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Moving Beyond Expenditures: Reevaluating the Way We Test Theories of Fiscal Federalism[1]

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Abstract:

This paper reviews the literature on the effects of fiscal decentralization on the magnitude and composition of expenditures. There is consistent evidence that vertical imbalance leads to larger general government. The evidence on the effects of balanced decentralization is mixed, depending a great deal on the sample and the fiscal federal margin in question. Theory and case studies suggest such heterogeneity in the comparative effectiveness of fiscal decentralization is due to heterogeneity in the institutional environment by which citizens gather information, register preferences, and monitor officials. Unfortunately, quantifying this institutional heterogeneity remains elusive. More troubling, there is sufficient distance between recorded expenditure and the quality of service delivery that using the former to assess the efficacy of fiscal decentralization is surely inadequate. We then review those studies which progress beyond measures of expenditures to measures of outcomes. Here too, the results of fiscal decentralization vary a great deal and the determinants of that variation remain elusive. There is thus room for clever work highlighting the conditions delivering effective monitoring thereby enabling successful fiscal decentralization.

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1. Introduction

The central question of fiscal federalism is: which fiscal prerogatives should be assigned to which levels of government? In practice, each country implements a particular solution to the question. The purpose of fiscal decentralization is to revise the solution by devolving key decisions on taxation and spending from central to provincial and local governments. A long and distinguished theoretical literature has identified a set of characteristics—e.g. returns to scale, accountability of government, distribution of preferences over public goods—which affect the efficient allocation. However, there remains debate over the relative strength of these various factors and over the complicated channels by which they interact. As a result, there is not yet consensus on when fiscal decentralization is efficient and on whether, when, and how it ought to be undertaken.

Because these theories have implications for the size of government, they have frequently been tested by looking at the effects of fiscal decentralization on the size and composition of government spending. Unfortunately, such regressions have given only a few very broad results which are of relatively little use in answering the central question. Theory and case studies both suggest this is because the effects of decentralization depend crucially on the institutional environment, which is as yet rarely and incompletely included in these regressions. Moreover, expenditures measure neither the quality of service nor the relationship of expenditures to local preferences and thus cannot ultimately resolve whether decentralization enhances efficiency and accountability. As a result of these difficulties, recent case studies which directly measure service quality and citizens' preferences may offer the most fruitful approach to evaluating the efficacy of decentralization. However, while providing a stippling of interesting lessons, these studies have not yet painted a coherent picture of the institutional conditions necessary for successful fiscal decentralization.

In the next section, I review the development of the theory of fiscal federalism as the assumptions of the foundational work have been challenged. Readers familiar with the theoretical background are encouraged to skip to section 3, which organizes and summarizes the large-n empirical work measuring the effect of fiscal decentralization on the pattern of government expenditures. Section 4 then explains the deficiencies with this

approach and section 5 reviews case studies directly measuring service quality and citizens' preferences. A brief conclusion follows.

2. Theoretical Development of Fiscal Federalism

Early Theory

Early theoretical work identified four primary factors of relevance to the central question: externalities, returns to scale, the distribution of preferences, and the accountability of government. The decentralization theorem (Musgrave 1959, Oates 1972) states that the proper level of government to which a spending prerogative ought be assigned is given by a tradeoff between realizing returns to scale in provision and internalizing externalities between jurisdictions on the one hand, and the (presumed) greater responsiveness and accountability of local government on the other.

While the importance and existence of the first two are widely acknowledged and simply understood, there is a great deal of debate over the degree to which local government is more or less accountable and responsive than central government. Lockwood (2006) notes, "although this argument is frequently made, the concept of accountability is difficult to pin down precisely." Litvack et al (1998), Bird (2000), Ebel and Yilmaz (2003), and Breton (2002) have all commented on the curious distance between widespread acceptance of the greater accountability of local government and the relative paucity of evidence on the matter. Nor, as I will argue, despite the impressive efforts of several scholars, has a satisfactory theoretical justification been advanced.

Representative Government

Oates (1972) assumes that every level of government is a benevolent social planner, but that each level of government can only provide a level of public goods which is uniform across its purview. Thus devolution to local governments enables, by assumption, greater responsiveness to local preferences. This strong assumption about the ability of governments to customize provision has generally lost favor. Seabright (1996), Breton (2002), and Lockwood (2006) note that not only is there no a priori reason why central governments cannot achieve, via local agents, the same information available to

local government, there is also considerable evidence that centrally provided public goods do vary across jurisdictions. Benefits to decentralization are more likely contingent on the incentives for central government to respond to local preferences rather than some a priori inability to do so. Thus, an understanding of the relative accountability of junior and senior levels of government requires that we move beyond the early theories, which model government as a black box, presumed either to act as benevolent social planner (Oates) or rapacious revenue maximizer (Brennan and Buchanan). Several theoretical contributions have sought, via formal political economy models, to develop insights on the relative accountability of local and central government. I will discuss only a few of the relevant papers. For a deeper review of the main theoretical strands in this literature, see Lockwood (2006).

Lockwood (2002) addresses the role of legislative bargaining—rules on agenda setting and voting—within the central government. Assuming a modified Baron-Ferejohn (1989) sequential agenda-setter framework, he finds that the need to attract coalition partners means public spending projects tend to be chosen based on their ability to generate positive spillovers for a minimal winning coalition, rather than their net benefits. As a result, he concludes that centralization incurs a cost as projects become less responsive to the depth of preferences and more responsive to the distribution of preferences. It is an interesting result. However, the setup precludes logrolling, which could deliver a market for votes in which districts with strong preferences can spend more "credit"—in the form of promised future votes—leading to accurate weighting of projects according to their total benefits. (citation) Moreover, the setup assumes preferences are heterogeneous at the local level and chosen by a unitary actor. Of course, preference heterogeneity and representation are a fact of local as well as central government.

Besley and Coate (2003) specifically allow for local heterogeneity in their citizen-candidate model of representation. Local decision-making is taken by a single elected governor; central decisions are the result of reduced-form bargaining in a legislature of representatives elected from the local districts. They find that while a jurisdiction will elect a local governor who shares the median voter's preferences, it will elect a national representative who is a high-demander of public services relative to the district median.

