Comparative Politics and Public Finance*

Torsten Persson† Gerard Roland‡ Guido Tabellini§

First Draft: June 19, 1997
This version: July 23, 1997

1. Introduction

The postwar neoclassical theory of normative public finance has been written from a Pigovian perspective. It addresses questions about optimal taxation and allocation of public goods from the perspective of a benevolent social planner. This field of research has produced many important principles and insights regarding what governments should do. It nevertheless suffers from an important weakness, which has been forcefully pointed out by the Public Choice school: it neglects that political representatives rationally follow their self-interests. The Leviathan perspective to public finance, often adopted by the public choice school, replaces the benevolent social planner by a malevolent politician, who is setting policy so as to maximize his own rents. The Leviathan approach, too, suffers from an important weakness: it neglects how democratic political institutions constrain elected politicians to align their behavior with voters' interests. Opposing the Pigovian and the Leviathan models of policy choice is not enough. We must

*We are grateful for helpful comments by Elhanan Helpman, Antonio Rangel, and the participants in seminars at Harvard University and the IDB and in the ESF conference on Political economy, Florence, June 4-8 1997. This research is supported by grants from the European Commission (TMR program), the Bank of Sweden Tercentenary Foundation, Bocconi University and grant PAI P4/28 from the Belgian Office of Scentific, Technical and Cultural Affairs.

†Harvard University; Stockholm University; CEPR; NBER.

‡ECARE, University of Brussels; CEPR.

§IGIER, Bocconi University; CEPR.

instead try to build a bridge between these approaches.[1]

Democratic institutions with electoral accountability and separation of powers are indeed designed to protect citizens from the abuse of political powers. How well do these institutions induce self-interested politicians to act in the public's interest? How do different political systems perform in providing public goods, redistribution and local public goods, and in preventing wasteful diversion of resources? How much revenue is raised under these different political systems ? These are the general questions we address in this paper. In particular we compare the fiscal policy choices made under two broad types of political systems, namely parliamentary versus presidential-congressional systems.

Real world political constitutions display a variety of differences in many dimensions. Nevertheless, the comparative political science literature points to some systematic differences between parliamentary and presidential congressional systems (see e.g. Lijphart (1992)). Two salient differences have to do with the executive. Whereas the executive is directly elected in presidential-congressional systems, it is only indirectly accountable to the electorate in parliamentary systems, where it derives its powers from the support of a parliamentary majority. And, whereas the president is a single person executive, cabinets in parliamentary democracies are a collective executive involving politicians with support from a coalition of constituencies and often of parties. A third difference has to do with the agenda setting powers over legislation. In presidential systems as the US, these often reside with powerful congressional committees, but in parliamentary systems, agenda setting powers instead reside with the cabinet ministries. A final difference is the degree of *legislative cohesion:* it is quite common in presidential-congressional systems that legislative majorities shift from issue to issue, but in parliamentary systems representatives from parties of the government coalition instead vote closely together on legislative proposals. Notice that this in not only a matter of party discipline. Indeed, the legislative cohesion *between* parties supporting coalition governments is typically much higher than the cohesion *within* parties in the US congress.

Recent work by Diermeier and Feddersen (1996) provides a rationale for why these different features may go together. As Diermeier and Feddersen demonstrate, legislative cohesion arises endogenously if it is costly for a majority coalition to break up. In the parliamentary system, these costs arise naturally: a dissenting vote from within the governing coalition can make the government fall,

[1] Dixit (1996) enthusiastically argues for a more unified approach to the analysis of public policy, drawing on the insights from both the Public Choice and the Pigovian tradition.

depriving the coalition partners of valuable agenda-setting powers associated with ministerial portfolios. In a presidential system, on the contrary, no stable congressional majority needs to form to support the executive, as the latter is directly elected. Furthermore, the agenda setting powers over legislation typically reside with powerful congressional committees. We build on this insight. Our analysis implies greater legislative cohesion in parliamentary systems, and this difference between presidential and parliamentary systems indeed drives some of the stark differences in public finance outcomes that we derive.

We also continue our investigation, initiated in Persson, Roland and Tabellini (1997), on how alternative constitutional rules and electoral accountability help contain the rents that can be captured by self-interested politicians. Thus, we study different legislative bargaining games embedded in an electoral framework, where voters use their vote to oust politicians not delivering satisfactory performance. A crucial distinction between presidential-congressional and parliamentary systems, which drives some of our results, is the clearer separation of powers in presidential systems. The separation of powers between the president and congress makes it possible to have "divided government" (see Alesina and Rosenthal (1996) and Chari, Jones and Marimon (1997)) with a majority in Congress different from the president. More important in our analysis is the separation of powers between individual legislators and congressional committees. The absence of endogenous incentives for legislative cohesion allows voters to exploit the conflicts of interests between separate agenda-setters. The stronger separation of powers *cum* lack of legislative cohesion in Presidential-Congressional systems may therefore prevent wasteful collusion between politicians. But it may also induce weaker incentives to provide global public goods and stronger incentives to favor the interests of local constituencies.

Section 2 of the paper introduces some notation and lays out our public finance framework. We study a government that raises revenue for three purposes: public goods (which benefit all voters), redistributive expenditures (which benefit some voters), and diversion of resources (which benefits some politicians, but hurts the voters).

In Section 3, we study a simple legislature that has neither separation of powers nor legislative cohesion. This simple legislature makes decisions on the public-finance instruments in the simplest possible legislative-bargaining game in the style of Baron and Ferejohn (1989). However, we embed the legislative bargaining in a multi-period electoral framework, where the legislators from different districts are elected in first-past-the-post elections on the basis of past performance. The equilibrium of this simple model displays three "political failures", relative to the hypothetical choices of a benevolent planner: underprovision of public goods; waste, namely some tax revenue is used in a way that is valuable for the elected politicians but worthless for the voters; and inefficient redistribution, towards a minority of politically powerful voters. Like a Leviathan policymaker, the simple legislature maximizes tax revenues. The rest of the paper investigates how more realistic political institutions modify these political failures.

In Section 4 we study a presidential-congressional system with separation of powers. The overall level of taxation and public spending is smaller than in the simple legislature. Underprovision of public goods remains no better than in the simple legislature, and redistribution continues to favor a politically powerful minority, even though the amount distributed could be smaller than in the simple legislature. But voters are able to exploit the inherent checks and balances in this system to contain government waste and redistribution in favor of minorities.

Section 5 turns to a parliamentary system, without separation of powers, but with legislative cohesion. In this system redistribution favors a stable majority supporting the government. The shared benefit of redistribution alters the policy trade-off and raises the equilibrium supply of public goods. But government waste is higher, and a majority of the voters now support maximal taxes.

Our analysis thus points to clear differences in how the two systems perform in public finance. A Parliamentary system has redistribution towards a majority, less underprovision of public goods, more waste and a higher burden of taxation, whereas a presidential-congressional system has redistribution towards a minority, more underprovision of public goods, but less waste and a smaller size of government. In the concluding Section 6 we discuss these testable predictions and a number of prospective extensions of our theory.

Some of the formal analysis is relegated to an Appendix.

2. A basic model of public finance

Consider a society with three distinct groups of citizens, denoted by $i = 1, 2, 3$. We shall think about these groups as distinguished by their geographical location. Other interpretations are possible, but less natural. Three is the minimum number to look at interesting legislative bargaining under majority rule, but we could carry out the analysis with more than 3 groups at the cost of more cumbersome algebra. Each group has a large number of identical members: formally we assume each group has a continuum of voters with unit mass. Time is measured discretely: a typical time period is denoted by t. We consider an infinite horizon.

The preferences of a member of group i from an arbitrary starting period j are given by:

$$u_j^i = \sum_{t=j}^{\infty} \delta^{(t-j)} U^i(q_t), \tag{2.1}$$

where $\delta < 1$ is a discount factor, q_t is a vector of policies at t (to be defined below), and U^i is the per period utility function. The latter is assumed quasi-linear in the consumption of private and public goods:

$$U^i(q_t) = c_t^i + H(g_t) = 1 - \tau_t + r_t^i + H(g_t), \tag{2.2}$$

where τ is a common tax rate, r_t^i is a transfer payment to group i, and g_t is the supply of Samuelsonian public goods evaluated by the concave and monotonically increasing function $H(g_t)$. We assume that these goods are valuable to citizens, in the sense that $H_g(0) > 1$; a further condition is stated below.

The public policy vector q is defined by:

$$q_t = [\tau_t, g_t, \{r_t^i\}, \{s_t^l\}],$$

where all components are constrained to be non-negative. The component $\{s_t^l\}$ captures possible diversion of resources by politicians. We assume this diversion takes place in connection with public goods production g_t. As discussed in Persson, Roland and Tabellini (1997), we can think of $\{s_t^l\}$ as outright diversion, or as an allocation of resources that benefits the private agenda of the legislators but not the citizens. These diversions benefit some politicians more than others: thus, s_t^l is assumed to benefit legislator l, but no other legislator (see further below). From the view-point of the citizens, these rents from holding office for the legislators represent pure waste. The public policy vector in period t must satisfy the government balanced budget constraint:

$$3\tau_t = \sum_i r_t^i + \sum_l s_t^l + g_t \equiv r_t + s_t + g_t, \tag{2.3}$$

where r_t and s_t in the rightmost expression, denote aggregate redistributive expenditures and aggregate waste, respectively.

To make the public finance problem more interesting, we could extend the model with some private choices distorted by taxation. We conjecture that doing so would make our results quantitatively, but not qualitatively, different. Note, however, that the micro-political problem inherent in this formulation is relatively general: it involves activities that benefit every citizen (g_t), activities that benefit some citizens but not others ($\{r_t^i\}$), and activities that benefit the politicians but not the citizens ($\{s_t^l\}$). As we shall see, the trade-off on each different margin of policy choice plays a non-trivial role in shaping the results.

