

Fiscal Decentralization: A Political Economy  
Perspective

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# Fiscal Decentralization: A Political Economy Perspective\*

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## Abstract

This paper surveys recent contributions to the study of fiscal decentralization which adopt a political economy approach. It is argued that this approach can capture, in a variety of formal models, the plausible and influential ideas (increasingly, supported by empirical evidence) that fiscal decentralization can lead to improved preference-matching and accountability of government. In particular, recent work on centralized provision of public good provision via bargaining in a legislature shows how centralization reduces preference-matching, and recent work using "electoral agency" models formalizes the accountability argument. These models also provide insights into when decentralization may fail to deliver these benefits.

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## 1. Introduction

This paper surveys recent contributions to the study of fiscal decentralization which adopt a political economy approach. By a political economy approach, I mean a systematic attempt to model the behavior of government - whether at the national or local level - taking into account institutions and processes, such as elections and legislatures, which determine the choice of fiscal policies in practice. This is in contrast to the "standard" or traditional approach to the study of fiscal decentralization, which treats each level of government as a benevolent social planner, maximizing the welfare (e.g. sum of utilities) of the residents of its jurisdiction, and is thus forced to make the ad hoc assumption of "policy uniformity" in order to explain why decentralization can ever be efficient. The standard approach was stimulated by the pioneering work of Oates(1972) and since developed by a number of authors<sup>1</sup>.

What is the distinctive contribution of the political economy approach? In discussion of the costs and benefits of decentralization, it is usually argued that the costs of decentralization are due to various kinds of coordination failure: specifically, the failure to internalize tax and expenditure externalities of various kinds, or to exploit economies of scale (Oates(1999)). The political economy approach has little to say about these coordination failures that is distinctive from the standard approach.

There is less of a consensus on the benefits of decentralization, but generally, the idea is that it is "closer to the people". There are two ways in which this can manifest itself. First, it is claimed to improve allocative efficiency, in the sense that the goods provided by governments in localities will be better matched to the preferences of the residents of those localities. This is sometimes known as the *preference-matching* argument. Second, decentralization is argued to increase the *accountability* of government. This term is used in rather a broad sense, and refers to the extent to which rent-seeking activities of office holders, such as taking bribes, favouring of particular interest groups, and insufficient innovation and effort, are held in check<sup>2</sup>. There is a growing body of empirical

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<sup>1</sup>The policy uniformity assumption is widely used in papers on many topics in fiscal federalism as an easy way of generating some cost of centralization, including : work by Alesina and Spolare(1997) on the size of nations, Bolton and Roland(1997) on the effects of threat of secession, Alesina, Angeloni and Etro(2001) on endogenous international unions. While these papers do not assume a benevolent social planner, they use the policy uniformity assumption as an easy way of generating some cost of fiscal centralisation.

<sup>2</sup>This argument goes back to Buchanan and Brennan's "Leviathan" hypothesis, in which they "envision a monolithic government that systematically seeks to exploit its citizenry through the maximization of tax revenues that it extracts from the economy"(Oates(1985)). They argue that decentralization checks

evidence (briefly surveyed in Section 2) that does suggest fiscal decentralization impacts on government accountability and preference-matching .

It is the thesis of this chapter that the standard approach has little to say about either preference-matching or accountability, but that a political economy approach can give an account of these two effects that is both rigorous and plausible. So, the distinctive contribution of the political economy approach is that it can rigorously explain two of the key benefits that are widely believed to arise from increased fiscal decentralization, and give more precise predictions about when such benefits might be achieved.

To understand the distinctive contribution of the political economy perspective, consider first a simple version of the "standard" model. Assume two levels of government, central and regional, for simplicity. Both types of government are assumed benevolent: that is, they maximize the sum (or average) of utilities of the residents in their jurisdiction. The activity of government is to provide local public goods, which may generate externalities (positive or negative) for other regions.

With decentralization, regional governments fail to internalize these spillovers. On the other hand, with centralization, as the government is benevolent, such spillovers *are* internalized. So, the standard model easily captures the "coordination failure" cost of decentralization. But, to capture the preference-matching benefit, it is forced to make the ad hoc assumption of *policy uniformity* : central government is assumed to set a uniform level of local public good provision in all regions. Moreover, as policy-makers are assumed benevolent, the "problem" of non-accountability is not even defined within the standard model.

The newer political economy approach can address both these shortcomings. First, models of legislative decision-making with centralization developed by Lockwood(2002) and Besley and Coate(2003) explain why, even when regional delegates are benevolent in the sense that they represent the interests of the voters in the regions from which they are elected, levels of regional public good provision decided upon by the legislature can be insensitive to regional preferences; in other words, there is reduced preference matching with centralization.

Again, models of electoral control developed by Besley and Case(1995), Besley and Smart(2003), Persson and Tabellini(2000) and others formally endogenize the degree of accountability of policy-makers to voters in an environment where (i) policy-makers may not represent the interests of the voters e.g. they may be motivated by rent-seeking, and (ii) initially, voters do not know whether the incumbent policy-maker is good or bad, but

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the ambition of a Leviathan government.

can make inferences about the incumbent's type from the fiscal policy he chooses. In this environment, Persson and Tabellini(2000) and Hindriks and Lockwood(2005) have studied how the degree of electoral control voters have (or the degree to which incumbents are accountable to voters) differs between centralization and decentralization. Belleflamme and Hindriks (2003), Besley and Case (1995), Besley and Smart (2003), and Bordignon, Cerniglia, and Revelli (2004), amongst others, have investigated how tax and yardstick competition between jurisdictions (with decentralization) might improve accountability. There is also a related emerging literature on decentralization and lobbying e.g. Bhardhan and Mookherjee(2000): this literature explains how capture of government by special interest groups may differ between centralization and decentralization.

Finally, this chapter also surveys recent work on the political economy of the *choice* between centralization and decentralization. This is a key part of the political economy perspective: after all, in practice, political institutions determine these choices, as well as the performance of government under a given allocation of fiscal powers.

The remainder of this chapter is organized as follows. Section 2 reviews some of the empirical evidence on preference-matching and accountability. Section 3 gives a brief account and critique of the standard model. Section 4 describes the type of political economy model (the legislative model) that has been used to look at the preference-matching argument, and then reviews the distinctive results of this recent literature. Section 5 described the type of political economy model (the electoral accountability model) that has been used to look at the accountability argument, and then reviews again results of this recent literature, including work on lobbying, which from a modelling point of view, is much more heterogenous. Finally, Section 6 considers the political economy literature on the *choice* of the level of fiscal decentralization.

## **2. Evidence on Accountability and Preference-Matching**

In recent years, evidence has been accumulating on possible links between fiscal decentralization and indicators of accountability of government. The first kind of evidence is about corruption of government officials. At a cross-country level, this is available from surveys of business people and experts, undertaken by business risk and forecasting organizations (such as Political Risk Services, who publish the International Country Risk Guide-ICRG) who are asked various questions about levels of corruption in different countries. Treisman (2000), using an average of various corruption indices produced by Transparency International, finds that federal countries are *more* likely to be corrupt. Fisman and Gatti(2002) who use primarily the ICRG index of corruption and a different set controls, conclude that

fiscal decentralization (share of local/state government expenditure over total government expenditure, from the Government Financial Statistics (GFS) of the IMF), are *less* likely to be corrupt, and conditional on the degree of fiscal decentralization, being a federal country has no significant effect on corruption<sup>3</sup>.

More recently, Fissman and Gatti(2002a) and Henderson and Kuncoro(2004) have shown, using sub-national data for the US and Indonesia respectively, that expenditure decentralization is only effective in reducing corruption if it is accompanied by increased powers to raise revenue : "unfunded mandates" lead local officials to find other sources of revenue.

Surprisingly, given its prevalence as a hypothesis, there are very few tests of the preference-matching hypothesis. Strumpf and Oberholzer-Gee(2002) they develop a measure of preference heterogeneity by state in the US over the policy issue of legalizing the "package" sale of strong alcoholic drink. They show that in states with high preference heterogeneity, a decision on this issue is more likely to be decentralized to the local level (the counties). They do not test, however, whether the counties where there is a strong preference for prohibition for such sales (as measured by religious affiliations amongst other variables), which would be a more direct test of the hypothesis. Faguet's(2004) study of Bolivia, where he found that investment in human capital and social services changed significantly after a fiscal decentralization reform in 1994, and these changes were strongly and positively related to objective indicators of need. Finally, Azfar, Kahkonen, and Meagher(2001), who report on two country studies (Uganda and the Philippines). In each country, a survey was done at both the district/province and municipal level to ascertain household preferences for different government services. These varied considerably by region (giving evidence of preference heterogeneity across regions) , and were also more correlated with officials' preferences at the local level ,but not at the provincial level, giving some support to the preference-matching hypothesis.