As a result, they conclude that centralized decision-making leads to greater expenditures. Their reduced-form legislative bargaining essentially allows logrolling, and they do explicitly allow for heterogeneity at the local level. However, the model of representation blocks the full effects of local heterogeneity. While central decisions are taken by a legislature, local decisions are taken by a solitary representative. Here too, the asymmetry between the local and the central government seems assumed rather than derived.

Seabright (1996) formulates an agency model of the electorate's attempts to monitor politicians in the face of imperfect information about the politicians' choices. A level of public goods must be chosen for each district; spillovers of a general form are permitted. Under centralization, a representative voter from each district votes to elect a central executive under majority rule. Central governments choose the policy for each of the districts but can vary the level across districts. Under decentralization, the representative voter elects a local executive. Because provision requires effort, the executive faces the temptation to under-provide the good. Voters receive a noisy signal about the policy choice of their representative and adopt a cutoff rule, reelecting only if the signal is above a threshold. Seabright concludes that while central governments will perform better by endogenizing externalities between districts, they are less accountable to local preferences. This is because a local government must secure the approval of its' representative voter, but a central government needs acquire only a strict majority of the votes. Thus under centralization, any given district is less likely to be pivotal. As a result, relative to the local government, the central government can under-provide the public good—leading to a lower probability it will pass a district's threshold—but still get elected because it requires only a strict majority of the district's support.

Here too the asymmetry of central and local representation is assumed in the structure of the model. Namely, the assumption that central governments are representative coalitions whereas local governments are unitary actors supported by homogeneous preferences ignores the challenge aggregating preferences at the local level. In reality, local governments, just like national governments, rely on a subset of the population for support and are more or less responsive to particular constituencies. For Seabright's argument to hold, we must somehow argue that there are fewer blocs of voters—less heterogeneity—at the local level.

In each of these models, the details of representation are presumed to explain the difference in policy decided by local and central levels, but the problem of representing heterogeneous interests is assumed away at the local level. This is somewhat unsatisfying. The goal ought to be to explain how representation suffers decreasing returns to scale, while accepting that local as well as central governments face the challenge of effectively aggregating heterogeneous preferences. A final model treats local and central governments symmetrically, but at the cost of clean predictions.

The influential Leviathan models (Brennan and Buchanan 1980) assume that competition contains corruption at the local level. But some authors have argued that local governments may be more vulnerable to corruption and capture (Prud'homme 1995, Tanzi 1996). Bardhan and Mookherjee (2002) model the relative vulnerability of local and central governments to capture by special interests. The model treats local and central governments symmetrically. It is a model of Downsian party-based competition over a unitary policy dimension with two sets of voters: informed and uninformed. Special interest groups offer money to the parties if they will distort their platforms away from the median voter. Parties require the money to court uninformed voters but must weigh this against the loss of informed voters that follows from the bias in their platform. While their results are neither stark nor surprising, they highlight the role of specific factors in vulnerability to capture and thus to the likelihood that a particular level of government will spend according to public preferences. Capture is more likely the less informed are voters, the easier it is for special interests to organize, and the less competitive the political environment. Thus capture is more likely where electorates are poorer, less educated, endowed with a poorly organized or dependent media, or where one political party enjoys a strong advantage. Their results suggest that the difference between local and central governments are ones of degree rather than of kind.

The set of models just discussed investigates the role of political participation in disciplining governments' fiscal behavior. Lockwood, Besley and Coate, and Seabright all suggest methods by which representative government implies that central government is less responsive to preferences than local government. However, because each of these models simply assumes that local governments are perfectly representative, they do not yet convincingly explain when and how decentralization might lead to better

accountability. Bardhan and Mookherjee suggest that the relative degree of political competition, availability of information, and ease with which elite interests can organize and lobby determine the relative accountability of local and central governments. Voice, as political participation is often referred to, is not the only method by which governments can be held accountable: exit and fiscal discipline constitute two other important channels of accountability.

The Role of Mobility

The original tenets of fiscal federalism explicitly recognize the importance of mobile factors. In addition to the decentralization theorem, these tenets state: in the face of a mobile tax base, local taxes ought to be limited as much as possible to benefit taxes— taxes paid for by those who use the services they provide—leaving general taxation to the federal level[3]; and the central government ought to take full responsibility for macroeconomic stabilization—for which it alone has the necessary instruments of monetary policy—and horizontal redistribution—which is made difficult at the local level to the extent that factors are mobile. But because these theories view government as benevolent, it is only with the Leviathan theory that a third role for mobility was recognized: constraining government agents. The basic argument is simple: governments that perform poorly will lose firms and citizens and thus their tax base.

However, the threat of exit can produce efficient government only if productive factors see relocation as a viable option making the threat credible. Thus Forbes and Zampelli (1989, Zax (1989), and Joulfrain and Marlow (1990) suggest that it is important to have a large number of relatively homogeneous sub-national government units enabling businesses and families to relocate in response to public policies without sacrificing excessively on other dimensions of their location choices. But the degree to which productive factors are truly mobile is open to debate. Salmon (2006) notes the Leviathan view takes the goal of decentralization to be perfect competition and mobility. Nonetheless, he persuasively argues, in practice, we never reach this "perfect-

[3] Ambrosanio and Bordignon (2006) argue that local governments cannot rely solely on traditional benefit taxation as, in practice, the amount of revenue that can be raised via benefit taxes is limited. However, to the extent that local governments provide services such as universal education and healthcare, the appropriate "benefit" tax may actually be a property tax or an income tax.

competition-cum-mobility" world. Geography remains important; jurisdictions remain heterogeneous because of natural endowments, stocks of physical capital and, most importantly, social networks. Moreover, mobility may be constrained by contractual obligations (mortgages, leases, wage contracts, and the like) as well as social networks. Mobility may work only over longer time horizons and only within bounds defined by the considerable fixed costs of moving. Thus even local governments can always extract rents over some time horizon. Bardhan (2006) argues that in many developing countries, local social networks are critical to the delivery of public goods and personal recognition is so universal that exclusion of newcomers is possible. As a result, there is no gain to moving to a district with a better mix of public goods.

