Decentralized Rule and Revenue

Jonathan Rodden[1]
Stanford University

Paper prepared for USAID
June 14, 2016

1. Introduction

The stylized advantages of fiscal decentralization have always seemed intuitive. The devolution of authority from the capital city to local public officials should create stronger incentives for good performance for those officials, who will be monitored by a more active, engaged, and informed population. Stronger accountability should beget more efficient service provision that better matches the preferences of local citizens.

When these advantages failed to show up after decentralization reforms were promulgated in developing countries around the world in the 1980s and 1990s, the academic literature landed on a consensus about the main culprit: the structure of revenue. The wave of fiscal decentralization at the end of the 20th century was funded overwhelmingly by intergovernmental grants rather than increased local taxation. A central theme of what Barry Weingast (2014) has called the "second generation" of fiscal federalism research is the danger of so-called "partial decentralization" (Devarajan et al. 2007; Brueckner 2009). Expenditure decentralization often takes place without corresponding revenue decentralization, which can create new forms of inefficiency and rent seeking that are potentially no

[1] The author wishes to thank Erik Wibbels, Eddy Malesky, and Arthur Drampian, and Tony Levitas for helpful comments.

better than the prior centralized status quo. The key problem identified in this literature is that under partial decentralization, citizens are unable to hold local government officials accountable for budgetary allocations and policy outcomes. (Devarajan et al. 2007).

The disadvantages of partial decentralization are perhaps as intuitive as the advantages of "pure" decentralization, and draw upon classic themes in political economy that link rule and revenue (Levi 1988). In short, the argument is that strong accountability and monitoring require taxation. In their classic account, North and Weingast (1989) argue that the very foundation of limited government and accountability can be traced to the need of the sovereign to raise revenues. Intuitively, citizens demand accountability when they provide government with tax payments in exchange for specific collective goods. In contrast, when the government is able to fund its activities through rents from natural resources (Ross 2004; Van der Ploeg 2011), foreign aid (Moore 1998; Morrison 2009) tariffs, or other forms of "taxless finance" like bank charters or land sales (Wallis 2005), citizens face weak incentives to demand good government or closely monitor government behavior.

This same logic clearly applies to local taxation vis-a-vis intergovernmental grants in decentralized countries. A large literature in public economics focuses on intergovernmental grants as a contributor to a so-called "fiscal illusion" that occurs when government revenues are at least in part unobserved by voters, who develop an inaccurate perception of the true cost of providing collective goods (Buchanan and Wagner 1977). This results in the so-called "flypaper effect," whereby lump-sum grants received by local governments are used differently than revenues generated through own-source taxation (Hines and Thaler 1995; Mueller 2003). Voters are more likely to care about government inefficiency when there is “fiscal equivalence” (Olson 1969)— a clear mapping between those who consume and those who pay for a service. Voters face strong incentives to monitor service provision when they understand their role in paying the bill, and may be willing to tolerate much higher levels of inefficiency and rent seeking if intergovernmental transfers foster the perception that other peoples’ money is being wasted (Bahl and Lin 1992; Ambrosanio and Bordignon 2006; Bird 2010).

This logic was recently formalized by Brollo et al. (2013). In their model, increased transfers allow the incumbent “more room to grab political rents without disappointing rational but imperfectly informed voters (p. 1760).” As the flow of grants increases, the electoral punishment of corruption decreases, which induces incumbents to misbehave more often. This creates a second-order effect whereby the pool of individuals entering local politics becomes increasingly dominated by those who value political rents. These individuals tend to be of lower quality, which in turn allows corrupt politicians to grab rents and nevertheless gain reelection.

These are compelling and intuitive theoretical claims with important policy implications around the world. The task of this essay is to review the state of the empirical literature they have inspired. What are the stylized facts from observational studies, and what causal claims can be supported by experimental and quasi-experimental studies?

I argue that we have learned far more about the causal impact of increased grants to local governments than about the impact of increased local taxation. I review a growing number of studies demonstrating that increases in intergovernmental grants indeed appear to be associated with a variety of disappointing outcomes. However, policymakers should address this literature with caution. In the search for causal identification, researchers have focused on discontinuities in grant formulae and exogenous increases akin to windfalls, such that the counterfactual is a smaller grant or no grant at all rather than some form of direct central government provision or local taxation. Moreover, the literature has not yet built up a firm body of knowledge about the different incentive effects of different types of grants and shared taxes, or about many potential ways of monitoring the use of grants by local governments, punishing abuse, and rewarding good performance.

Unfortunately we know even less about the causal impact of increased local taxation on such outcomes as efficiency, accountability, monitoring, and participation. I argue that this can be explained by the simple fact that increased local taxation is often politically expedient neither for central nor local officials. Direct and visible forms of local taxation are often extremely unpopular. As a result, controlled experiments involving variation in local taxation are rare. However, I argue that in spite of these challenges, various efforts of international lending and aid agencies to facilitate enhanced local revenue mobilization offer excellent learning opportunities, and these should not be wasted.

I also draw attention to a fascinating set of purely local “informal” forms of taxation that have been curiously absent from the academic literature. Experiences in countries like Kenya and Indonesia reveal that fiscal equivalence already exists without any intervention from governments or aid agencies in the form of pure local benefit taxes organized by village leaders and associations around specific projects. Much basic research remains to be done about whether and how such traditional forms of local taxation can be scaled up or implemented more broadly as solutions to the political challenges of local revenue mobilization.

In the next section, I begin by reviewing an empirical literature that has generated a number of important stylized facts about grants versus local taxation while leaving basic questions about causality unanswered. Next, I review a nascent literature that attempts to solve these causal inference problems by focusing on exogenous variation in intergovernmental grants. In the penultimate section, I discuss the challenge of causal identification in the study of local taxation. I conclude by describing the types of partnerships between governments, aid agencies, and academics that might generate a solid base of policy-relevant knowledge about the impact of revenue structure on governance.

2. The Perils of Partial Decentralization: Observational Studies

Intergovernmental grants are commonly viewed as unearned “windfalls” that weaken the incentives and ability of local citizens to monitor local officials. Insofar as the center is constrained in its capacity to monitor hundreds or thousands of lower-level governments, uninformed or indifferent citizens allow for considerable “agency slack” (Persson and Tabellini 2000): local officials not only exert low effort, but even worse, exploit opportunities for theft and other forms of corruption. Thus transfer-dependent local governments are viewed through the same lens as central governments that rely on natural resource rents or foreign aid rather than local taxation (Brollo et al. 2013). As in the literature on natural resources and foreign aid, this logic informs a number of observational empirical studies in which reliance on external finance appears to be correlated with a number of undesirable outcomes.