Finally, apart from these studies, there are there are now a few studies which are broader in scope, which show that across countries, the GFS measure of fiscal decentralization may be positively correlated with various indicators of "good government". (e.g. Huther and Shah(1998)), Mello and Barenstein(2001), Robalino, Picazo, and Voetberg(2001)). For example, in Robalino, Picazo, and Voetberg(2001), in a cross-country panel study, show that the fiscal decentralization (the GFS measure) is associated with

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<sup>3</sup>Mello and Barenstein(2001), also using the ICRG index, find similar results to Fissman and Gatti(2002), but also find that the impact of fiscal decentraliation is dependent on how that expenditure is financed, with non-tax sources of finance leading to larger reductions in corruption.

lower infant mortality rates. Khalegian(2003), using a different binary measure of decentralization (from the World Bank's DPI), and immunization rates (for infants under one year of age) finds a similar result for low-income countries only.

Triesman(2002), in a wide-ranging study, comes to a rather different conclusion. He considers three different "good governance" indicators, a World Bank corruption index<sup>4</sup>, the adult illiteracy rate, and immunization rates. In contrast to other empirical work, which relies heavily on the GFS fiscal decentralization indicator, he employs a number of different measures of decentralization (such as the number of tiers of government). When all these different measures are included, the GFS measure plays no role in determining any of the three indicators.

### 3. The Standard Model of The Costs and Benefits of Decentralization

#### 3.1. The Economic Environment

First, we will set up a simple economic framework which we will use throughout this chapter. Consider a country comprising  $n$  administrative regions. In each region, government (regional or central) can provide a good that is purely public<sup>5</sup> within the region, but has positive consumption spillovers for other regions. The public good can be produced from a second, private, good, and is financed out of taxes on the private good endowments of households. At this stage, let preferences for the public good only vary *between* regions, so all households in a given region are identical. Finally, for convenience only, assume that there are only two regions with equal populations, which we normalize to unity.

Given the above assumptions, the utility of the household in region  $i = 1, 2$  can be written  $u_i = u(g_i, g_j, \theta_i, x_i)$ , where  $g_i$  is the level of the regional public good in  $i$ ,  $x_i$  is the level of consumption of the private good, and finally  $\theta_i$  measures the willingness to pay for the local public good in region  $i$  (and depending on the functional form of  $u$ , may also measure the valuation of the spillover effect from the good in  $j$ ). So, there are spillover effects if  $u_2 \neq 0$ . These can be positive or negative.

The household budget constraint for the household in region  $i$  is  $x_i = \bar{x}_i - \tau_i$ , where  $\bar{x}_i$  is the endowment of the private good, and  $\tau_i$  the tax levied in region  $i$ . One unit of  $g_i$

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<sup>4</sup>Triesman argues that this index is similar, but superior to, the Transparency International Index he used in his earlier work.

<sup>5</sup>This is the conventional assumption, but the results below go through if the good is a congestible public good, or even private.

can be produced from each unit of the private good i.e. the marginal cost of  $g_i$  is unity.

Finally, again for convenience, we assume that  $u_i$  is linear in  $x_i$  : i.e.  $u_i = u(g_i, g_j, \theta_i) + x_i$ , so preferences are quasi-linear. In this case, it is well-known that any Pareto-efficient allocation of public goods in the economy must maximize the sum of utilities, so the efficient levels of public good provision are uniquely defined by the familiar Samuelson rule.

### 3.2. Centralization and Decentralization

Within this framework, we will consider two possible allocations of tax and spending powers.

1. Fiscal centralization. A single central government sets both local public good levels  $g_1, g_2$  and taxes  $\tau_1, \tau_2$  to maximize  $u_1 + u_2$  subject to the budget constraint  $g_1 + g_2 = \tau_1 + \tau_2$ .
2. Fiscal decentralization. A regional government in  $i$  sets the local public good level  $g_i$  and tax  $\tau_i$  in its own region to maximize  $u_i$  subject to the budget constraint  $g_i = \tau_i$ .

As remarked above, in the standard model, the objective of government is to maximize the sum of utilities of residents in its jurisdiction (welfaristic objectives). Then, with fiscal decentralization, in each region the marginal benefit of the good to *that region* (i.e.  $u_l(g_i, g_j, \theta_i)$ , where  $u_l$  denotes the derivative with respect to the  $l$ th element) is equated to the marginal cost of the good, unity. Clearly, regional government  $i$  ignores the spillover effect  $u_2(g_j, g_i, \theta_j)$  of its public good provision on the other region, and this is a well-known source of inefficiency<sup>6</sup>.

Now consider central government. In this case, without any restrictions on the choice of  $g_1, g_2$ , central government will choose the efficient levels of  $g_1, g_2$ , because it internalizes spillover effects. Thus, in order to generate some disadvantage to centralization, the standard approach makes the *policy uniformity assumption* that public good provision (per capita) must be the same in both regions i.e.  $g_1 = g_2 = g$ . What does this imply about choice of  $g$ ? Given that central government maximizes the sum of utilities in both

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<sup>6</sup>An objection sometimes made to this argument is that the two regional governments can *bargain* with each other to improve on the non-cooperative outcome. So, to be non-trivial, the standard approach must assume that Coasian bargaining between regions to internalize externalities is impossible or prohibitively costly. This seems plausible in many cases e.g. sulphur dioxide pollution crossing state boundaries in the US.



regions, then government chooses  $g$  to so that<sup>7</sup> the *average* of the marginal benefits of an increase in the public good in both regions is equal to the marginal cost (of unity). Centralization has a cost: the level of public good provision cannot now be tailored to each region.

Then, we can immediately state some quite obvious, but important, conditions, under which centralization or decentralization can be more efficient. Recall that because we have assumed quasi-linear preferences, the efficiency criterion is the sum of utilities, or aggregate surplus, as it is sometimes known. So, we will say that one fiscal arrangement is more efficient than the other if it generates a higher sum of utilities. Then, we can state;

**The Decentralization Theorem.**

(i) *If there are no spillovers ( $u_2 = 0$ ) and regions are identical ( $\theta_1 = \theta_2$ ), then centralization and decentralization are equally efficient.*

(ii).*If there are no spillovers ( $u_2 = 0$ ) and regions are not identical ( $\theta_1 \neq \theta_2$ ), then decentralization is more efficient than centralization.*

(iii) *If there are spillovers ( $u_2 \neq 0$ ) and regions are identical ( $\theta_1 = \theta_2$ ), then centralization is more efficient than decentralization.*

The proof of this result follows directly from the above discussion. In particular, (ii) is a more formal statement of Oates' original "Decentralization Theorem", which he originally stated as: "in the absence of cost savings from the centralized provision of a (local public) good and of inter-jurisdictional externalities, the level of welfare will be at least as high (and typically higher) if Pareto-efficient levels of consumption are provided in each jurisdiction than if *any* single uniform level of consumption is maintained across all jurisdictions" (Oates(1972), p54).

It is worth noting that these statements (i)-(iii) are quite general. First, tax uniformity ( $\tau_1 = \tau_2$ ) is *not* necessary to generate a cost of centralization: in the above analysis, we have not assumed it. Second, although we have assumed for simplicity that there is no preference heterogeneity within regions, this can easily be introduced without changing the main conclusions<sup>8</sup>. Third, in the above analysis, expenditure spillovers provided the reason why fiscal decentralization is not efficient. An equally important - if not more

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<sup>7</sup>Formally,  $\frac{1}{2} \left( \sum_{l=1,2} u_l(g_1, g_2, \theta_l) + u_l(g_2, g_1, \theta_l) \right) = 1$ .

<sup>8</sup>Suppose household preference  $\theta_i$  is distributed within regions with mean  $\bar{\theta}_i$  and median  $m_i$ . Then all the results go though unchanged, but  $\bar{\theta}_i$  replaces  $\theta_i$ , if preferences can be written  $u_i(g_i, g_j, \theta_i) = \theta_i u_i(g_i, g_j)$ .

important - kind of spillover is that due to tax competition (Wilson(1999)). The key difference here is that there are spillovers between regions only with decentralization i.e. existence of spillovers is no longer technologically determined, but is endogenously determined by the allocation of fiscal powers. But in this case, an extension of (iii) applies, replacing the word "spillovers" with the phrase "spillovers with decentralization". Finally, the goods  $g_1, g_2$  do not need to be purely public within the region: there may be some congestion, or the goods may be purely private.