In sum, there is a strong belief that, because mobility is constrained, exit is not a strong channel by which citizens discipline government. Rather, enabling competition remains an important aspect of devolution because of its impact on voice. Comparable governments provide a set of benchmarks by which citizens can judge the performance of their local government, enabling them to exercise better monitoring and discipline at the polls. Breton (2002) argues that this yardstick competition is far more important than mobility. Salmon (2006) notes that tax, service, and regulatory competition all exist in both mobility and yardstick form. Nonetheless, he agrees that "the strength of mobility-based horizontal competition among governments is overestimated. By contrast… the strength of [yardstick competition] is seriously underestimated." (p78)

Vertical Imbalance and Soft Budget Constraints

In practice, the efficient distributions of spending duties and tax prerogatives prescribed by the fiscal federalism rules of thumb do not match. A common view has it that most sources of revenue are more efficiently raised by the central government while most forms of spending are best conducted by local governments. Moreover, in practice, central governments are often reluctant to devolve tax powers either because they feel local governments lack the infrastructure to properly collect taxes or because they wish to retain control of the purse. The resulting vertical imbalance necessitates a system of intergovernmental grants whereby revenues raised by the central government are distributed to the local governments to finance spending. Depending on how it is

implemented, vertical imbalance may upset the direct connection between the cost and benefit of public goods provision leading to a soft budget constraint.

Rodden, Eskeland, and Litvack (2003) define a soft budget constraint as a situation in which "the local government believes that the center ex-post will accommodate and share in local excessive expenditures." In the context of vertical imbalance, soft budget constraints operate through a variety of channels including explicit intergovernmental transfers, funding of state-owned enterprises, direction of loans via state-owned banks, and assumption of local government debt by the central government. Soft budget constraints are a problem because the local government, able to fund its expenditures out of general taxation and thus facing only a fraction of the marginal social cost, will overspend on local public goods and/or under-tax its own local tax base. When incentives are improperly aligned, local governments will deliberately create situations in which their expenditure commitments are unfunded, knowing the central government will prefer ex-post to rescue the local government rather than permit the expenditures—teachers' salaries, books for school children, beds for the sick, public sector pensions, debts to private sector firms—to go unpaid, either because of the externalities, or because voters will hold the central government accountable.

Recent experience with decentralization has suggested that excessive expenditure due to vertical imbalance is a serious problem. A volume of case studies edited by Rodden, Eskeland, and Litvack (2003) investigates the conditions under which vertical imbalance is more or less problematic. Following Litvack et al. (1998), they suggest several general mechanisms for constraining local government expenditure by ensuring that the responsibility rests with the local government. To the extent that these fail, expenditure decentralization will lead to socially inefficient overspending, whatever benefits it may accrue in the targeting of those expenditures.

First, levels of vertical transfers must be transparent, firm, and independent of choices made by the receiving jurisdiction. Except in the case of matching grants designed explicitly to address externalities, transfers ought to be independent of the spending of the local government so as to encourage local governments to rely on local revenue sources for additional local needs. This also requires the development of ex-ante measures of need that are cleanly measurable and verifiable. Given that the central

government often has time-inconsistent preferences, there must be some kind of commitment device to convince the localities that bailouts will not be forthcoming. Generally this comes from transparent rules about sources of funding and a history of holding firm. But it also comes from transparent rules about which level of government is ultimately responsible for a particular service. If voters do not understand the local government is responsible for a particular service and are thus liable to hold the central government accountable, the central government has a strong incentive to remedy under-provision and, knowing this, the local governments have a strong incentive to under-fund. The credibility of these commitments is naturally difficult to quantify, springing from a combination of institutional rules and historical actions. Inman (2003) suggests that the credibility of the no-bail out commitment in the US was earned only after the center refused to rescue several states from painful defaults in the 19th century. If committing not to bail out ex-post is difficult, the local government may be constrained ex ante by constitutional provisions constraining the ability of local governments to raise debt and/or explicit auditing by the central government.

Second, the authors suggest that the traditional accounting mechanisms of exit and voice can serve as constraints on the willingness of local government to abuse the soft budget constraint under certain circumstances. For example, voice may constrain government to the extent that citizens are aware of government policies and their consequences, are presented with alternative policies through political competition, and participate in local elections. However, this requires that responsibility for taxes and expenditures be clearly delineated so that voters know which level of government to be held accountable for the performance in each area.

Finally, because they have incentives to be informed, credit markets may provide a further discipline mechanism. To the extent that credit markets function correctly, local governments pursuing unsustainable fiscal paths will be punished with higher costs of borrowing. However, financial markets may be subject to political capture. Rodden (2003b) suggests that in the case of Germany, the local credit market is uninformative because provincial governments borrow through Ländesbank, which seem to set rates that are not particularly responsive to credit ratings. Moreover, implicit central guarantees can undermine financial market discipline because lenders don't bear bankruptcy risk and

thus don't price it into the interest rate. In this case the local government's credit rating is not an independent signal of the sustainability of its policies and provides no incentive for local government officials to remain frugal and efficient.

In sum, both theory and evidence from case studies suggest that the effects of fiscal decentralization depend crucially on complex interactions between a variety of institutions governing effective political representation and the nuances of the financial relationship between junior and senior levels of government. These factors include the relative strength and independence of local and national media, the relative ability of special interests to mobilize at the local and national level, the education and attentiveness of the voters, the relative degree of political competition at local and national levels, the transparency of the division of responsibilities between local and central government, the independence of sources of government credit, and expectations of the likelihood the central government would bail out sub-national governments should they overspend. Unfortunately, these factors are all difficult to measure comprehensively, and very few of them make it into large-n empirical studies.