Which public policy would a Pigovian social planner with a symmetric social welfare function choose in this setting? First, of all the planner would choose to set $s_t^l = 0$. Moreover, with quasi-linear utility, non-distortionary taxes and a symmetric social welfare function, optimal redistributive expenditure is determined only up to the same present value for each group. It is thus always efficient to have $r_t^i = 0$; if taxes were even slightly distortionary any positive redistribution would strictly decrease welfare. Even without distortionary taxation, any *unequal* redistribution within any period t across symmetric regions with homogeneous voters would also strictly decrease welfare if the utility of private consumption was concave. A Pigovian planner would thus set g_t in any period t so as to solve:

$$Max \sum_i v^i = Max 3[1 - \tau + H(g_t)] = Max[3 - g_t + 3H(g_t)],$$

yielding the first order condition $H_g = \frac{1}{3}$. The first-best policy is thus to make the supply of public goods constant over time, at the point where its marginal aggregate benefit is equal to its marginal social cost, and to raise no more revenue than necessary to finance this optimal public goods provision.

What would be the optimal public policy chosen by a Leviathan policymaker in this setting? In the absence of any other constraints, the power to use policy to generate personal rents would push taxes in any given period towards their maximum $\tau = 1$, diversion towards its maximum $s_t = 3$, and public goods and redistribution towards their minimum $g_t = r_t = 0$. Whereas the Leviathan and Pigovian policymakers might agree on the extent of redistribution to voters, they would strongly disagree on the other aspects of public finance. In the paper, however, we leave both the benevolent and the malevolent caricature of the almighty policymaker aside. Instead we ask what predictions we might get from more structural models of democratic policy choice within specific political institutions.

3. A simple legislature

We first study a hypothetical political institution that we label a "simple legislature". The simple legislature lacks important characteristics of modern political systems. It does not entail, as does a US style presidential-congressional system, a directly elected President and a clear separation of powers within the legislature and between the executive and the legislature. Neither does it entail, as does a parliamentary system, a cohesive majority in Parliament on which the government can count to pass legislative proposals. This section will however be useful to illustrate in the simplest set up three fundamental political failures: under-provision of public goods, wasteful allocation of tax revenues, and redistribution towards a powerful minority. It then sets the point of departure for the analysis in later sections, where we show the effect of legislative cohesion and separation of powers on these three political failures.

In the simple legislature, each region i coincides with a voting district and is represented by exactly one legislator: so that $i = l = 1, 2, 3$. Separate elections under plurality rule take place in each of these geographically defined voting districts. In period j incumbent legislator l has preferences over outcomes, given by:

$$v_j^l = \sum_{t=j}^{\infty} \delta^{(t-j)} V^l(q_t) D_t^l, \tag{3.1}$$

where the per-period utility is simply:

$$V^l(q_t) = s_t^l, \tag{3.2}$$

and where D_t^l is a dummy variable, equal to unity if legislator l holds office in period t and zero otherwise. As in Persson, Roland, and Tabellini (1997), the politicians' payoffs are defined exclusively over the rents they endogenously derive from holding office and making policy decisions. This does not imply that legislators act only in their own interest. As legislators value holding office and as voters will hold them accountable for their performance by retrospective voting, the threat of being ousted from office, in fact, makes legislators close to perfect delegates for their constituencies.[2]

At the end of each time period, elections are held in each region, where the candidate with the most votes win. The incumbent runs against a single opponent, who is drawn at random from a large set of candidates. Candidates are not inherently different in their competence or in any other attributes: each candidate

[2]This framework, borrowed from Ferejohn (1986) may appear special to some readers. We believe our general results on comparative politics are likely to survive under a variety of assumptions about the motivation of politicians. As demonstrated in Persson (1997), similar results may emanate from a legislative bargaining framework, whether interest groups lobby finance-motivated legislators, or prospectively elect outcome-motivated legislators, rather than retrospectively reelect office-motivated legislators, as in this model.

has exactly the same preferences as the incumbent once in office. An incumbent who is not reelected can never come back.

In period t the incumbent legislators that were elected to the simple legislature at the end of period $t-1$ decide on public policy in a very simple legislative bargaining game in the style of Baron and Ferejohn (1989). Specifically, this legislative bargaining in period t is embedded in the sequence of events illustrated in Figure 1, namely:

(0) Nature randomly selects an agenda-setter a among the three legislators.

(1) Voters formulate their re-election strategies, which become publicly known.

(2) Legislator a proposes a public policy q_t.

(3) The legislature votes on the proposal. If a majority (at least two legislators) support the proposal, it is implemented. If not, a default policy is implemented, with $\tau = s^l = \sigma > 0$ and $g = r^i = 0$.

(4) Elections are held.

Once the policy has been implemented the voters observe the outcome of the legislative decision and all elements in the policy vector, except $\{s_t^l\}$. Even though voters can correctly infer aggregate rents s from (2.3), they cannot observe the rents captured in period t by individual legislators. Voters thus cannot condition their electoral strategies on the diversion by individual legislators. They care, however, only about aggregate waste, which—as we shall see—will be determined both by individual and collective incentive compatibility conditions. What is important is that $\{s_t^l\}$ is not verifiable. That is, politicians can only be offered implicit incentive schemes, and not explicit incentives or penalties contingent on $\{s_t^l\}$. Together with outcomes being observed only at the end of the legislative period, this creates contractual incompleteness. Thus, voters can only punish politicians by not reelecting them, rather than through a contract conditioned on $\{s_t^l\}$. The discretionary powers enjoyed by politicians between elections, however, will make it impossible for voters to insist on having $s_t = 0$.

The default outcome is assumed to be inefficient for the voters. In particular, we assume that $1 \geq \sigma > 0$, and $H(\hat{g}) > 1 - \sigma$, with $\hat{g} = H_g^{-1}(1)$.

In the infinite-horizon game, there are many sequentially rational equilibria. We assume throughout the paper that all the players (the voters, and the politicians) are restricted to using strategies which condition their actions in period t

on observable pay-off relevant information in period t only, and not on outcomes in any earlier period. This is a reasonable restriction if we assume that voters cannot commit to intertemporal reelection rules over more than one period. The restriction will effectively make the equilibrium outcome stationary, and we drop time subscripts in the following when there is no risk of confusion.

We assume that voters in each district adopt simple retrospective voting rules, conditional on their representative having been the agenda setter in period t or not. We also assume that (enough) voters in each district coordinate on the voting rule, implying that:

$$\begin{array}{rrcl} & D^l_{t+1} & = & 1 \\ if & U^i(q_t) & \geq & b^a_t \quad and\ i = a\ at\ t \\ if & U^i(q_t) & \geq & b^l_t \quad and\ i \neq a\ at\ t. \end{array} \tag{3.3}$$

Finally, we assume that voters of all regions simultaneously set their "reservation utilities" b^a_t and b^l_t in a utility-maximizing fashion. The vector of these reservation utilities, b_t , is thus known to politicians when the policy proposal is made, and is not altered by the voters in the course of period t. It is because of this feature that legislators will act in their constituencies' interest.

An equilibrium of this game is defined as follows (the L superscript stands for equilibrium of this legislative game):

Definition 1. *An equilibrium of the simple legislature is a vector of policies $q^L_t(b_t)$ and a vector of reservation utilities b^L_t such that in any period t , with all players taking as given the equilibrium outcomes of periods $t+k$, $k \geq 1$:*

(I) for any given b_t , at least one legislator $i \neq a$ weakly prefers $q^L_t(b_t)$ to the default outcome;

(II) for any given b_t, the agenda-setting legislator a prefers $q^L_t(b_t)$ to any other policy satisfying (I);

(III) The reservation utilities b^{iL}_t are optimal for the voters in each district i, taking into account that policies in the current period are set according to $q^L_t(b_t)$ and taking as given the reservation utilities in other regions b^{-iL}_t and the identity of the agenda setter.

There is a unique equilibrium satisfying these conditions, and it is stationary. Its properties are summarized in the following proposition:

Proposition 1. *In the equilibrium of the simple legislature:*

$\tau^L = 1$;
$s^L = 3\frac{(1-\delta)}{1-\delta/3}$;
$g^L = Min(\ \widehat{g}, \frac{2\delta}{1-\delta/3})$, *where* $\widehat{g}$ *is such that* $H_g(\widehat{g}) = 1 > 1/3$;
$r^{aL} = \frac{2\delta}{1-\delta/3} - g^L \geq 0$, $r^{iL} = 0$ *for* $i \neq a$;
$b^{aL} = H(g^L) - g^L + \frac{2\delta}{(1-\delta/3)}$, $\quad b^{iL} = H(g^L)$ *for* $i \neq a$.
All politicians are re-elected.

Thus, in equilibrium taxes are maximal, there is underprovision of the public good relative to the social optimum, there is some redistribution in favor of a minority of voters (unless the public good is very valuable, in which case there is no redistribution at all), and the legislators appropriate positive rents from office.

To understand how the model works, it is useful to prove this proposition in steps. Consider districts $m, n \neq a$.We start with the following:

Lemma 1. *In equilibrium,* $r^m = r^n = 0$.

