.
- Anderson, Lisa. 1987. The State in the Middle East and North Africa. *Comparative Politics* 20 (1):1-18.
- Arellano-Yanguas, Javier. 2008. A Thoroughly Modern Resource Curse? The New Natural Resource Policy Agenda and the Mining Revival in Peru. *IDS Working Paper 300*.
- Auty, R. M. 1993. *Sustaining development in mineral economies : the resource curse thesis*. London ; New York: Routledge.
- Bahl, Roy, and Bayar Tumennasan. 2004. How should revenues from natural resources be shared in Indonesia. In *Reforming Intergovernmental Fiscal Relations and the Rebuilding of Indonesia*, edited by J. Alm, J. Martinez-Vazquez and S. M. Indrawati: Edward Elgar Publishing Limited.
- Baland, Jean-Marie and Patrick Francois. 2000. Rent-seeking and resource booms. *Journal of Development Economics* 61:527-542.
- Banerjee, Abhijit, Selvan Kumar, Rohini Pande, and Felix Su. 2010. Do Informed Voters Make Better Choices? Experimental Evidence from Urban India.
- Bardhan, Pranab. 2002. Decentralization of Governance and Development. *Journal of Economic Perspectives* 16 (4):185-205.
- Bates, Robert, and D. Lien. 1985. A Note on Taxation, Development and Representative Government. *Politics and Society* 14 (1):53-70.
- Beblawi, Hazem, and Giacomo Luciani. 1987. *The Rentier State, Nation, state, and integration in the Arab world*. London: Croom Helm.
- Beramendi, Pablo. 2007. Inequality and the Territorial Fragmentation of Solidarity. *International Organization* 61:783-820.
- Besley, Timothy. 2006. *Principled Agents? The Political Economy of Good Government*. Oxford: Oxford University Press.
- Bornhost, Fabian, Sanjeev Gupta, and John Thornton. 2008. Natural Resource Endowments, Governance, and the Domestic Revenue Effort: Evidence from a Panel of Countries. *IMF Working Paper*.
- Brautigam, Deborah, Odd-Helge Fjeldstad, and Mick Moore. 2008. *Taxation and state-building in developing countries : capacity and consent*. Cambridge ; New York: Cambridge University Press.
- Brennan, Geoffrey, and James M. Buchanan. 1980. *The power to tax : analytical foundations of a fiscal constitution*. Cambridge: Cambridge University Press.
- Brodjonegoro, Bambang. 2007. Three Years of Fiscal Decentralization in Indonesia: Department of Economics, University of Indonesia.
- Brodjonegoro, Bambang, and Jorge Martinez-Vazquez. 2004. An Analysis of Indonesia's Transfer System: Recent Performance and Future Prospects. In *Reforming Intergovernmental Fiscal Relations and the Rebuilding of Indonesia*, edited by J. Alm, J. Martinez-Vazquez and S. M. Indrawati: Edward Elgar.

- Brollo, Fernanda, Tommaso Nannicini, Roberto Perotti, and Guido Tabellini. 2010. The Political Resource Curse. In *National Bureau of Economic Research: Working Paper 15705*.
- Brosio, Giorgio. 2003. Oil Revenue and Fiscal Federalism. In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by J. M. a. R. O. a. A. F. Davis. Washington, D.C.: International Monetary Fund.
- Brosio, Giorgio. 2006. The assignment of revenue from natural resources. In *Handbook of Fiscal Federalism*, edited by E. Ahmad and G. Brosio: Edward Elgar Publishing Inc.
- Brosio, Giorgio. 2008. The assignment of revenue from natural resources. In *The Handbook of Fiscal Federalism*, edited by E. Ahmad and G. Brosio.
- Buehler, Michael. 2009. The New Regional Taxation Law: An End to Predatory Taxation? *The Van Zorge Report XI (8)*.
- Burgess, Robin, Matthew Hansen, Ben Olken, and Peter Potapov. 2010. The Political Economy of Deforestation in the Tropics.