3. Empirical Work

The earliest theories of fiscal federalism hypothesized direct connections between decentralization and government size. The decentralization theorem suggests that decentralization leads to an increase in expenditures through duplication of administrative efforts and the loss of other returns to scale in provision. On the other hand, the Leviathan theories suggest that decentralization leads to smaller government both by inducing tax competition which reduces wasteful expenditure (Brennan and Buchanan 1980) and limiting the available instruments of finance (Marlow 1988). Consequently, Oates sought to test his theory, first in isolation (Oates 1972) and then against Leviathan (Oates 1985) by looking at the relationship between decentralization and government size.

A large literature arose as others sought to identify and test the implications of these theories for the pattern of government expenditures. The literature typically runs a cross-sectional, panel, or in some cases longitudinal regression with a measure of government size on the left-hand side and a measure of decentralization on the right-hand side along with a set of control variables generally chosen from the literature on

government size.[4] The size of government is typically measured as a ratio of the total amount of either revenues or expenditures across all levels of government within the jurisdiction of the senior government divided by the GDP of the jurisdiction of the senior level of government. The degree of fiscal decentralization is typically measured in one of two ways. Most commonly, it is taken as the ratio of expenditures (revenues) at the junior level of government to expenditures (revenues) at the senior level of government.

Because of vertical imbalance, taxes and expenditures tend to give different measures of government size and the degree of decentralization: both the average and fluctuations around it. Thus it is important to include a measure of vertical imbalance on the right-hand side along with either a revenues or an expenditure measure of decentralization so as to simultaneously identify the effects of balanced decentralization and vertical imbalance.

Table 1 details the specifications and summarizes the results of several of the important contributions in this literature. The literature attempts to develop a pattern of correlations that is indicative of the relative strength of the various mechanisms proposed by theory. To develop a pattern of correlations—rather than a single correlation—it is argued that theories have different implications for different types of public spending or for decentralization at different fiscal federal margins.

The *fiscal federal margin* refers to whether decentralization occurs at the federal-provincial margin, provincial-local margin, or within layers of local government. It has been argued that the relative importance of the various theories ought to vary according to the margin along which fiscal decentralization takes place. Unfortunately, authors do not always agree on the mapping of theories to margins. For example, Zax (1989) argues that efficiency inducing competition is most relevant when comparing different municipalities within the same metropolitan area, because such municipalities, by offering access to the same social network, are truly competitive alternatives for mobile factors seeking their preferred mix of taxes and public spending. On the other hand, Marlow (1988) argues that the Leviathan hypothesis is stronger at the federal-provincial margin than at the provincial-local margin because it is breaking the monopoly power of the central government which has the greatest marginal effect.

[4] See Shelton (2007) for a unified review of the results in this literature.

Other authors have noted that decentralization, by engendering competition between districts, ought to lead to a change in the composition of public spending as well as the magnitude. Keen and Marchand (1997) build a model to demonstrate that decentralization leads districts to skew spending towards those forms of public investment that increase the productivity of mobile factors and thus make the district a more attractive location at a given tax rate, at the cost of public consumption. However, this argument rests heavily on the validity of the mobility hypothesis. If, as Breton and Salmon argue, competition operates largely through benchmarking rather than mobility, then the effects on the composition of taxes and spending are less clear. Moreover, it is somewhat difficult to sort categories of expenditure into public investment and public consumption. Where does public education fit? An educated populace makes for a more productive workforce and ease in recruiting qualified people is an important factor in business location decisions. And while people are theoretically mobile and free to take their education to other locales, in practice, there are a number of frictions—acclimatization to local culture and amenities; social, familial, and business networks—that tend to reduce the mobility of the labor force. So perhaps spending on education, typically classified as government consumption, ought to be classified as investment for the purposes of this argument. Translating theories of fiscal federalism into hypotheses about the composition of public spending is seldom simple.

The evidence from these studies is the following. First, vertical imbalance always and everywhere leads to larger government. This is remarkably consistent across years, countries, and fiscal federal margins. Moreover, it is confirmed by a large number of case studies (see volumes edited by Ahmad and Tanzi 2002 and Rodden, Eskelund, and Litvack 2003). As Rodden (2003a) and Jin and Zhou (2002) demonstrate, a marginal increase in vertical intergovernmental grants is almost entirely spent by the junior level of government (little goes to reducing tax burdens) and yet leads to almost no decline in spending at the senior level of government.

The evidence on the effects of *balanced fiscal decentralization*, by which I mean the process in which control over the tax base is decentralized along with expenditure prerogatives, is more mixed. Decentralization from the central to unspecified sub-central levels may have positive or negative effects on the size of general government, depending

on the sample and method. In cross-country studies, Rodden (2002, 2003a) and Ehdaie (1994) find that balanced fiscal decentralization restrains government; Stein (1999), and Fiva (2005) find the opposite. In longitudinal studies of the US and Canada (which hold the institutional setting somewhat more constant), Marlow (1988), Grossman (1989), and Grossman and West (1994) each find that decentralization leads to decreases in the size of government. Cross-sectional studies of the US by Raimondo (1989), Joulfrain and Marlow (1990), and Oates (1985) find that decentralization from the central to the state level leads to increases in the size of government whereas decentralization from state to local level leads to decreases in the size of government. Finally, Nelson (1986) and Zax (1989) find that more general purpose governments within a county or metropolitan area reduces the size of government whereas Forbes and Zampelli (1989) find the opposite.

The results across categories of expenditure are somewhat more consistent. Raimondo (1989) is one of the earliest studies of the effects of decentralization on different categories of expenditure. He reruns Oates' regression looking at different degrees of state-local decentralization across US states. For four specific categories of expenditure (education, welfare, hospitals, and highways), he regresses the total fraction of state income spent in the category on (i) the percentage of the sub-national expenditure which is funded by the local government, (ii) the percentage of the sub-national expenditure which is funded by the federal government, and (iii) controls such as population, urbanization, and per capita income. Items (i) and (ii) both test for the Leviathan hypothesis from different directions. The Leviathan hypothesis would suggest that total sub-national (state and local) spending would increase as it is funded by local government and decline as it is funded by federal government. On the other hand, arguments over vertical imbalance would suggest that increased federal government funding for a category would lead to increased spending. Raimondo finds that welfare is an unequivocal "Leviathan good": total spending increases as the source of funding is centralized from local to state to federal. Education, on the other hand, is a locally supported good: total spending increases as the source of funding is devolved from federal to state and local. Finally, total sub-national spending on hospitals and highways increases as federal government cover a greater fraction, but also increases as localities cover a greater fraction. His coefficients are all significant at the 1% level, strongly

indicating that the effect of fiscal decentralization depends strongly on the type of expenditure in question.