Proof. Note that any equilibrium entails a minimum winning coalition: that is, the equilibrium proposal is only approved by one other legislator besides the agenda setter. To get the support of the third legislator, the agenda setter would have to spend resources either on her or her district. But these resources are better used to increase s^a. Hence, if legislator n, say, is excluded from the winning coalition, then $s^n = r^n = 0$. By the same logic, the district included in the winning coalition is the one whose vote is the cheapest to buy. As all legislators have the same default payoffs, which district is cheapest to buy only depends on the reservation utilities, b^n and b^m,demanded by the voters. Realizing this, the voters in districts m and n have an incentive to underbid each other up to the point where $b^m = b^n = 1 - \tau + H(g)$, that is up to the point where $r^m = r^n = 0$. *QED.*

In other words, the voters in this game are engaged in a "Bertrand competition" game for the redistributive favors of the agenda setter. The utility of voters in district m is discontinuous in the reservation value b^m at the point where $b^m = b^n$, unless $r^m = 0$. The same argument holds for voters in n. Hence the only equilibrium is at the corner where $r^m = r^n = 0$.

Next, define W as the expected equilibrium continuation value for each legislator at the start of each period, before nature has selected the agenda setter. Then we have:

Lemma 2. *In equilibrium,* $s \geq 3 - 2\delta W$ *and all legislators are reappointed.*

Proof. Consider the optimal behavior of the agenda setter, and let m be the other legislator supporting her proposal. Then, if a seeks reappointment, she will never offer to m more than:

$$s^m = \sigma - \delta W, \tag{3.4}$$

as this is what would leave m indifferent between voting yes and being reappointed, or voting no, getting the default payoff σ and then losing the elections.

If instead a does not seek reappointment, and makes a proposal that under the given voting rule would lead to a loss of office for all legislators, then she has to offer at least σ to m to win approval of her proposal. Because she does not care about pleasing her voters in this case, the agenda setter can appropriate all available resources, setting $g = r = 0$ and $\tau = 1$. Thus, a will seek reappointment if and only if:

$$s^a + \delta W \geq 3 - \sigma. \tag{3.5}$$

The left hand side of (3.5) denotes the life-time utility of the agenda setter if she makes a proposal consistent with reappointment, under the given voting rule. The right hand side is her maximal payoff, given that she does not seek reappointment and has to pay σ to m.

Combining (3.4) and (3.5), the legislators will implement a policy that leads to their reappointment if and only if:

$$s = s^m + s^a \geq 3 - 2\delta W. \tag{3.6}$$

The optimal voting rule can never be more demanding: if the legislators were induced to forgo reappointment, they would appropriate all resources and leave the voters with low utility. Hence, the optimal voting rule has to satisfy (3.6), and both the agenda setter and the legislator supporting the proposal are reelected. The reservation utility of voters in districts m and n is the same as both districts receive zero transfers (by Lemma 1). As these voters pay the same τ, and enjoy the same level of g, legislator n will also be re-elected. QED.

Note that (3.6) is an incentive compatibility condition on the overall diversion of resources: it implies that the equilibrium is in fact collusion proof. Thus, alternative assumptions on how the bargaining is conducted between a and m would not change the results. Note also that legislator a is the "residual claimant" on resources in period t for given reelection strategies. It would thus be optimal for her, not only to minimize the payment to legislator m, but also to satisfy the reelection constraints of voters in districts a and m with equality, appropriating any remaining resources for herself. If consistent with her own reelection, she would thus like to set $\tau = 1$.

We are now ready to prove Proposition 1.

Proof of Proposition 1. Consider legislator a. As $r^a = r$, by Lemma 1, the policy that maximizes the utility of voters in district a is the solution to:

$$Max\left[r + 1 - \tau + H(g)\right],$$

subject to the government budget constraint, (2.3), and the incentive constraint on legislators a and m, (3.6). Combining (2.3) and (3.6), these constraints can be written as:

$$3(\tau - 1) + 2\delta W \geq r + g. \tag{3.7}$$

The solution to this optimization problem implies: $\tau = 1$, $g = Min(H_g^{-1}(1), 2\delta W)$, $r = 2\delta W - g$, $s = 3 - 2\delta W$. Finally, by Lemma 2 all legislators are reappointed in equilibrium. We thus have:

$$W = \frac{s}{3} + \delta W. \tag{3.8}$$

Solving for W yields $W = \frac{1}{1-\delta/3}$. Inserting the result in the expressions above, yields the equilibrium policies of Proposition 1, and inserting these policies in the voters utility function yields the equilibrium reservation utilities. By requiring the voting strategies to maximize the utility of the representative voter in each district in any period, we are guaranteeing that the equilibrium is sequentially rational. As voters simultaneously choose their reelection strategies, no voter has any incentive to change her vote, given the optimal behavior by other voters and of legislators, if she considers herself pivotal[3]. QED

This outcome is related to the equilibrium in Ferejohn (1986) where a single policymaker gets away with massive rents when voters directly compete for his favors. In the simple legislature considered here, voters compete across, but not within, districts, as redistribution is only across districts, by assumption. Therefore, the voters of the agenda setter's region can still discipline the agenda setter and keep rents to the minimum. They do this by adopting a reelection rule that

[3] That is, even if voters did not commit to the reelection rule chosen at the beginning of each period, the equilibrium would still be sequentially rational: the voters would still weakly prefer replacing the incumbent rather than reelecting her, as this is costless. If legislators were inherently different, however, the assumptions regarding commitment within the period would be critical.

keeps politicians indifferent between diverting as much as possible today but losing office, and diverting only a small amount today but holding on to office and continuing to reap rents in the future.

If $r > 0$, then the voters in region a obtain net redistribution to their district at the expenses of other districts. Therefore they prefer their representative to set taxes to their maximum value: $\tau = 1$. Underprovision of public goods obtains because the agenda setter effectively sets policy so as to maximize the utility of voters in district a. She therefore trades off redistribution to region a and public goods provision one for one—and hence sets $H_g(g) = 1$.

Notice also that the interests of voters in district a and their legislator are aligned in some dimensions, but not in others. They both want taxes to be maximized. But they each wish to use the revenue for redistribution towards themselves: voters wishing to expand r^a and the legislator wishing to expand s^a. Holding their legislator accountable for performance, the voters can keep waste down as long as they respect the incentive constraint (3.6).

This simple model illustrates a form of legislation that Jefferson called "elective despotism" in his *Notes on North Virginia (*cited by Madison in Federalist Paper XLVIII, p. 310):

> *"All the powers of government, legislative, executive, and judiciary, result to the legislative body. The concentrating these in the same hands is precisely the definition of despotic government. It will be no alleviation that these powers will be exercised by a plurality of hands, and not by a single one. One hundred and seventy-three despots would surely be as oppressive as one (...) An elective despotism is not what we fought for".*

In our model only the voters from one out of three regions are able in each period to secure redistribution towards their region, whereas the other voters get nothing. Voters of the non-agenda-setting regions cannot discipline their representatives to ask for more equitable redistribution, because they compete with each other to be included in the majority.

In summary, this simple legislative model displays three "political failures", each being defined as a departure from the socially optimal policy: some spending is wasteful ($s^L > 0$); public goods are underprovided ($g^L < H_g^{-1}(1/3)$); and a politically powerful minority receives positive redistribution ($r^{aL} > 0$). We now ask what form these three political failures take under alternative—and more realistic—political constitutions.

4. A presidential-congressional system

We now modify the previous model by introducing separation of powers over proposals within the legislature. By giving different legislators agenda-setting rights over different dimensions of policy, we can approximate the agenda-setting powers of the standing committees in the US congress. Decisions are made sequentially on each policy dimension, subject to a budget constraint. Later proposals are bound by the decisions taken at an earlier stage; that is, Congress votes directly on each separate proposal. This sequential procedure with different agenda setters achieves separation of powers. The reason is that the agenda setter at each stage is a different politician, accountable to a different group of voters. Nothing constrains what kind of coalitions can form. In other words, legislative cohesion—the focus of the next section—is absent. The political system studied in this section captures some features of a Presidential system like that of the US. The direct election of the executive makes it unnecessary to form a stable majority to support a cabinet. One of the agenda setters could indeed be the President herself. For simplicity, we focus mainly on two-stage decision making, with one stage for taxes, the other stage for the allocation of spending. At the end, we comment on how the results would change with multiple stages also in the allocation of expenditures.

Voters use the same kind of retrospective voting rules for their congressional representatives as in (3.3), making their reservation utilities conditional on whether their representative is agenda setter for the allocation of spending, $i = a_g$, for taxes, $i = a_\tau$, or for neither:

$$\begin{array}{rrcll} & D^l_{t+1} & = & 1 & \\ if & U^i(q_t) & \geq & b^{a_g} & and\ i = a_g \quad at\ t \\ if & U^i(q_t) & \geq & b^{a_\tau} & and\ i = a_\tau \quad at\ t \\ if & U^i(q_t) & \geq & b^l & and\ i \neq a_g, a_\tau \quad at\ t. \end{array} \tag{4.1}$$

The extensive form of the game in a typical period is illustrated in Figure 2. Specifically, we consider the following sequence of events:

(0) Nature randomly selects two different agenda setters among the incumbent legislators, one for taxes and one for the allocation of public spending, a_τ, and a_g,respectively .

(1) Voters set reservation utilities for their voting rule, b^{a_g}, b^{a_τ}, b^l.

(2) a_τ proposes a tax rate, τ.

(3) Congress votes. If at least two legislators are in favor, the policy is implemented. Otherwise, a default tax rate $\tau = \sigma < 1$ is enacted.

(4) a_g proposes $[g, \{s^i\}, \{r^i\}]$, subject to the budget constraint: $r + s + g \leq 3\tau$.

(5) Congress votes. If at least two legislators are in favor, the policy is implemented. Otherwise, a default policy, with $g = 0$, $r^i = 0$, $s^i = \tau$, is put in place.

(6) Elections are held.

An equilibrium is defined as in the previous section, except that here the optimality conditions for policy proposals and for voting by the legislators must hold at each node of the game, for any voting rule and for decisions at earlier nodes in the same period, and taking into account the equilibrium behavior at subsequent nodes of the same period. A precise definition can be found in the Appendix.