- Caselli, Francesco, and Guy Michaels. 2009. Do Oil Windfalls Improve Living Standards? Evidence from Brazil. In *NBER Working Paper Series*. Cambridge: National Bureau of Economic Research.
- Chaudhry, Kiren. 1997. *The Price of Wealth: Economics and Institutions in the Middle East*. Ithaca: Cornell University Press.
- Chong, Alberto, Anna De La O, Dean Karlan, and Leonard Wantchekon. 2010. Information Dissemination and Local Governments' Electoral Returns, Evidence from a Field Experiment in Mexico.
- Collier, Paul, and Anke Hoefler. 2004. Greed and Grievance in Civil War. *Oxford Economic Papers* 56:593-595.
- Committee on Evaluation of USAID Democracy Assistance Programs. 2008. *Improving Democracy Assistance: Building Knowledge through Evaluations and Research*. Washington, D.C.: National Academies Press.
- Cordon, Max, and Peter Neary. 1982. Booming Sector and De-Industrialization in a Small Open Economy. *The Economic Journal* 92 (368):852-848.
- Dalgaard, Carl-Johan, and Ola Olsson. 2006. Windfall Gains, Political Economy, and Economic Development. *Working Papers in Economics* 223.
- Desai, Raj, Lev Freinkman, and Itzhak Goldberg. 2005. Fiscal federalism in rentier regions: Evidence from Russia. *Journal of Comparative Economics* 33:814-834.
- Duflo, Esther. 2007. Field Experiments in Development Economics. In *World Congress of the Econometric Society*.
- Evaluation Gap Working Group, The. 2006. When Will We Ever Learn? Improving Lives through Impact Evaluation: The Center for Global Development.
- Evaquarta, Rosa. 2010. Corrupting Politics. *Inside Indonesia* Jan-March.
- Falleti, Tulia. 2005. A Sequential Theory of Decentralization: Latin American Cases in Comparative Perspective. *American Political Science Review* 99 (3):327-346.
- Fane, George. 2003. Change and Continuity in Indonesia's New Fiscal Decentralization Arrangements. *Bulletin of Indonesian Economic Studies* 39 (1):159-76.
- Fasano, Ugo. 2000. Review of the Experience with Oil Stabilization and Savings Funds in Selected Countries. *IMF Working Paper*.
- Fearon, James, and David Laitin. 2003. Ethnicity, Insurgency and Civil War. *American Political Science Review* 97 (1):75-90.
- Ferraz, Claudio and , and Frederico Finan. 2008. Exposing Corrupt Politicians: The Effects of Brazil's Publicly Released Audits on Electoral Outcomes. *Quarterly Journal of Economics*.

- Freinkman, Lev, and Alexander Plekhanov. 2009. Fiscal Decentralization in Rentier Regions: Evidence from Russia. *World Development* 37 (2):500-512.
- Gelb, Alan, and Sina Grasmann. 2010. How Should Oil Exporters Spend their Rents? *Center for Global Development Working Paper* 221.
- Gillies, Alexandra. 2010. Giving Money Away? The Politics of Direct Distribution in Resource Rich States. *Center for Global Development Working Paper* 231.
- Gylfason, T, T. Herbertsson, and G. Zoega. 1999. A Mixed Blessing: Natural Resources and Economic Growth. *Macroeconomic Dynamics* 3:204-225.
- Haber, Stephen and Victor Menaldo. 2009. Do Natural Resources Fuel Authoritarianism? A Reappraisal of the Resource Curse.
- Humphreys, Macartan. 2005. Natural Resources, Conflict and Conflict Resolution: Uncovering the Mechanisms. *Journal of Conflict Resolution* 49 (4).
- Humphreys, Macartan, Jeffrey Sachs, and Joseph Stiglitz, eds. 2007. *Escaping the Resource Curse*. New York: Columbia University Press.
- Humphreys, Macartan, and Martin Sandbu. 2007. The Political Economy of Natural Resource Funds. In *Escaping the Resource Curse*, edited by M. Humphreys, J. Sachs and J. Stiglitz: Columbia University Press.