Three more studies confirm that decentralization changes the mix of public spending. Arze et al (2005) show that, in a panel of 45 countries, decentralization is associated with an increase in the fraction of government spending on publicly provided private goods, which they define to include healthcare and education.

Fiva (2005) splits total government spending into transfers and government consumption. As discussed earlier, in both cases, expenditure decentralization leads to larger government while tax decentralization leads to smaller government. However, expenditure decentralization operates more strongly through encouraging government consumption while tax decentralization restrains transfers more strongly than government consumption. In either case, decentralization seems to skew public finances away from transfers and toward government consumption. This is consistent with the hypothesis that decentralization leads to duplication of administrative costs which are part of government consumption.

It is also worth pointing out that sub-national units of government are rarely homogeneous in size. Congleton (2006) argues that asymmetric federal systems may lead to regional concentrations of power within the federal government and thus inequity in the distribution of taxes and expenditures. Faguet (2004) argues that this is precisely what happened in Bolivia. In his words: "Centralized investment was thus hugely skewed in favor of a few municipalities which received enormous sums, a second group where investment was non-trivial, and the unfortunate 2/3 of districts which received little or nothing." He then demonstrates that decentralization led to a more equitable distribution of revenues and consequently, to a change in the composition of spending as newly empowered local governments enacted a different set of priorities.

The mixed results for balanced decentralization in cross-country studies and the contrast between the federal-state and state-local margins suggests that the strength of the various channels depend on a variety of unmeasured factors. The strongest candidates for these omitted variables are the host of institutional factors discussed in the section.

4. Drawbacks with the Standard Approach

There are several drawbacks with this standard approach. First, the IMF GFS data used to measure revenues do not distinguish between own source local revenues and grants from more senior levels of government. Nor do they determine the extent to which spending at the local level was determined by local government or directed by more senior levels of government. These problems were pointed out by Oates (1972) and given significant treatment by both Ebel and Yilmaz (2003) and Rodden (2003a). Some authors (e.g. de Mello 2000, Rodden 2003a) do use measures of own-source revenues. But this only partially solves the problem. In many cases, local governments collect tax receipts from nominally local tax bases—which would thus be recorded as own-source revenues—but do not have the authority to set the tax rates. As Rodden himself notes, "[m]ost theoretical arguments stressing efficiency gains from decentralization (along with more recent arguments pointing out its dangers) implicitly assume that improvements (deteriorations) in responsiveness or stronger incentives for effort (self-seeking) stem from increased autonomy from central control." Thus, without true measures on the extent of local autonomy, it is difficult to evaluate these arguments.

To address these critiques, Stegarescu (2005) has, following the procedure outlined by the OECD (1999), assembled direct measures of the extent of decentralization of tax and revenue *prerogatives* in a sample of 18 OECD countries. In particular, Stegarescu focuses on the ability of local governments to determine revenue sources autonomously. These institutional measures of the degree of fiscal decentralization are an important advance. Nonetheless, they are as yet available for only 18 countries.[5]

The second major drawback with the standard approach is the difficulty in operationalizing the institutional complexities that seem, according to both political

[5] Anderson and Van Den Berg (1998) point to another interesting drawback with using GDP figures to normalize the size of the public sector. As is well known, national income measures do not include informal household activities or the underground economy. Thus dividing government expenditures by GDP overstates the extent of the public sector. If the extent of unrecorded economic activity varies across countries in a way that is related to the extent of decentralization, then the standard regression estimates may be biased. Anderson and Van Den Berg argue that centralization leads to forms of regulation and taxation that drive activity underground and affect the relative returns to the household and market sectors. Assuming that adults who do not participate in the formal sector nonetheless contribute to aggregate economic activity via the informal sector, they use an age-weighted participation rate (the young and old receive are presumed less likely to be economically active in the informal sector and thus contribute less

economy theories and case studies, to be of considerable importance in determining the differences between locally and centrally determined policies. The independence and effectiveness of the media, clarity of the division of powers, degree of political competition and participation, and existence of borrowing limits and audits; none of these are regularly included in the empirical work because cross-nationally comparable measures do not yet exist. The sole exceptions are Stein (1999) and Jin and Zhou (2002), who include the ability of sub-national governments to borrow as a measure of soft budget constraints. They each find a significant interaction effect: the effects of vertical imbalance on aggregate government size are greater when sub-national governments may borrow. It is likely that institutional variation along other, as yet unquantified dimensions is responsible for the inconsistency in results across different samples.

But the third and most important drawback with the standard approach comes from the distance between actual (measured) expenditures and efficient or desired expenditures. According to the Leviathan view, government is always inefficiently large, so less expenditure is unequivocally better. But recent political economy models and case studies suggest a more complex relationship, one that varies a great deal across time and space according to a wide variety of institutional details. Measuring the size of government tells us little about the quality of public goods and the responsiveness of public goods provision to citizens' needs. Thus we must move beyond a discussion of whether decentralization leads to larger or smaller government and focus on whether decentralization leads to more or less efficient provision of public goods and services and whether these provisions are more or less responsive to citizen's preferences. To do so requires measures of quality of provision and public preferences over provision. As yet such measures are limited to specific case studies.

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weight) as a proxy for the extent of informal sector economic activity. In a sample of 45 countries, they show that their adjustment improves the adjusted R^2.

