

October 2002

# The Congressional Budget Process and the Aggregate Level of Spending

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## Recommended Citation

Dharmapala, Dharmika, "The Congressional Budget Process and the Aggregate Level of Spending" (2002). *Economics Working Papers*. 200213.  
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University of  
Connecticut

*Department of Economics Working Paper Series*

**The Congressional Budget Process and the Aggregate Level of  
Spending**

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Working Paper 2002-13

October 2002

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## **Abstract**

This paper analyzes whether the Congressional budget process (instituted in 1974) leads to lower aggregate spending than does the piece-meal appropriations process that preceded it. Previous theoretical analysis, using spatial models of legislator preferences, is inconclusive. This paper uses a model of interest group lobbying, where a legislature determines spending on a national public good and on subsidies to subsets of the population that belong to nationwide sector-specific interest groups. In the appropriations process, the Appropriations Committee proposes a budget, maximizing the joint welfare of voters and the interest groups, that leads to overspending on subsidies. In the budget process, a Budget Committee proposes an aggregate level of spending (the budget resolution); the Appropriations Committee then proposes a budget. If the lobby groups are not subject to a binding resource constraint, the two institutional structures lead to identical outcomes. With such a constraint, however, there is a free rider problem among the groups in lobbying the Budget Committee, as each group only obtains a small fraction of the benefits from increasing the aggregate budget. If the number of groups is sufficiently large, each takes the budget resolution as given, and lobbies only the Appropriations Committee. The main results are that aggregate spending is lower, and social welfare higher, under the budget process; however, provision of the public good is suboptimal. The paper also presents two extensions: the first endogenizes the enforcement of the budget resolution by incorporating the relevant procedural rules into the model. The second analyzes statutory budget rules that limit spending levels, but can be revised by a simple majority vote. In each case, the free rider problem prevents the groups from securing the required changes to procedural and budget rules.

**Journal of Economic Literature Classification:** H61, D72, D78

# The Congressional Budget Process and the Aggregate Level of Spending\*

Dhammika Dharmapala<sup>†</sup>

October 21, 2002

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This paper analyzes whether the Congressional budget process (instituted in 1974) leads to lower aggregate spending than does the piecemeal appropriations process that preceded it. Previous theoretical analysis, using spatial models of legislator preferences, is inconclusive. This paper uses a model of interest group lobbying, where a legislature determines spending on a national public good and on subsidies to subsets of the population that belong to nationwide sector-specific interest groups. In the ‘appropriations process’, the Appropriations Committee proposes a budget, maximizing the joint welfare of voters and the interest groups, that leads to overspending on subsidies. In the ‘budget process’, a Budget Committee proposes an aggregate level of spending (the ‘budget resolution’); the Appropriations Committee then proposes a budget. If the lobby groups are not subject to a binding resource constraint, the two institutional structures lead to identical outcomes. With such a constraint, however, there is a free rider problem among the groups in lobbying the Budget Committee, as each group only obtains a small fraction of the benefits from increasing the aggregate budget. If the number of groups is sufficiently large, each takes the budget resolution as given, and lobbies only the Appropriations Committee. The main results are that aggregate spending is lower, and social welfare higher, under the budget process; however, provision of the public good is suboptimal. The paper also presents two

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\*I would like to thank Alan Auerbach, Reza Baqir, Geoff Brennan, Bob Cooter, Mark Crain, John Ferejohn, Tracy Gordon, Stephen King, Jeff Milyo and Rhema Vaithianathan for valuable discussions and comments. I gratefully acknowledge the financial support of the Center for Basic Research in the Social Sciences at Harvard University (through a Postdoctoral Fellowship), and of the John M. Olin Foundation.

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## 1 Introduction

Prior to reforms enacted in 1974, Congress followed a piecemeal approach to budgeting. Spending bills for different areas were voted on independently; the aggregate level of spending was not directly chosen, being determined instead as a residual. The 1974 Congressional Budget and Impoundment Control Act (also known simply as the Congressional Budget Act, and hereafter referred to as CBA74) transformed the institutional structure of Congressional budgeting. In particular, CBA74 created the Budget Committees, charged with reporting a budget resolution setting a target level of total spending. Procedural devices (such as substantive points of order) were instituted to enforce the limits specified in the resolution on the authorizing and appropriations committees. This institutional shift towards what is known as the ‘budget process’<sup>1</sup> appears to have been motivated by a desire on the part of many in Congress to restrain spending levels (e.g. Schick, 1995, pp. 70f; Davis, 1997, pp. 14f).

CBA74 was followed, of course, by a period of high deficits, particularly in the early and mid-1980’s. This has understandably led to skepticism about the effectiveness of the reforms. Moreover, in response to concern over these deficits, the budget process specified in CBA74 has been supplemented by various budget rules establishing deficit or spending limits.<sup>2</sup> Table 1 shows total Federal outlays as a percentage of GDP for fiscal years 1962-1974 and 1975-2000 (based on figures in Congressional Budget Office (2001)); this suggests that aggregate spending levels have risen since CBA74. However, Table 2 shows that there has been a reduction in discretionary spending (the component of Federal outlays that is subject to annual appropriations, and thus presumably most susceptible to the discipline of the budget process) in

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<sup>1</sup>A general definition of the Congressional budget process is that it “consists of the consideration and adoption of spending, revenue, and debt-limit legislation within the framework of an annual concurrent resolution on the budget” (US Library of Congress, 1999, p. 1).

<sup>2</sup>For an overview, see Davis (1997).

the period since CBA74.

Of course, any empirical assessment of CBA74 is fraught with difficulty, particularly as the counterfactual (aggregate spending had the reforms not occurred) cannot be known. Consequently, a theoretical understanding of the effects of this institutional change is of paramount importance, especially in view of current proposals to reform budgeting procedures in Congress.<sup>3</sup> A well-known paper in the political science literature (Ferejohn and Krehbiel, 1987) develops a formal analysis of the consequences of the CBA74 reforms, contrasting an ‘appropriations process’ (corresponding to budgeting prior to the reforms) and a ‘budget process’ (following the reforms). Using a spatial model where legislators have Euclidean preferences over a multi-dimensional budget, they conclude that the relative levels of aggregate spending under the appropriations and budget processes depend on the configuration of legislators’ preferences. In particular, they find that there are circumstances in which the budget process can lead to *higher* levels of aggregate spending.

The aim of this paper is to reexamine the impact of CBA74 on aggregate spending, using a model that draws on recent advances in the economic theory of interest group lobbying. The setting is a legislature where legislators represent identical districts (to abstract from particularistic local considerations). Subsets of the population belong to nationwide sector-specific (but not district-specific) interest groups that potentially benefit from Federal spending (in the form of ‘subsidies’) on their sectors. In the ‘appropriations process’, the Appropriations Committee proposes a budget (i.e. a level of spending on a national public good and on subsidies for each organized sector). The committee maximizes the joint welfare of its voters and the interest groups, subject to the constraint that the proposal attracts majority support in the legislature, leading to optimal spending on the public good, but overspending on subsidies. In the ‘budget process’, there is a Budget Committee as well as an Appropriations Committee. The former proposes an aggregate level of spending (a ‘budget resolution’) and the latter then proposes a budget (subject to the budget resolution). Each committee maximizes the joint welfare of its voters and those interest groups that (endogenously) choose to lobby it.

It is first shown that, if the lobby groups are not subject to a binding resource constraint on their lobbying activity, the two institutional structures lead to identical outcomes. However, when the interest groups allocate

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<sup>3</sup>In the 106th Congress, a ‘Comprehensive Budget Process Reform’ bill (HR 853) was reported by the House Rules Committee, but defeated 166-250 on the floor in May, 2000. The House Rules Committee held hearings in July, 2001 on a more modest proposal for biennial budgeting. See Garrett (1998) for a discussion of earlier reform proposals.

their lobbying resources between the two committees subject to a resource constraint, the basic intuition is the following. When a group lobbies the Budget Committee, it only obtains a fraction of the benefits of an increase in the level of aggregate spending, whereas it obtains all the benefits from its lobbying of the Appropriations Committee. This creates a free rider problem among the interest groups at the first (Budget Committee) stage of the budget process. It is shown below that, if there is a sufficiently large number of interest groups, each will take the budget resolution as given, and choose to lobby only the Appropriations Committee. This aligns the Budget Committee's interests with those of voters, and leads it to propose a budget resolution that lowers aggregate spending (relative to the level that would have been chosen residually by the Appropriations Committee). It is also shown that social welfare is higher under the budget process. However, because the Appropriations Committee retains proposal rights over the allocation of spending (and is lobbied by the interest groups), the decrease in the size of the budget is obtained at the cost of a reduction in spending on the national public good below the optimal level (as well as through a reduction in subsidies).

After establishing this basic result, the paper presents two extensions. The first endogenizes the enforcement of the budget resolution through substantive points of order and the budget reconciliation process. It is argued that the basic intuition above also applies in this context. In order to propose a budget that would violate the budget resolution limits, the Appropriations Committee needs the cooperation of the Rules Committee (to waive points of order that prevent such a budget from being considered on the floor). The free rider problem among the interest groups, however, prevents them from lobbying the Rules Committee, the interests of which are thus aligned with the Budget Committee (and voters) in enforcing the budget resolution.

The second extension concerns budget rules that establish limits on spending (such as the discretionary spending limits that form part the Budget Enforcement Act of 1990), but which can be revised or overturned by a simple majority. As pointed out by Auerbach (1994) and Gramlich (1995), such statutory rules pose a puzzle: it would seem that if a majority wished to spend more than the amount specified in the limit, it could simply revise the limit upwards. It is argued here that proposal power over revisions to budget rules is generally held by agenda setters (such as the Rules Committee) other than the spending committees. Thus, assuming that the traditional jurisdictional property rights of committees are respected, the endogenous choice by interest groups of which committee to lobby can lead to these rules restraining spending: the free rider problem among the groups leads each

to lobby the spending committee, rather than seek the required revisions to the budget rule.

This paper differs in significant respects from the existing formal literature on budgeting. By assuming identical districts, it abstracts from the concerns about district-specific distributive politics that have been emphasized in the earlier literature (e.g. Weingast, Shepsle and Johnsen, 1981; Baron and Ferejohn, 1989; Inman and Fitts, 1990; Inman and Rubinfeld, 1996; Baqir, 2001). Instead, the model focuses on the role of nationwide (or at least widely dispersed) sector-specific interest groups. This is not to suggest that district-specific spending is insignificant, or to downplay the many contributions of the distributive politics literature. Rather, this modeling choice reflects a judgment that contemporary budgeting is driven more by nationwide concerns and pressures than by local ones.<sup>4</sup> This view is shared by many observers of Federal budgeting. For instance, Gramlich (1995, pp. 177-8) argues that recent developments “make irrelevant much of the literature on budget control . . . [featuring] aggrandizing bureaucrats, high-wage civil servants, and pork barrel projects.” He notes that the type of “spending that benefits a small group of users where logrolling is possible” analyzed in this literature has been superseded by spending that “benefits large groups of users” (p. 185).<sup>5</sup> Similarly, Schick (1995, p. 141) cautions against underestimating the role of earmarked appropriations for local projects, but also warns that: “neither should one believe that the financial crisis in federal budgeting is due to pork. It is not.”

Many of the themes of this paper are related to those of Persson, Roland and Tabellini (1997; 2000). In particular, the conclusion of Persson *et al.* (1997, p. 1186) concerning the superiority of a two-stage budgeting procedure, and the analogous result in Persson *et al.* (2000, p. 1143) that the separation of agenda-setting powers for taxation and spending can be beneficial, closely resemble the main result of this paper. However, the basic structure of their model is very different, focusing on the disciplining of rent-seeking politicians by voters using retrospective voting rules.<sup>6</sup> Pers-

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<sup>4</sup>In particular, an important element of this model is that these nationwide interest groups have the capacity to lobby any legislative committee, rather than being restricted to influencing one legislator through electoral means.

<sup>5</sup>Gramlich (1995) also emphasizes the role of entitlement spending. This is not explicitly part of the model here; however, by focusing on nationwide rather than local spending, this paper takes a step towards a more realistic analysis of Federal budgeting. For another discussion of the role of entitlements in the growth Federal spending, see Davis (1997).

<sup>6</sup>Persson (1998) uses a model featuring interest group lobbying; however, the strategy sets of the groups are restricted so that they do not fundamentally differ from voters. In particular, each interest group is permitted to lobby only one, exogenously given, legislator.

son *et al.* (2000) essentially argue that the legislator with agenda setting power over taxes (and hence over total spending) will be forced by voters to restrain overall spending in order to reduce the funds available for the legislator with proposal power over spending to allocate to her district or to appropriate as rents. In contrast, this paper shows that the committee with agenda setting power over budget size has an incentive to restrain spending because interest groups (endogenously) choose to lobby the spending committee. Thus, a two-stage procedure is preferable, even when legislative districts are identical.