Perhaps the starting point for this literature was a series of empirical studies in the United States in the early 1970s (Inman 1971; Gramlich 1977; Fisher 1982). State and local governments in the United States have financed a range of government activities through autonomous local taxation since the 17th century, and a central government with substantial tax power to rival the states and municipalities only emerged in the middle of the 20th century after the great depression and two world wars. When the central government started layering intergovernmental grants on top of existing local taxation late in the 20th century, state and local governments were already spending around 5 cents of every dollar of locally generated income on government goods and services. Economists noticed that for every dollar of intergovernmental grants received, state and local governments were spending far more than 5 cents—in fact more than 50 cents, and in many studies the entire dollar—in the public sector rather than distributing the external “windfall” income to citizens via lower taxes.

A variety of explanations have been offered, including econometric misspecification (more on this below), stories about the costs of distortionary taxation (Hamilton 1986; Aragon 2009; Vegh and Vuletin 2010; Dahlby and Ferede 2015), or a story where citizens engage in a kind of "mental accounting" in which grants are not viewed as fungible (Hines and Thaler 1995). A popular interpretation emerged in the late 1970s and early 1980s from the nascent "Leviathan" view of government: while local tax revenues in the context of mobile capital and mobile voters represent a hard-earned social contract between voters and local governments and hence reflect voters' willingness to pay for public goods, grants represent something altogether different: a free pass for potentially rapacious local bureaucrats and elected officials to pursue their own ends absent careful scrutiny from voters (Brennan and Buchanan 1980; Filimon, Romer, and Rosenthal 1982).

Whether it was accurate or not, this interpretation of intergovernmental grants emerged in the country that, along with Switzerland and Canada, had the most fiscally autonomous local governments in the world at the end of the 20th century (Rodden 2006). This view of intergovernmental grants soon had far more resonance, however, in countries like Argentina, Mexico, India, and Russia, where local tax autonomy had long ago given way to centralized tax systems, and in many of the newly decentralizing African countries where strong systems of local tax collection were never built in the first place. In these contexts, the problem was not that an increase in intergovernmental grants as part of a decentralization program started to fray preexisting local links between taxes and benefits, but that they obviated any incentives to build such links in the first place. Regional and local officials presided over opaque funds that arrived through complex and non-transparent transfer systems, providing citizens with neither the information nor the incentives to monitor and punish abuse.

Even when local officials had the legal authority and capacity to raise additional revenues to produce potentially valuable public goods, transfer-dependent governments faced weak incentives to pay the political costs of extracting revenue from their citizens. Zhuravskaya (2000) demonstrates this problem using panel data from Russian city budgets. Singh and Srinivasan (2006) provide a related analysis of Indian states. The role of transfers in undermining incentives for local tax collection in Mexico is examined by Diaz-Cayeros (1997), Careaga and Weingast (2003), and Raich (2004).

The overarching theme in this literature is that compliance with visible and direct local taxes is always voluntary to some extent, and local governments must earn it by providing goods and services that are valued by local citizens. Unpopular taxes can lead to tax revolts, non-compliance, capital mobility, or electoral punishment. All of these unpleasant possibilities can be avoided in the presence of intergovernmental transfers.

Some studies go further and argue that by weakening incentives to raise revenues and breaking the tax-benefit link, intergovernmental grants undermine the incentives of local officials to provide useful public goods and foster a good business environment, thus undermining economic development. Shleifer and Vishny (1998) compare the incentives of local officials in Poland and Russia, arguing that Polish local officials are more responsive to the needs of businesses than their

Russian counterparts because of the need to raise revenue through local taxes. Freinkman and Plekhanov (2005) argue that transfer-dependent Russian regions impose inefficiently centralized fiscal systems on their lower-tier governments, undermining fiscal incentives for job creation and growth in the urban centers of the various regions. Desai, Freinkman, and Goldberg (2005) argue further that transfer-dependent Russian regions are more likely to shelter loss-making enterprises from market forces.

These arguments return to Ronald McKinnon's (1997) claim that transfer-dependence among the Canadian Maritime Provinces and the Southern Italian Mezzogiorno has provided disincentives to innovation and adaptation by allowing regional governments to subsidize failing industries. In contrast, he argues that without similar subsidies, state and local officials in the U.S. South were forced to develop a strategy to attract new industrial investment.

Consistent with the logic of Brollo et al. (2013), several studies demonstrate a cross-sectional correlation between transfer-dependence and corruption within federations. For instance, Fisman and Gatti (2002) demonstrate a positive correlation between the transfer-dependence of U.S. states and the number of convictions of public employees for abuse of public office. Gervasoni (2010, 2011) analyzes Argentine provinces, showing that transfer-dependent provinces demonstrate not only higher levels of corruption, but also lower levels of democratic contestation, higher levels of patronage, and evidence of what he calls "subnational authoritarianism."

A related literature in (mostly) European public finance seeks to understand the sources of technical, or "X-inefficiency" (Leibenstein 1966) among local governments. Silkman and Young (1982) examine the efficiency of the provision of school bus transportation and public libraries using cross-sectional data from the United States, and find that higher degrees of transfer-dependence are associated with lower levels of technical efficiency. Related studies were undertaken by Athanassopoulos and Triantis (1998) in Greece, Balaguer-Coll et. al (2007) in Spain, De Borger and Kerstens (1996) in Belgium, Loikkanen and Susiluoto (2005) in Finland, and Kalb (2010) in Germany. In each of these studies, transfer-dependence was correlated with a measure of technical inefficiency in the provision of local government services. In a study of tightly managed grants to Flemish municipalities, Geys and Moesen (2009) find a positive relationship, however.

In a recent paper using German municipalities, Geys et al. (2010) find a positive relationship between a broad set of indicators of voter involvement and government efficiency. This relationship appears to be strongest in the most tax-dependent municipalities, and weakest in the most transfer-dependent municipalities.

Finally, Rodden and Wibbels (2002) and Rodden (2006) argue that transfer-dependence can create expectations among voters and creditors that higher-level governments will be forced to provide bailouts in the event of a subnational debt-servicing crisis. This in turn creates weak incentives for such governments to adjust to negative shocks and pursue prudent fiscal policies, leading to larger deficits and higher inflation.

3. Grants and Governance: Is there a Causal Relationship?

The stylized facts are not attractive. In various studies, transfer-dependence appears to be correlated with weak revenue mobilization, lack of effort, underdevelopment, inefficiency, corruption, patronage, and poor fiscal management. However, most of these studies are not designed to enable strong causal claims. Countries with robust and longstanding systems of local taxation might have a variety of features—e.g. the inter-regional distribution of income or political factors that forestalled revenue centralization—that distinguish them from countries in which local governments are largely dependent on transfers.