5. Moving Beyond Expenditures

There is a relatively long literature discussing the possibility that local governments may be more vulnerable to corruption and capture (Prud'homme 1995, Tanzi 1996). The simplest empirical approach is to develop a measure of corruption to serve as a reduced-form measure of the efficiency of expenditures to complement traditional measures of expenditures. There exists a small cross-country empirical literature on the relationship between decentralization and corruption. Huther and Shah (1998) document a negative unconditional correlation between traditional measures of fiscal decentralization (ratio of sub-national to total government expenditures) and corruption, typically measured by the International Country Risk Guide's corruption index. Fisman and Gatti (2002) show that this correlation is robust to a small set of controls taken from the government size literature and to a variety of estimation procedures to correct for endogeneity. Unfortunately, they do not include a measure of vertical imbalance on the right-hand side so we cannot be sure the extent to which this plays a role in delivering measured corruption.

Of course, while suggesting that fiscal decentralization is associated with and may even cause declines in society-wide measures of corruption, this is still a long way from a direct measure of the efficiency and responsiveness of service provision. There is a growing set of case studies seeking to measure (i) the extent to which expenditures result in effective public goods provision, and (ii) the extent to which expenditures respond to local preferences and needs. Most of these are studies of episodes of decentralization in developing countries. Naturally, the measurement of local needs, local preferences, and service quality is complex. These studies often rely heavily on self-reporting of preferences, quality of delivery, perceptions of corruption, and political participation via surveys. Nonetheless, they make great strides in moving from a measure of expenditures to a measure of efficacy of service delivery. Unfortunately, the caveat remains that these studies have as yet produced relatively few general principles. As Bardhan (2006) puts it, "general presumptions that transcend institutional details are difficult to sustain, and the impact studies [are] very much context and design specific."[6]

Intergovernmental grants designed to enable local control of spending may fail to reach their intended targets. Understanding the conditions which exacerbate such diversion may lead

[6] See Bardhan (2006) for a more detailed review of several of these studies.

to understanding whether and when decentralization is likely to lead to improved efficiency. For example, Reinnika and Svensson (2004) suggest that the extent to which officially recorded grants are actually distributed is the result of a bargaining game between local officials and the intended recipients of the grants, be they hospitals, schools, or households. To test this, one can measure the discrepancy between the level of spending recorded in official statistics and the level that actually reaches the intended targets and then regress this discrepancy on village characteristics to understand why one village received its distribution while the other did not.

Reinnika and Svensson consider delivery rates for grants by the central government to fund local schools in Uganda. Olken (2005) considers delivery of rice to poor households in Indonesia. Olken finds that ethnic heterogeneity, low population density, and scarcity of social networks—all factors that could be related to ability to monitor local officials—are all associated with a village receiving a lower fraction of its allotted rice. But he finds no correlation between a village's per capita income and the fraction of allotted rice actually delivered. On the other hand, Reinnika and Svensson find that central government grants for primary schooling are much more likely to reach schools in richer villages. Why are richer villages better able to enforce distribution of school grants in Uganda but have no such power for the distribution of rice in Indonesia? It would seem that local bargaining power is highly context specific.

Another approach tests not whether allocations are received, but whether they are properly targeted to the households with the highest need. By looking at the targeting of expenditures within and across villages, Galasso and Ravaillon (2005) and Bardhan and Mookherjee (2006) explicitly compare the effectiveness of junior and senior levels of government. They assume that a senior level of government retains power over the allocation between communities but a junior level of government allocates expenditures within the village. Thus, the correlation between *intra*-village need and *intra*-village allocation forms a measure of the targeting effectiveness of village government. The correlation between *inter*-village need and *inter*-village allocation forms a measure of the targeting effectiveness of the senior level of government. In a study of villages in West Bengal, Bardhan and Mookherjee (2006) explicitly compare the inter-village and intra-village allocations of loans, grants, employment opportunities, and agricultural minikits resulting from a slate of government assistance programs. They find that intra-village allocations of aid match the distribution of need as assessed by poverty measures. On the other hand, inter-village allocations displayed significant

biases: e.g. an increase in the fraction of the poor that were low caste status led to a decline in aid received. They conclude that the weak link in decentralization was not within the village, but in the process of inter-village allocation. Galasso and Ravaillon (2005) look at Bangladesh's food-for-education school-enrollment subsidy program and calculate the fractions of the poor and non-poor who participate in the program. They take the difference of these fractions as their measure of the degree to which aid is successfully targeted at the poor. They too find that distribution within the village is better targeted than distribution between villages. At the same time, they find that targeting varies a great deal across villages. For example, villages with a more unequal distribution of land tend to have poorer targeting.

Unfortunately, the better targeting of the junior level of government does not seem to be a universal principle. Coady (2001) finds that for Mexico's *Progresa* anti-poverty transfers program, most of the effective targeting comes when the central government selects which localities will be eligible to participate rather than when the village selects which households will be eligible. And in a study of Punjabi villages, Kochar et al (2009) find that central government mandates are effective in ensuring that local governments deliver services to the lowest castes. These contradictory results suggest that

Another set of studies looks directly at whether decentralization leads to a mix of spending which more closely approximates the preferences of citizens. Faguet (2008) argues that in both Bolivia and Colombia, decentralization led to a shift in composition as local governments systematically favor investment in social services and human capital. And Faguet (2004) shows that the post-decentralization distribution of spending in Bolivia more closely matches the distribution of need, measured by illiteracy rates, population lacking water and sewage, and malnutrition rates. While still looking at spending rather than outcomes, looking at the distribution of needs brings us one step closer and has the advantage that the measures are objective rather than self-reported.

At the heart of these studies is an attempt to measure the effectiveness of expenditures rather than their magnitude. Following the early example of Crook and Manor (1998), a few studies have gathered extensive information on outcomes and perceptions at the local level. Azfar, Kahkonen, and Meager (2001) gathered extensive survey data to quantify the landscape of public goods provision during episodes of decentralization in the Philippines and Uganda. Concentrating on primary education and healthcare delivery, they surveyed households, service facilities (schools and health clinics), and local and state government officials to capture both

basic statistics and the perceptions of each unit of the service process. They thus generate outcome measures such as literacy rates and educational attainment for education and disease incidence and mortality for healthcare, plus user satisfaction and measures of access. They also generate data on household political participation: how often they engage in various political activities (e.g. petitions, town halls, and voting) as well as where they acquire information about local and national issues (e.g. radio, TV, social networks, leaders' announcements). They have data on households' priorities for public goods as well as what state and local officials *think* are the household priorities. They asked officials whether they had the latitude to make important policy decisions such as hiring and firing staff, setting salaries, and changing the mix of services. They asked households whether they intend to migrate, and if so, why. Such direct measures on outcomes and preferences are critical to convincingly evaluate how decentralization affects the quality of public services and the responsiveness of public services to public demands.