The stationary equilibrium is unique. Its features are summarized in the following (a C super-script stands for Presidential-Congressional system):

Proposition 2. *In the equilibrium of the Presidential-Congressional system:*

$\tau^C = \frac{1-\delta/3}{1+2\delta/3} < 1;$

$s^C = 3\frac{(1-\delta)}{1+2\delta/3} < s^L;$

$g^C = Min(\widehat{g}, \frac{2\delta}{1+2\delta/3}) \leq g^L$, where $\widehat{g}$ is such that $H_g(\widehat{g}) = 1 > 1/3;$

$r^{aC} = \frac{2\delta}{1+2\delta/3} - g^C \leq r^{aL}$, $r^{iC} = 0$ *for* $i \neq a;$

$b^{aC} = H(g^C) - g^C + \frac{2\delta}{(1+2\delta/3)}$, $b^{iC} = H(g^C)$ for $i \neq a$.

All politicians are reelected.

Proof. To prove this proposition, start at stages (4) and (5) of the game. Here, the agenda setter a_g takes τ as given. By the same argument as in the proof of Lemma 2, incentive compatibility implies that she must get at least:

$$s^{a_g} \geq 2\tau - \delta W \tag{4.2}$$

and that she offers:

$$s^{m_g} = \tau - \delta W \tag{4.3}$$

to her junior coalition partner to win approval. Thus, total diversion in equilibrium must be at least:

$$s \geq 3\tau - 2\delta W. \tag{4.4}$$

Together with the budget constraint, (4.4) implies that voters cannot get more public goods and redistribution than:

$$r + g \leq 2\delta W. \tag{4.5}$$

Repeating the same steps as in the proof of Lemma 1, one can show that in equilibrium all r (if any) is distributed to the district of a_g. That is, $r^a = r$. As in the previous section, the voters of $i \neq a_g$ become involved in a Bertrand competition. If voters in one district demand more than voters in the other, they are left in the minority and get no transfers at all. Moreover, if one district demands a utility level that requires positive transfers, for any given tax rate, the voters in the other district will underbid them by an infinitesimal amount to get included in the winning coalition. Thus, the only equilibrium is one in which the voters of $i \neq a_g$ demand no transfers at all from their representatives.

Given this property of the equilibrium, what are the optimal amounts of r and g from the point of view of the voters in district $i = a_g$? These voters take τ as given and face the constraint in (4.5). Thus, the optimal allocation of given tax revenues between g and r from their point of view maximizes $[r + H(g)]$,subject to (4.5). This gives: $g = Min(H_g^{-1}(1), 2\delta W)$, $r = 2\delta W - g$, and $s = 3\tau - 2\delta W$.

Next, consider stage (2) and (3). By assumption, $a_\tau \neq a_g$, ,implying that neither a_τ nor the voters that she represents are direct residual claimants of higher taxes. Thus the optimal voting rule requires a_τ to set taxes as low as possible, given the following incentive-compatibility condition:

Lemma 3. *In the equilibrium of the presidential-congressional system*: $\tau^C \geq 1 - \delta W$.

Proof. Under our stated assumptions, policy decisions are made sequentially. Hence there is no guarantee that a_τ will be included as a junior partner in the minimum winning coalition at stage (4), neither in the equilibrium subgame, nor in an out-of-equilibrium subgame. It is natural to assume that a_τ will be included in the winning coalition with probability 1/2 in any subgame. Under this assumption, for a_τ to go along with the equilibrium, she must receive a payoff of:

$$s^m/2 + \delta W \geq v^d. \tag{4.6}$$

The left-hand side of (4.6) is the equilibrium continuation value for a_τ when making a proposal τ consistent with equilibrium. In this case, a_τ receives s^m with probability 1/2 (the probability of being included in the winning coalition at stage (4)), and is reappointed with certainty. On the right-hand side of (4.6), v^d denotes the expected utility of a_τ in a disequilibrium history, i.e. after a proposal of τ which is inconsistent with the reservation utility required by voters, and after approval of this disequilibrium proposal. What is the highest possible value of v^d? Suppose that a_τ proposed a tax rate $\tau^d > \tau^C$. It is easy to see that profitable deviations from the equilibrium must be towards higher tax rates, never towards lower ones. Such proposals would always be approved by a^g, who is the residual claimant of higher taxes. Moreover, the agenda setter at the next stage, a^g, would always continue along the disequilibrium, proposing $g = r = 0$, $s^a = 2\tau^d$, and leaving her junior coalition partner with $s^m = \tau^d$. All legislators then are thrown out of office once elections are held. [4]. It follows that the optimal deviation for a_τ would be to set $\tau^d = 1$. In this case, and taking into account that a_τ is included in the winning coalition of stage (4) with probability 1/2, we have: $v^d = 1/2$. By (4.3) and (4.6), therefore, $\tau^C \geq 1 - \delta W$.

The optimal voting rule for the voters of a_τ therefore makes her propose:

$$\tau^C = 1 - \delta W. \tag{4.7}$$

Such a proposal is always approved by the third legislator, $i \neq a_g, a_\tau$. The reason is that by voting no, she causes $\tau = \sigma$. If $\sigma < 1 - \delta W$, this is self-defeating, as all legislators are residual claimants of higher tax rates. If $\sigma > 1 - \delta W$, then under the equilibrium voting rule voting no implies that all legislators are thrown out of office. But then, by the same argument as above and given that $\sigma < 1$, this yields a lower utility than approving the proposed tax rate. *QED*.

[4] Faced with a tax rate $\tau^d > \tau^C$, the next agenda setter a^g could seek reappointment by setting $r^a = r^C + \tau^d - \tau^C$, in this way neutralizing the effects of the previous deviation on her voters. But it is easy to see that a^g would always prefer to exploit the high taxes to her advantage and forgo reappointment. The intuitive reason is that in equilibrium a^g must be indifferent between seeking reappointment or not. Hence, a higher tax rate provides more opportunities for diversion and tilts the balance in favor of no reappointment.

We can now easily complete the proof of Proposition 2. As in the previous section, W is defined by (3.8). Inserting (3.8) and (4.7) in the previous expressions and solving for s, g and r we obtain the equilibrium values stated in the proposition.

It is interesting to compare the outcome with the one in the simple legislature. The presidential-congressional system raises less taxes, spends less on redistribution, and entails less waste of resources. The overall amount of public goods is the same, or smaller in the case of a corner solution.

What is the intuition for these results? The underprovision of public goods occurs for the same reason as in the simple legislature. Competition between districts for shares in the distributive pie, drive all equilibrium transfers, if positive, towards a single district. The voters in that district, therefore, optimally trade off public goods against redistribution in their favor one for one and severe underprovision of public goods remains.

Because the voters in district a_g become the residual claimants on tax revenue not spent on public goods, in the same way as in the simple legislature, the majority of voters would like to constrain redistributive spending. As the voters in district a_τ indeed belong to this majority, they have a natural way of doing so, namely not to reelect a_τ unless she keeps taxes at the minimum needed to finance the optimal level of public goods, given the incentive compatibility constraints in the political process. These checks and balances limit the "elective despotism" of the minority that was present in the simple legislature.

Finally, the lower waste comes about because the agenda setter controlling the diversion, namely a_g , now has access to less revenue. The maximum threat she can impose on the voters, by going for the short-run option of diverting all available resources, is thus smaller. As a result, the incentive compatibility constraint the voters face is less severe. Taxes cannot go below a lower bound, however, as the legislator proposing taxes has some chance of getting a (small) share in the prospective rents created by a maximally diversive Leviathan-style proposal with maximal taxes. The general intuition for this result is the same as in Persson, Roland and Tabellini (1997). When decision-making authority is split between different policy-makers, who are still required to make decisions jointly, voters can exploit the conflict of interest between the policy-makers to make them more accountable.

This equilibrium would potentially break down if collusive deals could be struck between the legislators. Such deals would face difficulties of enforcement because decisions are sequential, however. Any initial promise made by a_g to a_τ

conditional on the latter setting a high tax rate cannot be credible because a_g has all bargaining power once taxes are decided. Under the reasonable assumption that contracts between the legislators cannot be written or enforced by third parties, enforcement of such collusive deals would have to rely solely on reputational mechanisms. One exception would be a promise by a_g of including a_τ in the majority coalition at the allocative stage. Carrying out this promise would be ex-post (weakly) optimal, since a_g is indifferent about the identity of his coalition partners. Allowing for this joint deviation would break the equilibrium described above. In order to make the equilibrium collusion proof, Lemma 3 would have to be reformulated. The collusion-proof incentive constraint would imply that taxes have to remain higher than stated in Lemma 3.[5]Under a mild restriction on the parameter values of the default outcome, σ, however, it would remain true that $\tau^C < 1$.

We have also studied the more realistic case, where the expenditure allocation stage is further split up into a redistribution stage, with decisions taken on $\{r^i\}$, and a public-goods stage, with decisions taken on $[g, \{s^l\}]$. Thus each legislator is assumed to have agenda-setting power on a separate dimension of public finance, in a closer approximation of the US committee system. The results in this formulation is very similar to the results above. One interesting difference we find is that $r = 0$. The reason is that no proposal with positive distribution can get equilibrium support in Congress. This is because the non-agenda setting legislators at the redistribution stage benefit neither directly nor indirectly from such redistribution and would rather have the tax revenue spent on rents for themselves. This case is formally analyzed in the Appendix.

We have also studied what happens when we introduce a president with veto powers or proposal powers, and elected on a national ballot. Generally speaking, the results are again similar. If the president has proposal power over taxes, the majority of voters, not benefitting from subsequent redistribution, obtain a natural check with which they can balance the power of subsequent agenda setters.[6] An interesting extension for future work would be to endow the President

[5]Recall than in the proof of Lemma 3 we considered equilibria in which a_τ had a $1/2$ probability of being included in the majority in the subsequent stage. For the equilibrium to be collusion proof, this probability would have to be set at 1.