While Persson *et al.* (2000) do not relate their analysis to the specific institutional structures of Congress in as much detail as does this paper (as their focus is on broader cross-national comparisons of political institutions), the insights developed here complement theirs in many respects. More generally, this paper shares with their work an interest in the development of positive theories of public finance, and an emphasis on the role of legislative institutions.

This paper seeks to make a number of contributions. Firstly, it provides a ‘rational reconstruction’ of why the reformers of 1974 may have expected CBA74 to reduce spending. It also provides a clearer understanding of the Congressional budget process, and develops a framework for making predictions about how various current reform proposals will affect budgetary outcomes. The case for the theoretical modeling of these issues has been expressed well by Ferejohn and Krehbiel (1987, p. 298):

Given a primary interest in the *relative* budget sizes that result from two different institutional arrangements but a concomitant inability to experiment with Congress, a convincing theory of budgeting is needed to predict budget sizes.

The next section briefly surveys several related branches of literature. Then, Section 3 presents the basic model. The appropriations process is analyzed in Section 4, and the budget process in Section 5. Sections 6 and 7 present the two extensions, while Section 8 concludes.

## 2 Related Literature

This paper is related to a substantial body of literature in economics, political science, law, and public budgeting. This brief review focuses only on the most salient examples of this literature. Firstly, of course, this paper

addresses essentially the same question as that posed by Ferejohn and Krehbiel (1987). However, this paper differs fundamentally from theirs in using a model of interest group lobbying. Specifically, it draws on the common agency lobbying approach of Grossman and Helpman (1994), a framework that has been extended by Dixit, Grossman and Helpman (1997), who also apply it to public finance issues.<sup>7</sup> However, the current paper does not explicitly use the menu auction formulation, nor the associated solution concept of Nash equilibrium in ‘truthful’ campaign contribution schedules. Rather, all that is assumed here is that efficient bargaining takes place between the legislative committee and the interest groups that (endogenously) choose to lobby it; the precise form of bargaining is unimportant, as long as the joint surplus is maximized.<sup>8</sup>

This paper is also related to recent analyses by economists of the effects of legislative institutions on policy outcomes, notably Persson *et al.* (1997; 2000). In this approach, the central issue is an agency problem between voters and their political representatives, with the latter being able to divert rents to themselves while in office. The authors employ a moral hazard framework, based on Ferejohn (1986), in which voters discipline their representatives by adopting retrospective voting rules that involve reelecting the incumbent only if voters’ utility exceeds a specified level. Persson *et al.* (1997) show that a system involving a separation of powers, where the executive has agenda setting power over the size of the budget, while the legislature has agenda setting power over its composition, can create a conflict of interest that benefits voters. As long as both branches must agree on a budget, the take-it-or-leave-it power that Persson *et al.* (1997) assume for the agenda setter ensures that the other branch gains nothing from agreeing to excessive spending, and aligns its interest with that of its voters.

This framework is extended in Persson *et al.* (2000). In their model of a ‘Presidential-Congressional’ system (pp. 1137f), they assume that agenda setting power over the level of taxation (and hence aggregate budget size) is allocated to one legislator, while another has agenda setting power over the composition of spending. Because each legislator is accountable to a different district, the former has an incentive to constrain both the latter’s desire to provide local public goods to her own district and her desire to divert rents to herself. Persson *et al.* (2000) conclude that a Presidential-

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<sup>7</sup>Dharmapala (1999) uses this approach to analyze tax and budgetary institutions in Congress, contrasting decisionmaking by a centralized tax committee with policymaking by decentralized specialized committees.

<sup>8</sup>See Goldberg and Maggi (1999) for an example of the use of this efficient bargaining approach to lobbying.

Congressional system leads to lower spending and taxes (through both lower levels of public good provision and lower rents for politicians) than does a parliamentary system.

As was discussed in the introduction, the themes of Persson *et al.* (1997; 2000) are closely related to those of this paper. As is evident from this brief review, however, their model emphasizes substantially different features of legislative budgeting. The modeling choices here reflect those features that appear most salient when the institutional structures of Congressional budgeting are closely examined. On the other hand, Persson *et al.* focus on more general cross-national comparisons of institutions.

The legal literature on the Federal budget process has also considered issues of institutional design, albeit informally. Fitts (1990) argues that there may be benefits to decisionmaking behind a partial ‘veil of ignorance’, with the decisionmakers being unaware of the precise incidence of the costs and benefits of their decisions. He suggests that: “ignorance about specific outcomes can help forge a consensus and create a disincentive against the singular pursuit of narrow group advantage at least *ex ante*” (1990, p. 972), and claims that certain institutional features of Congressional budgeting may have this effect.

Garrett (1998) presents a similar idea, in the course of a proposal to reform Federal budgeting practices along ‘functional’ lines (i.e. in such a way that decisionmaking corresponds to the functional categories of budgeting). In addition, Garrett (2000) poses the question of why Congress adopts procedures, such as those introduced by CBA74, that lead to policy outcomes that would (presumably) not be directly chosen. She argues that the 1974 reforms had the effect of strengthening party leaders at the expense of committee chairs, and suggests that legislators may have been motivated to institute such a shift in order to raise the value of the party brand name.

Thus, the legal literature on Congressional budgetary institutions has discussed issues relevant to this paper. However, this literature does not (even informally) discuss the interest group free riding idea that is developed formally in this paper.

### 3 The Basic Model

#### 3.1 The Political-Economic Framework

This section presents the assumptions of the basic model. The underlying framework is a political economy in which the legislature (hereafter denoted  $L$ ) consists of  $N$  identical districts. The assumption of identical districts

is intended to abstract away from differences in the interests of different geographically defined groups (for instance, over the provision of local public goods) in order to focus on the role of nationwide, sector-specific interest groups.<sup>9</sup> Each district is assumed to have a population of  $M$ . Consider district  $i \in \{1, \dots, N\}$ ; each of the  $M$  residents of  $i$  belongs to exactly one of  $(K + 1)$  categories. She may be aligned, by virtue of having a sector-specific endowment, with one of  $K$  sector-specific interest groups,<sup>10</sup> or she may have no sector-specific endowment, and be part of a residual population unrepresented by any interest group. Let  $M_k$  be the number of individuals who belong to sector  $k \in \{1, \dots, K\}$  and  $M_I \equiv \sum_k M_k$  be the total number who belong to all sector-specific groups. Then,  $M_{-I} = M - M_I$  is the number of individuals in the district who belong to none of these groups. It is assumed that  $M_k > 0 \forall k$  and  $M_{-I} > 0$  for each district.

Let  $I_k$  denote the set of individuals (nationwide) who belong to group  $k$ ; then, let  $I = \cup_k I_k$  be the set of all individuals who belong to any of the sector-specific groups. The salient characteristic of the group members is that an individual  $j \in I_k$  derives benefits from a subsidy for sector  $k$ , denoted  $b_k$ . The benefits are given by the increasing, concave function  $h_k(b_k)$ . All individuals derive (common) utility from a national public good, the level of which is denoted  $G$ ; this utility is also increasing and concave, and denoted by  $u(G)$ . Each individual has an (identical) endowment of  $\omega$ ; the public good and the subsidies are financed by a uniform lump sum tax of  $t$  per head. The welfare of an individual  $j \notin I$  is:

$$U_j = \omega - t + u(G) \quad (1)$$

The welfare of an individual  $j \in I_k$  is:

$$U_j = \omega - t + u(G) + h_k(b_k) \quad (2)$$

where it is assumed that:

**Assumption 1)**  $u'(G) > 0, u''(G) < 0, \lim_{G \rightarrow 0} u'(G) = \infty$

**Assumption 2)**  $h'_k(b_k) > 0, h''_k(b_k) < 0, \lim_{b_k \rightarrow 0} h'_k(b_k) = \infty \forall k = 1, \dots, K$

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<sup>9</sup>These could represent, for instance, such constituencies as farmers, veterans, defense industry workers, welfare recipients, and the aged. District-based interests and local public goods could be introduced without fundamentally altering the results, as long as at least some interest groups can choose which legislators to lobby.

<sup>10</sup>Note that an individual is assumed to belong to at most one interest group; membership in multiple groups could be accommodated without fundamentally affecting the results, but leads to greater complexity.

That is,  $u(G)$  and each  $h_k(b_k)$  is strictly increasing and strictly concave. The Inada-type conditions ensure interior solutions in the analysis that follows. It is also assumed that  $\omega$  is sufficiently large that the ‘endowment constraint’ on taxation (i.e. the constraint that  $t \leq \omega$ ) is never binding in the analysis below.

The aggregate welfare of district  $i$  can be obtained by summing the expressions in Equations (1) and (2), weighted by the number of individuals in each group. Without loss of generality, it is possible to normalize  $M$  to 1, and to define  $m_k = M_k/M$  as the proportion (number when  $M = 1$ ) of individuals  $j \in I_k$  (with  $m_{-I}$  being the proportion of individuals  $j \notin I$ ). Then, the aggregate welfare of district  $i$ , denoted  $W_i$  is:

$$W_i = \omega - t + u(G) + \sum_k m_k h_k(b_k) \quad (3)$$

as  $m_{-I} + \sum_k m_k = 1$ . Note that, as all districts are identical, this expression is the same  $\forall i$ ; thus, the subscript will be omitted in the analysis that follows.

### 3.2 Budgetary Policy and the Socially Optimal Budget

The legislature’s task is to enact a budget, specifying a level of spending on the public good  $G$  and a level  $b_k$  of each of the  $K$  sector-specific subsidies, subject to the budget constraint (hereafter denoted BC) that aggregate taxes  $Nt$  are sufficient to finance these expenditures.<sup>11</sup> More formally:

**Definition** (‘Budget’): *A budget  $\{G, \mathbf{b}\}$  is an allocation consisting of  $G \in \mathfrak{R}_+$  and a  $K$ -dimensional vector  $\mathbf{b} \in \mathfrak{R}_+^K$ , and implicitly defining a tax  $t \in [0, \omega]$ , such that the budget constraint (BC):*

$$G + \sum_k b_k \leq Nt \quad (4)$$

*is satisfied.*

This paper’s aims are primarily positive, in that it seeks to characterize the policy outcomes that result from different institutional structures of budgeting. However, in order to provide a normative benchmark for the analysis, this section derives the budget that would be chosen by a benevolent social planner. As the  $N$  districts are identical, social welfare is simply the welfare of each district (as characterized in Equation (3)) multiplied by

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<sup>11</sup>The non-negativity constraints and the endowment constraint are never binding under the assumptions made above, and are ignored in the analysis that follows.

$N$ . Thus, the social planner's program is:

$$\underset{G,t,b_1,\dots,b_K}{Max} \quad N(\omega - t + u(G) + \sum_k m_k h_k(b_k)) \quad (5)$$

subject to BC (i.e. Equation (4)). The Lagrangean is:

$$\mathcal{L} = N(\omega - t + u(G) + \sum_k m_k h_k(b_k)) + \lambda(Nt - G - \sum_k b_k) \quad (6)$$

where  $\lambda$  is the Lagrangean multiplier. This leads straightforwardly to the following characterization of the socially optimal budget:

**Proposition 1** *The socially optimal budget is  $\{G^*, \mathbf{b}^*\}$ , where  $G^*$  is defined by:*

$$u'(G^*) = \frac{1}{N} \quad (7)$$

and each  $b_k^*$  is defined by:

$$h'_k(b_k^*) = \frac{1}{Nm_k} \quad (8)$$

The aggregate level of spending under the socially optimal budget is:

$$S^* = G^* + \sum_k b_k^* \quad (9)$$

**Proof.** *The FOC w.r.t.  $t$  ( $-N + \lambda N = 0$ )  $\Rightarrow \lambda = 1$  (so that BC is always binding). The FOCs w.r.t.  $G$  and  $b_k$  (respectively) are  $Nu'(G) = \lambda = 1$  and  $Nm_k h'_k(b_k) = \lambda = 1$ . Note that the SOC's are satisfied, as the Hessian matrix is negative semidefinite everywhere by the assumptions made above.*

■

Note that the socially optimal budget equates the marginal social benefits of the public good to the marginal social benefit from each of the subsidies (i.e.  $u'(G^*) = m_k h'_k(b_k^*) \forall k = 1, \dots, K$ ). Thus, in this model, the subsidies have some social value, and hence they are provided in positive amounts by the socially optimal budget.

### 3.3 The Institutional Features of the Legislature

This section outlines the assumptions about the legislature's institutional structure, and the payoffs of legislators. Ferejohn and Krehbiel (1987) assume a relatively institution-free setting where the median voter theorem

applies (although they impose the restriction that voting is only on one dimension of the budget at a time). Here, it is assumed that committees in Congress (exogenously) have some degree of agenda-setting power in their area of jurisdiction. In particular, they have exclusive proposal power within this sphere, and their proposals are voted on by the legislature under a closed rule (i.e. without amendments being offered).