### 3.3. A Critique

We conclude this section by asking how good the assumptions of benevolent government and policy uniformity are. First, as a positive hypothesis about how government behaves, the hypothesis of benevolent government is very difficult to refute, as it is simply a statement that the outcome of the political process must be consistent with maximization of *some* social welfare function. Economists' objections to it are really methodological: the "benevolent government" model of the political process is a black-box one which ignores institutions.

But the policy uniformity assumption *is* testable. As it is stated and used in formal modelling, i.e. that expenditures on a local public good are *literally* the same, it is clearly incorrect. For example, in many countries, there is considerable evidence that the level of spending per capita varies across regions in predictable ways. For example, Knight(2004) finds that in the US, funds for projects<sup>9</sup> earmarked in annual House of Representatives and Senate Appropriations Bills are unequally distributed by state, with small states that have higher per capita representation in the Senate and the House have significantly higher per capita expenditure.

But often, the policy uniformity is justified by appeal to the idea that the central government has *some* information about local preferences, but not as much as local government. This is not obviously incorrect. But in many countries, central government has a large amount of information at its disposal<sup>10</sup>. Moreover, at a theoretical level, if central government were benevolent, and has unrestricted use of transfers, the incentives literature (e.g. Mas-Colell, Winston and Green(1995)) tells us that it could, given quasi-

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<sup>9</sup>These projects correspond very closely to the theoretical concept of a local public good, as they are items such as public buildings, transportation projects, etc.

<sup>10</sup>For example, in the UK about 60% of local government spending is financed by central government, primarily through Revenue Support Grant. This grant is calculated according to a complex formula based on a large number of demographic, social and economic characteristics of local jurisdictions.

linear preferences, design incentive schemes to elicit this information from regions, and then implement the efficient outcome.

The most compelling criticism of policy uniformity is perhaps not that it is empirically refuted, but that it is probably not the most important reason why centralization leads to lower preference matching. The most important reason is likely that with centralization, especially in a majoritarian system, legislators are primarily answerable to the voters in their constituency or region, and care less (if at all) about voters in other regions, even if they know their preferences. We now turn to a literature that formally models this idea.

## 4. The Preference-Matching Argument

We begin by setting out the political economy model (or class of models), which has been used to study preference-matching. In developing this model, we will continue to assume the same economic environment as Section 3.1 i.e. the activity of government is to provide regional public goods, financed by a tax on the endowment of the private good. We will therefore continue to use the same kind of notation as developed in Section 3.

### 4.1. Legislative Models

In this class of models, decisions are made not by a benevolent social planner, but by political representatives. With decentralization, the order of events is as follows. All citizens<sup>11</sup> in a region elect a *policy-maker* from the set of citizens<sup>12</sup> in a region. Then, the policy-maker in  $i$  chooses fiscal policy  $(g_i, \tau_i)$  to maximize his payoff, taking public good supply  $g_j$  in regions  $j \neq i$  as given. With centralization, it is assumed that the tax is uniform<sup>13</sup>. The order of events is then as follows. All citizens in a region elect a *delegate* (or legislator) to a national legislature. This legislature then chooses  $(g_i, \tau_i)_{i=1, \dots, n}$ .

So, the key difference<sup>14</sup> between the legislative model and the standard model is in

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<sup>11</sup>In what follows, we will refer to the household equivalently as a citizen.

<sup>12</sup>This implicitly assumes that all citizens are willing (or are compelled) to stand for election. If we assume some ego-rent from office, and no cost of candidacy, then all citizens will (weakly) be willing to stand. This assumption can be refined by introducing costs of candidacy (on which, see Besley and Coate(1997)), in which case, not all citizens will wish to stand.

<sup>13</sup>Uniform taxation is consistent with the "stylized fact" that tax *rates* set by national legislatures are almost always uniform across regions (although actual taxes paid per head may of course, differ by region).

<sup>14</sup>In this framework, we are assuming also that there is complete information and that legislators are benevolent i.e. they have neither the desire nor the opportunity to divert tax revenue away from spending on public goods and into spending on goods or services that will benefit them personally. So,

the case of centralization: in the legislative model, decisions are no longer made by a benevolent social planner, but by a legislature whose representatives have conflicting interests over regional public good provision: specifically, this conflict is due to the fact that though uniform taxation, all regions pay for a public good in any particular region, but region  $i$  may only get a small benefit, or not benefit at all, from an increase in  $g_j$ .

A model of how the legislature behaves is obviously key to this approach. The first problem that arises is a technical one. The policy space (a vector of public good levels  $g_1, g_2, \dots, g_n$ ) is multidimensional, and so unrestricted voting over the alternatives will lead to an indeterminate outcome (i.e. voting cycles). So, in order to proceed, *some* rules of agenda formation and voting must be imposed in order to generate a unique prediction about spending levels.

Probably the leading model<sup>15</sup> of legislative behavior<sup>16</sup> is that proposed in a seminal paper by Baron and Ferejohn(1989) . In its simplest form, with *closed rule legislative bargaining* , the model is the following. One of the  $n$  legislators (say  $i$ ) is recognized as proposer with probability  $\frac{1}{n}$ . He can then make a proposal of a vector  $\mathbf{g}^i = (g_1^i, g_2^i, \dots, g_n^i)$  of public good levels, which is then put to a majority vote against the status quo  $\mathbf{g}^0$ . The status quo is generally some inefficient allocation: in what follows, we take it to be a situation with no expenditures i.e.  $\mathbf{g}^0 = (0, 0 \dots 0)$ . If  $\mathbf{g}^i$  wins, it is implemented; if it loses, another of the  $n$  legislators, say  $j$  is recognized as proposer. He can then make a proposal  $\mathbf{g}^j$ , and so on. The game continues until some proposal beats the status quo. All agents discount payoffs by  $\delta$  between successive rounds of bargaining.

## 4.2. The Basic Argument

In the legislative model, it is easy to formalize the idea<sup>17</sup> that fiscal decentralization is more responsive to the preferences of citizens, without resorting to ad hoc policy uniformity assumptions. To make the argument as clearly as possible, we make the following simplifying assumptions. Assume three regions only, that the public good is a discrete "project" i.e.  $g_i \in \{0, 1\}$ , and costs  $c_i$  in region  $i$ . Also assume that households are homogeneous within a region, with every household in region  $i$  gaining benefit  $\theta_i$  from a project in its region, and there are no inter-regional spillovers from projects. In that case,

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this framework abstracts from any *agency problem* between voters and policy-makers - see Section 5 below.

<sup>15</sup>Another model, used by Lockwood(2002), is that of Ferejohn, Fiorina, and McKelvey(1987).

<sup>16</sup>The legislative bargaining model with a closed rule has been widely applied to public finance issues, particularly in work by Persson and Tabellini (see e.g. Chapter 7 of Persson and Tabellini(2000)). However, they do not address issues of fiscal decentralization in this framework. .

<sup>17</sup>This section is based on Lockwood(2005).

the payoff to any citizen in region  $i$  under decentralization is  $u_i^D = g_i(\theta_i - c_i)$ , and under centralization it is

$$u_i^C = g_i\theta_i - \frac{1}{3} \sum_{i=1}^3 c_i g_i \quad (4.1)$$

Note that the uniform taxation assumption generates the feature that there is *cost-sharing*: each region pays one third of the cost of any public project..

With decentralization, the outcome is simple. As all households are identical in any region, any policy-maker will share their common preference for the public project,  $\theta_i$ . So, a project in region  $i$  is supplied if its local benefit  $\theta_i$  exceeds the cost i.e. there is maximum preference-matching.

To see what might happen with centralization in this framework, consider the behavior of the legislature assuming the Baron-Ferejohn legislative bargaining model. Moreover, to focus ideas, we assume that the project in region 3 is (i) the most costly ( $c_1 < c_2 < c_3$ ), but (ii) at the same time generates the most economic surplus i.e.  $\theta_3 - c_3 > \theta_2 - c_2 > \theta_1 - c_1$ , and  $\theta_3 > c_3$ . So, a welfare-maximising social planner would always choose  $g_3 = 1$ . But, because the project in region 3 is the most expensive, we will assume that

$$\frac{c_1 + c_2}{3} < \theta_i < \frac{c_i + c_3}{3}, \quad i = 1, 2 \quad (4.2)$$

In combination with (4.1), (4.2) means that each of the legislators representing regions 1 and 2 would prefer the status quo of no projects to participating in a "coalition" with the legislator from region 3 only, i.e. funding projects in his region and region 3 only.