[6]Persson, Roland and Tabellini (1997) discuss the checks and balances associated with sequential budgeting in a presidential system. Chari, Jones and Marimon (1997) obtain a related result in a setting with prospective voters and outcome-oriented politicians: by endogenously electing a "fiscally conservative" president, voters collectively manage to control the overspending of a Congress, to which every district finds it individually optimal to elect a "maximally

with a line-item veto.

5. A parliamentary system

Parliamentary systems typically display "legislative cohesion": the executive is accountable to a majority in Parliament, rather than directly to the voters, and the coalition partners in the majority supporting the executive tend to vote together for proposed legislation. The glue that ultimately makes the majority coalition stick together is the threat of a government crisis, which may lead to a different government (or to new elections). Such a government breakup is costly for the coalition partners, as they risk foregoing the valuable agenda-setting powers associated with ministerial portfolios in a parliamentary system (see Diermeier and Feddersen (1996)).

To make a comparison with Presidential-Congressional systems, we could consider a very close analog to the game in Section 4, namely a two-stage budgeting process with a government formation stage and a prospective government breakup after the allocation stage. The results from such a formulation (discussed in the Appendix) turn out to be identical, however, to the results from the more general and realistic setting that we present below.

We consider a legislative bargaining game that starts with a government formation stage. The selected prime minister chooses a government partner and optimally allocates the agenda-setting powers over redistribution and public goods *cum* diversion, respectively, between herself and her coalition partner.[7] A sequential budget preparation stage within government follows, where proposals are first made for taxes, next for redistribution, and finally for public goods *cum* diversion. The prepared government budget then goes to Parliament for a vote. In this vote, which can be thought of as a vote of confidence on the government, each coalition partner has a veto right. This veto right gives enhanced bargaining power over policy proposals to the junior coalition partner in government. To simplify the analysis, we assume that, in case of a government crisis (one coalition partner says no), the decision-making process reverts to the same rules as in the simple legislature without cohesion. This may be a plausible assumption in parliamentary systems without a constructive vote of no-confidence. Examining alternative rules

spendthrift" representative.

[7]Laver and Shepsle (1996) provide an exhaustive treatment of a considerably richer formal model of government formation. But in their formal analysis, they ignore the both the electoral stage and the treatment of government proposals in parliament.

for government break-up, as in Baron (1997), is an interesting issue for further work.

The specific game we examine in each period is illustrated in Figure 3. It consists of the following stages:

(0) Nature selects randomly a "Prime Minister" a.

(1) The Prime Minister a (randomly) selects a partner m, gives her one of the spending portfolios, a_r or a_g , keeping the other spending portfolio for herself.

(2) Voters formulate their re-election strategies, conditional on the status of their representative. These strategies become publicly known.

(3) The Prime Minister a proposes a value for $\tau : \tau_a$.

(4) The "Redistribution Minister" a_r proposes $\{r^i\} : r_{a_r} \leq 3\tau_a$.

(5) The "Public Goods Minister" a_g proposes $[g_{a_g}, \left\{s^l\right\}] : r_{a_r} + g_{a_g} + s_{a_g} \leq 3\tau_a$.

(6) Each of the coalition partners can veto the joint proposal from stages (3)-(5). If approved by both, the proposal is implemented and the game goes on to stage (11). If not, the government falls and the game goes on to stage (7').

(7') Nature randomly selects a new agenda setter a'.

(8') Voters reformulate their re-election strategies, conditional on the status of their representative after the government crisis.

(9') The agenda-setter a' proposes an entire allocation $q_{a'}$.

(10') The parliament votes on this proposal. If approved by at least two legislators, $q_{a'}$ is implemented. If not, the legislative bargaining ends and a default outcome with $\tau = s^i = \sigma$ and $g = r^i = 0$ is implemented.

(11) Elections are held

Legislators have the same objective functions as in Section 3. Elections take place in each district at the end of each period. In these elections, as before, voters in each district coordinate on utility-maximizing retrospective voting strategies, conditioning their re-election on the position of their representative: outside the government, or which position, if inside government:

$$\begin{array}{rrcll} & D_{t+1}^{l} & = & 1 & \\ if & U^{i}(q_t) & \geq & b^{a,} & i=a \\ or & U^{i}(q_t) & \geq & b^{m} & i=m \\ or & U^{i}(q_t) & \geq & b^{n} & i\neq a,m, \end{array} \tag{5.1}$$

and agenda setter, or not in the case a breakdown of government has occurred:

$$\begin{array}{rrrcll} & & D_{t+1}^{l} & = & 1 & \\ & if & U^{i}(q_t) & \geq & b^{a'} & i=a' \\ or & or & U^{i}(q_t) & \geq & b^{l'} & i\neq a'. \end{array} \tag{5.1'}$$

An equilibrium is defined analogously as in previous sections. A precise definition can be found in the Appendix. The resulting equilibrium differs mainly from the equilibrium in the presidential-congressional system in that endogenous legislative cohesion prevents outcomes where only the region of the Redistribution Minister benefits from redistribution. The more equal distribution (the minority region still gets nothing) is associated with less underprovision of public goods. However, legislative cohesion is also an engine of collusion, which eliminates the checks and balances present in a presidential-congressional system. As a result, the equilibrium has higher taxes and more diversion.

In equilibrium the government incorporates two legislators (or groups of legislators), a prime minister, denoted by a, and her coalition partner, say m. The prime minister optimally chooses the Public Goods portfolio for herself, leaving the Redistribution portfolio for her coalition partner. The reason is that the Public Goods portfolio carries agenda setting power for the rents allocation (the vector $\left\{s^l\right\}$). Even though legislative cohesion dilutes agenda setting power somewhat, it remains true that the agenda setter over $\left\{s^l\right\}$ in equilibrium appropriates a larger share of the rents; see Proposition 3 below.

The features of the equilibrium are summarized in the following proposition (the P superscript stands for Parliamentary system), which is formally proved in the Appendix:

Proposition 3. *In the Parliamentary system there is a continuum of equilibria indexed by* α, *with* $\underline{\alpha} \leq \alpha \leq \overline{\alpha}$ *where* $\underline{\alpha}, \overline{\alpha}$ *are known* *parameters such that:* $0 \leq \underline{\alpha} < \frac{1}{3}, \frac{2}{3} < \overline{\alpha} < 1$. *In all the equilibria in which* $1/3 \leq \alpha \leq 2/3$:

$r^P = \frac{2\delta}{1-\delta/3} - g^P \geq 0$, $r^{aP} = (1-\alpha)r^P$ *and* $r^{mP} = \alpha r^P$.

$g^P = Min[H_g^{-1}(\alpha), \frac{2\delta}{1-\delta/3}] > g^C$.

$s^P = 3\frac{1-\delta}{1-\delta/3} = s^L > s^C, \quad s^{aP} = \frac{2}{3}s^P, \quad s^{mP} = \frac{1}{3}s^P$.

$\tau^P = 1 = \tau^L > \tau^C$.

$b^{aP} = H(g^P) + (1-\alpha)r^P, \ b^{mP} = H(g^P) + \alpha r^P, \ b^{nP} = H(g^P), \ b^{a'P} = H(\widehat{g}) + g^P + r^P - \widehat{g}, \ b^{l'} = H(\widehat{g})$.

All politicians are re-elected and a government crisis never occurs .

For ease of comparison, Table 1 summarizes the outcomes in this system, in the Presidential-Congressional system (indexed by C) and in the simple legislature (indexed by L)

The key to understanding the features of this equilibrium is the veto right enjoyed by the junior coalition partner m. Under the assumed timing, this veto right allows voters in the m-district to demand a high share of redistribution without fear of being excluded from the coalition. Faced with such a request from the voters, their political representatives have to comply in order to be re-elected. In equilibrium, the requests of voters in different districts have to be mutually compatible. But there are many ways in which this can happen. Hence the multiplicity of equilibria. In other words, bilateral monopoly replaces Bertrand-competition in the determination of the redistributive budget. The reservation utilities b^a and b^m can be thought of as the threat points in intra-government bargaining, where the ministers act on their constituencies' behalf. For consistency, in equilibrium a higher b^a is associated with a lower b^m . That is, the stronger is the indirect bargaining position of the voters in region a, the weaker is that of voters in district m.

These multiple equilibria thus have nothing to do with the infinite-horizon folk theorem (we have ruled out such multiplicity by the restriction to "historyless" strategies). Instead, they are multiple Nash equilibria in the game between voters in regions a and m. They are closely related to the multiple equilibria in delegation games with observable contracts, analyzed by Fershtman, Kalai and Judd (1991). Here the voting strategies play the role of observable contracts. The bounds on α, $\underline{\alpha} < \alpha < \overline{\alpha}$, come about, because outside this range, the voters in the district with the low distributive share are better off (in expected terms) in the subgame after a government crisis, which would break the proposed equilibrium in Proposition 3.

A direct consequence of the more equal distribution of revenues inside the governing coalition is a higher provision of public goods than in the presidential-congressional system. Why is this? Consider the Redistribution Minister's proposal at stage (4). Unlike the corresponding agenda setter in Section 4, the Redistribution Minister does not trade off one dollar of public goods against one dollar redistributed to her own district, but only against a fraction α of a dollar redistributed . Hence, the opportunity cost of public goods is lower, and the equilibrium provision is larger. This comes about because the lower is α, the larger is the incentive of the redistribution minister to leave more revenue to the public goods minister at stage (5). Indeed, a supply of public goods at the first-best level with $H_g = \alpha = \frac{1}{3}$ is within the equilibrium range.