Likewise, transfer-dependent states, provinces, or localities inevitably have underlying qualities that differentiate them from more successful subnational entities that have built up a robust system of local taxation. For example, transfer-dependence is likely to emerge in agricultural regions with a history of poverty, inequality, and dominance by prominent political families. In some cases, the subnational units themselves may have been drawn as part of a constitutional bargain that over-represented sparsely populated areas dominated by elites who were expected to provide legislative votes in exchange for fiscal transfers going forward (Dragu and Rodden 2011). In some countries, existing low-income subnational entities with poor governance face incentives to subdivide in order to receive more federal grants (Grossman and Pierskalla 2016). Corrupt politicians may have a comparative advantage in attracting grants, and poor regions might choose corrupt or low-quality politicians and benefit disproportionately from a progressive inter-regional transfer system (Brollo et al. 2013).

In short, intergovernmental grants are not randomly assigned, and it is entirely plausible that many of the pathologies that correlate with transfer-dependence predated the intergovernmental fiscal system and would still be present under a counterfactual system of pure centralization or pure revenue decentralization. That is, transfer-dependence and poor governance may both be symptoms of some other underlying illness. The same point has been made by Haber and Menaldo (2011) about the observational correlation between natural resource dependence, poor governance, and low growth. Moreover, it goes without saying that foreign aid is not randomly assigned, and aid-dependent countries may experience bad governance outcomes for reasons unrelated to the corrupting influence of aid.

In order to deal with this problem, studies of intergovernmental grants have recently attempted to adopt stronger causal identification strategies by instrumenting for grants, exploiting discontinuities in grant formulas, or analyzing situations in which grants can plausibly be seen as unexpected windfalls.

Again, it is useful to start with the U.S. literature on the flypaper effect. Bryan Knight (2002) argues that the entire empirical literature on the flypaper effect suffers from a severe endogeneity problem since intergovernmental grants are endogenous to a political process in which bargains are struck among politically motivated representatives of localities whose voters have vastly different preferences over various taxes and expenditures. As a result of this bargaining process, grants may flow to jurisdictions whose voters place great value on expenditures in a particular policy area, such that they are willing to pay high local taxes and spend the entirety of the federal funds they receive. Knight provides the example of highway spending and Boston voters during the era of the "big dig." If this is common, we should not be surprised to see very large coefficients in models that regress expenditures on federal grant receipts.

Knight then tries to account for the endogeneity of intergovernmental grants by instrumenting for grants with a variable capturing the membership of a state's representative on the relevant transportation committees in Congress. This estimation strategy leads to a coefficient that is at odds with the typical flypaper literature, suggesting that increased grants are associated with lower state-funded highway expenditures, which Knight interprets as grants "crowding out" local taxation.

This paper highlights some of the difficulties of finding instruments for grants. Knight's instruments appears to be weak and sometimes have the wrong sign, and subsequent work suggests that committee membership may not be a valid instrument, since representatives of places with infrastructure demands find their way onto powerful spending committees (Berry and Fowler 2016).

Rather than searching for better instruments, the literature has moved toward seeking causal inference through discontinuities in the flow of grants. Gordon (2004) exploits sharp per-pupil changes in the size of education grants associated with the release of the decennial census in the United States, and like Knight (2002), finds evidence that grants almost completely crowd out local taxation after three years. Lutz (2010) exploits a school finance reform in New Hampshire and also finds evidence that windfalls in external resources to school districts are almost completely allocated to tax reduction. Discontinuities in grant formulae have also been exploited in studies of the flypaper effect in Sweden (Dahlberg et al. 2006) and Canada (Dahlby and Ferede 2015).

The implications for citizen welfare of grants that "crowd in" or "crowd out" expenditures in decentralized fiscal systems are ambiguous. But this literature demonstrates the importance of moving beyond simple OLS models that correlate grants with outcomes. The exploitation of discontinuities in the flow of grants is now the dominant causal inference strategy in studies that focus more directly on governance. Beginning with Litschig (2008), a series of papers exploit a population-based discontinuity in the formula for distributing grants to Brazilian municipalities that dates to the era of the military regime. This step-function in the distribution of grants allows researchers to examine municipalities just below and just above the population threshold for increased grants in a regression discontinuity framework. Litschig and Morrison (2009) find that increased co-participation grants are associated with a higher probability that the party of the incumbent mayor is reelected. Brollo et al. (2013) find that increased co-participation transfers are associated with greater levels of corruption—as measured through random municipal audits—as well as a less educated candidate pool and incumbents who are more likely to be reelected. Mattos, Rocha, and Arvate (2011) also exploit the discontinuity in Brazilian co-participation transfers, finding that increased transfers are associated with reduced efficiency in municipal tax collection.

However, Litschig and Morrison (2013) exploit the same discontinuity to ask a different set of questions about Brazilian municipalities in the late 1980s: how did additional transfers received by municipalities just over the population threshold shape spending, taxation, schooling outcomes, literacy, income, and poverty a few years later? Their results suggest that these municipalities ended up with more years of schooling per capita, higher literacy, and lower poverty rates. They do not find evidence that the additional transfers led to tax reductions. Neither do they find evidence that grants affected the efficiency of local service provision in either a positive or negative direction. Their claim is simply that more money was spent in these communities, and even accounting for potential leakage and corruption, "more financing to local governments at the margin improved education outcomes at a reasonable cost" (p. 4). They raise the interesting possibility that higher reelection rates among incumbents might be explained not by the mechanism posited by Brollo et al (2013), but rather, by citizen satisfaction with increased expenditures.

Gadenne (2015) replicates the Litschig and Morrison (2013) result and extends the analysis past the 1980s and into a group of large municipalities. She finds that the result did not extend past the initial period: transfer increases in more recent years and in a larger group of municipalities did not have any measurable impact on education outcomes.

A related Brazilian literature focuses on a different exogenous source of variation in windfall external resources available to Brazilian subnational governments: natural resource royalties. Caselli and Michaels (2013) contrast coastal Brazilian municipalities that received windfalls from offshore oil and natural gas royalties with those that did not. They find that reported expenditures increased dramatically in all policy areas. As in the initial American "flypaper" studies and in the Brazilian grant discontinuity papers discussed above, the windfall resources appear not to have been used to fund tax cuts. However, in spite of massive increases in reported expenditures, Caselli and Michaels (2013) found extremely limited or no improvements in the supply or quality of housing, educational and health inputs, road quality, or welfare receipts. They imply that a massive quantity of money has gone missing, likely into the pockets of public officials.

Monteiro and Ferraz (2010) study the same royalty payments in Brazil. Consistent with Casseli and Michaels (2013), they report dramatic increases in public employment associated with the resource boom without significant impacts on education or health. They focus in particular on the issue of electoral accountability. In the short term, they find that the increase in funds and public employment is associated with an increase in the reelection probability of incumbents, as in the regression discontinuity papers cited above. However, they also discover that this effect is short-lived, and as public employment continues to increase without noticeable improvements in citizen welfare, incumbents actually fare worse than those in municipalities that did not receive windfalls. This "punishment" effect was especially pronounced in municipalities with strong local newspapers, radio stations, and television stations that might reveal information about misuse of resource royalties.