Here too there is evidence that decentralizations vary in ways that are difficult to pick up in conventional data collection. In the Philippines, the levels of autonomy reported by officials are roughly equal at the municipal and provincial levels. In Uganda, municipal officials report being much more constrained than do their provincial counterparts. They also found differences in the sources of information on which voters rely. In Uganda, social networks and direct communications from officials are of increased importance at the local level, while radio is of increased importance at the national level. They worry this may signal a lack of independent news sources at the local level and risk of poor governance. In the Philippines, by contrast, radio retains its importance at the local level. To evaluate the effects of local institutions of governance, they regress district level outcomes (test scores and vaccination rates) on voting records and media use patterns controlling for income and education attainment. They find evidence confirming that media use is related to outcomes, with greater reliance on radio rather than social networks leading to better outcomes. In both countries, households frequently signal intent to migrate, but poor public services are rarely cited as the impetus, suggesting exit is not a serious constraint on government. Finally, they find a gap between public officials' knowledge of citizen's preferences and their actions. "Local governments in the Philippines and Uganda are not consistently responsive to local preferences, though they appear to be aware of local preferences. In most cases they cannot break out of the procedural, resources, and governance constraints that prevent them from responding." They conclude that the greatest issue is a lack of information flow from government to citizens.

In sum, careful case studies have begun, for specific instances, to quantify the gaps between recorded and delivered spending and the extent to which spending is targeted to those who need it and composed of the projects most in need. The institutions of successful monitoring are complex and the conditions enabling citizens to monitor local government are not yet fully understood. Nonetheless, it is only with these new measures that the central question of fiscal federalism—under what conditions does fiscal decentralization lead to responsive and effective service provision?—can be tackled.

6. Summary

For two important reasons, the literature testing the effects of fiscal decentralization on government size leads to relatively few robust conclusions about the most efficient assignment of fiscal prerogatives. First, theories of the political economy of representation and case studies of decentralization suggest that the accountability of local government depends a great deal on institutional factors such as the independence and competence of the media and the degree of political competition and participation. The existing evidence supports the importance of these institutions. There is strong evidence that vertical imbalance leads to larger general government. There is further evidence that borrowing constraints limit this effect. The evidence on the effects of balanced decentralization on expenditures is mixed. The strongest result is that decentralization does seem to shift general government expenditures from transfers to consumption, which supports the idea that decentralization leads to duplication of administrative efforts. Other results depend a great deal on the sample and the fiscal federal margin in question. This suggests a strong role for unobserved variation. The full measure of institutional constraints identified by country-specific case studies has yet to be tested for widespread validity, largely because indicators have yet to be developed.

Second, the biggest drawback to using expenditure measures to test theories of fiscal federalism is that expenditures do not distinguish between efficient and inefficient expenditures and thus do not clearly help us measure the policy question of interest. Future empirical work in this field ought to (i) include explicit measures of institutions at the local and central level, (ii) connect expenditures to service quality to determine effectiveness, (iii) connect expenditures to measures of citizens' needs to determine responsiveness. The development of institutional measures requires careful research and classification of de facto arrangements. Need may be assessed either by surveys of citizen's priorities or by using macro-economic indicators of

health, education, and so on. Service quality may be best measured by surveys of household satisfaction. Currently, case studies of decentralized programs in developing countries suggest that whether junior levels of governments are better able to target expenditures than senior levels is highly situation-dependent. There remains a role for further work illuminating the role of the institutional environment in enabling effective targeting.

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TABLE 1: Prominent Studies of the Effects of Fiscal Decentralization on the Pattern of Government Expenditure

Study		Sample			LHS	RHS vars	Controls	Method	Results
Author	Year	unit	numbers	years	var				
Oates	1972	country	57		Gr	Dr	pop, urban, gdppc	OLS	decentralization weakly increases size of government
Oates	1985	US state	48	1977	SLr	Drs, VI	pop, urban, gdppc	OLS	decentralization weakly decreases size of government while intergovernmental grants increase the size of government
					SLr	Des, VI			
					SLr	#, VI			
		country	18 industrial, 25 developing	~1980					
					Gr	Dr, VI	pop, urban, gdppc	OLS	
					Gr	De, VI			In both developing and industrialized subsamples, decentralization weakly decreases the size of government while intergovernmental grants increase the size of government
Nelson	1986	US state	50	1976	SLr	Drs, #	taxlaw, debt	OLS	Strong support that a greater number of substate governmental units constrain state and local revenues. Comprehensive personal income taxes and sales taxes increase state revenues while a corporate income tax *decreases* revenues and personal property taxes have little effect
Marlow	1988	US	longitudinal	1946-1985	Ge	De	pop, gdppc	CO	decentralization strongly decreases size of government
					Ge*	De*	pop*, gdppc*		
								CO	changes in decentralization strongly correlated with slower growth of general government
Grossman	1989	US	longitudinal	1946-1985	Ge	De, VI	pop, gdppc	CO	Marlow holds even when controlling for grants. And grants tend to increase the size of government
					Ge*	De*, VI	pop*, gdppc*	CO	
Forbes and Zampelli	1989	US counties within SMSA	345 counties in 157 SMSAs	1977	Cr	Drs, VI, #	pop, pop*, rgdppc, area, white, educ, poor, u, home, region dummies	OLS	Logic: citizen mobility operates only at county level so look at counties. Results suggest that more counties leads to larger government
Zax	1989	US cities within counties		1982	Cr	#, VI	pop, gdppc, urban, 25-44, 60+, home		more general purpose local governments within a county reduces the total size of the county "fisc". Single-purpose governments don't provide choice and their effect is insignificant
Raimondo	1990	US state	50	1960, 70, 80	SLe	Fed, Loc	pop, urban, gdppc, hard	pooled	decentralization from state to local decreases total expenditures
					comp.				see text
Joulfrain and Marlow	1990	US state	50	1981, 1984	Ge	De, VI	pop, gdppc	OLS	grants insigificant, decentralization sigificant and negative
					Ge	#, VI			grants insigificant, number of localities sigificant and negative
Kneebone	1992	Canada	longitudinal	1926-1990	Ge	DECs, DECl, Vis, Vil	pop, rgdppc, time, time^2, depend, price, taxherf, visible, inctax, war	?	Federal grants to states increase government size but state grants to local do not. Decentralization to states increases total government size; decentralization to localities decreases government size. Conclusion: Federal-state decentralization dominated by economies of scale; state-local decentralization dominated by competitive restraint of leviathan
Grossman and West	1994	Canada	longitudinal	1958-1987	Ge	De, VI	pop, gdppc, time dummy	CO	decentralization weakly decreases the size of government while grants strongly increase the size of government
Ehdaie	1994	country	30	1977, 1987	Ge	DEC, VI	urban, gdppc	OLS	decentralization strongly associated with smaller total