The threat of going through a government crisis which is then followed by a simple legislative game enables the legislators to appropriate as much rents as in the simple legislature, irrespective of the equilibrium tax rate. Hence, aggregate s is the same as in the simple legislature, although the rents are distributed more equally within the majority.

It is also easy to understand the higher equilibrium tax rate. Because a majority of the voters, namely the voters in districts a and m, now benefits from redistribution at the expenses of a minority, the governing majority has a strong incentive to induce their elected representatives to maximize tax revenues. Together with the higher taxes goes a higher level of overall redistributive expenditures than in the presidential-congressional system.

Finally, in the equilibria with $2/3 < \alpha < \bar{\alpha}$ and $\underline{\alpha} < \alpha < 1/3$, the voters in the district of one of the two coalition partners suffer a net loss from the redistribution—which district depends on whether α is high or low. Hence, they would like to constrain the overall level of taxation below unity. We disregard such low tax equilibria with a very unequal sharing of the overall redistribution. (High tax equilibria continue to exist in this range, however, as the voters with the low distributive share—by definition of (7.7) and (7.8)—still have a higher payoff with $\tau = 1$ than their expected payoff after a government crisis.)

Now that we have a characterization of the equilibria in the Presidential-Congressional and in the Parliamentary system, we can ask which one is better for the voters. Using the equilibrium allocation in Propositions 2 and 3 as well as (2.2)-(2.3), we can compute the ex ante expected utility of a voter in any of the three districts, in each of the two systems. Straightforward calculations give the following expected utility difference between the Parliamentary and Presidential-Congressional systems:

$$
\begin{aligned}
& E(u^{iP}) - E(u^{iC})] \qquad (5.2) \\
= \; & \frac{1}{1-\delta}\left[[(H(g^P) - \frac{1}{3}g^P) - (H(g^C) - \frac{1}{3}g^C)] - \frac{\delta(1-\delta)}{(1-\delta/3)(1+2\delta/3)} \right].
\end{aligned}
$$

The first term inside the large square bracket captures the welfare effect of higher public goods provision and its financing under the Parliamentary system. It is always positive (at least as long as $\alpha \geq \frac{1}{3}$), as the expression $H(g) - \frac{1}{3}g$ is maximized at the socially optimal level (cf. Section 2). The second term captures the welfare effect of the higher waste (and higher associated taxes) under the parliamentary system. It is always negative. Loosely speaking, the parliamentary system is thus better for the voters if public goods are very valuable (so that g^P is considerably higher than g^C), or if the political agency problem is small (as δ approaches unity).

Even though we do not want to get into the difficult question about endogenous institutional choice in this paper, this result gives some indication as to under what conditions we may observe the two systems. Note, however, that the tension between a Pigovian and a Leviathan approach appears at the level of institutional choice as well. As rents are always higher in the Parliamentary system in our model, this system would always be preferred by the legislators (the expected utility difference for a legislator would just be the negative of the second term in (5.2)). So the outcome of a referendum and a vote in the legislature on institutional reform might be very different. This in turn suggests that it may be unwise to delegate constitutional reforms to the same elected political representatives that are then supposed to choose public policy within the reformed constitution. Constitutional reforms in the true interests of the voters are more likely to be carried out by a Constitutional Assembly elected for that specific purpose.

6. Concluding remarks

Two key features distinguish real-world political systems: parliamentary systems have less separation of powers but more legislative cohesion than presidential-congressional systems. We have highlighted the public-finance implications of these features. Separation of powers in presidential-congressional systems allows voters to control rent diversion and limit the size of government, but the associated absence of legislative cohesion implies underprovision of public goods and redistribution to minorities. Legislative cohesion in parliamentary systems implies higher provision of public goods and redistribution to broader majorities, but the associated absence of separation of powers permits more diversion and a higher tax burden.

The model generates clear predictions regarding the level and composition of government spending as a function of the political system. These predictions do not seem at odds with the broad empirical picture of presidential and parliamentary systems. Our analysis suggest, however, that one should develop empirical measures of separation of powers and of legislative cohesion, before confronting these predictions with data on public finances in different countries. Also, what we have derived are ceteris paribus predictions for the level and composition of government spending. In empirical work, one must of course hold other prospective socio-economic determinants of these variables constant.

Our analysis further suggests a reconsideration of traditional typologies in comparative politics. In particular, a political system with an independently elected President but with institutions generating legislative cohesion, may be much closer to a parliamentary system in its policy outcomes. This would be the case for the French political system, which is often classified as "semi-presidential". The recent periods of "cohabitation" illustrate that the majority in the French parliament really has more powers than the elected president (see e.g. Pierce (1991)).

The theoretical analysis in the paper could readily be extended in different directions. One direction would be to introduce (in the model of Section 4) a president who could veto the whole congressional budget proposal or pieces of it. The latter, line-item, veto might allow the president to better discipline congress, but also makes the president a more direct prey for special interests. Another direction would be to consider how alternative rules for government breakup in parliamentary system would alter the trade-offs in public finance (in the model of Section 5). The results in Baron (1997) suggest that different rules would fundamentally redistribute the bargaining powers among the members of the governing coalition. A third direction would be to consider different electoral systems than plurality rule in single-member districts. In the model, proportional representation could be captured by studying one district and three representatives elected in that district. Proportional representation is likely to introduce competition among the voters within districts, along the lines of Ferejohn (1986). Finally, it would be desirable to introduce individual heterogeneity and coalition formation ("parties") across districts; a simple formulation would be to make utility of public goods $\alpha^j H(g)$ with α^j having the same distribution $F(\alpha^j)$ in each district.

Finally, our analysis suggests difficult, but fascinating questions regarding the design of political institutions. These include normative questions about the optimal choice of political system and positive questions about how we may understand observed political reforms.

7. APPENDIX

7.1. Definition of equilibrium in the Presidential-Congressional system

Definition 2. *An equilibrium of the presidential-congressional system is a vector of policies* $q_t^C(b_t) = [\tau_t^C(b_t), g_t^C(\tau_t^C(b_t), b_t), \{s_t^{iC}(\tau_t^C(b_t), b_t)\}, \{r_t^{iC}(\tau_t^C(b_t), b_t)\}]$ *and a vector of reservation utilities* b_t^C *such that in any period* t*,with all players taking as given the expected equilibrium outcomes of periods* $t+k$, $k \geq 1$ *:*

(I) for any given b_t *, at stage (3) at least one legislator* $i \neq a_\tau$ *weakly prefers accepting rather than rejecting proposal* τ_t^C*, taking as given the expected equilibrium proposals and decisions at stages (4) and (5);*

(II) for any given b_t*,* a_τ *prefers proposing* τ_t^C *to any other* τ_t *satisfying (I), taking as given the expected equilibrium proposals and decisions at stages (4) and (5);*

(III) for any given b_t *and* τ_t*, at stage (5) at least one legislator* $i \neq a_g$ *weakly prefers accepting rather than rejecting proposal*
$g_t^C(\tau_t(b_t), b_t), \{s_t^{iC}(\tau_t(b_t)), b_t)\}, \{r_t^{iC}(\tau_t(b_t)), b_t)\}$;

(IV) for any given b_t *and* τ_t*, at stage (4)* a_g *prefers the proposal*
$g_t^C(\tau_t(b_t), b_t), \{s_t^{iC}(\tau_t(b_t)), b_t)\}, \{r_t^{iC}(\tau_t(b_t)), b_t)\}$ *to any other proposal satisfying (III) and the budget constraint;*

(V) The reservation utilities b_t^{iC} *are optimal for the voters, in each district* i*, taking into account that policies in the current period will be set according to* $q_t^C(b_t)$*, and taking as given the reservation utilities in other regions* b_t^{-iC} *as well as the identity of* a_τ*,* a_g*.*

7.2. A Presidential-Congressional system with three-stage budgeting.

Consider the case with three separate agenda-setters for taxes a_τ, redistribution $a_r$and public goods a_g. Voters set their reservation utilities accordingly.

$$\begin{aligned} D_{t+1}^l &= 1 \\ if \quad U^i(q_t) &\geq b^{a_g} \quad and\ i = l = a_g \quad at\ t \\ if \quad U^i(q_t) &\geq b^{a_r} \quad and\ i = l = a_r \quad at\ t \\ if \quad U^i(q_t) &\geq b^{a_\tau} \quad and\ i = l = a_\tau \quad at\ t. \end{aligned} \tag{7.1}$$

We study the following nine-stage decision making process.

(1) Nature randomly selects a_τ, a_r and a_g.

(2) Voters set their reservation utilities in (7.1)

(3) The head of the Taxation Committee a_τ proposes τ.

(4) Congress votes. If at least two legislators are in favor, τ is adopted if not $\tau = \sigma/3$.

(5) The head of the Redistribution Committee a_r proposes $\{r^{ia_r}\}$: $r \leq 3\tau$.

(6) Congress votes. If at least two legislators are in favor, $\{r^{ia_r}\}$is implemented, if not $r^i = 0$.

(7) The head of the Public Goods Committee a_g proposes $[g^{a_g}, \{s^{la_g}\}]$: $r + s + g \leq 3\tau$,where r is either $\sum_i r^{ia_r}$ or 0 depending on the outcome in stage (5).

(8) Congress votes, If at least two legislators are in favor, $[g^{a_g}, \{s^{la_g}\}]$ is implemented, if not $g = 0$ and $s^l = \tau - \frac{r}{3}$.

(9) Elections are held.

The results are summarized in the following proposition:

Proposition A1. In the Presidential- Congressional system with three-stage budgeting, $r = 0$; $s = 3\frac{(1-\delta)}{1+2\delta/3}$; $g = \frac{2\delta}{1+2\delta/3}$; $\tau = \frac{1-\delta/3}{1+2\delta/3}$.