The assumption of agenda-setting power, though not endogenized here, can be motivated by any of a number of different accounts of Congressional institutions. For instance, Weingast and Marshall (1988) argue that committee power exists in order to facilitate an implicit process of logrolling among legislators who prioritize different areas. Gilligan and Krehbiel (1987) develop an informational theory of Congressional institutions, arguing that the floor may cede some power to committees in order to obtain information that is of value to the floor as well as the committee. McKelvey and Riezman (1992) suggest that junior legislators may be able to increase their reelection probabilities by instituting a structure in which senior legislators have disproportionate agenda-setting power.

The notion that committees have agenda setting power is also supported by the available empirical evidence. For instance, Milyo (1997) studies the impact of the introduction of the Gramm-Rudman-Hollings (GRH) budget rules, which changed budgeting procedures in a way that empowered the Budget Committee and reduced the discretion available to the Appropriations Committee. Milyo finds that GRH led to increased campaign contributions to members of the Budget Committee, and a reduction in the vote share of members of the Appropriations Committee, suggesting that committees have jurisdictional property rights, and that they play an important role in determining electoral and financial (and hence, presumably, policy) outcomes.<sup>12</sup>

Turning to the motivations of legislators, recall that Equation (3) specifies the aggregate welfare of each district of the legislature. In the absence of lobbying activity (which is discussed below), it is assumed that the legislator representing district  $i$  maximizes that district's aggregate welfare. That is, the legislator's payoff is simply  $W$ . This behavior is not necessarily motivated by benevolence; rather, it can be induced by the desire to maximize

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<sup>12</sup>The notion of jurisdictional property rights is also widely accepted and used in the public budgeting literature. Thurber (1997) argues that the CBA74 reforms reduced the power of the Appropriations Committees, while Doyle and McCaffery (1992) claim that the Budget Enforcement Act of 1990 restored some of the power that GRH had removed from the Appropriations Committees.

the probability of reelection.<sup>13</sup>

The above assumption that legislators are perfect agents for their districts applies throughout the analysis below to the ‘junior legislators’ (i.e. those who do not enjoy proposal power over budgetary decisionmaking). This does not apply, however, to those legislators who are endowed with agenda setting power. Recall that there are  $K$  sector-specific interest groups in this political economy. It is assumed that each of these sectors is (exogenously) organized into a lobby group with the capacity to lobby the committee that has agenda-setting power over spending on their sector. When such lobbying occurs, the legislators involved are assumed to maximize the joint welfare of their district and the interest groups that engage in lobbying them. Thus, a legislator who is lobbied by all  $K$  organized groups will maximize:

$$W + \sum_k m_k(\omega - t + u(G) + h_k(b_k)) \quad (10)$$

In effect, these legislators place higher weights on the welfare of those who belong to lobby groups. This can be motivated by the idea that the interest groups can transfer political rents to the legislator (implicitly contingent on policy choices).<sup>14</sup>

Maximization of the joint surplus entails that bargaining between the legislator and the lobby groups (over policy and over these rents) is efficient. However, no further structure is imposed on the lobbying process. It would be possible to motivate this assumption using a common agency or menu auction approach (Grossman and Helpman, 1994; Dixit *et al.*, 1997), where each lobby group offers the legislator a campaign contribution schedule contingent on the policy outcome, and the equilibrium is assumed to be in ‘truthful’ strategies (where the contribution functions reflect the benefits at the margin). However, for the purposes of this paper, it is unnecessary to impose this or any other specific assumptions about the lobbying process. The only requirement, as in Goldberg and Maggi (1999), is that bargaining

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<sup>13</sup>Persson *et al.* (1997; 2000) explicitly model the reelection incentive by allowing voters to commit to a reelection rule, contingent on their level of utility and the legislator’s choice of actions. Here, the focus is not primarily on the behavior of voters, but on that of interest groups, and conflicts of interest among voters in different districts are suppressed. Also, while Persson *et al.* emphasize the rents that politicians can extract by diverting part of government spending to themselves, the rents (if any) in this model are obtained through (efficient) bargaining with the interest groups.

<sup>14</sup>Note that the objective function implicitly places the same extra weight (*per capita*) on the welfare of each interest group. Later in the paper, the possibility of differing weights is introduced, when groups have a choice regarding the allocation of their lobbying effort across different committees.

between the legislator and the interest groups who lobby her is efficient (as, for instance, with Nash bargaining).

An important issue in the modeling of budgetary processes is what assumption to make about the default policy that is implemented if the policy proposed by the legislator with agenda setting power is defeated on the floor of the legislature. It is often assumed that, because funds must be appropriated by Congress before they can be spent, the natural reversion point is zero spending.<sup>15</sup> In practice, Congress usually passes a ‘continuing resolution’ to provide emergency funding when the appropriations process is not completed by the required time. This paper makes the most general assumption possible by allowing for an arbitrary default budget allocation  $\{G^D, \mathbf{b}^D\}$  (which implicitly defines a tax  $t^D$  via the budget constraint). This allocation is implemented whenever the agenda setter’s proposal is voted on by the legislature and defeated. The advantage of this assumption is that it encompasses the case of a zero default, but also permits consideration of cases where the default outcome is more attractive (including that where  $\{G^D, \mathbf{b}^D\} = \{G^*, \mathbf{b}^*\}$ ).

The basic structure of the models that follow is that an agenda setter proposes a budget, and all the legislators then vote for or against the proposal. The legislature’s decision is made by a simple majority voting rule (with the default being implemented if the proposal fails). In such situations, there are of course many voting equilibria. For example, let  $W^P$  denote the welfare of each district if the proposed budget is enacted and implemented, and let  $W^D$  be the welfare of each district if the default is implemented. Then, even when  $W^P > W^D$ , it is an equilibrium for all junior legislators to vote against the proposal (as each is nonpivotal, and deviating unilaterally leads to a payoff of  $W^D$ , which is the same as the equilibrium payoff). To eliminate such equilibria, it is assumed that:

**Assumption 3)** Each junior legislator votes for the proposed budget iff  $W^P \geq W^D$ ; otherwise, each votes against the proposed budget.

This can be motivated, for instance, by introducing an arbitrarily small cost  $\varepsilon > 0$  of voting against one’s district’s interest (a ‘position-taking’ motivation, as it is termed in the political science literature). Suppose this small cost is incurred by a junior legislator who votes against the proposal when  $W^P \geq W^D$ . Then, it will be a dominant strategy for each junior legislator  $j$  to vote for the proposal whenever  $W^P \geq W^D$ . If  $j$  is nonpivotal,

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<sup>15</sup>This assumption is defended by Krehbiel (1998, p. 204), and is essentially that adopted by Persson *et al.* (2000) (although they allow for the possibility that politicians receive positive rents even when the budget proposal fails and no funds can be spent).

voting yes doesn't change the outcome, but leads to a gain of  $\varepsilon$  relative to voting no. If  $j$  is pivotal, voting yes changes her payoff from  $W^D - \varepsilon$  to  $W^P$ , which is higher by assumption.

It is assumed that the agenda setter always votes for her own proposal. A further assumption that is maintained throughout the analysis is that, *ceteris paribus*, the agenda setter prefers not to suffer defeat on the floor. Thus, for example, if  $\{G^D, \mathbf{b}^D\} = \{G^*, \mathbf{b}^*\}$ , so that the agenda setter cannot make a proposal that will defeat the default alternative, then she will propose the default and win, rather than losing the vote (which of course gives the same outcome). That is, for a given outcome, the agenda setter prefers to propose that outcome and win, rather than to propose something else and lose. This assumption can also be motivated by introducing a small cost of losing a vote on the floor.<sup>16</sup>

Finally, it should be noted that many features of real-world Federal budgeting are omitted from the analysis, as they are not essential to convey the insight of this paper. The role of the executive branch in the budget process is ignored. The model assumes a unicameral legislature (emphasizing the institutional features of the House rather than the Senate) with no political parties. Revenue legislation and entitlement programs (essentially, the areas under the purview of the House Ways and Means and Senate Finance Committees) are also outside the scope of this paper. None of these omissions, however, fundamentally affects the basic point that the paper seeks to establish.

## 4 The Appropriations Process

The aim of this section is to develop and solve a model of the 'appropriations process', a stylized version of budgeting in Congress prior to the reforms associated with CBA74. The appropriations process in Congress is quite complex.<sup>17</sup> In the House, each of the thirteen Appropriations subcommittees reports a bill appropriating funds in its area of jurisdiction, and each of these bills is voted on (sequentially) by the full House. The model in this paper abstracts from the internal workings of the Appropriations Committee, and treats it as a unitary actor; thus, the model is extremely simple.<sup>18</sup> The treatment of the appropriations process *per se* is similar in this section and in

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<sup>16</sup>Note that this assumption entails that the bargaining between the agenda setter and the lobby groups is over outcomes, not over proposals *per se*.

<sup>17</sup>See e.g. Schick (1995, Ch. 8) and US Library of Congress (1997a).

<sup>18</sup>The results would be essentially unchanged, however, if the model incorporated multiple Appropriations subcommittees.

Section 5 below; however, there is no budget committee or budget resolution here. Thus, this model is intended to capture the pre-1974 structure of Congressional budgeting.

The Appropriations Committee (hereafter  $A$ ) is assumed to have agenda setting power over Congressional appropriations. Thus, it proposes a budget, which is then voted on by the full legislature (hereafter  $L$ ) under a closed rule. If the proposal attracts majority support, it is implemented; otherwise, the default budget is implemented.  $A$ 's payoff (in the absence of lobbying) would of course simply be  $W$ . However,  $A$  is lobbied by all the interest groups representing the  $K$  organized sectors. Thus, in choosing its proposal,  $A$  maximizes the sum of  $W$  and the welfare of the interest groups, subject to two constraints. The first of these is BC (Equation (4)). The other constraint is that the budget proposal attracts majority support on the floor. This will be termed the ‘participation constraint’ (hereafter P), as it involves ensuring that a sufficient number of junior legislators will choose to participate in the coalition that enacts the budget.

The timing of the game (as illustrated by Figure 1) is as follows:

1)  $A$  proposes a budget  $\{G^P, \mathbf{b}^P\}$ , lobbied by all the organized interest groups representing sectors  $k = 1, \dots, K$

2) The legislature votes on the proposal by majority voting under a closed rule (with no amendments being permitted). If the proposal passes,  $\{G^P, \mathbf{b}^P\}$  is implemented; if it does not pass, the default budget  $\{G^D, \mathbf{b}^D\}$  is implemented

This game can be solved for the subgame-perfect equilibrium using backwards induction. However, the final stage of the game, where each junior legislator votes for the proposal iff  $W^P \geq W^D$  (see Assumption 3 above), is quite trivial. Thus, an equivalent approach to solving this game is to simply incorporate the junior legislators’ participation constraint (P) into  $A$ 's program. Given that  $A$  is lobbied by the interest groups, its payoff can be expressed as:

$$W + \sum_k m_k(\omega - t + u(G) + h_k(b_k)) \quad (11)$$

$W^D$  (the welfare of each district if the default budget is implemented) is:

$$W^D = \omega - t + u(G^D) + \sum_k m_k h_k(b_k^D) \quad (12)$$

Thus, P can be written as:

$$\omega - t + u(G) + \sum_k m_k h_k(b_k) \geq W^D \quad (13)$$

Using  $\lambda$  (as before) for the Lagrange multiplier of BC, and  $\mu$  for the multiplier of P, A's problem is to maximize:

$$\begin{aligned} \mathcal{L} = & (1 + m_I)(\omega - t + u(G)) + 2 \sum_k m_k h_k(b_k) + \lambda[Nt - G - \sum_k b_k] \\ & + \mu[\omega - t + u(G) + \sum_k m_k h_k(b_k) - W^D] \end{aligned} \quad (14)$$

As in the social planner's problem, BC is always binding. However, P may or may not be binding. Let  $\{G^A, \mathbf{b}^A\}$  denote A's optimal choice of budget proposal (and  $t^A$  the associated tax), ignoring P. Then, P is binding iff:

$$\omega - t + u(G^A) + \sum_k m_k h_k(b_k^A) < W^D \quad (15)$$

Otherwise, P is not binding (i.e. the LHS above is  $\geq W^D$ ). Whether P is binding or not depends, intuitively, on how attractive the default budget is to the junior legislators. As the default is exogenous, all possible default budgets need to be considered; the analysis here will consider both the case where P binds and the case where it does not bind. The equilibrium outcome can be summarized as follows:

**Proposition 2** *The (unique) subgame perfect equilibrium outcome under the appropriations process is:*

(a) A proposes  $\{G^*, \mathbf{b}^0\}$ , where  $G^*$  is defined as in Proposition 1, and  $b_k^0$  is defined by

$$h'_k(b_k^0) = \frac{1 + m_I + \mu}{(2 + \mu)Nm_k} \quad (16)$$

If the default budget is such that P does not bind, then  $\mu = 0$  and  $b_k^0 = b_k^A > b_k^* \forall k$ . If the default budget is such that P binds, then  $\mu > 0$  and  $b_k^* \leq b_k^0 < b_k^A \forall k$ ;  $b_k^0 = b_k^*$  only if  $W^D = W^*$

(b) the proposal is passed unanimously and implemented

Note that the aggregate level of spending is  $S^A = G^* + \sum_k b_k^A > S^*$  if P is not binding, and  $S^0 = G^* + \sum_k b_k^0$  if P is binding, where  $S^* \leq S^0 < S^A$ ;  $S^0 = S^*$  only if  $W^D = W^*$

**Proof.** The FOCs for A's program (noting that  $\lambda = (1 + m_I + \mu)/N$ ) are:

$$u'(G) = \frac{\lambda}{1 + m_I + \mu} = \frac{1}{N} \quad (17)$$

as in Proposition 1 (regardless of the value of  $\mu$ ), and

$$h'_k(b_k) = \frac{1 + m_I + \mu}{Nm_k(2 + \mu)} \quad (18)$$

When  $P$  is not binding, so that  $\mu = 0$ , this characterizes  $b_k^A$ . Moreover, as  $1 + m_I < 2$ ,  $h'_k(b_k^A) < h'_k(b_k^*) \Rightarrow b_k^A > b_k^*$  (by Assumption 2). This trivially implies that  $S^A > S^*$ .