Now consider the outcome in this legislature first under the simplest form of closed-rule legislative bargaining, where there is only one round of bargaining. If  $i$  is chosen as agenda-setter, he cannot propose only his project for funding, as this will be opposed by the other two legislators (they pay the cost of  $i$ 's project, and get no benefit, making them worse off than under the status quo). So, the agenda-setter will offer a project to one of the other two regions (we call this region the *coalition partner*). But which one? If  $i = 1$  is agenda-setter, he will choose 2 as his coalition partner, and vice-versa. So, with probability 2/3, only projects in regions 1 and 2 are funded.

With probability 1/3, legislator 3 is chosen as coalition partner. What happens then? If he proposes a bundle of projects including his own, this will be rejected by both 1 and 2, as it is too expensive (by (4.2)). He does not wish to propose projects in just regions 1 and 2, because if that proposal is accepted, he will be worse off than with the status quo. So, legislator 3 can not do better than propose the status quo of no projects, and this will be the outcome<sup>18</sup>.

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<sup>18</sup>One might object that legislator 3's effective veto power over projects is due to the assumption that

So, the conclusion is that with centralization, only the cheaper projects will be funded in equilibrium, *not* the project that generate the greatest economic surplus. This is ultimately because there is cost-sharing through uniform taxation (the *common-pool* effect). So, an increase in  $c_i$  will affect the majority of legislators negatively, whereas an increase in  $\theta_i$  will leave the majority of legislators indifferent. So, there is a *bias in the legislature to the minimize cost of projects, not to maximize their net benefit*.

Lockwood(2002) provides a general analysis of this bias toward minimum cost projects. His framework has discrete<sup>19</sup> public goods, but allows for  $n$  regions and public good spillovers between regions. Under centralization, preferences take the form

$$u_i = \theta_i g_i + \sum_{j \neq i} s_{ij} g_j - \frac{1}{n} \sum_{i=1}^n c_i g_i \quad (4.3)$$

where  $s_{ij}$  is the spillover effect of a project in  $j$  on the citizens of  $i$ . So, public good spillovers can - at this stage - be completely general, other than being additively separable, and also costs can vary across regions.

To do so, he works with a slightly different model of the legislature than the Baron-Ferejohn one. This is (i) because the analysis of legislative bargaining equilibrium with an infinite number of rounds of bargaining in the general case is very difficult; and (ii) because even then, the closed-rule does not allow for other legislators to amend the proposal "on the floor" even though in practice, this is an important feature of procedure in legislatures. The following decision-making procedure in the legislature is assumed.

(i) with probability  $1/n$ , one of the legislators,  $j$ , is recognized as the proposer, and proposes a list of projects to be funded i.e. a  $\mathbf{g}^j \in \{0, 1\}^n$  :

(ii) with probability  $1/(n-1)$ , one of the remaining legislators other than  $j$ , say  $k$ , can offer an amendment  $\mathbf{g}^k$ ;

(iii) the proposal and the amendment are then brought to a vote, with the winner, say  $\mathbf{g}'$ , becoming the amended proposal;

(iv) one of the remaining legislators other than  $j, k$  - say  $l$  - can offer an amendment  $\mathbf{g}^l$  to  $\mathbf{g}'$ , and so on, with the final amended proposal voted on against the status quo of no projects.

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only one round of legislative bargaining is allowed. With an infinite number of rounds, and  $\delta < 1$ , what will happen is that legislator 3 will continue to propose the status quo, but this will be rejected by 1 and 2, and at some point 1 or 2 will become agenda-setter. So, the equilibrium outcome is that the bundle  $g_1 = g_2 = 1, g_3 = 0$  will be adopted, but possibly only after some delay.

<sup>19</sup>Discreteness is not always unrealistic; many publicly funded infrastructure projects, such as airports, roads, universities, etc. are discrete, although there is often a range of options on the scale of the project.

Lockwood(2002) shows that under some assumptions, the outcome is *independent* of the order in which the legislators are chosen to propose and amend. In particular, this is the case *if* there exists<sup>20</sup> a Condorcet winner (CW) in the subset of policy alternatives that are preferred to the status quo (a restricted CW); in this case, the only possible equilibrium outcome is this restricted CW - say  $\mathbf{g}^{CW}$ . One of the main topics of Lockwood(2002) is a detailed investigation of how  $\mathbf{g}^{CW}$  is inefficient, and in particular how it results in lower preference-matching than in the decentralized case.

There are two striking features of  $\mathbf{g}^{CW}$ . which are most easily stated when spillovers are uniform i.e.  $s_{ji} = s$ . Then, note that every region  $i$  imposes a *net spillover*  $\sigma_{ji} = s_{ji} - \frac{c_i}{n}$  on every other region  $j$ , which comprises the public good spillover, minus  $j$ 's tax share of the cost of funding  $i$ 's public good. so that  $\sigma_{ji} = s - \frac{c_i}{n}$ .

First, subject to conditions on the  $\theta_i$  sufficient for the existence of  $\mathbf{g}^{CW}$  being satisfied, the projects that are provided are *independent* of regional preferences  $\theta_1, \dots, \theta_n$ , and depend only on the net spillovers. This captures formally the concept of centralization having lower preference-matching. In fact, in equilibrium, the *wrong* public goods may be provided if the spillover is non-positive<sup>21</sup>. This generalizes what we found in the simple example above.

Second, the number of public goods funded is not always increasing in the spillover,  $s$ . The reason is that if  $s$  is negative, or positive and small, so that the net spillover is negative, then (under some weak conditions) a minimum winning coalition forms so that public goods are provided in a bare majority of regions  $m = (n + 1)/2$  where project costs are lowest (as in the example above). If  $s$  is high, so that a majority of projects have positive net spillovers, then those projects are funded. But, if  $s$  is intermediate, a minority of projects have positive net spillovers, then under certain conditions, only those projects are funded - fewer than when  $s$  is small, or negative. Lockwood(2002) shows that this non-monotonicity in  $s$  implies that as a consequence, it is not generally true that the higher the spillover  $s$ , the greater the welfare gain from centralization. This is in contrast to what would occur in the standard model, where (given discrete projects, and preferences of the form (4.3)), there is a critical value of  $s$  above (below) which centralization (decentralization) is preferred.

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<sup>20</sup>Lockwood(2002) presents some general conditions (Assumptions A0-A5) sufficient for the existence of a unique restricted CW. They are not too restrictive.

<sup>21</sup>Consider the case of no spillovers, and  $n = 3$ . Take  $\theta_1 = \theta_2 = 1, \theta_3 = 2, c_1 = 1.1, c_2 = 1.2, c_3 = 1.3$ . Then, the two cheapest projects, 1 and 2 are funded in equilibrium, but it is clearly inefficient to do so, as  $\theta_1 - c_1 = -0.1, \theta_2 - c_2 < -0.2$ . Conversely, project 3 is not funded in equilibrium, but it is efficient to fund it, as  $\theta_3 - c_3 = 0.7$ .

### 4.3. Strategic Delegation

So far, the analysis has assumed that all agents within a region are the same. In a recent paper, Besley and Coate(2003) argue that in a version of the legislative model, if there is heterogeneity within regions, strategic choice<sup>22</sup> of delegates by voters can cause centralization to be inefficient, in the sense that aggregate surplus is not maximized. This can be thought of as a form of reduced "preference-matching" with centralization. But, argument is logically distinct from the preference-matching one developed in the previous section.

Their intuitive argument is the following. Consider the case of just two regions, as Besley and Coate do. If region  $i$  chooses a delegate to the legislature who places a high value on the public good, this delegate will be more "aggressive" in the legislature in demanding a higher  $g_i$ . This works to the benefit of citizens of  $i$  because part of the cost of higher  $g_i$  is borne by the other region. But, of course, if both regions delegate to "aggressive" delegates, this will be self-defeating: the end result is that both  $g_1, g_2$  will be higher than their efficient levels.

The details are as follows. There are two regions, with utilities from the public good of the form

$$u(g_i, g_j, \theta_i) = \theta_i[(1 - s) \ln g_i + s \ln g_j], \quad 0 \leq s < 0.5$$

So,  $s$  parametrizes the size of the public good spillover between regions. Moreover,  $\theta_i$  the preference parameter varies within a region, but has a symmetric distribution, with mean and median both equal to  $m_i$ . Finally, as in Section 3.1, utility is linear in the private good, and taxes are uniform. These assumptions ensure that the efficient level of provision of the public goods maximizes the sum of the utilities of the median voters in each region, which is  $\sum_{i=1,2} (m_i u(g_i, g_j) - g_i)$ .