Proof. At stages (7) and (8), the incentive constraints of a_g and m_g (the legislator supporting the proposal by a_g) are: $s^{m_g} + \delta W \geq \tau - \frac{r}{3}$, $s^{a_g} + \delta W \geq 2(\tau - \frac{r}{3})$ and the joint incentive constraint for diversion is $s \geq 3\tau - r - 2\delta W$. By the budget constraint, this implies that $g \leq 2\delta W$, which will be satisfied with equality, by monotonicity of $H(g)$. Thus, as before, the incentive constraints for diversion are satisfied with equality. Note next that any $r^{a_r} > 0$ would be rejected in Congress. Indeed, both a_g and a_τ are better off rejecting any $r^{a_r} > 0$, as this decreases s^{a_g} and s^{m_g} (which legislator a_τ will receive with 1/2 probability). The rest of the proof follows the same steps as the proof of Proposition 2.

7.3. Definition of equilibrium in the Parliamentary system

Definition 3. *An equilibrium of the Parliamentary system is defined by* $q_t^P(b_t) = [\tau_t^P(b_t), \{r_t^{iP}(\tau_t^P(b_t), b_t)\}, g_t^P(\tau_t^P(b_t), \{r_t^{iP}(\tau_t^P(b_t), b_t)\}, b_t),$

$\{s_t^{iP}(\tau_t^P(b_t), \{r_t^{iP}(\tau_t^P(b_t), b_t)\}, b_t)\}]$ *and reservation utilities* b_t^{iP}, $b_t^{iP'}$ *such that in any period* t*,and taking as given the expected equilibrium outcomes of periods* $t+k$, $k \geq 1$:

(I) for any given vectors b_t*, and given the proposals made at stages (3) to (5), at stage (6) each member of the coalition chooses optimally whether to accept or reject these proposals, taking as given the expected reservation utilities* b_t' *and the expected policy outcome in stages (7')-(10');*

(II) the reservation utilities $b_t^{iP'}$ *are optimal for the voters in each district* i*, after a government crisis at stage (6), taking into account that policies will be set according to* $q_t'(b_t^{iP'})$ *as in the simple legislature equilibrium, and taking as given the reservation utilities in other regions* $b_t^{-iP'}$;

(III) for any given b_t*, the prime minister prefers* $\tau_t^P(b_t)$ *given expected proposals* $r_t^{iP}[\tau_t^P(b_t), b_t)], g_t^P[\tau_t^P(b_t), \{r_t^{iP}(\tau_t^P(b_t), b_t)\}, b_t], s_t^{iP}[(\tau_t^P(b_t), \{r_t^{iP}(\tau_t^P(b_t), b_t)\}, b_t)]$*, and given (I) and (II);*

(IV) for any given b_t*, and* τ_t*,* a_r *prefers* $r_t^{iP}[(\tau_t(b_t), b_t)]$ *given expected proposals* $g_t^P[\tau_t(b_t), \{r_t^{iP}(\tau_t(b_t), b_t)\}, b_t]$ *and* $s_t^{iP}[(\tau_t(b_t), \{r_t^{iP}(\tau_t(b_t), b_t)\}, b_t)]$*, given (I), (II) and* $r_{a_r} \leq 3\tau_t$*;*

(V) for any given b_t, b_t', τ_t *and* $\{r_t^i\}$, a_g*prefers* $g_t^P[\tau_t(b_t), \{r_t^{iP}(\tau_t(b_t), b_t)\}, b_t]$*and* $s_t^{iP}[\tau_t(b_t), \{r_t^{iP}(\tau_t(b_t), b_t)\}, b_t]$*, given (I), (II) and* $r_t + g_{a_g} + s_{a_g} \leq 3\tau_t$*;*

(VI) The reservation utilities b_t^{iP} *are optimal for the voters, in each district* i*, taking into account that policies in the current period will be set according to* $q_t^P(b_t^{iP})$*, taking as given expected* $b_t^{iP'}$*and the fact that policies will be set according to* $q_t'(b_t^{iP'})$ *after a government crisis at stage (6), and also taking as given the reservation utilities in other regions* b_t^{-iP}.

7.4. Proof of Proposition 3

The equilibrium is solved by backward induction, starting from the last stages of the game and moving back. Solving stages (5)-(10') yields the following :

Lemma 4. *In all equilibria of the Parliamentary system,* $s^P = 3\frac{1-\delta}{1-\delta/3} = s^L$*, distributed as :* $s^{aP} = \frac{2}{3}s^P$, $\quad s^{mP} = \frac{1}{3}s^P$.

Proof . Suppose first that a government crisis materializes, so we reach the subgame consisting of stages (7')-(10'). By an argument analogous to that in Section 3, it is easy to show that $g' = Min(\widehat{g}, 2\delta W)$, $\tau' = 1$, $r' = 2\delta W - g'$, and

$s' = 3 - 2\delta W$. Note, however, that W is the equilibrium value of holding office in the parliamentary system, not in the simple legislature. Thus, the expected continuation value of reaching this subgame (where all legislators are re-elected) for all legislators is:

$$E(v') = \frac{1}{3}s' + \delta W \tag{7.2}$$

and the expected (one-period) continuation payoff for voters in each district is:

$$E(u') = H(g') + \frac{1}{3}r' = H(g') + \frac{1}{3}(2\delta W - g'). \tag{7.3}$$

To construct the equilibrium, note first that at stage (6) $m_g = a_r$ will veto any proposal that does not give her the same value as after a government breakup. An accepted proposal, yielding re-election, must thus satisfy $s^{m_g} + \delta W \geq E(v')$. As a_g will not pay more than necessary for support, this means $s^n = r^n = 0$ and by (7.2),

$$s^{m_g} = \frac{1}{3}s'.$$

Voters will not be able to push the total equilibrium payoff for legislators below what they get after a government crisis, which in turn implies the following incentive constraint:

$$\begin{aligned} s &\geq s' = 3 - 2\delta W \\ s^{a_g} &= s - s^{m_g} \geq \frac{2}{3}s'. \end{aligned} \tag{7.4}$$

Clearly, in equilibrium the voters will not leave excess rents to the legislators, and all the above weak inequalities will hold as equalities.

To conclude the argument, we solve for W from:

$$W(1-\delta) = \frac{1}{3}s = \frac{1}{3}s' = 1 - \frac{2\delta}{3}W,$$

which yields:

$$W = \frac{1}{1 - \delta/3}. \tag{7.5}$$

Substituting the implied value of $2\delta W$ into the expressions for s,one easily derives the equilibrium expressions for s^P in Lemma 4 and Proposition 3. QED.

From $s^{a_g} > s^{m_g}$ it follows immediately that the prime minister chooses the public goods portfolio for herself as that is the most valuable:

Corollary. *$m = a_r$ and $a = a_g$ is chosen at stage (1).*

Moreover, the government budget constraint as well as (7.4) together with optimizing behavior by the voters immediately implies that :

Lemma 5. *At stage (5) and for any τ the supply of the public good is given by:*

$$g = 2\delta W + 3(\tau - 1) - r \equiv \frac{2\delta}{1 - \delta/3} + 3(\tau - 1) - r, \qquad (7.6)$$

where the identity follows from (7.5).

Next, consider stage (4). Legislators take τ as given and realize that g is determined by (7.6). Here there are no other incentive constraints to worry about. In particular, a_r has nothing to gain from proposing a low r at stage (4) since she is not a residual claimant on resources at stage (5). In any event, the worst threat the coalition jointly could impose on voters, even if they were to collude, would be to set $\tau = 1$, $r = g = 0$. But that threat is already entailed in the value for s'. Hence, a_r will make a proposal that is consistent with his constituency achieving the required level of utility. A similar argument applies to a_g's behavior at stage (4).

In equilibrium, the reservation levels of utility for voters in the governing coalition, that is in districts m and a, have to satisfy two optimality and consistency conditions, in addition to those corresponding to Lemma 4 and to those derived below with reference to the choice of τ. These two conditions in turn impose corresponding constraints on the policy choices made at stage (4). Specifically:

(i) Voters in both districts must be at least as well off as in the equilibrium continuation after a government crisis.

The reason is that the voting rule is formulated after stage (1), that is once a government is formed. This, together with the ability of each member to bring down the coalition, breaks the Bertrand Competition discussed in Lemma 1. Knowing what they can get in expected value in the event of a crisis, voters of each member in the governing coalition must optimally demand at least that from their representatives. Hence, for any given tax rate τ :

$$H(g)+1-\tau+r^a \geq E(u') \quad (7.7)$$

$$H(g)+1-\tau+r^m \geq E(u'). \quad (7.8)$$

where the right hand side of (7.6) is given by (7.3).

(ii) The reservation utilities of the voters in the districts of the coalition members must be mutually consistent for them to be best responses in the Nash game between the voters. Since τ and g are the same for everyone, and since $r^n = 0$ (see the proof of Lemma 4), this condition can be stated as a requirement on the allocation of r. That is, given that voters in district a demand say a share $(1-\alpha)$ of the total amount distributed (i.e.: given that $r^a = (1-\alpha)r$ in (7.7)), then voters in m must demand a share α (i.e., $r^m = \alpha r$).

As the voters' reservation utilities are chosen simultaneously, many values of α satisfy these two conditions. Hence, there are multiple equilibria, and equilibria can be indexed by α. That is, for each value of α within an interval $[\underline{\alpha}, \bar{\alpha}]$,

there is an equilibrium reservation utility and an equilibrium policy choice. The interval $[\underline{\alpha}, \bar{\alpha}]$ is defined by the condition that (7.7), (7.8) hold as equalities.