Note that the derivative of  $h'_k(b_k)$  w.r.t.  $\mu$  is strictly positive. Thus, when  $P$  is binding, so that  $\mu > 0$ ,  $h'_k(b_k^0) > h'_k(b_k^A) \Rightarrow b_k^A > b_k^0$  (by Assumption 2). When  $W^D < W^*$ ,  $A$  sets

$$\omega - t + u(G^*) + \sum_k m_k h_k(b_k^0) = W^D < W^* \quad (19)$$

in equilibrium. Thus, at least one  $k$  receives  $b_k^0 > b_k^*$ ; for that  $k$ ,  $h'_k(b_k)$  is given by the expression above. In equilibrium,  $h'_k(b_k) = h'_i(b_i)$  for  $i \neq k$ ; i.e.

$$\frac{1 + m_I + \mu}{Nm_k(2 + \mu)} = \frac{1 + m_I + \mu}{Nm_i(2 + \mu)} < \frac{1}{Nm_i} \quad (20)$$

This is true  $\forall i$ ; thus,  $b_i^0 > b_i^* \forall i$ . It follows trivially that  $S^* \leq S^0 < S^A$  and  $S^0 = S^*$  only if  $W^D = W^*$ . Note that the uniqueness of the outcome (for a given default and set of parameter values) follows from the use of BI. ■

Thus, the appropriations process leads to overspending, relative to the social optimum. However, the public good is provided at the socially optimal level; given its nationwide character, the interest groups have no incentive to distort its provision.<sup>19</sup> Consequently, overspending is due entirely to the subsidies, which are overprovided because the beneficiaries have extra weight in  $A$ 's objective function due to their lobbying activity. The extent of overspending is greater when the default budget is less attractive to the junior legislators (so that  $P$  is nonbinding). When  $P$  is binding,  $A$  satisfies the constraint by holding  $G^*$  fixed (as changing it would reduce junior legislators' utility, and make it even more difficult to attract votes for the proposal), while reducing the overspending on subsidies. However, overspending is completely eliminated only if the default happens to be the socially optimal budget.

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<sup>19</sup>If voter welfare were not separable in  $G$  and private consumption, then the appropriations process may not lead to the socially optimal  $G^*$ . However, it will in general still be the case that the  $G$  chosen under the appropriations process is closer to  $G^*$  than that chosen under the budget process.

## 5 The Budget Process

The 1974 reforms to Congressional budgeting procedures created the Budget Committees of the House and Senate, and established the budget process that (supplemented later by budget rules intended to control the deficit) is essentially still in place today. The primary task of the Budget Committees is to formulate and report the ‘budget resolution’, which sets a target for the aggregate level of spending, and broad functional allocations of that spending across budget areas. It is not a law, but rather a concurrent resolution, adopted by Congress and not presented to the President for signature or veto. Nonetheless, observers of Congressional budgeting generally express the view that the budget resolution has an impact on the subsequent stages of the budget process (see, for instance, Schick (1995, Ch. 5) and Garrett (2000, p. 714)).

This section introduces a Budget Committee (hereafter,  $B$ ) into the model. As in the real-world budget process,  $B$  and the budget resolution are superimposed on the existing appropriations process. Prior to  $A$ ’s budget proposal,  $B$  proposes a budget resolution specifying an aggregate level of spending  $S^P \in \mathfrak{R}_+$ ; then, the legislature  $L$  votes on whether or not to adopt the budget resolution (it is assumed that, as with voting on the budget itself, junior legislators vote for the resolution if they are indifferent). If it is not adopted, the appropriations process proceeds (as in Section 4) with no budget resolution.<sup>20</sup> If it is adopted,  $B$ ’s proposal becomes the budget resolution, denoted  $S^{BR}$ . Then,  $A$  proposes a budget (as in Section 4), but now subject to what will be termed the ‘budget resolution constraint’ (BRC) that total spending is no greater than  $S^{BR}$ , in addition to the other constraints in Section 4.

In this section, it is taken as exogenously given that the budget resolution (if adopted) is binding on  $A$ . In Section 6, the enforcement of the budget resolution is endogenized by incorporating the relevant procedural rules into the analysis, along with another aspect of the budget process that is ignored here, namely, reconciliation. The functional allocations that also form part of the budget resolution are not modeled here; the resolution is taken as setting only an aggregate level of spending. The more specific program allocations recommended by  $B$  are also ignored, as (unlike the aggregate

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<sup>20</sup>The justification for this assumption is the following. In the House, a point of order prevents the consideration of spending bills until after a budget resolution has been adopted. However, this point of order does not apply to appropriations bills after May 15 (Thurber, 1997, p. 68; US Library of Congress, 1998a; 1999). Thus, appropriations bills can proceed after that date even in the absence of a budget resolution.

spending target) they are not viewed by observers as being binding on  $A$  (e.g. Garrett, 2000, p. 717).  $B$ 's task is thus simply to specify an aggregate budget size, with jurisdiction over the division of the budget remaining with  $A$ .<sup>21</sup> As Schick (1995, p. 73) explains:

The budget resolution does not allocate funds to specific programs or accounts: any attempt to do so would run foul of the jurisdictions of the appropriations committees, which vigilantly guard their control of line items. . .

It is this *division* of budgetary authority that is crucial to the main result of this section. Before proceeding to develop this idea, however, the analysis begins by deriving a set of circumstances in which the two institutional structures lead to the same policy outcome. Then, a more general model is presented, and the central result derived.

## 5.1 A Neutrality Result

This section establishes a set of conditions under which the budget process leads to the same policy outcome as does the appropriations process. This neutrality result is not intended as a realistic claim about Congressional budgeting, but rather helps to clarify the conditions under which the institutional structure does matter. The basic assumption here is that the interest groups face no constraints on the resources they can devote to lobbying; thus, each group can freely lobby both  $A$  and  $B$ .

The timing of the game is as follows:

- 1)  $B$  proposes  $S^P \in \mathfrak{R}_+$ , lobbied by all the interest groups
- 2)  $L$  votes on  $S^P$ . If it passes,  $S^{BR} = S^P$  and is binding on  $A$ ; otherwise, no budget resolution is adopted (in effect,  $S^{BR} = \infty$ )
- 3)  $A$  proposes a budget  $\{G^P, \mathbf{b}^P\}$ , lobbied by all the interest groups. If  $L$  adopted  $S^P$ ,  $A$  is subject (in addition to BC) to BRC:

$$G^P + \sum_k b_k^P \leq S^{BR} \tag{21}$$

- 4)  $L$  votes on the proposed budget under a closed rule. If it passes,  $\{G^P, \mathbf{b}^P\}$  is implemented; if it does not pass, the default budget  $\{G^D, \mathbf{b}^D\}$  is implemented

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<sup>21</sup>“The budget resolution was designed to provide a framework to make budget decisions, leaving specific program determinations to appropriations committees . . .” (US Library of Congress, 1996, p. 3).

As before, this game can be solved by backwards induction. Again, it proves convenient to incorporate the voting choices of the junior legislators into  $A$ 's program in stage 3, and into  $B$ 's program in stage 1 (the participation constraints faced by  $A$  and  $B$ , respectively, will now be denoted by  $P_A$  and  $P_B$ ). Let  $\rho$  be the multiplier for the new constraint (BRC) faced by  $A$ . Then, the Lagrangean for  $A$ 's program can be expressed as:

$$\begin{aligned} \mathcal{L} = & (1 + m_I)(\omega - t + u(G)) + 2 \sum_k m_k h_k(b_k) + \lambda[Nt - G - \sum_k b_k] \\ & + \mu[\omega - t + u(G) + \sum_k m_k h_k(b_k) - W^D] \\ & + \rho[S^{BR} - G - \sum_k b_k] \end{aligned} \quad (22)$$

The solution to this program implicitly defines  $A$ 's best response functions  $G^+(S^{BR}), b_k^+(S^{BR}), t^+(S^{BR})$ .  $B$ 's program is:

$$Max_{S^{BR}} (1 + m_I)(\omega - t^+(S^{BR}) + u(G^+(S^{BR}))) + 2 \sum_k m_k h_k(b_k^+(S^{BR})) \quad (23)$$

subject to  $P_B$ , which can be expressed as:

$$\omega - t^+(S^{BR}) + u(G^+(S^{BR})) + \sum_k m_k h_k(b_k^+(S^{BR})) \geq \omega - t^A + u(G^*) + \sum_k m_k h_k(b_k^A) \quad (24)$$

if  $P_A$  is not binding, or as:

$$\omega - t^+(S^{BR}) + u(G^+(S^{BR})) + \sum_k m_k h_k(b_k^+(S^{BR})) \geq \omega - t^0 + u(G^*) + \sum_k m_k h_k(b_k^0) \quad (25)$$

if  $P_A$  is binding (where  $b_k^A, b_k^0, t^A$  and  $t^0$  are as defined in Proposition 2).

The result is:

**Proposition 3** *If all interest groups can freely lobby both  $A$  and  $B$ , then the budget under the budget process is identical to that under the appropriations process. In particular, the equilibrium outcome of the budget process is:*

- a)  $B$  proposes any  $S^P \geq S^A$  (if  $P_A$  is not binding) or any  $S^P \geq S^0$  (if  $P_A$  is binding)
- b) the proposal is enacted;  $S^{BR} = S^P$
- c) if  $P_A$  is not binding,  $A$  proposes  $\{G^*, \mathbf{b}^A\}$ ; if  $P_A$  is binding,  $A$  proposes  $\{G^*, \mathbf{b}^0\}$

d) the proposed budget is passed unanimously

where  $G^*$ ,  $\mathbf{b}^A$ ,  $\mathbf{b}^0$ ,  $S^A$  and  $S^0$  are defined as in Proposition 2

**Proof.** Consider the FOCs for A's program. Noting that  $\lambda = (1 + m_I + \mu)/N$ , A's budget is defined by:

$$u'(G) = \frac{1 + m_I + \mu + N\rho}{N(1 + m_I + \mu)} \quad (26)$$

and

$$h'_k(b_k) = \frac{1 + m_I + \mu + N\rho}{Nm_k(2 + \mu)} \quad (27)$$

B has the same objective function as A (being lobbied by the same set of groups). Thus, B's preferred budget is  $\{G^*, \mathbf{b}^A\}$  (if  $P_A$  is not binding) or  $\{G^*, \mathbf{b}^0\}$  (if  $P_A$  is binding). B can ensure that this budget is chosen by A by setting  $S^P \geq S^A$  or  $S^P \geq S^0$  (respectively), and hence setting  $\rho = 0$ . Each junior legislator is indifferent between adopting the budget resolution and not doing so (as the resolution has no effect on the outcome), so by assumption each votes for  $S^P$ . The other results simply follow those in Proposition 2. ■

This result shows that merely imposing a budget resolution on the appropriations process will not change budgetary outcomes if B and A share the same objectives. Rather, some conflict of interest between the two decisionmakers is essential if one is to constrain the other's tendency towards overspending. The next section generates such a divergence in objectives by endogenizing the choice of lobbying effort by interest groups.

## 5.2 A More General Model

This section generalizes the formulation of the budget process presented above, by introducing a resource constraint for the lobby groups, and allowing them to choose their allocation of lobbying effort between the two committees.<sup>22</sup> In the models in the previous sections, a legislator who is lobbied places equal weight on the welfare of her district and the welfare of the groups that lobby her. In this section, this formulation is generalized by allowing the weight placed on each group's welfare to depend on its lobbying effort. Admittedly, this remains a somewhat reduced-form representation of

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<sup>22</sup>They could also be allowed to lobby any of the junior legislators without fundamentally altering the results (as only A and B have agenda setting power). However, this formulation would add greatly to the complexity of the analysis.

the lobbying process; however, it has the advantage of considerable generality, being consistent with a number of different approaches to the analysis of lobbying.<sup>23</sup>

Let  $y_k$  be the total resources available to group  $k$  to engage in lobbying, and assume that  $y_k$  is measured in units of ‘weight’ placed on group  $k$ ’s welfare by a legislator who is lobbied by that group. Note that the model in Section 4 was simply a special case of this, where  $y_k = 1 \forall k$ ; the outcome under the appropriations process given this new assumption is an extremely straightforward generalization of the results in Section 4. Let  $\gamma_k \in [0, 1]$  be the fraction of group  $k$ ’s lobbying resources devoted to lobbying  $A$ ; thus,  $A$ ’s objective function places weight  $\gamma_k y_k$  on group  $k$ ’s welfare.