- Humphreys, Macartan, and Jeremy Weinstein. 2009. Field Experiments and the Political Economy of Development. *Annual Review of Political Science* 12:367-78.
- Huntington, Samuel. 1991. *The Third Wave: Democratization in the Late Twentieth Century*, Julian J. Rothbaum distinguished lecture series; 4. Norman: University of Oklahoma Press.
- Jones Luong, Pauline, and Erica Weinthal. 2010. *Oil is Not a Curse: Ownership Structure and Institutions in Soviet Successor States*: Cambridge University Press.
- Kolstad, Ivar, and Arne Wiig. 2009. Is Transparency the Key to Reducing Corruption in Resource-Rich Countries? *World Development* 37 (3):521-532.
- KOPPEL. 2008. Traffic Light APBD: Advokasi Anggaran di Sulawesi.
- Leite, Carlos , and Jens Weidemann. 1999. Does Mother Nature Corrupt? Natural Resources, Corruption, and Economic Growth. *IMF Working Paper*.
- Levi, Margaret. 1988. *Of Rule and Revenue, California series on social choice and political economy; 13*. Berkeley: University of California Press.
- Lewis, Blane. 2003. Tax and Charge Creation by Regional Governments Under Fiscal Decentralization: Estimates and Explanations. *Bulletin of Indonesian Economics Studies* 39 (2):177-192.
- Litschig, Stephan. 2008. Intergovernmental Transfers and Elementary Education: Quasi-Experimental Evidence from Brazil, Universitas Pompeu Fabra.
- Litschig, Stephan and Morrison, Kevin. 2009. Intergovernmental Transfers and Election Outcomes: Quasi-Experimental Evidence from Brazilian Municipal Executive Elections 1982-1988.
- Magud, Nicolas, and Sebastian Sosa. 2010. When and Why Worry about Real Exchange Rate Appreciation? The Missing Link between Dutch Disease and Growth. In *IMF Working Paper*.
- Mahdavi, Hossein. 1970. The Pattern and Problems of Economic Development in Rentier States: The Case of Iran. In *Studies in the Economic History of the Middle East*, edited by M. Cook. London: Oxford University Press.
- Mansuri, Ghazala, and Vijayendra Rao. 2004. Community-Based and -Driven Development: A Critical Review. *World Bank Research Observer* 19 (1):1-39.
- McLure, Charles. 2003. The Assignment of Oil Tax Revenue. In *Fiscal Policy Formulation and Implementation in Oil-Producing Countries*, edited by J. M. a. R. O. a. A. F. Davis. Washington, D.C.: International Monetary Fund.

- Mehlum, Halvor, Karl Moene, and Ragnar Torvik. 2006. Institutions and the Resource Curse. *The Economic Journal* 116:1-19.
- Meitzner, Marcus. 2009. Indonesia's 2009 Elections: Populism, Dynasties and the Consolidation of the Party System. *Lowy Institute for International Policy*.
- Michaels, Guy. 2007. The Long Term Consequences of Resource Based Specialization.
- Monteiro, Joana , and Claudio Ferraz. 2009. Resource Booms and Voracious Politicians: The Effects of Oil Shocks on Patronage, Rent-seeking, and Elections.
- Moore, Mick. 1998. Death without Taxes: Democracy, State Capacity, and Aid Dependence in the Fourth World. In *The Democratic Developmental State*, edited by M. Robinson and G. White. Oxford: Oxford University Press.
- Moore, Mick. 2001. Political Underdevelopment: What Causes 'Bad Governance'? *Public Management Review* 3 (3):1-34.
- Moore, Mick. 2004. Taxation and the Political Agenda, North and South. *Forum for Development Studies*.
- Moore, Mick, and Lisa Rakner, eds. 2002. *The New Politics of Taxation and Accountability*. 3 ed. Vol. 33, *IDS Bulletin*. Sussex: Institute of Development Studies.
- Moore, Mick, and Aaron Schneider. 2004. Taxation, Governance and Poverty: Where do the Middle Income Countries Fit? *IDS Working Paper 230*.