Rather than model the agenda-setting and voting rules in the legislature explicitly, Besley and Coate assume that the *outcome* of bargaining between delegates in the legislature is that the policy chosen maximizes the sum of legislator utilities i.e.  $\sum_{i=1,2} (r_i u(g_i, g_j) - g_i)$ , where  $r_1, r_2$  are the preference parameters of the representatives elected from regions 1 and 2 in the legislature. They call this the "cooperative legislature". At the policy choice stage, then, the legislature will choose the  $g_1^*(r_1, r_2)$ ,  $g_2^*(r_1, r_2)$  that maximize this sum. It is easy to check that  $g_i^*$  is increasing in both  $r_1, r_2$ : indeed,  $g_i = (1 - s)r_i + sr_j$ .

Now, turn to consider the first stage where representatives are chosen through majority

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<sup>22</sup>Although strategic delegation through elections is a well-understood effect, (Persson and Tabellini(1992)), it seems to have been so far mainly studied in the context of tax competition.



voting in each region. All citizens vote for their most preferred type of fellow-citizen, rationally anticipating that if policy-makers  $r_1, r_2$  are elected, then (i) the outcome will be  $g_1^*(r_1, r_2), g_2^*(r_1, r_2)$ ; (ii) the cost will be equally shared through the tax system. Then, there is a well-defined "delegation game" between the median voters<sup>23</sup> in the two regions: in  $i$ , the median voter chooses  $r_i$  to maximize his utility given a choice  $r_j$  in the other region, and vice versa. Besley and Coate(2003) showed<sup>24</sup> that, with identical median voter preferences in both regions ( $m_i = m_j$ ) each median voter will vote for a representative with a higher public good preference than his own i.e.  $r_i > m_i$ . As  $r_i \neq m_i$ , the outcome is not efficient. Moreover, this effect does not vanish as the spillover  $s$  becomes small.

What are the implications of strategic delegation for the choice between centralization and decentralization? As the spillover  $s$  goes to zero, the efficiency loss from strategic delegation remains. So, it is no longer true that if there are any spillovers and regions are identical, then decentralization produces a higher level of surplus than centralization (i.e. statement (iii) above in Section 2 no longer holds). Indeed, Besley and Coate(2003) show that with strategic delegation, there is some strictly positive level of  $s, \tilde{s}$ , such that below (above) this level, decentralization (centralization) is more efficient.

A drawback of Besley and Coate(2003) is that while the rules of behavior of "cooperative" legislature is a convenient analytical device for clearly identifying the strategic delegation effect, it is not clear that it can be justified with references to any explicit game of agenda-setting and voting in the legislature. Lockwood(2005) investigates conditions under the "cooperative" legislature can be justified, in terms of the legislative bargaining model of Baron and Ferejohn(1989) described above. He shows that if the legislators can make side-payments to each other, then in the legislative bargaining model, delegates act *as if* they were maximizing the sum of their utilities. Moreover, if these side-payments are not made through the tax system, but are "personal" transfers, then the strategic delegation argument applies exactly as in the Besley-Coate paper.

By contrast, if taxes are differentiated, and are used to make side-payments, *all* voters either pay or receive the side-payment. Thus, the median voter also takes into account the effect on the side-payment of delegating to some  $r_i \neq m_i$ . It can be shown that this

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<sup>23</sup>It is possible to show that the median voter in  $i$ , with willingness to pay  $m_i$ , is dictator in country  $i$  i.e. he effectively chooses the type of the representative,  $r_i$ .

<sup>24</sup>In fact, the delegation incentives of the median voter are quite subtle. Starting at a position of no strategic delegation ( $m_i = r_i$ ), an increase in  $r_i$  will increase  $g_i$ , and also  $g_j$ , but by a lesser amount. The first effect makes the median voter in  $i$  better off (because he can get the other jurisdiction to pay for half the cost of the increase in  $g_i$ ), and by the same argument, the second effect makes him worse off. Nevertheless, the first effect dominates as  $s < 0.5$ .

exactly cancels with the delegation incentive analyzed by Besley and Coate, meaning that when side-payments occur through differentiated taxes, *there is no strategic delegation in equilibrium* and therefore, fiscal centralization is fully efficient<sup>25</sup>.

## 5. The Accountability Argument

As remarked in the introduction, although this argument is frequently made, the concept of "accountability" is difficult to pin down precisely. One problem is that if defined broadly, it is difficult to distinguish from preference-matching. So, in order to focus the discussion, we will focus on two possible aspects of accountability:

- the degree to which institutions allow the government (or officials within the government) to *divert rents* : that is, to transfer tax revenues away from productive expenditure on public goods, and to some other use that more directly benefits the government (such as campaign finance, or the outright use of these funds for personal consumption).

- the degree to which institutions allow special interest groups to distort government decision-making by *lobbying*.

Note here that accountability is defined negatively: the higher rent diversion or lobbying activity, the lower is accountability. The theoretical literature has considered the impact of decentralization on both these aspects of accountability. We consider each in turn.

But, we begin by setting out the political economy model which have been typically used to study accountability issues. In developing this model, we will continue to assume the same economic environment as Section 2 i.e. the activity of government is to provide regional public goods, financed by a tax on the endowment of the private good. We will therefore continue to use the same kind of notation as developed in Section 2.

### 5.1. Electoral Accountability Models

In this class of models, decisions again are made not by a benevolent social planner, but by political representatives. There are two periods. With decentralization, the order of events in any region  $i$  is as follows. In period 1, an incumbent policy-maker is in power, and chooses fiscal policy  $(g_i, \tau_i)$ , taking public good supply  $g_j$  in regions  $j \neq i$  as given. At the end of period 1, there is then an election: all citizens in  $i$  can vote for the policy-maker

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<sup>25</sup>The reason for this is fairly obvious: the equilibrium side-payment equalizes the surplus that each voter gets from a given  $g_1, g_2$ , thus giving each voter the incentives of the social planner.

or a challenger. In period 2, the winner then again chooses fiscal policy  $(g_i, \tau_i)$ . With centralization, the order of events is the same, except that (i) there is only *one* incumbent policy-maker, who chooses  $(g_i, \tau_i)_{i=1..n}$  or, if taxes are assumed uniform,  $(g_i, \tau)_{i=1..n}$ , and (ii) a national election with only one challenger.

This model has two key features. First, both the incumbent and challenger can be "good" or "bad" from the point of view of the citizens. Specifically, it is usually assumed that the incumbent's and challenger's types (good or bad) are random draws from some binary distribution (so that each is good with probability  $\pi$ ). What "good" or "bad" is depends on the model at hand: generally, both incumbent and challenger can differ in competence in producing the public good (Rogoff(1990), Persson and Tabellini(2000)), or benevolence, in that the bad type is interested in diverting rent (Besley and Case(1995), Besley and Smart(2003)).

Second, citizens are initially uniformed about the type of both incumbent and challenger, whereas (usually) the incumbent and challenger know their own type. The result of this information asymmetry is that the bad type may imitate the good type in order to be reelected (a pooling equilibrium), or act in his short-run best interests, thus revealing his type, and losing the election (a separating equilibrium).

So, the key difference between the electoral accountability model and the standard model is that with both centralization and decentralization, decisions are no longer made by a benevolent social planner, but by policy-makers whose objectives may conflict with the electorate; thus, elections are used as a means of partial control of the incumbent. As stressed by Besley and Smart(2003), elections provide accountability in two senses. First, they allow voters to de-select bad incumbents (*selection effects*). Second, the selection effect provides an incentive for incumbents to change their behavior in order to increase the probability of re-election (*incentive or discipline effects*). A key question, therefore, is what effect (de)-centralization will have on these two accountability mechanisms<sup>26</sup>.

## 5.2. Decentralization and Rent-Diversion

In an important contribution, Seabright(1996) stressed two incentive effects of centralization, working in different directions. His setting is a two-period model of the type described in Section 5.1, except that all policy-makers are the same: a pure moral hazard

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<sup>26</sup>It is important to note that (in the models considered in this literature) a good selection effect is usually associated with a bad incentive effect, and vice versa. For example, if a bad incumbent decides to pool rather than separate, he imitates the behavior of the good incumbent (a good incentive effect), but then retains office until the second period, where he diverts maximum rent (a bad selection effect).

version of the model. The incumbent can vary the amount of rent he diverts from tax revenue to his own pocket. The voters observe the level of a public good provided by him in the first period, and the level of public good provided is equal to (exogenous) tax revenue, minus diverted rents, plus a productivity shock. As is standard in this kind of model (see e.g. the classic paper of Ferejohn(1986)), the voters set a performance standard  $\hat{g}$ , by voting the incumbent out of office if his production of the public good is lower than  $\hat{g}$ . This gives him an incentive to restrain rent-diversion in the first period.