The game in this section begins with each group (noncooperatively) choosing its allocation of lobbying resources between  $A$  and  $B$ . Given that lobbying is productive at the margin, the resource constraint will always be binding, so this decision simply amounts to a choice of  $\gamma_k$ . The timing of the game is as follows (see Figure 2):

- 1) Each interest group  $k = 1, \dots, K$  noncooperatively chooses its  $\gamma_k$
- 2)  $B$  proposes  $S^P \in \mathfrak{R}_+$ , under the influence of those interest groups that choose to lobby  $B$
- 3)  $L$  votes on  $S^P$ . If it passes,  $S^{BR} = S^P$  and is binding on  $A$ ; otherwise, no budget resolution is adopted (in effect,  $S^{BR} = \infty$ )
- 4)  $A$  proposes a budget  $\{G^P, \mathbf{b}^P\}$ , under the influence of those interest groups that choose to lobby  $A$ . If  $L$  adopted  $S^P$ ,  $A$  is subject (in addition to BC) to BRC
- 5)  $L$  votes on the proposed budget under a closed rule. If it passes,  $\{G^P, \mathbf{b}^P\}$  is implemented; if it does not pass, the default budget  $\{G^D, \mathbf{b}^D\}$  is implemented

As before, this can be solved by backwards induction. Combining stages 4 and 5,  $A$ ’s program is:

$$\underset{G, t, \mathbf{b}}{\text{Max}} \left( 1 + \sum_k \gamma_k y_k \right) (\omega - t + u(G)) + \sum_k (1 + \gamma_k y_k) m_k h_k(b_k) \quad (28)$$

subject to the same constraints as before: BC,  $P_A$ , and BRC. The solution to this program, ignoring BRC (i.e. setting  $\rho = 0$ ), yields the outcome under the appropriations process (closely analogous to the outcome in Section 4). Let  $\{G^{A\gamma}, \mathbf{b}^{A\gamma}\}$  denote the budget proposed by  $A$  (subject to BC and  $P_A$ )

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<sup>23</sup>For instance, the weights could represent the credibility of promises made by the group in bargaining (with credibility being costly to establish), or they could represent the degree of access gained to the legislator.

and enacted by  $L$  under the appropriations process, and let  $t^{A\gamma}$  and  $S^{A\gamma}$  be the associated tax and level of aggregate spending, respectively. The corresponding choices under the budget process with a binding BRC (i.e.  $\rho > 0$ ) will be denoted  $\{G^B, \mathbf{b}^B\}, t^B$ , and  $S^B$  (these can be expressed as (best response) functions of the budget resolution  $S^{BR}$ , like the  $G^+(S^{BR})$  and related functions in the previous section).

Combining stages 2 and 3,  $B$ 's program can be expressed as:

$$\underset{S^{BR}}{Max}(1 + \sum_k (1 - \gamma_k) y_k) (\omega - t^B(S^{BR}) + u(G^B(S^{BR}))) + \sum_k (1 + (1 - \gamma_k) y_k) m_k h_k(b_k^B(S^{BR})) \quad (29)$$

subject to  $P_B$ , which, in this context, can be expressed as:

$$\omega - t^B(S^{BR}) + u(G^B(S^{BR})) + \sum_k m_k h_k(b_k^B(S^{BR})) \geq \omega - t^{A\gamma} + u(G^{A\gamma}) + \sum_k m_k h_k(b_k^{A\gamma}) \quad (30)$$

Finally, given  $B$ 's optimal choice of budget resolution, denoted  $S^{BR*}$ , each interest group chooses  $\gamma_k$  to:

$$\underset{\gamma_k}{Max} m_k (\omega - t^B(S^{BR*}(\gamma_k); \gamma_k) + u(G^B(S^{BR*}(\gamma_k); \gamma_k)) + h_k(b_k^B(S^{BR*}(\gamma_k); \gamma_k))) \quad (31)$$

The equilibrium outcome can be characterized as follows:

**Proposition 4** *Suppose that the number of interest groups  $K$  is sufficiently large. Then, when  $\{G^D, \mathbf{b}^D\} \neq \{G^*, \mathbf{b}^*\}$ , the (unique) subgame perfect equilibrium outcome is:*

- 1) Each interest group  $k = 1, \dots, K$  sets  $\gamma_k = 1$
  - 2)  $B$  proposes  $S^P < S^{A\gamma}$
  - 3)  $B$ 's proposal is enacted;  $S^{BR} = S^P$
  - 4)  $A$  proposes a budget  $\{G^B, \mathbf{b}^B\}$ , entailing aggregate spending  $S^B = S^{BR}$ , where  $G^B < G^*$  and  $b_k^B < b_k^{A\gamma} \forall k$ .
  - 5)  $A$ 's proposal is adopted unanimously, and is implemented
- When  $\{G^D, \mathbf{b}^D\} = \{G^*, \mathbf{b}^*\}$ , the outcome differs as follows:
- 2)  $B$  proposes any  $S^P \geq S^*$
  - 4)  $A$  proposes  $\{G^*, \mathbf{b}^*\}$

**Proof.** To solve the final two stages, consider the FOCs for  $A$ 's problem, noting that  $\lambda = (1 + \mu + \sum_k \gamma_k y_k m_k) / N$ :

$$u'(G) = \frac{1 + \mu + \sum_k \gamma_k y_k m_k + N\rho}{N(1 + \mu + \sum_k \gamma_k y_k m_k)} \quad (32)$$

and

$$h'_k(b_k) = \frac{1 + \mu + \sum_k \gamma_k y_k m_k + N\rho}{Nm_k(1 + \mu + \gamma_k y_k)} \quad (33)$$

Stages 2 and 3 involve  $B$  choosing  $S^{BR}$  subject to  $P_B$  (Eq. (29)). Anticipating this choice of  $S^{BR}$ , the interest groups choose their  $\gamma_k$ 's in stage 1. Consider any choice of  $\gamma_k \in [0, 1)$  by group  $k$ . Suppose that  $k$  deviates from this choice with a small increase in  $\gamma_k$  (i.e. a small reallocation of lobbying effort from  $B$  to  $A$ ) to  $(\gamma_k + \epsilon)$ , for arbitrarily small  $\epsilon > 0$ , taking as given the choices of other groups (the  $\gamma_j$ 's ( $j \neq k$ )). From the FOCs for  $A$ 's problem above, a small increase in  $\gamma_k$  leads to a fall in  $h'_k(b_k)$ , and hence to a rise in  $b_k$  (i.e. group  $k$  can raise its subsidy by reallocating lobbying effort from  $B$  to  $A$ ).

While the equilibrium  $b_k$  depends directly on  $\gamma_k$ , the equilibrium  $G$  depends on  $\gamma_k$  only through  $\sum_k \gamma_k y_k m_k$ . For large  $K$ , this sum is determined almost entirely by the  $\gamma_j$ 's (which are held constant by assumption), and can be assumed to be approximately constant when  $\gamma_k$  changes by a small amount. Thus,  $G$  can be assumed to be approximately fixed (even when this approximation is not valid, from the FOCs for  $A$ 's problem above, a small increase in  $\gamma_k$  leads to a rise in  $G$ ).

Now consider  $B$ 's response to a small increase in  $\gamma_k$ .  $B$ 's problem, and hence the optimal  $S^{BR}$ , depend on  $\gamma_k$  through the sums  $\sum_k (1 - \gamma_k) y_k (\omega - t^B(S^{BR}) + u(G^B(S^{BR})))$  and  $\sum_k (1 + (1 - \gamma_k) y_k) m_k h_k(b_k^B(S^{BR}))$ . As argued above, these sums can be assumed to be approximately constant when  $\gamma_k$  changes by a small amount, and hence, so can  $S^{BR}$ . Even when this approximation is not valid, similar results will hold as long as the fall in  $S^{BR}$  in response to an increase in  $\gamma_k$  is sufficiently small. As  $B$  does not have the power to determine  $b_k$ , any decline in  $S^{BR}$  would be spread over all  $b_j$ 's (and  $G$ ). For group  $k$ 's benefits from a higher  $b_k$  to be offset by a reduced  $S^{BR}$ , the fall in  $S^{BR}$  would have to be much larger (by a factor related to  $K$ ) than the rise in  $b_k$ .

The reasoning above implies that it is profitable for  $k$  to deviate from  $\gamma_k$  to  $(\gamma_k + \epsilon)$  (and thereby raise  $b_k$  while  $S^{BR}$  stays approximately fixed; note that, with approximately constant  $S^{BR}$ , the rise in  $b_k$  involves  $A$  reallocating budgetary resources from other groups to  $b_k$ ). This is true for all  $\gamma_k \in [0, 1)$ , and, moreover, for all groups  $k$ . Thus, when  $K$  is sufficiently large that the approximations above are valid, it is a dominant strategy for each group to set  $\gamma_k = 1$ .

To show that  $S^{BR} < S^{A\gamma}$  when  $\{G^D, \mathbf{b}^D\} \neq \{G^*, \mathbf{b}^*\}$ , note that, as  $\gamma_k = 1 \forall k$ ,  $B$ 's objective function is simply  $U_B = W$ , and hence coincides with

social welfare (note also that, as a consequence,  $P_B$  can never be binding). Setting  $S^{BR} = S^{A\gamma}$  (and hence  $\rho = 0$  in the equations above) implies that the budget will be  $\{G^*, \mathbf{b}^{A\gamma}\}$ , where  $b_k^{A\gamma} > b_k^*$ . Reducing  $S^{BR}$  by a small amount will make  $\rho > 0$  and cause both  $G$  and the  $b_k$ 's to fall. At  $G^*$ ,  $\frac{\partial U_B}{\partial G} = 0$ , so a small decrease in  $G$  has no effect on  $B$ 's utility. However, at  $b_k^{A\gamma}$ ,  $\frac{\partial U_B}{\partial b_k} < 0 \forall k$ ; thus, a small decrease in  $b_k$  increases  $B$ 's utility. Hence,  $B$  will find it optimal to set  $S^{BR} < S^{A\gamma}$ .

As  $S^{BR} < S^{A\gamma}$ , it follows that  $\rho > 0$ . Thus, from the equations above,  $G^B < G^*$  and  $b_k^B < b_k^{A\gamma} \forall k$ . The proposed  $S^{BR}$  is enacted because each junior legislator prefers spending less than  $S^{A\gamma}$  (note that  $A$  may not vote for the budget resolution; however, this will not affect the voting outcome).  $A$ 's proposed budget is enacted, as it satisfies  $P_A$ .

The results when  $\{G^D, \mathbf{b}^D\} = \{G^*, \mathbf{b}^*\}$  follow straightforwardly, recalling the assumption that  $A$  prefers to propose  $\{G^*, \mathbf{b}^*\}$  rather than face defeat on the floor. ■

Thus, when the number of groups is large, each chooses to focus all its lobbying effort on  $A$ . The basic intuition is that no group can individually influence  $B$ 's choice of budget resolution substantially, whereas (for a given budget resolution) each group can increase its subsidy by lobbying  $A$ . When  $K$  is not sufficiently large, the equilibrium may involve the interest groups allocating some of their lobbying effort to  $B$ . However,  $B$  will, in general, still constrain  $A$ 's spending (relative to the situation under the appropriations process).

It should be noted that one effect of the introduction of the budget process is to create an additional layer of legislative decisionmaking, and hence another committee that the interest groups must lobby to obtain their preferred policies. Nonetheless, it is not the extra resources required to lobby  $B$ , but the free rider problem among groups, that primarily drives the result above. In particular, even if the groups' resource endowments were increased to compensate for the need to lobby an additional committee, the free rider problem would remain, so that these extra resources would be allocated to lobbying  $A$  rather than  $B$ .

Note that the provision of the national public good is suboptimal under the budget process, whereas it is optimal under the appropriations process. Essentially, under the appropriations process,  $A$  was faced with a participation constraint (i.e. securing majority support for the budget proposal). Reducing  $G$  below its optimal level would only make this constraint more difficult to satisfy. Under the budget process, the BRC is framed solely in terms of the amount of aggregate spending, rather than in terms of welfare.

Thus, it is possible to satisfy the BRC by reducing either  $G$ , the  $b_k$ 's, or both. As  $A$  is lobbied by the interest groups,  $A$  prefers a different mix of spending on  $G$  and on the  $b_k$ 's than is socially optimal. Thus,  $A$  will, in general, choose to reduce both  $G$  and the subsidies. Consequently, there is a tradeoff for social welfare between the loss from the reduction of  $G$  and the gains from the reduction of the  $b_k$ 's.