The "missing money" discovered in these Brazilian studies is a serious problem, and it calls for a different research approach that goes beyond the reliance on official statistics. Published statistics might tell us that grants were received and that every *peso* or *real* was spent, when even a rudimentary effort to check up on the expenditures reveals that the money never reached its intended target. Recent efforts to carefully track intergovernmental grants in developing countries have led to alarming findings. In a classic paper, Reinikka and Svensson (2004) use a survey of primary schools in Uganda to show that only a tiny fraction of education grants reached the schools for which they were earmarked, and the majority of schools received nothing at all. The resources were simply captured by local elected and appointed officials. Moreover, they discover that the actual final allocation of grants is highly regressive, since only the parents in relatively wealthy communities are able to claw back some resources from rapacious officials. Very large estimates of leakage are also obtained in innovative studies of an anti-poverty program (Olken 2006) and road construction (Olken 2007) in Indonesia.

In sum, recent improvements in causal identification and measurement have done little to improve the picture that emerged from earlier observational studies. This literature is still in its infancy and has been dominated by studies of Brazil—a middle-income country with an unusually decentralized public sector and a reputation for corruption. However, thus far it appears that exogenous increases in grants are associated with inefficiency and corruption, while the implications for electoral accountability are less clear.

There are several reasons to be careful, however, about drawing policy implications from the current empirical literature. We are simply learning that in some developing-country contexts, exogenous windfalls appear to be misused or transformed into private income in the pockets of elites. In some other contexts with vigilant taxpayers and strong accountability mechanisms—like U.S. school districts—such windfalls might simply be transformed into more equitable private income through tax cuts.

Unfortunately, by focusing on exogenous windfalls, we may have sacrificed some of our ability to answer the questions that are most important to policymakers. The current approach is to examine the treatment effect of an additional dollar of grant money that falls from the sky into the hands of a municipal official who is responsible for the provision of a public good like education. We learn, essentially, that more money leads to more governance problems, but perhaps also, some improvements in education. The implicit counterfactual in these studies is a world in which that money did not fall from the sky.

However, the relevant counterfactual of interest to USAID, the World Bank, or a government contemplating a decentralization reform might be a scenario in which that same dollar never went to a municipal official at all, but was spent instead by the central government's education bureaucracy. In this scenario as well, some education would be purchased at the cost of some leakage and corruption. We would like to be able to compare the educational output and leakage under these two alternative scenarios. Existing studies put us in a very poor position to estimate those quantities.

Moreover, before making blanket determinations about the dangers of intergovernmental grants, we need to invest in learning far more about the incentives and capabilities of central governments to plug holes in the leaking pipes that lead to local expenditures via intergovernmental grants. Perhaps Brazilian natural resource rents are a very different scenario than grants raised by the central government through politically costly taxation. When central governments have the will and the administrative capacity to implement serious audits of local recipients of intergovernmental grants, backed by a high-functioning and apolitical judiciary, evidence from Brazil (Ferraz and Finan 2008) and Indonesia (Olken 2007) suggests they can have a large impact on the behavior of local governments.

As I discuss in greater detail below, in much of the developing world it is impractical to expect that grants and shared taxes will somehow be replaced by local revenue in the near future. Indeed the same can be said about most developed countries, where wide-ranging subnational tax authority of the U.S. variety is quite rare (see Rodden 2004, Bloechlinger and King 2006). Shared taxes and various types of transfer schemes—some involving equalization and some based on the origin principal, some lump sum and some involving matching, some specific-purpose and some general-purpose—will continue to be the mainstay of local government finance in developing countries. A large literature in public economics has addressed some of the incentive effects of different types of intergovernmental transfers, but largely from a welfare economics perspective in which central and local governments are assumed to be benevolent and governance problems emphasized above are swept under the rug (see, e.g. Boadway and Shah 2007). As discussed further below, an important goal for future collaborations between practitioners and academics is to facilitate learning—in part through experimentation—about ways of structuring transfer systems, oversight and monitoring mechanisms, and rules-based systems of punishments and rewards so as to reduce the incentive problems associated with intergovernmental transfers.

4. Does Local Taxation Improve Governance?

Given the theoretical literature emphasizing the governance advantages of local taxation, perhaps the most interesting policy question is not whether a dollar of tax revenue raised by the central government is spent more efficiently by a district-level official than by a central bureaucrat, but whether that same dollar would be better spent if raised directly by the district-level official in the first place. Unfortunately the world has not been kind to researchers who would like to answer this question: plausibly exogenous increases in local taxation are rare.

In large part this is the case because direct and visible local taxes are extremely unpopular. While the strong tax-benefit link fostered by American tax decentralization is much admired from afar, voters in U.S. state and municipal elections are famous for their periodic tax revolts and the binding constitutional and statutory constraints they place on their elected officials. According to Cabral and Hoxby (2015), "people report disliking the property tax more than any other tax even though they simultaneously report that property tax revenue is better spent than any other tax revenue" (p. 1). Americans are not alone. Direct, visible local taxes are even less popular in much of the rest of the world, where there is no semblance of Levi's (1988) negotiated fiscal contract between the local government and local citizens.

Even when they have the statutory right or responsibility to collect property taxes or head taxes, local government officials in many poor and middle-income countries are reluctant to do so because they fear political reprisal. An equilibrium can emerge in which everyone comes to believe that no one else is paying, and non-compliance becomes the norm. It can be extremely difficult for local officials to "provide reassurance that they will deliver promised goods and services" (Levi 1988: 60) when the logic of transfer-dependence described by Brollo et al (2013) has already become common knowledge to all. If local officials are already viewed by local citizens as rent-seeking thieves, new attempts to collect local taxes will be viewed as efforts to expand the pool of rents on the backs of local citizens, and met with hostility.

Even when such taxes have considerable revenue potential and help fund valuable local public goods, local officials may face incentives not to collect them, and politically-motivated higher-level officials face incentives to undermine local tax collection by denouncing local officials for collecting taxes, arbitrarily announcing tax holidays, or unilaterally abolishing the taxes. For example, president Museveni did all three with the controversial Ugandan graduated tax, ultimately abolishing the main source of local revenue—and the only direct and broad-based tax in the country—during a heated presidential election campaign in 2005.

Local tax collection is quite difficult, and poor revenue mobilization has many causes other than local administrative capacity. The ubiquity of hostility to local taxation indicates that researchers must be very careful when making causal claims about the benefits of local taxation using cross-sectional or time-series data. It is likely that successful revenue mobilization is an effect rather than a cause of a high level of trust, local accountability, and efficient public goods provision. Local quasi-voluntary tax compliance is more likely to emerge in settings where local officials can credibly commit to provide desirable services.