Now suppose that the economy is composed of  $n$  regions, and with decentralization, there is one policy-maker in each region, and with centralization, a single policy-maker. Suppose also initially that the productivity shocks are region-specific, rather than specific to the policy-maker i.e. all policy-makers are identical. Then, moving from decentralization to centralization, there are two ways in which the incentive for the policy-maker to restrain rent-diversion changes. First, and most obviously, with centralization, if the policy-maker wins the election, he can expect more rent in the second period (in fact, in the second period, he will extract maximum rent in all regions, rather than one, so in the absence of any exogenous ego-rent from office (Persson-Tabellini(2000)), his future rent rises by a factor of  $n$ ). We call this the *rent scale effect* of centralization; this effect improves incentives for the incumbent i.e. lowers his incentive to divert first-period rent.

But there is a second, more subtle effect of centralization, loss of accountability through the reduction in the probability that the voters in any one region are pivotal in determining the outcome of the election (we will call this the *reduced pivot probability effect* of centralization). To illustrate, consider the case of three regions, and suppose that the voter can choose high rent diversion, in which case he wins with probability  $0$ , or low rent diversion, in which case he wins with probability  $p$ . With decentralization, the incumbent can raise his probability of winning by  $p$  by cutting rent diversion. With centralization, suppose the incumbent raises his rent-diversion in region  $i$ , assuming it is already high in the other two regions. Region  $i$  is only pivotal if the incumbent wins in one of the other regions and loses in the other, an event which occurs with probability  $2p(1-p)$ . So, With centralization, the incumbent can raise his probability of winning by  $q = p \times 2p(1-p)$  by cutting rent diversion. Obviously,  $q < p$ , so the reduced pivot probability effect reduces the incentive to limit rents.

A weakness of Seabright's model is that the voters are not following a voting rule that can be easily justified: all policy-makers are identical, and so *whatever* their performance in office, voters are ex post indifferent about voting them out of office or retaining them at the end of the first period. One way of resolving this indeterminacy is to suppose that

the productivity "shock" which maps tax revenue minus rent is an inherent competence characteristic of the incumbent. Then, voters are not indifferent about a performance cutoff ex post, because the higher  $\hat{g}$ , the more likely it is that the incumbent who passes it is competent. Persson and Tabellini(2000, Chapter 9.1) present a model of this form, retaining Seabright's assumption that the first-period incumbent does not observe his competence level. An equilibrium of this model is thus described (i) a level of first-period rent diversion by the incumbent,  $\hat{r}$ , and (ii) a cutoff  $\hat{g}$  such that given  $\hat{r}$ , his competence is judged to be at least as great as the challenger. Persson and Tabellini show how the rent scale effect and the pivot effect work in the determination of  $r$ .

A key limitation of both Seabright(1996) and Persson and Tabellini(2000) is that they say effectively nothing about how centralization impacts on the *selection* effects of elections. In Seabright, there are no selection effects, as all policy-makers are identical. In Persson and Tabellini(2000), by construction, the probability that an incumbent of given competence loses the election (which we will call the *separation probability*) is the same with centralization and decentralization. In both cases<sup>27</sup>, the incumbent loses office with probability 0.5.

So, for separation probabilities to be truly endogenous (and thus vary between centralization and decentralization), there must be *asymmetric information*: the incumbent must be better-informed about his own competence (or some other characteristic) than the electorate. Hindriks and Lockwood(2005) study such a model. They find that (i) there is a tendency for separation probabilities to be lower with centralization, and that (ii) conditional on a given separation probability, the amount of rent diverted is higher with centralization, and therefore voter welfare is lower<sup>28</sup>. The second effect is the analogue of the reduced pivot probability effect in the moral hazard case, and arises because with centralization the policy-maker can win the election by *selectively pooling* only in a bare majority of regions where it is most profitable to do so, and then diverting maximum rents in all the others. Another finding of Hindriks and Lockwood(2005) is that with centralization, uniform taxation provides voters in one jurisdiction with partial information about fiscal policy in other regions: this constrains the ability of the incumbent to

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<sup>27</sup>In the equilibrium with both centralization and decentralization, an incumbent with a competence level higher (lower) than the expected competence of the challenger wins (loses) the election. As both competence levels are random draws from the same distribution, the probability that the initial incumbent has a competence level above expected level of the challenger is simply 0.5.

<sup>28</sup>It does not follow from this that voter welfare is always unconditionally lower with centralisation, however, as voters may prefer a lower separation probability if they discount the future a lot, and this can outweigh the selective pooling effect.

selectively pool. Ex ante, all voters would choose a uniform over a differentiated tax rate. This provides a novel explanation of why uniform taxes with centralization are so widely observed.

### 5.3. Decentralization and Competition

Another way in which decentralization can alter the incentive and selection effects of elections is via competition among local or regional governments. Competition can be of two kinds, tax competition and yardstick competition, and we discuss each in turn.

Informally, it has long been recognized that if policy-makers are rent-seeking, competition for mobile tax bases can constraint their rent-seeking behavior (e.g. Buchanan(1987)) and thus improve voter welfare. The basic result is a second-best one; if governments are benevolent, tax competition creates a bias towards too little taxation, and undersupply of public goods, but if governments are rent-seeking, they are biased in favour of overtaxation. Under some conditions, the first bias offsets the second, to the benefit of voters.

This point has been made more formally by Edwards and Keen(1996), where it is assumed that if the incumbent regional government maximizes some combination of voter welfare and the rents from office, and conditions are developed under which tax coordination is welfare-improving for voters: this requires the "weight" the government puts on rent-diversion to be sufficiently low. To put it another way, if the "weight" the government puts on rent-diversion is high, stronger<sup>29</sup> tax competition raises voter welfare.

The limitation of this line of argument is that in their model, governments are simply assumed to non-benevolent, but voters have no electoral control over them - there are no elections in the model. In a more recent paper, Besley and Smart(2003) take a major step forward<sup>30</sup> in developing a model of electoral accountability exactly as described above, where the incumbent policy-maker can be benevolent or a rent maximizer. In this model, they show that an increase in the (exogenous) marginal cost of public funds - which can be interpreted as an intensification of tax competition - will decrease voter welfare if it leaves the equilibrium separation probability<sup>31</sup> unchanged, but may increase voter welfare if the change causes the bad incumbent to switch to a separating strategy - thus revealing his type - in equilibrium.

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<sup>29</sup>A "global" result along these lines is easy to prove: if the government (national or regional) puts a sufficiently high weight on rent-diversion, fiscal decentralization will increase welfare.

<sup>30</sup>A related paper is Gordon and Wilson(1999), which studies how results on the optimal tax structure change when a bureaucracy with its own objectives chooses government expenditure, but a legislature (effectively, a benevolent social planner) chooses taxes.

<sup>31</sup>Recall that this is the probability in equilibrium that the rent-seeking incumbent loses the election.

The second form of competition that is possible under fiscal decentralization is *yardstick competition*. This occurs when voters in any tax jurisdiction use the taxes (or expenditures) set by their own political representative *relative* to those in neighboring jurisdictions when deciding how to vote. [Of course, a necessary condition for yardstick competition is that voters can observe fiscal policy in neighboring jurisdictions]. To model this in a rigorous way, what is required is a version of the electoral accountability model as described in Section 5.1 above, with two (or more) jurisdictions and some positive correlation in the random cost of public good provision across jurisdictions. Theoretical models of yardstick competition along these lines have been developed by Belleflamme and Hindriks (2003), Besley and Case (1995), Besley and Smart (2003), and Bordignon, Cerniglia, and Revelli (2004).

In this type of model, voters can (under some conditions) improve their welfare by using yardstick competition i.e. by voting on the performance of their incumbent relative to the incumbent in the other region. The reason is quite intuitive: if the voters in region 1 observe that their incumbent has set a high tax, but that the incumbent in region 2 has set a low tax, this outcome is more likely to be generated by a "bad" incumbent in region 1 than is the outcome where both set a high tax, because of the correlation in cost of public good provision across regions. Thus, in equilibrium, it is possible that voters vote for the challenger in the first case, and the incumbent in the second, even though in both cases, the tax in region 1 is high. Besley and Smart (2003) show that this has the consequence of making the pooling equilibrium more likely<sup>32</sup>. In turn, allowing yardstick competition may increase voter welfare, but does not necessarily do so, because pooling, while good for incentives, is bad for selection.

Finally, it is worth noting that while both tax competition and yardstick competition may in some circumstances, provide argument (under the general heading of increased accountability) as to why fiscal decentralization may be desirable, it is often difficult to distinguish in practice<sup>33</sup> between tax and yardstick competition. This is problematic because in a particular country that is initially highly fiscally centralized, preconditions for the two types of competition are rather different. Tax competition requires centralization of (in particular), taxes on business. Yardstick competition requires rather, transparency in government decision-making and a mass media that are not subject to censorship.