- Moss, Todd. 2011. Oil to Cash: Fighting the Resource Curse through Cash Transfers. *Center for Global Development Working Paper 237*.
- North, Douglass , and Barry Weingast. 1989. Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in Seventeenth-Century England. *Journal of Economic History* XLIX (4):803-832.
- Paler, Laura. 2011. Empowering Citizens to Combat the Resource Curse: An Experiment in Taxation and Transparency.
- PBET. 2008. Manual Advokasi Masyarakat Sipil dan Siklus Anggaran Daerah.
- Prebisch, Raul. 1950. *The Economic Development of Latin America and its Principal Problems*. Lake Success, NY: United Nations.
- Reinikka, Ritva, and Jakob Svensson. 2003. The Power of Information: Evidence from a Newspaper Campaign to Reduce Capture.
- Robinson, James, Ragnar Torvik, and Thierry Verdier. 2006. Political foundations of the resource curse. *Journal of Development Economics* 79:447-468.
- Ross, Michael. 1999. The Political Economy of the Resource Curse. *World Politics* 51 (1):297-322.
- Ross, Michael. 2001. Does Oil Hinder Democracy? *World Politics* 53 (3):325-61.
- Ross, Michael. 2004a. Does Taxation Lead to Representation? *British Journal of Political Science* 34:229-249.
- Ross, Michael. 2004b. How does natural resource wealth influence civil war? Evidence from 13 cases. *International Organization* 58 (1):35-67.
- Rosser, Andrew. 2006. The Political Economy of the Resource Curse: A Literature Survey. In *Institute of Development Studies: Centre for the Future State*.
- Sachs, Jeffrey, and Andrew Warner. 1997. Natural Resource Abundance and Economic Growth. *Center for International Development and Harvard Institute for International Development*.
- Sachs, Jeffrey, and Andrew Warner. 2001. The curse of natural resources. *European Economic Review* 45:827-838.
- Sala-i-Martin, Xavier, and Arvind Subramanian. 2003. Addressing the Natural Resource Curse: An Illustration from Nigeria. *IMF Working Paper*.

- Sandbu, Martin. 2006. National Wealth Accounts: A Proposal for Alleviating the Natural Resource Curse. *World Development* 34 (7):1153-1170.
- Schumpeter, Joseph. 1918/1991. The Crisis of the Tax State. In *The Economics and Sociology of Capitalism*, edited by R. Swedberg. Princeton: Princeton University Press.
- Shambayati, H. 1994. The Rentier State, Interest Groups and the Paradox of Autonomy: State and Business in Turkey and Iran. *Comparative Politics* 26 (3):307-32.
- Singer, Hans. 1950. The Distribution of Gains Between Investing and Borrowing Countries. *American Economic Review* 40 (2).
- Snyder, Richard. 2001. Scaling Down: The Subnational Comparative Method. *Studies in Comparative International Development* 36 (1):93-110.
- Svensson, Jakob. 2000. Foreign aid and rent-seeking. *Journal of International Economics* 51:437-461.
- Tiebout, Charles. 1956. A Pure Theory of Local Expenditures. *Journal of Political Economy* 64:416-424.
- Timmons, Jeffrey. 2005. The Fiscal Contract: States, Taxes, and Public Services. *World Politics* 57:530-67.
- Tornell, Aaron, and Philip Lane. 1998. Are windfalls a curse? A non-representative agent model of the current account. *Journal of International Economics* 44:83-112.
- Tornell, Aaron, and Philip Lane. 1999. The Voracity Effect. *American Economic Review* 89 (1):22-46.
- Torvik, Ragnar. 2002. Natural resources, rent-seeking and welfare. *Journal of Development Economics* 67:455-470.
- Wibbels, Erik. 2006. Madison in Baghdad? Decentralization and Federalism in Comparative Politics. *Annual Review of Political Science* 9:165-188.
- World Bank. 2007. Spending for Development: Making the Most of Indonesia's New Opportunities. In *Indonesia Public Expenditure Review*.