Thus causal inference about the benefits of local taxation requires opportunities to exploit exogenous variation in taxation. Returning once again to the Brazilian municipalities, Gadenne (2015) has seized one of the best opportunities in the literature thus far. She examines the impact of participating in a program that provided subsidized loans to Brazilian municipalities to increase their tax capacity by investing in updated registers, improved skills and software, streamlining audit processes, and upgrading the interface between taxpayers and governments. Causal inference is made difficult by the fact that municipalities self select into the program, but she is able to gain leverage due to the fact that the timing of loan disbursements was out of their control. She finds that the program indeed led to impressive increases in tax collection such that the investment in capacity was well worth it.

More importantly, she finds that the additional tax revenues were used to increase the number of classrooms in use per capita as well as an index of municipal school quality. Using the population discontinuity design described above, she examines the impact of additional co-participation transfers during the same time period on the same variables, and finds no impact. This leads her to conclude that increased taxes stimulated greater educational improvements than did increased grants. Although her research design does not allow a direct comparison of the same sample of municipalities in which Brollo et al. (2013) found that increased grants led to substantial increases in corruption, she finds no evidence that increased taxes had an impact on any of several corruption measures. Although she does not have direct evidence of improved citizen participation or oversight, her results are consistent with the notion that taxes are used in ways that translate more directly into citizen welfare than grants due to greater citizen information or oversight.

Martinez (2016) reaches similar conclusions in a study of the effects of exogenous updates to the property tax cadaster used by local governments in Colombia. He finds that exogenous increased in property taxation had a large positive impact on the provision of health, water, and education services. He also examines the impact of exogenous changes in local revenue from oil royalties by relying on fluctuations in global oil prices. Like Gadenne (2015), Martinez finds that the impact of taxes on public services was far more positive than the impact of "windfall" revenue from royalties. Moreover, he uncovers a relationship between an increase in oil royalties and an elevated probability that local officials are found guilty of corruption.

To my knowledge the Gadenne and Martinez papers are the only attempts to examine the impact of plausibly exogenous variation in taxation in a context that facilitates comparison with similar exogenous increases in non-tax revenues. Yet these papers only hint at the possible causal mechanisms involving the information and incentives of voters. Paler (2013) uses a survey experiment in Indonesia to shed light on the mechanisms that might lie behind their findings. She primed some participants to think about local taxation by conducing an exercise in which participants paid a simulated tax and were encouraged to think about the share of locally generated taxes in the district's budget. Participants in an alternative treatment condition were primed to think of the district's resources as flowing from natural resources and intergovernmental transfers. The participants in the first treatment condition reported a greater willingness to monitor the budget, and were more likely to send postcards aimed at pressuring the district government to improve its budgetary management.

Lucy Martin (2014) has conducted a related behavioral game in Uganda. She simulates an interaction between a "citizen" and a "leader" focusing on how the latter allocates a group fund, which is either explained to the respondent as a windfall accruing to the leader or as a having been derived from a tax on the endowment of the respondent. She finds that respondents are more willing to punish the leader for low allocations when the group fund was framed as a tax rather than funds from an external source.

In another paper, Dynes and Martin and (2016) shed further light on possible causal mechanisms connecting taxation and accountability using surveys of public officials. They find evidence suggesting that officials believe that citizens pay more attention and demand greater accountability for local taxes than grants, and anticipate larger electoral consequences for misusing taxes, and hence take greater care to focus on citizen priorities when spending money raised through local taxation.

5. A Research Agenda on Rule and Revenue

While it is possible to gain insights from surveys, behavioral games, and lab-in-the-field exercises, there is no replacement for data from real-world experiences with decentralized finance. Researchers will undoubtedly find more opportunities for quasi-experiments akin to the discontinuities in transfer formulae or programs aimed at technical improvements in local revenue mobilization in the years ahead.

Even the best of these opportunities, however, leave something to be desired. First, there are often vexing challenges to causal inference, such as self-selection into local revenue mobilization programs and endogenous differential effort levels among participating governments. Second, these scenarios often do not afford researchers the opportunity to examine accountability or monitoring behavior on the part of local citizens. Third, these studies only allow us to compare a treatment condition of more grants or more taxation with a counterfactual of less. Missing is the study in which we can directly compare a process of grant-led decentralization with one of tax-driven decentralization, or in which either of these can be compared with some form of centralization.

Further progress in the learning agenda related to decentralized public finance will involve greater experimental control borne of careful planning and productive collaboration between researchers, governments, and aid agencies.

Those in a position to orchestrate such collaborations must be vigilant about identifying opportunities and bringing them to fruition. In the ideal scenario, a government has a relatively clear idea about what it hopes to achieve with a decentralization reform, and it receives external support to build an experiment into its rollout, as has been the case with some of the conditional cash transfer programs in Latin America.

Enhanced efforts at local revenue mobilization will provide especially attractive opportunities of this kind in the years ahead. Based in part on lessons like those learned from the Brazilian and Colombian programs of local tax modernization described above, central governments and aid agencies are learning that even without changing laws or regulations, there is potentially great value in providing local governments with simple administrative support for things like training workers, updating and computerizing registries, and conducting outreach to taxpayers in order to enhance the mobilization of revenue from existing local sources. Since it can be difficult to introduce such programs in all municipalities at once, phased rollouts are often necessary as a practical matter.

Such programs provide ideal opportunities for researchers to help design stratified randomized rollouts in ways that maximize learning potential. Researches can collect data not only on how much revenue is collected in treatment and control communities, but also how additional taxation affects the quality and quantity of local expenditures, leakage, indicators of rent-seeking and corruption, and above all, citizen efforts at oversight, monitoring, and political participation. In addition to technical enhancements to the mobilization of existing revenue sources, one can also imagine opportunities to pursue phased rollouts of new or revived local taxes. For example, there is frequent discussion in Uganda about bringing back the graduated tax. When such reforms are contemplated in countries where strong partnerships exist with aid agencies and lending institutions, advocates of the learning agenda must work hard to make the case for a careful rollout that enables a path-breaking study.

If this agenda takes off, its designers will need to give careful consideration to the context and incentive system created by each type of tax being enhanced or introduced. First, the causal mechanisms suggesting that taxes create incentives for greater oversight and monitoring probably only apply to those actually paying the taxes. In fact, Cabral and Hoxby (2015) suggest that it the mechanism only affects those who are made aware of the fact they are paying the taxes. However, many local taxes in the developing world have very narrow bases. For instance, local governments collect market taxes, butchering taxes, fishing landing fees, and taxes on kiosks and shop owners. Thus researchers will want to pay special attention to the effects of such taxes on the relevant local business community. One possibility is that enhanced collection of such taxes generates greater political participation and monitoring only among the relevant business owners.