The primary aim of this paper is to compare levels of aggregate spending and social welfare under each of the two institutional structures. Let  $S^{AP}$  and  $S^{BP}$  be the levels of aggregate spending under the appropriations process and the budget process, respectively, and let  $W^{AP}$  and  $W^{BP}$  be social welfare under each regime. Using the equilibrium outcome derived above, it is possible to conclude that:

**Proposition 5** *If the number of interest groups  $K$  is sufficiently large, then:*

- 1)  $S^{BP} \leq S^{AP}$ ; if  $\{G^D, \mathbf{b}^D\} \neq \{G^*, \mathbf{b}^*\}$ , then  $S^{BP} < S^{AP}$
- 2)  $W^{BP} \geq W^{AP}$ ; if  $\{G^D, \mathbf{b}^D\} \neq \{G^*, \mathbf{b}^*\}$ , then  $W^{BP} > W^{AP}$

**Proof.** 1) Using the earlier notation above,  $S^{AP} = S^{A\gamma}$  and  $S^{BP} = S^{BR}$  when  $\{G^D, \mathbf{b}^D\} \neq \{G^*, \mathbf{b}^*\}$ . By Proposition 4 above,  $S^{BR} < S^{A\gamma}$ . If  $\{G^D, \mathbf{b}^D\} = \{G^*, \mathbf{b}^*\}$ , then  $S^{AP} = S^{BP} = S^*$

2) Note that  $W^{AP}$  is social welfare given the budget  $\{G^{A\gamma}, \mathbf{b}^{A\gamma}\}$ .  $W^{AP}$  is thus  $B$ 's payoff in the absence of a (binding) budget resolution.

Suppose that  $\{G^D, \mathbf{b}^D\} \neq \{G^*, \mathbf{b}^*\}$ . By the argument in the proof of Proposition 4 above, it is always possible for  $B$  to strictly raise her payoff  $U_B$  by setting  $S^{BR} < S^{A\gamma}$ , so that  $U_B > W^{AP}$ . But, as  $B$ 's objective function is equivalent to social welfare (given that no interest groups lobby  $B$ ),  $U_B = W^{BP}$ ; i.e.  $W^{BP} > W^{AP}$ .

If  $\{G^D, \mathbf{b}^D\} = \{G^*, \mathbf{b}^*\}$ , then  $W^{BP} = W^{AP} = W^*$  ■

Thus, aggregate spending is always lower, and social welfare higher, under the budget process (except in the extreme case where the default is the socially optimal budget). The welfare result follows from  $B$ 's payoff being equivalent to social welfare, and entails that the welfare loss from the suboptimal level of  $G$  is outweighed by the welfare gains from curbing overspending on the  $b_k$ 's. The fact that  $A$  retains decision rights over the allocation of the budget may seem to limit the scope for increasing social welfare through the budget resolution. However, it should be emphasized that the division of powers between  $A$  and  $B$  is crucial. If  $B$  were given more powers (e.g. to determine the composition of the budget as well as its size), then the interest groups would switch their lobbying activity to  $B$ , thus reproducing the outcome under the appropriations process (Section 4), and lowering social welfare.

## 6 Endogenizing the Enforcement of the Budget Resolution

In the previous section, it was assumed that the budget resolution is binding on  $A$ . In this section, the enforcement of the budget resolution is explicitly modeled and endogenized. In practice, two kinds of mechanisms are used in Congress to enforce the budget resolution. Title III of CBA74 provides that points of order may be raised on the floor to prevent consideration of proposed legislation that violates the substantive provisions of the budget resolution (US Library of Congress, 1998a). Any member may raise such a point of order, and “when a point of order is sustained, the violating bill or amendment is not considered” (p. 1). The aggregate spending level specified in the budget resolution is enforced in this way under Section 311(a) of CBA74. However, these points of order may be waived in the House through a special rule reported by the Rules Committee.<sup>24</sup>

The other mechanism for enforcement is the budget reconciliation process (Schick, 1995, pp. 82f; US Library of Congress, 1998b; 1999). The Budget Committee may, as part of the budget resolution, include instructions to committees overseeing spending or revenue legislation, directing them to recommend legislation that conforms to the levels of spending and revenue specified in the budget resolution. The recommendations of the committees that are so directed are then incorporated by the Budget Committee into a reconciliation bill (or, if there are recommendations from multiple committees, into an omnibus reconciliation bill) that is voted on by Congress. It should be noted that reconciliation instructions are not issued directly to the Appropriations Committee; however, spending bills may be affected indirectly through instructions issued to other committees overseeing spending programs (Schick, 1995, p. 83). In theory, CBA74 does not permit the Budget Committee to make ‘substantive revisions’ to the recommendations made by the committees to whom reconciliation instructions are directed (US Library of Congress, 1998b). However, in practice: “Sometimes the budget committees . . . develop alternatives to the committee recommendations, which are then offered as floor amendments” (Schick, 1995, p. 85).

The model here generalizes that of the previous section by relaxing the assumption that  $A$ ’s strategy set is restricted to budget proposals that satisfy the BRC. In addition, it incorporates elements of both substantive points of order and the reconciliation process, in as parsimonious a manner as

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<sup>24</sup>See US Library of Congress (1997b) for a detailed description of the use of points of order in the Congressional budget process.

possible. It also introduces the Rules Committee (hereafter,  $R$ ) into the analysis. Its role here is simply to decide whether or not to waive points of order when  $A$  proposes a budget that violates the aggregate spending level specified in the budget resolution.<sup>25</sup> Each interest group  $k$  can now allocate its total lobbying resources  $y_k$  among  $A$ ,  $B$  and  $R$ ; the fraction allocated to  $A$  is denoted (as above) by  $\gamma_k$ , while the fraction assigned to  $R$  is denoted by  $\phi_k$ .

The timing is as follows (as illustrated in Figure 3):<sup>26</sup>

1) Each interest group  $k = 1, \dots, K$  noncooperatively chooses  $\gamma_k$  and  $\phi_k$ , subject to  $\gamma_k + \phi_k \leq 1$

2)  $B$  proposes  $S^P \in \mathfrak{R}_+$ , under the influence of those interest groups that choose to lobby  $B$

3)  $L$  votes on  $S^P$ . If  $L$  does not enact  $S^P$ , then  $A$  proposes a budget  $\{G^P, \mathbf{b}^P\}$ , under the influence of those interest groups that choose to lobby  $A$ , and  $L$  votes on this. If it passes,  $\{G^P, \mathbf{b}^P\}$  is implemented; if it does not pass, the default budget  $\{G^D, \mathbf{b}^D\}$  is implemented

4) If  $L$  enacts  $S^P$ , then  $S^{BR} = S^P$ .  $A$  proposes a budget  $\{G^P, \mathbf{b}^P\}$ , under the influence of those interest groups that choose to lobby  $A$  (but not necessarily subject to BRC)

5) If  $\{G^P, \mathbf{b}^P\}$  satisfies  $S^{BR}$ ,  $L$  votes on the proposed budget. If it passes,  $\{G^P, \mathbf{b}^P\}$  is implemented; if it does not pass, the default budget  $\{G^D, \mathbf{b}^D\}$  is implemented

6) If  $\{G^P, \mathbf{b}^P\}$  does not satisfy  $S^{BR}$ ,  $R$  decides whether or not to waive points of order, under the influence of those interest groups that choose to lobby  $R$

7) If  $R$  waives points of order,  $L$  votes on the proposed budget. If it passes,  $\{G^P, \mathbf{b}^P\}$  is implemented; if it does not pass, the default budget  $\{G^D, \mathbf{b}^D\}$  is implemented

8) If  $R$  does not waive points of order, each junior legislator  $j$  decides whether to (costlessly) raise a point of order against  $\{G^P, \mathbf{b}^P\}$

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<sup>25</sup>In practice, such a waiver must be passed by the full House; however, it is reported by  $R$ , and the assumption here is that  $R$  enjoys some degree of deference from the floor on such procedural matters.

<sup>26</sup>CBA74 originally envisaged two budget resolutions, one at the beginning and the other towards the end of the budget process (including reconciliation instructions). The requirement for a second resolution was repealed in 1985 (Davis, 1997, p. 17). Thus, reconciliation instructions are issued at the beginning of the process, as part of the budget resolution. The model here appears to place reconciliation at the end of the game, but this is not crucial to the results; it could be imagined, for instance, that the instructions are issued as part of the resolution, contingent on the game reaching stage 10, and on the history of play up to that point.

9) If no  $j$  raises a point of order,  $L$  votes on the proposed budget. If it passes,  $\{G^P, \mathbf{b}^P\}$  is implemented; if it does not pass, the default budget  $\{G^D, \mathbf{b}^D\}$  is implemented

10) If at least one  $j$  raises a point of order, it is sustained, and  $\{G^P, \mathbf{b}^P\}$  is not voted on. Instead,  $B$  proposes a reconciliation bill  $\{G^P, \mathbf{b}^P\}'$ . In doing so,  $B$  can reduce (but *not* increase) each element of  $\{G^P, \mathbf{b}^P\}$  in order to make it conform (exactly) to  $S^{BR}$

11)  $L$  votes on  $\{G^P, \mathbf{b}^P\}'$ . If it passes,  $\{G^P, \mathbf{b}^P\}'$  is implemented; if it does not pass, the default budget  $\{G^D, \mathbf{b}^D\}$  is implemented

It should be emphasized that  $B$  does not have complete discretion over the budget proposal in stage 10; rather,  $B$  can only make limited (downward) adjustments that result in a budget that (just) conforms to the budget resolution.<sup>27</sup> The game, though somewhat more complicated than before, can again be solved using backwards induction. The main difference here is that  $A$  can now choose whether to satisfy BRC, or to satisfy what will be termed  $R$ 's 'points of order waiver constraint' (PWC) that the proposed budget gives  $R$  sufficient utility that it waives points of order.  $A$ 's objective function, and the constraints  $P_A$ , BC and BRC are exactly as in the previous section. PWC can be expressed as:

$$\omega + u(G) - t + (1 + \sum_k \phi_k y_k m_k) h_k(b_k) \geq U_R(\{G^P, \mathbf{b}^P\}') \quad (34)$$

where  $U_R(\{G^P, \mathbf{b}^P\}')$  is  $R$ 's payoff from the budget reconciliation bill. Of course, this depends on  $B$ 's strategic choice. However, at the time that  $A$  proposes  $\{G^P, \mathbf{b}^P\}$ ,  $S^{BR}$  is known, and  $B$ 's optimal choice of  $\{G^P, \mathbf{b}^P\}'$  to maximize its welfare given  $S^{BR}$  can be anticipated. Thus,  $U_R(\{G^P, \mathbf{b}^P\}')$  can be taken as given at that point. The multiplier of PWC will be denoted  $\mu_R$  below.

The result is:

**Proposition 6** *Suppose that  $K$  is sufficiently large, and that  $\{G^D, \mathbf{b}^D\} \neq \{G^*, \mathbf{b}^*\}$ . Then, the (unique) subgame perfect equilibrium outcome is:*

- 1) *Each interest group  $k = 1, \dots, K$  sets  $\gamma_k = 1$  (and hence  $\phi_k = 0$ )*
- 2)  *$B$  proposes the same  $S^P$  as in Proposition 4*
- 3)  *$L$  votes to enact  $B$ 's proposal;  $S^{BR} = S^P$*

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<sup>27</sup>Hence, this power does not amount to an 'ex post veto' of the type discussed by Shepsle and Weingast (1987). They argue that, in a bicameral legislature, committee power is based on the control of membership on conference committees that confer with the other chamber to reconcile differences when each chamber has passed a bill in different versions.

4) *A* proposes the same budget  $\{G^P, \mathbf{b}^P\}$  as in Proposition 4, choosing the level of aggregate spending specified in the budget resolution

5) *L* votes for  $\{G^P, \mathbf{b}^P\}$ , which is implemented

Note that, off the equilibrium path, if *A* proposes a budget that violates the budget resolution, *R* does not waive points of order, each junior legislator *j* raises a point of order, *B* proposes a reconciliation bill  $\{G^P, \mathbf{b}^P\}'$ , and *L* votes for  $\{G^P, \mathbf{b}^P\}'$ , which is implemented.

**Proof.** Consider the FOCs for *A*'s problem:

$$u'(G) = \frac{1 + \mu + \mu_R + \sum_k \gamma_k y_k m_k + N\rho}{N(1 + \mu + \mu_R + \sum_k \gamma_k y_k m_k)} \quad (35)$$

and

$$h'_k(b_k) = \frac{1 + \mu + \mu_R + \sum_k \gamma_k y_k m_k + N\rho}{Nm_k(1 + \mu + \mu_R + \gamma_k y_k + \mu_R \phi_k y_k)} \quad (36)$$

Note that, as *A* need not satisfy both BRC and PWC, at least one of  $\rho$  and  $\mu_R$  is zero. Suppose  $\mu_R = 0$ . Then, the argument from the proof of Proposition 4 holds - for large *K*, each group *k* can take  $\rho$  as approximately fixed. Thus, setting  $\gamma_k = 1$  is a dominant strategy. Suppose  $\rho = 0$ . By an analogous argument to that in the proof of Proposition 4, each *k* can take  $\mu_R$  as approximately fixed. Thus, setting  $\gamma_k = 1$  is again a dominant strategy.