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<sup>32</sup>Bordignon, Cerniglia, and Revelli (2004) have shown, however, that this result is rather specific to the parameter values Besley and Smart consider: it is also possible to find cases where allowing yardstick competition makes the pooling equilibrium less likely.

<sup>33</sup>See for example, the discussion on this issue in the survey paper by Brueckner(2003).

## 5.4. Decentralization and Lobbying

The economic theory of lobbying has been extensively developed and applied in recent years (see e.g. Grossman and Helpman(2001), and there are now several theoretical papers which explicitly consider the interaction between fiscal decentralization and lobbying (Bardhan and Mookherjee(2000), Bordignon, Colombo, and Galmarini(2003), and Redoano(2003)). One motivation of all these papers is to examine analytically a belief, going back to the US Federalist Papers in the 18th century, that local government is more susceptible to "capture" by lobbies.

We can compare and contrast the contribution of these papers in a number of ways. First, it is important to understand first what the "baseline" form of decision-making is in the model, in the absence of lobbying: the distortion of policy-making induced by lobbying is then measured by this benchmark. In both Bordignon, Colombo, and Galmarini(2003), and Redoano(2003)), the welfaristic assumption of the standard model is made: each level of government maximizes the sum of utilities of the residents in his jurisdiction (region or nation) .In Bardhan and Mookherjee "baseline" form of decision-making is Downsian competition between two political parties: each party sets policy so as to maximize the probability of winning, so both parties converge on policy that maximizes the median voter's payoff<sup>34</sup>.

A second difference is in the use to which payments by lobbies are put. In Bordignon, Colombo, and Galmarini(2003), and Redoano(2003)), lobbies' payments fund the personal consumption of policy-makers. In Bardhan and Mookherjee(2000), lobbies fund campaign spending by the two parties: this spending in turn affects the voting behavior of "uninformed" voters. The latter is an attractive assumption for several reasons: it is realistic, and it endogenizes the power of the lobby (see below).

A third difference is in the type of policy chosen by government. In Bardhan and Mookherjee(2000), the policy space is rather general. In Bordignon, Colombo, and Galmarini(2003), the policy is a level of provision of a good that positively affects the demand for a good produced by the firms who lobby<sup>35</sup>, or in a second variant of the model, also a decision about which firm(s) should have access to a given market. In Redoano, the policy is the level of provision of a regional public good.

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<sup>34</sup>In fact, as there is probabilistic voting in the model (voters have random shocks to preferences), this means that each party chooses policy to maximise a form of social welfare function.

<sup>35</sup>Bordignon, Colombo, and Galmarini(2003) call this an infrastructure good, but this is an unusual way of modelling an infrastructure good, which is usually assumed to enhance the productivity of the firm.



Finally, in all these papers, the lobbying is to some extent endogenous. In Bardhan and Mookherjee(2000), the number and size of lobbies is fixed (one per region with decentralization, one at the national level with centralization), but the size of the contribution the lobby wishes to make depends on the probability of the party winning the election, which in turn depends on the size of the contribution. In Bordignon, Colombo, and Galmarini(2003), again, the number and size of lobbies is fixed (two firms) but with decentralization, firms can choose to lobby both, one, or neither regional governments. In Redoano(2003), a lobbying is organized by preference for the public good. A set of residents of a given preference type can potentially form a lobby: the free-rider problem is overcome by assuming that a lobby only forms if all residents of a given preference type agree to make a contribution.

All of these papers find that the traditional intuition that local government is more susceptible to "capture" by lobbies is only true under certain conditions. In Bardhan and Mookherjee(2000), in the baseline model without lobbies, centralization and decentralization are equivalent if regions are homogeneous, in particular, if (i) the income distribution in each region is the same, and (ii) the size of the lobby (the organized rich) is the same in each district. So, not surprisingly, Bardhan and Mookherjee(2000) find that there is less capture<sup>36</sup> with centralized decision-making if citizens are better-informed at the national level, the rich are less organized at the national level. A more interesting result is that if both these factors are the same at the national and regional level, and the shocks to informed voters preferences are uncorrelated (or, more generally, less than perfectly correlated) across regions, the outcome of the election is more certain at the national level, and so the rich are more willing to lobby the party most likely to win, raising capture at the national level. Other notable results are that (i) there is less capture with centralized decision-making if (i) there are more parties at the national level; (ii) if the electoral system is based on proportional representation, rather than majoritarian.

In Bordignon, Colombo, and Galmarini(2003), in the baseline model without lobbies, centralization is the more efficient arrangement, as it internalizes a spillover effect of the publicly provided good between regions. With lobbying, this advantage of centralization may be neutralized or even reversed. In particular, without lobbying, centralization is efficient, so when lobbying is allowed, the publicly provided good is overprovided, whereas lobbying offsets the initially inefficient undersupply with decentralization. In other words, this is a *second-best* result: introducing a new source of inefficiency (lobbying) can help

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<sup>36</sup>In their model, capture is measured by the weight that the two parties place on the preferences of the informed rich in their objective functions (relative to the case without lobbying).

offset an initial inefficiency. In Redoano(2003), without lobbies, by contrast, decentralization is the most efficient arrangement, as there are no inter-regional public good spillovers, and policy uniformity (uniform public good provision) with centralization, but this need to be the case without lobbying).

## 6. A Political Economy Perspective on the Allocation of Fiscal Powers

As emphasized in the Introduction, there are two aspects to the study of the allocation of fiscal powers from a political economy perspective. First, *given* an allocation of powers, how does the political process by which decisions are made (voting, behavior of the legislature, etc.) determine the performance of government? We have dealt with this issue at length in the previous section. We now turn to the second question<sup>37</sup>; how does the political process by which decisions are made determine the choice of allocation of powers?

Broadly speaking, there are two ways in which a (re-)allocation of fiscal powers between centre and regions can be made: by voting in the national legislature, and by referendum. Both methods are used in practice. For example, in the UK, reallocation of powers is almost always implemented by ordinary legislation in the national parliament: for example, in the Bill that devolved power to a Scottish parliament. However, there are exceptions, in the case of "upward" allocation of power to the EU : the UK's 1975 entry into the EU was decided by referendum, and more recently, the UK government has promised a referendum on the new EU constitution.

An additional important issue is that whether a vote in legislature or a referendum is used, the use of either procedure is often quite different in federal and unitary states. In federal states, the allocation of powers is usually specified in the constitution and may

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<sup>37</sup>There are also a few empirical studies of the determinants of fiscal decentralization , notably Obholzer-Gee and Strumpf(2002), and Panizza(1999). These empirical studies do not, however, attempt to distinguish the effects of different political procedures for deciding on the allocation of powers (rather, they are concerned with whether more basic variables, such as preference heterogeneity, are significantly correlated with decentralization). and so we do not discuss them further here.

require<sup>38</sup> a constitutional amendment. .Constitutional amendments are used routinely in Switzerland, and less frequently in the US, Canada and Australia, to reallocate tax and spending powers (Wheare(1963)).

In all major federal states, rules for constitutional amendment require that at least a *majority of regions* must approve the amendment, either by vote in the regional legislature, or by referendum (Wheare(1963)). For example, in the US, any amendment to the Constitution must be approved by at least three-quarters of all state legislatures. Constitutional amendments in Australia and Switzerland require majority approval of the population as a whole, and also majorities in all the regions i.e. unanimity among the regions (Wheare(1963)).

Assuming that decisions are always made by ordinary majority for simplicity,, there are thus four logical possibilities, as indicated in the following Table:

Table 1 in here

The table also covers situations where fiscal powers are re-allocated "above" the level of the nation state. The leading example, here, of course, is the European Union, where ratification of treaties - which often lead to centralization of powers at the EU level - can be done in any member country by either a national referendum or a vote in the legislature. For example, in the UK, the Maastricht Treaty was ratified by a vote in Parliament, but in Denmark and France, it was ratified via referendum. The same choice between referendum or vote faces countries<sup>39</sup> now when ratifying the treaty establishing a constitution for Europe, which was signed on 29 October 2004.

This Table also allows us to locate the existing literature in a systematic way. First, an early contribution by Cremer and Palfrey(1996), and a more recent one by Lock-

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<sup>38</sup>However, the degree to which reallocation of powers leads to constitutional amendment varies considerably across federal countries. In the US, there has only been one constitutional amendment for this purpose (in 1913, to allow a Federal income tax), whereas in Switzerland there have been a large number of amendments over the last 100 years, enhancing the tax powers of central government (Wheare(1963), Chapter 6).