When taxes have a narrow base, it might be useful to experiment with ways of enhancing the tax-benefit link by creating treatment arms in which market stall sellers, for example, are convinced that they will receive valuable public goods like regular cleaning, trash collection, or physical upgrades in exchange for some share of their tax payments.

Other types of taxes—like head taxes, hut taxes, sales taxes, or property taxes—have a broader base. As mentioned above, such taxes can be unpopular, making it difficult for local tax collectors to achieve compliance. Again, it may be possible to create better compliance in treatment conditions where the tax-benefit link is clarified by a campaign that advertises the public goods that will be produced with the additional resources. Perhaps there are ways to facilitate more directly the contractual quasi-compliance scenario described by Levi (1988) in treatment conditions where some type of deliberative or participatory budget process seeks input from taxpayers on the best use for the proceeds even before the revenue mobilization drive commences. Perhaps compliance and citizen satisfaction with taxation depend upon making citizens feel like stakeholders.

In fact, exactly this type of local revenue mobilization surrounding specific, agreed-upon public goods is already quite commonplace in many rural settings outside the formal realm of taxation (Ostrom 1991). Perhaps the best-known examples are the Kenyan tradition of *harambee* and the Indonesian practice of *gotong royong*. Through these and other related practices, village-level elites mobilize contribution schemes in order to facilitate the provision of valuable local public goods. Contributions are often indexed to income, and low-income households are often expected to contribute labor rather than money. Sometimes these projects involve contributions—e.g. road repair materials or building supplies—from the local or central government that are combined with resources and labor raised through quasi-voluntary local efforts. Compliance is achieved largely through forms of local social pressure such as shaming, posting lists of names, or otherwise ostracizing non-compliers.

In many respects these efforts resemble quite closely the ideal scenario of fiscal equivalence favored in the traditional public finance literature, and involve the kind of strong tax-benefit link that would seem to facilitate active monitoring and citizen engagement. Thus it is surprising that the academic literature has done so little to understand these revenue tools and how they relate to more formal types of taxation. There have been a smattering of descriptive studies of specific practices (e.g. Barkan and Holmquist 1989; Wilson 1992), and recently, an initial effort at systematic data gathering by Olken and Singhal (2011).

The research agenda on enhanced local revenue mobilization has much to learn about these efforts. Relative to grants or formal taxation, do these informal taxation mechanisms facilitate better citizen monitoring and oversight? Are *harambee* funds less likely to be stolen than grants or formal local taxes? Are these mechanisms better ways of mobilizing revenues for needed local public goods than formal local taxes, or are they second-best alternatives that only emerge in societies like Kenya where government officials are held in extremely low regard? Can the best features of these programs be improved or expanded? How might governments and aid agencies help make them fairer and more efficient? Can Kenyan or Indonesian practices be transplanted to other settings where more formal taxation is precluded due to lack of capacity or lack of trust? In such settings, should aid agencies consider working to facilitate informal taxation mechanisms rather than investing in building up the formal tax administration? In places where such mechanisms are already in place, what are the dangers that enhancements of formal tax administration might crowd out well-functioning existing forms of informal taxation? Is it the case that efforts to help expand informal taxation would stunt or crowd out the growth of a modern, formal tax structure? These are pressing questions in need of further observational and experimental research.

While there is much to like about a romanticized notion of local taxation and a strong tax-benefit link involving active and engaged taxpayers, it is quite plausible that the absence of local revenue mobilization in many impoverished settings reflects the fact that there is simply no tax base, or that the marginal cost of raising funds is too high. In such settings, it may very well be the case that in spite of incentive problems and well-known instances of leakage and corruption described in the many studies reviewed in this essay, progressive intergovernmental grants or even centralized provision are still the only way to bring much-needed public goods to poor communities.

Thus an additional part of the research agenda on decentralized public finance must focus on ways to limit the corruption and leakage associated with transfers. As demonstrated in Olken's (2007) research in Indonesia, there are likely many situations where independent and professional auditors are better monitors of local governments than are busy, information-constrained local citizens. In many decentralizing countries, it may be the case that enthusiasm for local revenue mobilization is misplaced, and the most important task for improved local governance is the rationalization of the intergovernmental transfer system (Levitas No date).

While there is much to like about the notion of enhancing local revenue mobilization, researchers should seek to understand a complex set of trade-offs. In addition to looking out for learning opportunities related to local revenue mobilization, aid agencies and development lenders should look for opportunities to contrast such efforts with various forms of grants and direct central provision. Whenever a government is considering a change in the mechanism of intergovernmental finance in a sector like health or education, aid partners should be poised to assist in the design of a phased rollout containing experiments. In the ideal scenario, the same public good might be funded in some randomly selected communities through centralized provision, in others by grants, and in others by some form of taxation. Or if grants will be used in all communities, experiments might be built into matching provisions, formulae, and the like. Innovation in monitoring, oversight, and auditing mechanisms would be especially valuable.

6. Conclusions

In conclusion, the literature on local rule and revenue is still in its infancy, and is only beginning to grapple with vexing questions of causal inference. As these efforts continue, it will be important not to confuse clean causal inference with policy relevance. While the theoretical and empirical literatures provide many reasons for optimism about the benefits of enhanced local revenue mobilization, we still have much to learn about trade-offs and the necessary conditions for success. In most cases, locally generated revenues that are tightly linked to local public goods are unlikely to replace shared taxes and transfers. Thus an important goal for the research agenda is to go beyond the simple distinction between taxes and transfers and explore the details of different types of transfer and tax-sharing systems from a political economy perspective that focuses on governance. Innovation and experimentation related to monitoring and auditing are especially important. Continued progress in this learning agenda will require experiments that can only be carried out via close collaboration between researchers, aid agencies, and governments.

References

Ambrosanio, Maria Flavia and Bordignon, Massimo. 2006. "Normative versus positive theories of revenue assignments in federations" in Ahmad and Brosio (eds.) Handbook of Fiscal Federalism. Cheltham: Edward Elgar.

Aragon, Fernando. 2010. "The Flypaper Effect and Costly Taxation." Unpublished paper, London School of Economics.

Athanassopoulos, Antreas and Konstantino Triantis. 1998. "Assessing Aggregate Cost Efficiency and the Related Policy Implications for Greek Local Municipalities." *INFOR* 36,3: 66-83.

Bahl, Roy W., Linn, Johannes, F., 1992. Urban Public Finance in Developing Countries, Oxford University Press, Oxford.

Balaguer-Coll, M, Prior-Jimenez, D. and Vela-Bargues, J., 2002. Efficiency and Quality in Local Government Management. The Case of Spanish Local Authorities, Universitat Autonoma de Barcelona, WP 2002/2.

Barkan, Joel and Rank Holmquist. 1989. "Peasant-State Relations and the Social Base of Self-Help in Kenya." *World Politics* 41,3: 359-380.