					Ge*	DEC*, VI*	urban*, gdppc*	OLS	government and slower growth of government. Vertical imbalance weakly associated with larger total government and not associated with growth of government.

TABLE 1: Prominent Studies of the Effects of Fiscal Decentralization on the Pattern of Government Expenditure (continued)

Study		Sample			LHS var	RHS vars	Controls	Method	Results
Author	**Year**	**unit**	**numbers**	**years**					
Stein	1999	country	19 latin american, 24 OECD	mean 1990-95		De, De*VI, De*VI*SftBC	debt, open, 65+	OLS	expenditure decentralization *increases* government size, and does so more the greater is vertical imbalance. Moreover, this interaction effect is greater the worse are soft budget constraints such as the ability of subnational governments to borrow
Jin and Zhou	2002	country	17 industrial, 15 developing	1980-1994 annual panels	Ge	De	rgdppc*, rgdppc, π, open, urban, subnatelec, cbi, federal, borrow	FGLS and country FE	vertical imbalance is correlated with larger national and subnational government (and thus with larger total government). Independent central bank correlated with smaller government size.
					Ge	DEC			
					Ge	VI			
Rodden	2003	country	44	1978-1997 annual panels	Ge	De, DEC, VI	pop, gdppc, depend, open, cmopen, area, dem, elecsys, frag, eyear, partisan, debt	country FE	An increase in grants tends to increase sub-national expenditures almost 1 for 1 while reducing central government expenditures virtually not at all. Tax decentralization is associated with smaller government in countries where subnational government controls base and rate
Fiva	2005	country	18 OECD	1970-2000 5yr panels	Ge	Dr!, De	pop, urban, 15-, 65+, open, partisan, federal	country FE	Vertical decentralization associated with larger government; balanced decentralization also associated with larger government.
					Gov Cons, Trans				Expenditure decentralization operates more strongly by encouraging government consumption while tax decentralization operates more strongly by reducing transfers.
Arze et al	2005	country	45	1973-2000	EH	De	pop, density, gdppc, budget	country FE	Decentralization leads to a higher share of publically provided private goods in total government expenditures.

Ge: total government expenditures as a fraction of GDP or GSP
Gr: total government revenues as a fraction of GDP or GSP
SLr: total state/province and local revenues as a fraction of GSP

SLe: total state/province and local expenditures as a fraction of GSP
Cr: four different measures of county revenues as a fraction of personal income
De: ratio of state/province and local to total government expenditures
Des: state gov expenditures as a share of state and local gov expenditures
Dr: ratio of state/province and local to total government revenues
Drs: state tax revenues as a share of state and local tax revenues
Dr!: subcentral rev. with discretion over rate / total government revenues
DEC: ratio of subnational own-source revenues to total government expenditures
DECs: ratio of state expenditures net of grants to total government expenditures
DECl: ratio of local expenditures net of grants to total government expenditures
VI: ratio of intergovernment grants to subnational government revenues
Vis: transfers to state governments as a fraction of state revenues
Vil: transfers to local governments as a fraction of locla revenues
SftBC: an indicator of soft budget constraints
Fed: percentage of total state and local funded by federal grants
Loc: percentage of total state and local funded at local level
# of local governments in the state/province
* indicates growth rate of underlying variable
EH: (Education + Health)/Total government spending

CO: Cochrane Orcutt
OLS: Ordinary least Squares
pooled: pooled OLS
country FE: panel w/ country fixed effects
FGLS: feasible generalized least squares

pop: population
density: population density
budget: budget balance
urban: percentage of population which is urban
gdppc: income per capita
hard: a hardship index including measures of unemployment, dependency, education, housing, and poverty
debt: level of public sector debt
open: trade openness measuresed as (exports+imports)/GDP
cmopen: indicator of capital market openness
area: physical area in sq. km.
depend: the dependency ratio: population above or below working as a fraction of the total population
65+: fraction of the population aged 65 or older
dem: polity IV indicator of democracy
elecsys: indicator of presidentail vs. parliamentary electoral system
frag: extent to which government is politically fragmented
eyear: indicator of an election year
partisan: discrete variable indicating whether government is left, center, or right
federal: an indicator of a federal system
subnatelec: indicator of whether the subnational governments are elected
borrow: indicator of whether there are constraints on borrowing by subnational governments
π: consumer price inflation
cbi: indicator of independent central bank
price: measure of the price of government outputs relative to private sector outputs
taxherf: herfindahl concentration index for revenues raised from nine types of taxes
visible: measure of the degree of visibility of government tax revenues
inctax: ratio of income tax revenues to total tax revenues
war: indicator of war years
taxlaw: several indicators of types of taxes a state uses, whether there are constitutional limits on rates
home: home value and percentage home ownership
educ: percentage of population with high school education
poor: poverty rate
white: percent of population that is white
u: unemployment rate