<sup>39</sup>According to the official EU website (<http://europa.eu.int/>) "This Treaty can only enter into force when it has been adopted by each of the signatory countries in accordance with its own constitutional procedures: this is called the ratification of the Treaty by the Member States. Depending on the countries' legal and historical traditions, the procedures laid down by the constitutions for this purpose are not identical: they comprise either or both of the following two types of mechanism: the "parliamentary" method: the text is adopted following a vote on a text ratifying an international Treaty by the State's parliamentary Chamber(s); the "referendum" method: a referendum is held, submitting the text of the Treaty directly to citizens, who vote for or against it."

wood(2004) compare the performance of a national referendum and the two-stage procedure (*federal referendum* for convenience). Second, Lockwood(2002) considers the choice of decentralization via a national referendum only, but compares majority and unanimity rule. Third, Redoano and Scharf(2004) and Lorz and Willman(2004) compare choice of allocation of fiscal powers via either a national referendum (direct democracy) or via voting in a legislature (representative democracy).

### 6.1. National and Regional Referenda

In Cremer and Palfrey(1996), regional or central governments choose some value of a policy variable (a real number) via majority voting. In their model, the cost of centralization is that the policy variable must be set at the same level in all regions (Oates' policy uniformity): the benefit is that "extreme" policies are less likely<sup>40</sup>. They obtain a remarkable result<sup>41</sup>: as the number of (equal-sized) regions become large, whenever the national referendum selects centralization, the federal referendum also selects centralization (but not necessarily vice versa), so federal referenda unambiguously lead to more centralization. They call this result the *principle of aggregation*.

Lockwood(2004) addresses the same question in model of discrete regional public goods, much closer to the legislative model of Section 4.1 There are no spillovers, so the benefit of centralization is in economies of scale. Policy uniformity is not assumed. The outcome with centralization is modelled in a legislative bargaining framework<sup>42</sup>. Finally, unlike<sup>43</sup> Cremer and Palfrey(1996), the model avoids imposing strong assumptions

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<sup>40</sup>They assume that voters are incompletely informed about the preferences of other voters, both in their regions and in other regions. It turns out in this set-up that the benefit of centralization is *policy moderation*. That is, when the number of regions becomes large, the subjective probability for any particular voter that the policy variable will, in voting equilibrium, take on an extreme value (i.e. far from that voter's most preferred value) is lower with centralization.

<sup>41</sup>This follows from Figure 1 in their paper, where it is clear that if the proportion of voters preferring centralization is greater than 0.5, then the proportion of regions preferring centralization must also be greater than 0.5.

<sup>42</sup>In the legislature bargaining equilibrium, every one of the  $n$  regions gets a public good with the (equal) probability  $(n + 1)/2n$  that they are in the minimum winning coalition (which I call *endogenous policy uniformity*). This is inefficient, as while all goods are assumed to be equally costly, some regions have a higher average willingness to pay than others, and so only some regions should get projects, and should get them with probability 1.

<sup>43</sup>Due to the information structure in Cremer and Palfrey(1996), their model is only tractable if very specific assumptions on the distribution of preferences within regions and between regions are made, and indeed, they assume for the most part that both these distributions are Normal.

on the distribution of preferences for projects within regions and between regions.

With a fixed and finite number of regions, and no restrictions on the distribution of project benefits, either within or across regions, there is no particular reason to think that the federal referendum will be systematically more decentralizing than the national referendum or vice versa. The main (asymptotic) results of the paper concern what happens as the number of regions becomes large, under certain regularity conditions<sup>44</sup>. Under some symmetry assumptions on preferences, it is shown that the federal and national unitary referenda are asymptotically equivalent if the distribution of median project benefits across regions is uniform, *irrespective of how preferences are distributed within regions*. In the "usual" case where the distribution of median project benefits across regions is positively single-peaked (i.e. has a quasi-concave density) then the federal referendum is asymptotically more likely to select centralization than the unitary referendum, confirming Cremer and Palfrey's result<sup>45</sup>.

Finally, Lockwood(2002) studies choice of decentralization in the legislative economy model described in Section 4.1 above. In that model, decentralization is efficient when the spillover is zero, but when the spillover is large and positive, the reverse is the case. Conditions are investigated under which unanimity or majority rule will select decentralization when the spillover is zero, and centralization when the spillover is large and positive.

## 6.2. Voting in the Legislature vs Referendum

This is a case that is of particular interest in the context of the European Union, where as already remarked, ratification of EU Treaties can be done via referendum or vote in the legislature. Redoano and Scharf(2004) were the first to study this choice. The main insight from their model is that (relative to a referendum), the delegation of the choice of centralization to the legislature can effectively act as a precommitment device by a pro-centralization region to induce the delegate from an anti-centralization jurisdiction to agree to centralization. Redoano and Scharf(2004) compare two ways of allocating fiscal powers, a referendum and a vote in the legislature. With a *referendum*, allocation of fiscal power is chosen through a referendum of the two stage type i.e. the alternative chosen must

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<sup>44</sup>These are: (i) regional median project benefits are random draws from a fixed distribution; (ii) conditional on the regional median, the distribution of tastes within any region is the same.

<sup>45</sup>These findings relate to Cremer and Palfrey's "principle of aggregation" as follows. The two cases analyzed in their model were when preferences were Normal. But the Normal distribution is single peaked, in which case our result is that the federal referendum is more centralized, consistently with their principle of aggregation.

be chosen by a majority of voters in both regions. With a *vote in the legislature*, delegates are first simultaneously elected from each of the two regions. Then, the delegates choose the allocation of fiscal power by majority vote. Finally, in either case, if centralization has been chosen, the legislature makes a decision on public good provision; if the two regions independently choose public good provision.

With only two regions, majority is unanimity, and so the status quo is relevant: the implicit assumption in their paper is that the status quo is decentralization. So, with either a referendum (or a vote in the legislature), a move to centralization requires the agreement of the voters in both regions (or their delegates).

The willingness to pay of any voter can take on only two values, high or low. In region 1, a majority of the agents have a high willingness to pay, whereas in region 2, a majority of the agents have a low willingness to pay. The difference between a referendum and a vote in the legislature arises when preferences are additionally such that: (i) a high-preference voter in region 1 prefers centralization to decentralization, whereas a low-preference voter prefers the reverse, *given* that the two delegates to the legislature represent the majority of voters in their region, and (ii) a high-preference voter in region 1 even prefers centralization when his delegate is a low-preference type.

Then, with a referendum, as the majority of voters in region 2 prefer decentralization, they will prevail, and decentralization will be chosen. In this situation, the majority of agents in region 1 would like to make a side-payment to the majority in region 2 to persuade them to agree to centralization, but the referendum does not provide a mechanism for doing this. But, with a vote in the legislature, the majority in region 1 can make a "strategic concession" to region 2 by choosing a low-preference delegate. If they do so, the delegate from region 2 will certainly vote for centralization, as the legislature will then contain two low-preference delegates. Anticipating this, the majority in region 1 will wish to delegate in this way, and so centralization will be chosen.

Lorz and Willman(2004) builds on Redoano and Scharf. There, the focus is on which (of a continuum) of public goods should be provided centrally. Regions do not differ in preferences for the public goods, but legislators can make side-payments when bargaining over which goods to decentralize. So, voters strategically delegate to legislators who have a relatively low willingness to pay for the public good in order to win higher side-payments. This leads to too few goods (relative to the efficient benchmark) being provided centrally. As a referendum over which public goods to decentralize leads to the efficient outcome, voting in the legislature leads to less centralization than a referendum.

## 7. Conclusions

This paper has surveyed some recent contributions to the study of fiscal decentralization from a political economy viewpoint. The unifying theme of the survey is that the standard approach, based on the idea of benevolent governments and policy uniformity, cannot give a rigorous account of the preference-matching and accountability benefits of decentralization, but the political economy approach can do this. This matches with a growing empirical literature which often demonstrates a link between fiscal decentralization and increased preference-matching and accountability.

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**Table 1: the Allocation of Fiscal Powers**

Table 1: the Allocation of Fiscal Powers				
Method of Allocation	Vote by referendum		Vote in legislature	
	Approval by region not needed (unitary state)	Approval by region needed (federal state)	Approval by region not needed (unitary state)	Approval by region needed (federal state)
	Majority vote in national referendum	Two stage procedure: 1. majority vote in regional referendum to determine regional preference :  2. Majority vote by regions to determine national preference	Majority vote in national legislature	Two stage procedure: 1. Majority vote in regional legislature to determine regional preference :  2. Majority vote by regions to determine national preference
Literature	Cremer and Palfrey(1996), Lockwood(2004), Lockwood(2002), Redoano and Scharf(2004), Lorz and Willman(2004)	Cremer and Palfrey(1996), Lockwood(2004)	Redoano and Scharf(2004), Lorz and Willman(2004)	