Berry, Christopher and James Fowler. 2016. "Cardinals or Clerics? Congressional Committees and the Distribution of Pork." *American Journal of Political Science* forthcoming.

Bird, Richard. 2010. "Subnational Taxation in Developing Countries: A Review of the Literature". Journal of International Commerce, Economics and Policy Vol. 2, No. 1 (2011) 139–161.

Bloechlinger, Hansjoerg and David King. 2006. "Less than you Thought: The Fiscal Autonomy of Sub-Central Governments." *OECD Economic Studies* No. 43, 2: 155-188.

Boadway, Robin and Anwar Shah. 2007. *Intergovernmental Fiscal Transfers: Principles and Practice*. Washington, D.C.: World Bank.

Brennan, Geoffrey and James Buchanan. 1980. *The Power to Tax: Analytic Foundations of a Fiscal Constitution*. Cambridge: Cambridge University Press.

Brollo, Fernanda, Tommaso Nannicini, Roberto Perotti, and Guido Tabellini. 2013. "The Political Resource Curse." *American Economic Review*, 103(5): 1759-96.

Bruekner, Jan. 2009. "Partial Fiscal Decentralization." *Regional Science and Urban Economics* 39,1: 23-32.

Buchanan, James and Richard Wagner. 1977. *Democracy in Deficit: The Political Legacy of Lord Keynes.* Indianapolis: Liberty Fund.

Cabral, Marika and Caroline Hoxby. 2015. "The Hated Property Tax: Salience, Tax Rates, and Tax Revolts." NBER Working paper no. 18514.
Careaga, Maite, and Barry R. Weingast. 2003. "Fiscal Federalism, Good Governance, and Economic Growth in Mexico," in Dani Rodrik, ed., In Search of Prosperity: Analytic Narratives on Economic Growth. Princeton: Princeton University Press.

Caselli, Francesco and Guy Michaels. 2013. "Do Oil Windfalls Improve Living Standards? Evidence from Brazil." *American Economic Journal: Applied Economics* 5,1: 208-38.

Dahlberg, Matz, Eva Mörk, Jørn Rattsø, and Hanna Ågren. 2006. "Using a Discontinuous Grant Rule to Identify the Effect of Grants on Local Taxes and Spending." *Journal of Public Economics* 92,12: 2320-2335.

Dahlby, Bev and Ergete Ferede. 2016. "The Stimulative Effects of Intergovernmental Grants and the Marginal Cost of Public Funds." *International Tax and Public Finance* 23,1: 114-139.

De Borger, Bruno and Kristiaan Kerstens. 1996. "Cost Efficiency of Belgian Local Governments: A Comparative Analysis of FDH, DEA, and Econometric Approaches." *Regional Science and Urban Economics* 26,2: 145-170.

Desai, Raj, Lev Freinkman, and Itzhak Goldberg. 2005. "Fiscal Federalism in Rentier Regions: Evidence from Russia. *Journal of Comparative Economics* 33,4: 814-834.

Devarajan, Shantayanan, Stuti Khemani, and Shekhar Shah. 2007. "The Politics of Partial Decentralization." Unpublished paper, World Bank.

Dynes, Adam and Lucy Martin. 2016. "Revenue Sources and Electoral Accountability: Experimental Evidence from Local U.S. Policymakers." Unpublished paper, University of North Carolina, Chappell Hill.

Dragu, Tiberiu and Jonathan Rodden. 2011. "Representation and Redistribution in Federations." *Proceedings of the National Academy of Science* 108, 21:8601-8604.

Ferazz, Claudio and Joana Monteiro. 2010. "Does Oil Make Leaders Unaccountable? Evidence from Brazil's Offshore Oil Boom." Unpublished paper, PUC-Rio.

Ferraz, Claudio and Frederico Finan. 2008. "Exposing Corrupt Politicans: The Effects of Brazil's Publicly Released Audits on Electoral Outcomes." *Quarterly Journal of Economics* 12,2: 703-745.

Filimon, Radu, Thomas Romer, and Howard Rosenthal. 1982. "Asymmetric Information and Agenda Control." *Journal of Public Economics* 17,1:51-70.

Fisman, Raymond and Roberta Gatti. 2002. "Decentralization and Corruption: Evidence from U.S. Federal Transfer Programs." *Public Choice* 113(1-2): 25-35.

Freinkman, Lev and Alexander Plekhanov. 2005. "What Determines the Extent of Fiscal Decentralization? The Russian Paradox." World Bank Policy Research Working Paper No. 3710.

Gadenne, Lucie. 2015. "Tax Me, But Spend Wisely? Sources of Public Finance and Government Accountability." Unpublished paper, Warwick University.

Gervasoni, Carlos. 2010. "Measuring Variance in Subnational Regimes: Results from an Expert-Based Operationalization of Democracy in the Argentine Provinces." *Journal of Politics in Latin America* 2, 2:13-52.

Gervasoni, Carlos. 2011. "A Rentier Theory of Subnational Regimes: Fiscal Federalism, Democracy, and Authoritarianism in the Argentine Provinces." *World Politics* 65: 302-40.

Geys, Benny and and Wim Moesen. 2009. "Exploring Sources of Local Government Technical Inefficiency: Evidence from Flemish Municipalities." *Public Finance and Management* 9,1: 1-29.

Geys, Benny, Friedrich Heinemann, and Alexander Kalb. 2010. "Voter Involvement, Fiscal Autonomy and Public Sector Efficiency: Evidence from German Municipalities." *European Journal of Political Economy* 26: 265-278.

Gordon, Nora. 2004. "Do Federal Grants Boost School Spending? Evidence from Title 1." *Journal of Public Economics* 88, 9-10: 1771-92.

Gramlich, Edward. 1977. "Intergovernmental Grants: A Review of the Empirical Literature." In Wallace Oates, ed., *The Political Economy of Fiscal Federalism* (Lexington, MA: D.C. Heath): 219-40.

Grossman, Guy, Jan Pierskalla, and Emma Boswell Dean. 2016. "Government Fragmentation and Public Goods Provision." Unpublished paper, University of Pennsylvania.

Fisher, Ronald. 1982. "Income and Grant Effects on Local Expenditure: The Flypaper Effect and other Difficulties." *Journal of Urban Economics* 12: 324-45.

Haber, Stephen and Victor Menaldo. 2011. "Do Natural Resources Fuel Authoritarianism? A Reappraisal of the Resource Curse." *American Political Science Review* 105,1: 1-26.

Hamilton, Jonathan. 1986. "The Flypaper Effect and the Deadweight Loss from Taxation." *Journal of Urban Economics* 19,2: 148-155.

Hines, James R., and Richard H. Thaler. 1995. "Anomalies: The Flypaper Effect". *The Journal of Economic Perspectives* 9,4: 217–226.

Inman, Robert. 1971. "Towards and Econometric Model of Local Budgeting." In *Proceedings of the 64th Annual Conference on Taxation* (Lexington, KY: National Tax Association): 699-719.