In an equilibrium of type α, legislator $m = a_r$ who is the agenda setter at stage (4), chooses r so as to solve $Max[(1-\tau)+\alpha r+H(g)]$, subject to $r \geq 0$ and to (7.6)- (7.8), given that $r^a = (1-\alpha)r$ and given τ. The following Lemma proves that at the optimum, if $\tau = 1$, the constraints (7.7) and (7.8) do not bind for $1/3 \leq \alpha \leq 2/3$. Specifically:

> **Lemma 6.** *If $\tau = 1$, then $0 \leq \underline{\alpha} < \frac{1}{3}$, $\frac{2}{3} < \overline{\alpha} < 1$. Hence, for all equilibria with $1/3 \leq \alpha \leq 2/3$ and $\tau = 1$ the constraints (7.7), (7.8) do not bind.*

Proof. Let $R(\alpha,\tau), G(\alpha,\tau)$ be the values of r, g respectively that solve this constrained optimization problem.

We first solve the optimization problem under the assumption that (7.7), (7.8) do not bind, and then we show that the assumption is indeed true if $1/3 \leq \alpha \leq 2/3$ and $\tau = 1$. Consider first the case where the non-negativity constraint on r does not bind. Then if (7.7), (7.8) also do not bind, it is easy to verify that $G(\alpha, 1) = H_g^{-1}(\alpha)$. If $\tau = 1$ we can exploit (7.6) and rewrite (7.7) as:

$$F^a(\alpha) \equiv [H(G(\alpha,1)) - \frac{1}{3}G(\alpha,1)] - [H(\hat{g}) - \frac{1}{3}\hat{g}] + (1-\alpha-\frac{1}{3})(\frac{2\delta}{1-\delta/3} - G(\alpha,1)) \geq 0.$$

The first term in the expression is decreasing (constant) in α for $\alpha > 1/3$, as $G(\alpha, 1)$ is decreasing in α and as $G(\alpha, 1 < g^* = H_g^{-1}(\frac{1}{3})$. Furthermore, the first term is larger in absolute value than the negative second term, as $G(\alpha, 1) > \widehat{g}$ (recall that $\alpha < 1$). The third term is decreasing in α,for $\alpha > 2/3$. From these properties it follows that $F^a(\frac{2}{3}) > 0$ and $F^a(1) < 0$. By continuity of F^a, therefore, $F^a(\overline{\alpha}) = 0$ for $\frac{2}{3} < \overline{\alpha} < 1$. In the equilibria with $\alpha < \overline{\alpha},$ and hence in particular if $\alpha \leq 2/3$, voters in district a have a higher payoff in an equilibrium with $\tau = 1$, than their expected payoff after a crisis. That is, (7.7) does not bind.

Similarly, (7.8) can be rewritten by defining:

$$F^m(\alpha) \equiv [H(G(\alpha,1)) - \frac{1}{3}G(\alpha,1)] + [H(\widehat{g}) - \frac{1}{3}\widehat{g}] + (\alpha - \frac{1}{3})(\frac{2\delta}{1-\delta/3} - G(\alpha,1)) \geq 0.$$

The first term is increasing in α for $\alpha < \frac{1}{3}$. The third term is increasing in α. We have $F^m(\frac{1}{3}) > 0$ and $F^m(0) < 0$. So the critical limit on α, below which voters in district m are better off with a government crisis, satisfies $0 \leq \underline{\alpha} < \frac{1}{3}$.

Replicating the same steps for the case in which the non - negativity constraint on r binds completes the proof of the Lemma. QED.

Taking into account the non-negativity constraint on r, the equilibrium solution to r and g decisions made in stage (4) and (5) for $\tau = 1$ and $1/3 \leq \alpha \leq 2/3$ can be written as:

$$G(\alpha,1) = Min[H_g^{-1}(\alpha), \frac{2\delta}{1-\delta/3}]; \qquad R(\alpha,1) = Max[0, \frac{2\delta}{1-\delta/3} - G(\alpha,1)] \quad (7.9)$$

It remains to show that $\tau = 1$ is indeed true in all equilibria with $1/3 \leq \alpha \leq 2/3$. Consider the tax proposal by the prime minister a at stage (3). Acting in the interest of her constituency, a wishes to maximize (7.7), taking into account the equilibrium choices made in stage (4) and (5) and summarized by $r = R(\alpha, \tau)$, $g = G(\alpha, \tau)$ - these functions already incorporate all the relevant incentive constraints at later stages of the game.

Suppose first that $G(\alpha, 1) < \frac{2\delta}{1-\delta/3}$ and hence $R(\alpha, 1) > 0$. Exploiting again the results of Lemma 6, it is easy to see that if $1/3 \leq \alpha \leq 2/3$, the derivative of the Lagrangian to a's problem, evaluated at $\tau = 1$, is:

$$-1 + (1-\alpha)3$$

which implies that the optimum has $\tau = 1$ for $\alpha \leq \frac{2}{3}$.

Suppose instead that $G(\alpha,1) = \frac{2\delta}{1-\delta/3}$ and $R(\alpha,1) = 0$. Then exploiting again Lemma 6 and considering only $1/3 \leq \alpha \leq 2/3$, the derivative of the Lagrangian to a's problem, evaluated at $\tau = 1$, is:

$$3H_g(\frac{2\delta}{1-\delta/3}) - 1.$$

But this expression must be positive. For if not $H_g(\frac{2\delta}{1-\delta/3}) < \frac{1}{3}$, which contradicts the condition $H_g(\frac{2\delta}{1-\delta/3}) > \alpha$. Again it is optimal to set $\tau = 1$. This completes the proof of Proposition 3.

Note that equilibria with $\tau = 1$ continue to exist even if α is outside the interval $[1/3, 2/3]$, but inside the interval $[\underline{\alpha}, \overline{\alpha}]$. In these equilibria, if voters in the district with the low distributive share would insist on a lower tax rate they would trigger a government crisis (as voters in the other district are very demanding), which by (7.7) or (7.8) would be worse for them in expected terms.

Remark. If we wanted to consider a Parliamentary system as close as possible to the Presidential-Congressional system of Section 4, it would be natural to collapse stages (4) and (5) of the present game into a single stage, where the agenda setter of the collapsed allocation stage would propose a vector $[g, \left\{s^l\right\}, \{r^i\}]$. In this alternative setup, almost nothing in the above proof and in the result would change. Specifically, the prime minister would now keep the spending portfolio for herself, leaving the tax portfolio for her coalition partner. Everything else, and in particular the equilibrium values of r, g and τ would be as in Proposition 3. The reason for this equivalence is that there is no relevant strategic interaction in stage (4): the relevant incentive constraints arise in stage (5), with regard to the agency problem with legislators, and in stage (3), once the voting rule is formulated by the voters. Whether the decisions over r and g are taken sequentially or not, thus, plays no role in the analysis.

References

[1] Alesina, A. and H. Rosenthal (1996), "A theory of divided government", *Econometrica* 64, 1311-1341.

[2] Baron, D. (1997), "Comparative dynamics of parliamentary government", mimeo, Stanford University.

[3] Baron, D., and J. Ferejohn (1989), "Bargaining in legislatures", *American Political Science Review* 83, 1181-1206.

[4] Chari, V., L. Jones, and R. Marimon (1997), "The economics of split voting in representative democracies", forthcoming in *American Economic Review.*

[5] Diermeier, D., and T. Feddersen (1996), "Disciplined coalitions and redistribution: The effect of the vote of confidence procedure on legislative bargaining", mimeo, Northwestern University.

[6] Dixit, A. (1996), *The Making of Economic Policy: A Transaction-Cost Politics Perspective*, (MIT Press: Cambridge).

[7] Ferejohn, J. (1986), "Incumbent performance and electoral control", *Public Choice* 50, 5-26.

[8] Fershtmann, C., K. Judd and E. Kalai (1991), "Observable contracts: Strategic delegation and cooperation", *International Economic Review* 32, 551-559.

[9] Laver, M. and K. Shepsle (1996), *Making and Breaking Governments: Cabinets and Legislatures in Parliamentary Democracies*, (Cambridge University Press: New York).

[10] Lijphart, A (ed.) (1992), *Parliamentary versus Presidential Government*, (Oxford University Press: Oxford).

[11] Persson, T. (1997), "Economic policy and special interest politics", mimeo, Harvard University.

[12] Persson, T., G. Roland, and G. Tabellini (1997), "Separation of powers and political accountability", forthcoming in *Quarterly Journal of Economics.*

[13] Pierce, R. (1991), "The executive divided against itself: Cohabitation in France, 1986-1988", *Governance: An International Journal of Policy and Administration* 4, 270-294.

TABLE 1

	public goods g	redistribution $\{r^i\}$	diversion s	tax rate τ
Simple legislature (L)	$g^L = Min(\ \widehat{g}, \frac{2\delta}{1-\delta/3})$	$r^{aL} = \frac{2\delta}{1-\delta/3} - g^L$ $r^{iL} = 0, i \neq a$	$s^L = 3\frac{(1-\delta)}{1-\delta/3}$	$\tau^L = 1$
Presidential-Congressional (C)	$g^C = Min(\widehat{g}, \frac{2\delta}{1+2\delta/3})$	$r^{aC} = \frac{2\delta}{1+2\delta/3} - g^C$ $r^{aC} = 0, i \neq a$	$s^C = 3\frac{(1-\delta)}{1+2\delta/3}$	$\tau^C = \frac{1-\delta/3}{1+2\delta/3}$
Parliamentary (P)	$g^P = Min[H_g^{-1}(\alpha), 3\frac{2\delta/3}{1-\delta/3}]$	$r^P = 3\frac{2\delta/3}{1-\delta/3} - g^P$ $r^{aP} = (1-\alpha)r^P$ $r^{mP} = \alpha r^P$	$s^P = 3\frac{1-\delta}{1-\delta/3}$	$\tau^P = 1$