Hence, *B* and *R* have identical objective functions (i.e. *W*). *A* thus faces a choice between satisfying BRC (which leads to *A*'s optimal budget, given  $S^{BR}$ ), and failing to satisfy BRC. If *A* chooses the latter, *B*'s reconciliation bill (which maximizes *W* given  $S^{BR}$  and the restriction that no item be increased) will be preferred by *R* and each *j* to *A*'s proposal (as *B*, *R* and *j* all have the common payoff function *W*). Thus, *R* will not waive points of order, each *j* will raise a point of order, and *B*'s proposal will be enacted. Clearly, this is worse for *A* than its own proposal, given  $S^{BR}$  (i.e.  $U_A(\{G^P, \mathbf{b}^P\}) > U_A(\{G^P, \mathbf{b}^P\}')$ ).

Consequently, *A* will always choose to satisfy BRC. Thus,  $\mu_R = 0$ , and the FOCs reduce to those in the proof of Proposition 4. Thus, the solutions are identical to those in Proposition 4. ■

Thus, this more general game leads to exactly the same pattern of equilibrium behavior as does the game in the previous section. What is significant here is that *A* endogenously chooses to satisfy BRC. Intuitively, the story is very similar to that of the previous model. The interest groups can choose to divide their lobbying efforts among *A*, *B* and *R*. Lobbying *R*, like lobbying *B*, represents the provision of a public good for all the interest groups. Essentially, it induces *R* to permit a budget proposal that violates

the budget resolution to come to the floor under a special rule. Any single group captures only a small fraction of the benefits of the waiver of points of order. Thus, when  $K$  is large, no group lobbies  $R$ . Hence, if  $A$  proposes a budget that does not conform to the budget resolution, it will have a point of order raised against it, and will not be voted on. The result will be that  $B$ 's reconciliation bill will be passed, and this is clearly worse from  $A$ 's viewpoint than is its own choice of budget, subject to BRC. Thus,  $A$  will always satisfy BRC.

An important point to note here is that, in this game (as in the real-world Congress),  $B$ 's power to shape specific budget allocations is strictly limited. If  $B$  were able to essentially choose its own preferred budget allocation through a reconciliation bill in stage 10, then it would be possible to enact a budget resolution (say, 0) that  $A$  could not possibly satisfy, thus giving  $B$  complete control of budgetary policy through the reconciliation process. However, if  $B$  had this power, each interest group would choose to lobby it, leading to the same outcome as under the appropriations process. Thus, as stressed earlier, a delicate balance of power between  $A$  and  $B$  (and also  $R$ ) is crucial to the operation of the Congressional budget process.<sup>28</sup>

## 7 The Impact of Statutory Budget Rules

The preceding section closes this paper's analysis of the logic of the Congressional budget process *per se*. However, there is a closely related feature of Congressional budgeting which the basic insight above may also illuminate. As was discussed earlier, the large deficits that had emerged by the early 1980's led to the budget process created by CBA74 being supplemented by a number of budget rules. Notable among these were the GRH provisions enacted through the Balanced Budget and Emergency Deficit Control Act of 1985, and the Budget Enforcement Act of 1990 (BEA90). The latter was renewed through the Budget Enforcement Act of 1997, and is currently still in force. BEA90 established discretionary spending limits, defined as "statutory caps on the level of budget authority and outlays determined through the annual appropriations process" (US Library of Congress, 2001, p. 1) that operate in addition to the budget resolution. The limits are enforced through automatic sequestration: "the across-the-board cancellation

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<sup>28</sup>Thurber (1997) argues that CBA74 reduced the power of the Appropriations Committees. While this is clearly true, the analysis in this paper suggests that the success of the budget process depends on the Appropriations Committees retaining a significant amount of power over specific allocations to programs; otherwise, lobbyists would focus on  $B$ , reproducing the Section 4 outcome.

of budgetary resources in nonexempt programs” (US Library of Congress, 2001, p. 2).<sup>29</sup>

A notable feature of these budget rules is their purely statutory nature. In particular, they can be revised or overturned by a simple majority vote.<sup>30</sup> Auerbach (1994), Gramlich (1995) and others have pointed out that these statutory budget rules pose a puzzle. As Auerbach (1994, p. 155) explains: “Presumably, budget rules are imposed by legislators . . . to force themselves to accept more fiscal austerity than they would agree to in the normal course of events.” However, if there is a majority in the legislature for a budget that spends more than the amount specified in the budget rule, that same majority can simply pass legislation that revises the spending limit upwards. Hence, the rules would seem to be ineffective, as suggested by Gramlich’s (1995, p. 173) comment that: “since GRH was a legislative limit, when it became binding on the Congress, it was simply amended to become less binding.”<sup>31</sup> However, many observers of Congressional budgeting argue that these rules have some effect on policy outcomes (e.g. Schick, 1995, Ch. 10). As Auerbach (1994, p. 155) remarks, “the political economy of this process is not particularly well understood and, thus, merits further attention . . .”

To illustrate this puzzle, consider the following simple game. Assume that  $\{G^D, \mathbf{b}^D\} \neq \{G^*, \mathbf{b}^*\}$  and let  $S^{A\gamma}$  denotes the level of spending that is chosen by  $A$ , subject only to BC and P, when lobbied by all the interest groups (the corresponding budget is  $\{G^*, \mathbf{b}^{A\gamma}\}$ ).  $S^{BR}$  is the budget resolution from Proposition 4 - i.e. the level of aggregate spending that maximizes social welfare, given that  $A$  decides on the allocation of that level of spending (under the influence of lobbying by all groups).

0) Nature selects a budget rule with a spending limit  $S^{SL} = S^{BR}$

1)  $A$  proposes a budget  $\{G^P, \mathbf{b}^P\}$ , and can also decide to propose a new spending limit  $S^{SL}$

2)  $L$  votes on the proposal(s) by  $A$  as a package (i.e. on both the new  $S^{SL}$  and on  $\{G^P, \mathbf{b}^P\}$  simultaneously). If the package passes, and the enacted budget satisfies the (new) spending limit, it is implemented; otherwise, the

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<sup>29</sup>Section 312(b) of the CBA, as amended, provides that discretionary spending limits can also be enforced procedurally, rather like the budget resolution (US Library of Congress, 2001). Thus, the analysis in Section 6 can be applied here as well.

<sup>30</sup>Oak (1995) reviews various adjustments that have been made to the spending caps in BEA90.

<sup>31</sup>Gramlich (1990) analyzes the impact of the GRH rules on bargaining between Congress and the President, and concludes that “the direct effects of GRH played a very minor role in the improvement in the U.S. budgetary position”, but concedes that the indirect effects may have been more significant (p. 75).

default  $\{G^D, \mathbf{b}^D\}$  is implemented

Clearly, the equilibrium outcome of this game is:

- 1)  $A$  proposes  $S^{SL} = S^{A\gamma}$  and  $\{G^P, \mathbf{b}^P\} = \{G^*, \mathbf{b}^{A\gamma}\}$
- 2)  $L$  votes for the package;  $\{G^*, \mathbf{b}^{A\gamma}\}$  is implemented

The basic intuition is that  $\{G^*, \mathbf{b}^{A\gamma}\}$  is preferred by the legislature to the default (this follows from the fact that  $P$  is satisfied). Thus, if  $A$  has the power to bundle an increase in the spending limit with the budget proposal, then  $L$  will find it optimal to accept the increase in  $S^{SL}$ . Under these circumstances, the spending limit cannot constrain aggregate spending.

Thus, the question can be posed as follows: if overspending is due to the ‘capture’ of those legislators with agenda setting power, why can they not use their agenda setting power to revise budget rules that interfere with their objectives? The argument here relies on two main assumptions. The first is that budget rules must be complied with unless they are revised or overturned; for instance, they are enforced through procedural rules, or there are high political costs of violating them. This assumption is not particularly strong, in the sense that even a constitutional budget rule that required a supermajority to overturn would be ineffective if it could be ignored at will. Secondly, the jurisdictional boundaries between committees are taken as given.<sup>32</sup>

Returning to the simple game sketched above, suppose now that the power to propose changes to existing budget rules does not rest with  $A$ . The obvious candidate for agenda setting power in this area is the Rules Committee,<sup>33</sup> although there are other possibilities, including the Budget Committee.<sup>34</sup> Here, the Rules Committee ( $R$ ) will be assumed to be the agenda setter on changes to budget rules.<sup>35</sup> It is not of central importance for the model exactly who has this power, as long as it is not  $A$ . Thus, introducing  $R$  into the model, the game becomes:

- 0) Nature selects a budget rule with a spending limit  $S^{SL} = S^{BR*}$  (where

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<sup>32</sup>See the discussion in Section 3.3 above. It is assumed that these jurisdictional property rights are enforced through some exogenous mechanism.

<sup>33</sup>More specifically, the subcommittee on Legislative and Budget Process of the House Rules Committee. It was this subcommittee that held hearings on the ‘Comprehensive Budget Process Reform’ bill (HR 853) in 1999, and on a proposal for biennial budgeting in July, 2001.

<sup>34</sup>Joyce (1992) describes hearings, held in late 1991 by the House Budget Committee and the House Government Operations Committee, on revising BEA90. What is noteworthy here is that the committees considering such revisions are *not* the Appropriations Committees.

<sup>35</sup>Note that, if different committees report out different versions of a bill to change budget rules,  $R$  would play a crucial role in determining which version reaches the floor.

$S^{BR^*}$  is the optimal choice of  $S$  by  $B$ , as defined in Section 5)<sup>36</sup>

- 1)  $R$  decides whether to propose a new spending limit  $S^{SL}$
- 2)  $A$  proposes a budget  $\{G^P, \mathbf{b}^P\}$
- 3)  $L$  votes on the proposal(s) by  $R$  and  $A$  as a package (i.e. on both the new  $S^{SL}$  and on  $\{G^P, \mathbf{b}^P\}$  simultaneously). If the package passes, and the enacted budget satisfies the (new) spending limit, it is implemented; otherwise, the default  $\{G^D, \mathbf{b}^D\}$  is implemented

By analogy with the neutrality result in Section 5, if interest groups can freely lobby both  $R$  and  $A$ , then each committee will have the same objective function. Thus,  $R$ 's preferred budget will be  $\{G^*, \mathbf{b}^{A\gamma}\}$ , and the equilibrium will involve  $R$  proposing  $S^{SL} = S^{A\gamma}$ ,  $A$  proposing  $\{G^*, \mathbf{b}^{A\gamma}\}$ ,  $L$  voting for the package, and  $\{G^*, \mathbf{b}^{A\gamma}\}$  being implemented. Once again, the spending limit is ineffective.

Now suppose that, as in the more general model of Section 5, each interest group faces a resource constraint, and chooses the allocation of lobbying effort among  $R$  and  $A$ . As before, let  $y_k$  be group  $k$ 's resources, and  $\gamma_k$  be the fraction of those resources allocated to lobbying  $A$ . Then, between stages 0 and 1, each interest group  $k = 1, \dots, K$  noncooperatively chooses  $\gamma_k \in [0, 1]$ . The equilibrium is:

**Proposition 7** *Suppose that  $K$  is sufficiently large, that  $\{G^D, \mathbf{b}^D\} \neq \{G^*, \mathbf{b}^*\}$ , and that nature chooses a budget rule with  $S^{SL} = S^{BR^*}$ . Then, the equilibrium outcome is:*

- 1) *Each interest group  $k = 1, \dots, K$  chooses  $\gamma_k = 1$*
- 2)  *$R$  makes no proposal to change  $S^{SL}$*
- 3)  *$A$  proposes the same  $\{G^B, \mathbf{b}^B\}$  as in Proposition 4*
- 4)  *$L$  votes for  $A$ 's proposal, which is implemented*

**Proof.** *Consider  $A$ 's problem -  $A$  maximizes  $U_A$  subject to  $BC$ ,  $P$  and the constraint that the (anticipated) spending limit in the budget rule  $S^{SL}$  is satisfied. Using  $\rho$  again to denote the multiplier on the budget rule constraint (which is closely analogous to  $BRC$ ), the FOCs are identical to those in the proof of Proposition 4.  $R$ 's choice of proposal can be regarded as a direct choice of  $\rho$ . Making no proposal leaves  $S^{SL} = S^{BR^*}$ , with the same  $\rho$  as in the Proposition 4 equilibrium.*

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<sup>36</sup>Note that this is the socially optimal spending level, given that  $A$  has proposal power over the composition of the budget. The results below hold for a wide range of spending limits other than  $S^{BR^*}$ , but this is used for illustrative purposes (as it would be the spending limit favored by the median legislator, if it were determined by majority voting at the beginning of the game).