Kalb, Alexander. 2010. "The Impact of Intergovernmental Grants on Cost Efficiency: Theory and Evidence from German Municipalities." *Economic Analysis and Policy* 40,1: 23-48.

Knight, Brian. 2002. "Endogenous Federal Grants and Crowd-out of State Government Spending: Theory and Evidence from the Federal Highway Aid Program". *The American Economic Review* 92,1: 71–92

Leibenstein, Harvey. 1966. Allocative Efficiency vs. "X-Efficiency". *The American Economic Review 56*,3: 392–415.

Levi, Margaret. 1988. *Of Rule and Revenue*. Berkeley, CA: University of California Press.

Levitas, Anthony. No date. "Too Much of a Good Thing? Own Revenues and the Political Economy of Intergovernmental Finance Reform: The Albanian Case." Unpublished paper, Brown University.

Litschig, Stephan. 2008. "Three Essays on Intergovernmental Transfers and Local Public Services in Brazil." PhD Dissertation. New York: Columbia University.

Litschig, Stephan and Kevin Morrison. 2013. "The Impact of Intergovernmental Transfers on Education Outcomes and Poverty Reduction." Unpublished paper, Universitat Pompeu Fabra, Barcelona.

Loikkanen, Heikki and Ilkka Susiluoto. 2005. "Cost Efficiency of Finnish Municipalities in Basic Service Provision 1994-2002." Paper presented at the 45th Congress of the European Regional Science Association, Amsterdam, the Netherlands.

Lutz, Byron. 2010. "Taxation with Representation: Intergovernmental Grants in a Plebiscite Democracy." *Review of Economics and Statistics* 92,2:316-332.

Martin, Lucy. 2014. "Taxation, Loss Aversion, and Accountability: Theory and Experimental Evidence for Taxation's Effect on Citizen Behavior" Unpublished paper, Yale University.

Martinez, Luis. 2016. "Sources of Revenue and Government Performance: Evidence from Colombia." Unpublished paper, London School of Economics and Political Science.

Mattos, Enlinson, Rabiana Rocha, and Paulo Arvate. 2011. "Flypaper Effect Revisited: Evidence for Tax Collection Efficiency in Brazilian Municipalities." *Estudos Economicos* 41,2

McKinnon, Ronald I., 1997. "Market-preserving fiscal federalism in the American monetary union". In: Blejer, Mario I., Ter-Minassian, Teresa (Eds.), Macroeconomic Dimensions of Public Finance. New York: Routledge, pp. 73–93.

Moore, Mick. 1998. "Death without Taxes: Democracy, State Capacity, and Aid Dependence in the Fourth World." In *The Democratic Developmental State*, eds. Mark Robinson and Gordon White. New York: Oxford University Press.

Morrison, Kevin. 2009. "Oil, Nontax Revenue, and the Redistributional Foundations of Regime Stability." *International Organization* 63: 107-38.

North, Douglas and Barry Weingast. 1989. "Constitutions and Commitment: The Evolution of Institutions Governing Public Choice in 17th Century England." *Journal of Economic History* 49,4: 803-832.

Olken, Benjamin. 2006. "Corruption and the Costs of Redistribution: Micro Evidence from Indonesia." *Journal of Public Economics* 90, 4-5: 853-870.

Olken, Benjamin. 2007. "Monitoring Corruption: Evidence from a Field Experiment in Indonesia." *Journal of Political Economy* 115, 2: 200-249.

Olken, Benjamin and Monica Singhal. 2011. "Informal Taxation." *American Economic Journal: Applied Economics* 3: 1-28.

Ostrom, Elinor. 1991. *Governing the Commons: The Evolution of Institutions for Collective Action*. Cambridge: Cambridge University Press.

Paler, Laura. 2013. "Keeping the Public Purse: An Experiment in Windfalls, Taxes, and the Incentives to Restrain Government." *American Political Science Review* 107(04):706–725.

Persson, Torsten and Guido Tabellini. 2000. *Political Economics: Explaining Economic Policy*. Cambridge, MA: MIT Press.

Pöschl, Caroline and Barry Weingast. "The Fiscal Intereset Approach: The Design of Tax and Transfer Systems." Unpublished paper, Stanford University.

Raich Portman, Uri. 2004. "Impacto de la descentralización del gasto en los municipios mexicanos", CIDE, Division de Economia, Documento de trabajo No.281.

Reinikka, Ritva and Jakob Svensson. 2004. "Local Capture: Evidence from a Central Government Transfer Program in Uganda." *Quarterly Journal of Economics* 119:2: 679-705.

Rodden, Jonathan. 2005. "Comparative Federalism and Decentralization: On Meaning and Measurement." *Comparative Politics* 36,4: 481-500.

Rodden, Jonathan. 2006. *Hamilton's Paradox: The Promise and Peril of Fiscal Federalism*. Cambridge: Cambridge University Press.

Rodden, Jonathan and Erik Wibbels. 2002. "Beyond the Fiction of Federalism: Macroeconomic Management in Multi-tiered Systems. *World Politics* 54,4: 494-531.

Ross, Michael. 2004. "Does Taxation Lead to Representation?" *British Journal of Political Science* 34: 229-49.

Shleifer, Andrei, and Robert W. Vishny. 1998. *The Grabbing Hand: Government Pathologies and Their Cures*. Cambridge, MA: Harvard University Press.

Silkman, Richard and Dennis Young. 1982. "X-Efficiency and State Formula Grants." *National Tax Journal* 35, 3: 383-397.

Singh, Nirvikar and T.N. Srinivasan. 2006. "Federalism and Economic Development in India: An Assessment." SSRN: http://ssrn.com/abstract=950309.

Van der Ploeg, Frederick. 2011. "Nature Resources: Curse or Blessing?" *Journal of Economic Literature* 49,2: 366-420.
Végh, C. A., & Vuletin, G. 2010. *Unsticking the flypaper effect using distortionary taxation*, working paper, University of Maryland.

Weingast, Barry R. 2009. "Second generation fiscal federalism: the implications of fiscal incentives". *Journal of Urban Economics* 65: 279–293.

Weingast, Barry. 2014. "Second Generation Fiscal Federalism: Political Aspects of Decentralization and Economic Development." *World Development* 53: 14-25.

Wallis, John Joseph. 2004. "Constitutions, Corporations, and Corruption: American States and Constitutional Change, 1842-1852." NBER Working Paper 10451.

Wilson, L.S. 1992. "The Harambee Movement and Efficient Public Good Provision in Kenya." *Journal of Public Economics* 48: 1-19.

Zhuravskaya, Ekaterina. 2000. "Incentives to Provide Local Public Goods: Fiscal Federalism, Russian Style." *Journal of Public Economics* 76,3: 337-368.