Consider the interest groups' allocation of lobbying effort. For large  $K$ , by the same argument as in the proof of Proposition 4, it is a dominant strategy for each group  $k$  to set  $\gamma_k = 1$ . Thus,  $R$ 's objective function is simply  $W$ , which is maximized when  $S^{SL} = S^{BR*}$  (by the definition of  $S^{BR*}$  in Section 5). Hence,  $R$  makes no proposal.

$A$  maximizes  $U_A$  (given that  $\gamma_k = 1 \forall k$ ) subject to the constraints by proposing  $\{G^B, \mathbf{b}^B\}$ , as in Proposition 4. As  $P$  is satisfied,  $L$  votes for the proposal. ■

The basic intuition here is the following. The system of jurisdictional property rights in Congress entails that the power to propose budget allocations and the power to propose changes in budget rules are divided among different agenda setters (in this case,  $A$  and  $R$ , respectively). From the viewpoint of any single interest group, lobbying  $R$  amounts to providing a public good for all groups, as an increase in the spending limit leads to increased subsidies for all organized sectors. When the number of groups is large, each has an incentive to not provide this public good, and instead to focus on obtaining private goods from  $A$ . Consequently,  $R$  has no incentive to cooperate with  $A$  to increase the spending limit. Thus, a spending limit, even if it is part of a budget rule that can be overturned by a simple majority, can constrain aggregate spending.

## 8 Discussion and Conclusion

This paper has sought to develop an explanation of how the Congressional budget process created by CBA74 can constrain aggregate spending below the level that would be chosen residually in the appropriations process. It thus revisits a question addressed earlier by Ferejohn and Krehbiel (1987). However, whereas they use a spatial approach that is more characteristic of political science, this paper provides an alternative perspective by applying some of the tools developed by economists in recent years for the study of interest group lobbying.

The main results of this paper are that the aggregate level of spending is lower, and social welfare higher, under the budget process. However, while reducing overspending on special interest subsidies, the budget process also leads to the underprovision of national public goods. The paper also endogenously derives the enforcement of the budget resolution, and argues that statutory budget rules may constrain spending, even though they can be revised by a simple majority vote.

The central intuition behind these results is that the budget process creates a free rider problem among the interest groups that lobby budgetary decisionmakers. Lobbying for a larger budget resolution entails providing a public good for all groups. In general, the groups will choose to free ride, and focus their lobbying efforts on increasing the allocations they obtain from the Appropriations Committee. This aligns the Budget Committee's interests with those of voters, leading it to restrain aggregate spending through the budget resolution. Similar reasoning applies to lobbying that seeks to change procedural or budget rules in such a way as to permit higher aggregate spending. However, it is important that the Appropriations Committee retains authority over the composition of spending; otherwise, the groups would switch their lobbying efforts to the Budget Committee, thereby reproducing the outcomes of the appropriations process.

A number of caveats should be expressed about this analysis. Firstly, if the budget process game were to be repeated infinitely with the same set of interest groups, it is theoretically possible that they would sustain cooperation (for instance, by taking turns to lobby the Budget Committee). Even so, however, the budget process would still lead to lower spending than under the appropriations process. Moreover, the large number of groups and their changing composition and interests make such cooperation unlikely in practice.

It has been suggested by observers of Congressional budgeting that the Budget Committees have a more partisan atmosphere than the Appropriations Committees. This, combined with institutional features such as the short terms of House Budget Committee members, may imply that they are less able to bargain with interest groups than are the Appropriations Committees. Even so, however, the mechanism identified in this paper can complement such explanations of the budget process.

Finally, this analysis applies primarily to discretionary spending. As emphasized by Gramlich (1995), Davis (1997) and others, however, entitlement spending plays an increasingly central role in Federal budgeting. This is an issue to be addressed in future research. It should be noted that the framework of this paper (with dispersed, nationwide interest groups) appears a more promising starting point for such an analysis than do earlier models of local public goods and distributive politics.

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**Table 1: Federal Outlays (as a % of GDP) 1962-2000**

Period (fiscal years)	Annual Average Outlays (as % of GDP)
1962-1974	18.9%
1975-2000	21.2%

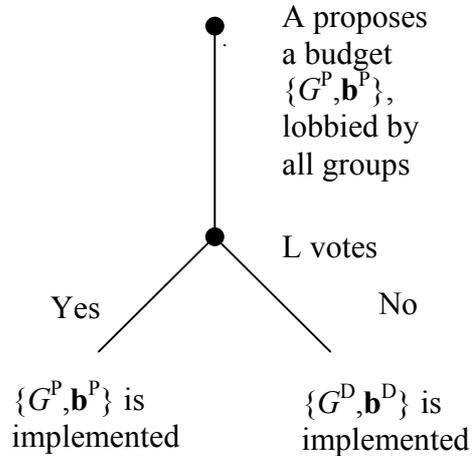
Source: Based on figures reported in Congressional Budget Office (2001), Appendix F, Table 5

**Table 1: Federal Discretionary Outlays (as a % of GDP) 1962-2000**

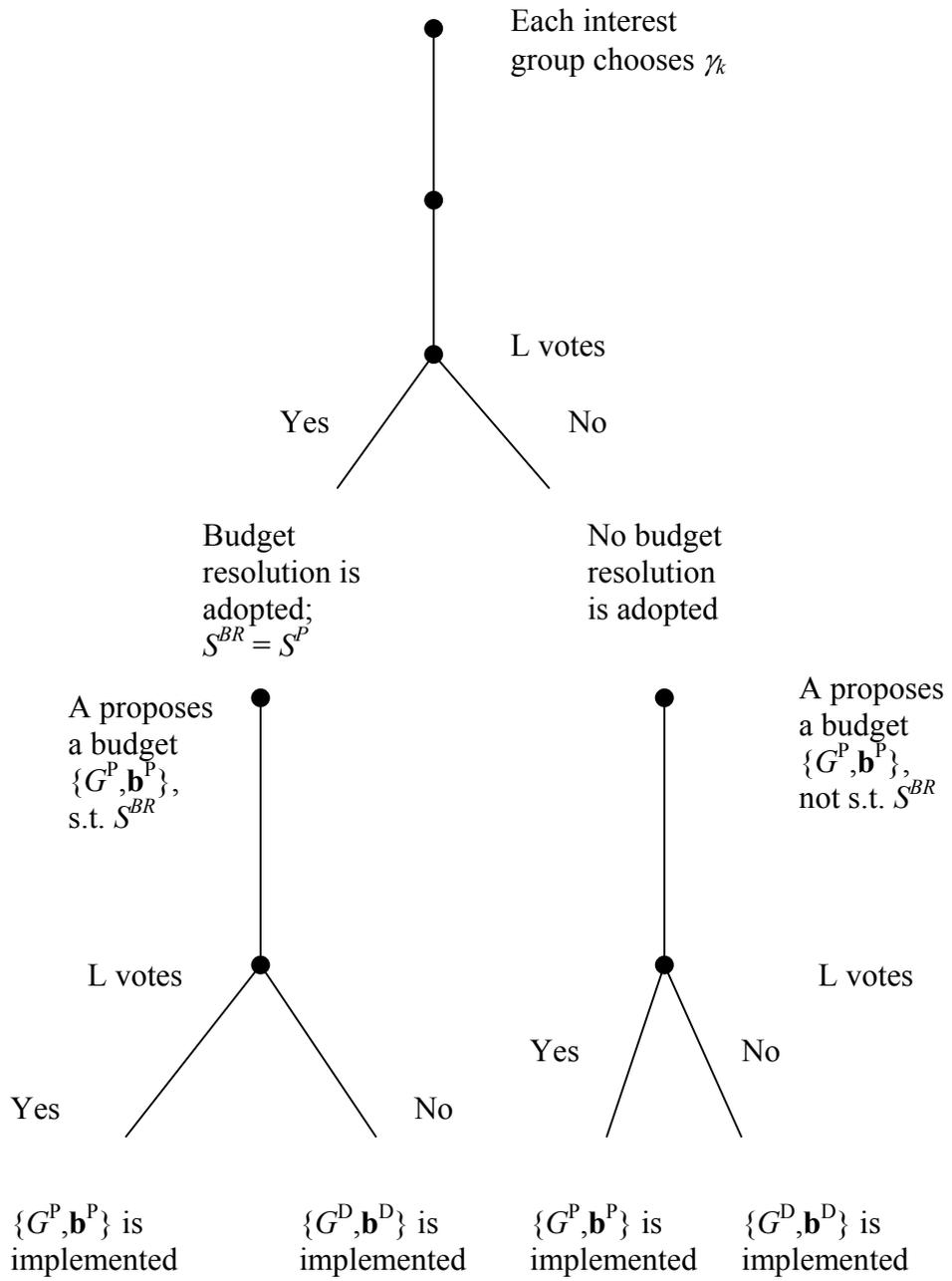
Period (fiscal years)	Annual Average Discretionary Outlays (as % of GDP)
1962-1974	11.8%
1975-2000	8.9%

Source: Based on figures reported in Congressional Budget Office (2001), Appendix F, Table 11

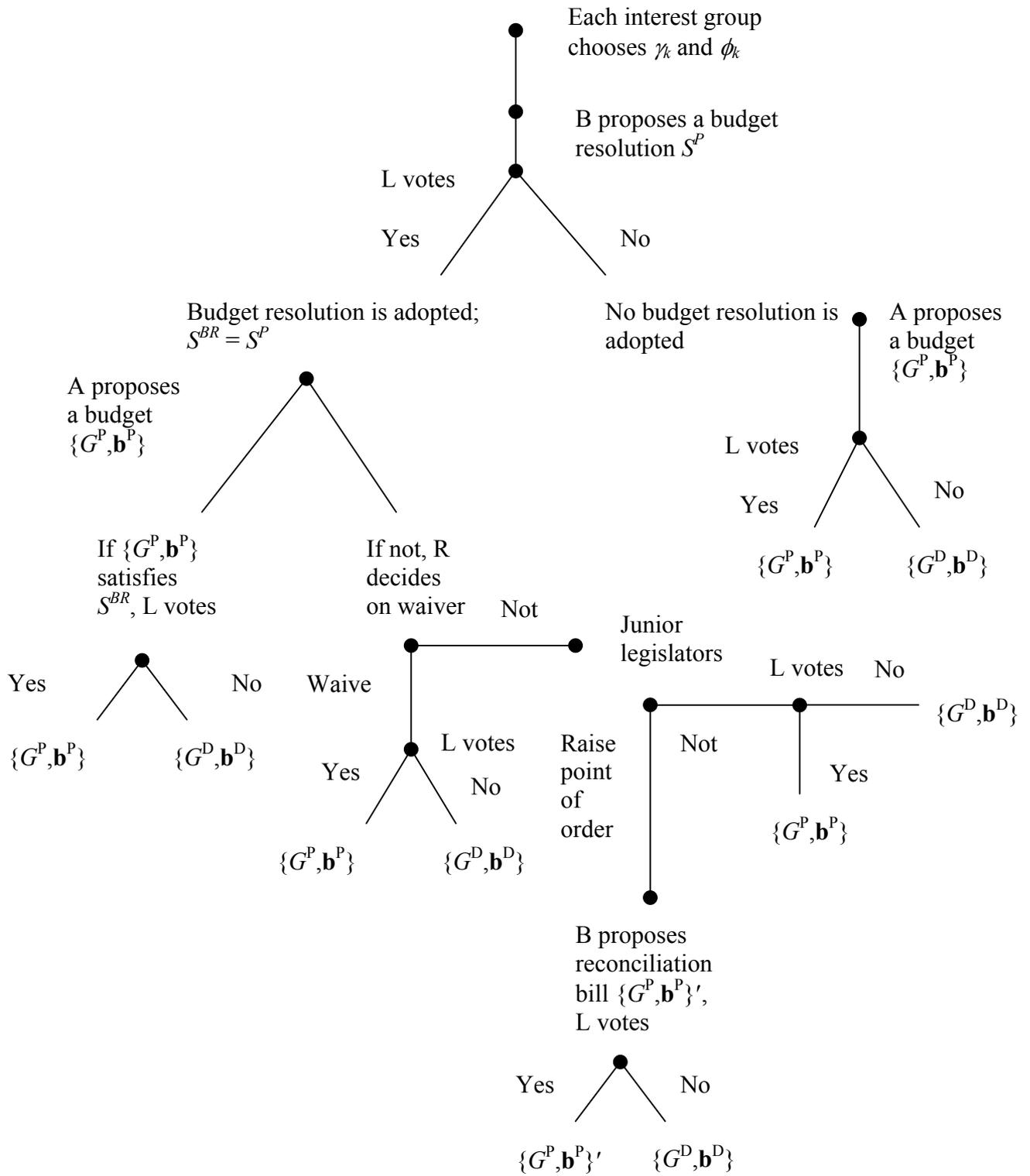
**Figure 1: The Appropriations Process**



**Figure 2: The Budget Process**



**Figure 3: The Budget Process with Points of Order and Reconciliation**



**Figure 4: The Impact of Statutory Budget Rules**

