

## The Political Economy of Budget Deficits

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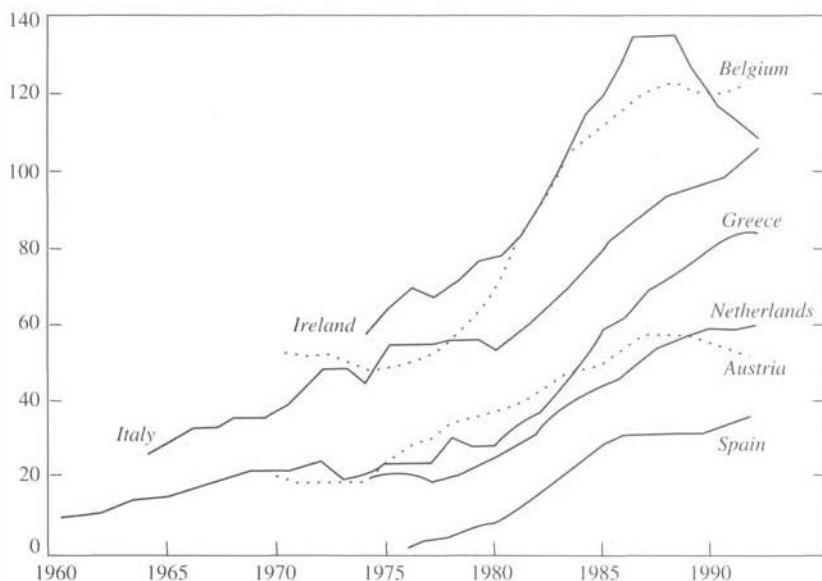
*This paper provides a critical survey of the literature on politico-institutional determinants of the government budget. We organize our discussion around two questions: Why did certain OECD countries, but not others, accumulate large public debts? Why did these fiscal imbalances appear in the last twenty years rather than sooner? We begin by discussing the "tax smoothing" model and conclude that this approach alone cannot provide complete answers to these questions. We then proceed to a discussion of political economy models, which we organize into six groups: (1) models based upon opportunistic policy makers and naive voters with "fiscal illusion"; (2) models of intergenerational redistributions; (3) models of debt as a strategic variable, linking the current government with the next one; (4) models of coalition governments; (5) models of geographically dispersed interests; and (6) models emphasizing the effects of budgetary institutions. We conclude by briefly discussing policy implications. [JEL H6]*

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SEVERAL, BUT not all, OECD economies have accumulated large government debts in the last 20 years. Why did this happen? Why have certain countries, but not others, experienced large budget deficits for several years? What explains these large cross-country differences?

Figures 1 and 2 highlight the dimension of this problem. Figure 1 shows the debt-to-GNP ratios in seven countries where this measure sharply

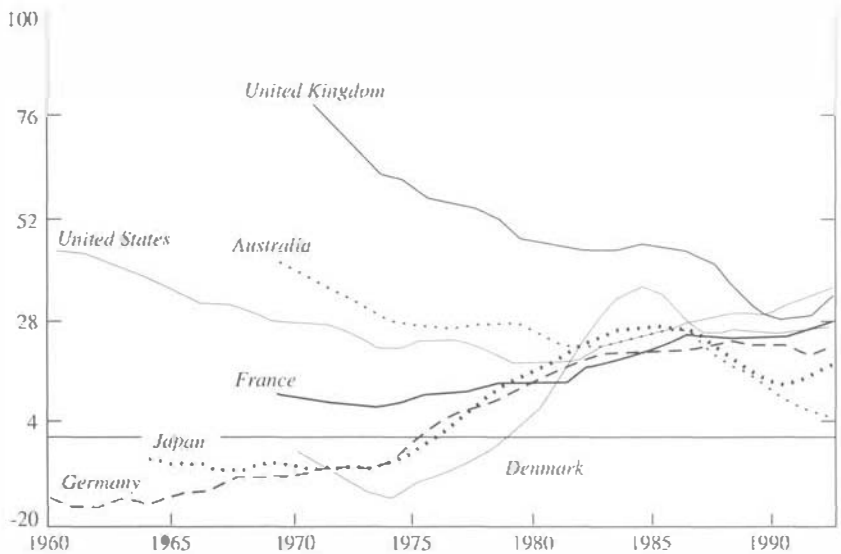
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Figure 1. *Rising Debt-to-GNP Ratios*

Source: Barro and Grilli (1994).

increased in the last twenty years. In three of these countries (Belgium, Ireland, and Italy) this ratio is more than 100 percent. Figure 2, in contrast, shows the debt-to-GNP ratio in seven countries where this measure appears relatively stable compared with the countries of Figure 1. The difference between the debt-to-GNP ratios among OECD countries in the 1990s is very large—for instance, from more than 100 percent in Belgium and Italy to less than 30 percent in Australia and Germany. The United States is included in Figure 2, but even in this country the increase in the debt-to-GNP ratio in the 1980s and beyond has caused much concern. (See Figure 3.)

It is difficult to explain these large cross-country differences using economic arguments alone: the countries are all advanced industrial democracies, all are members of the OECD, and all have very high levels of per capita income. We believe, instead, that politico-institutional factors are crucial to understanding budget deficits in particular, and fiscal policy in general. While the economies of the OECD countries are relatively similar, their institutions (such as electoral laws, party struc-

Figure 2. *Stable Debt-to-GNP Ratios*

Source: Barro and Grilli (1994).

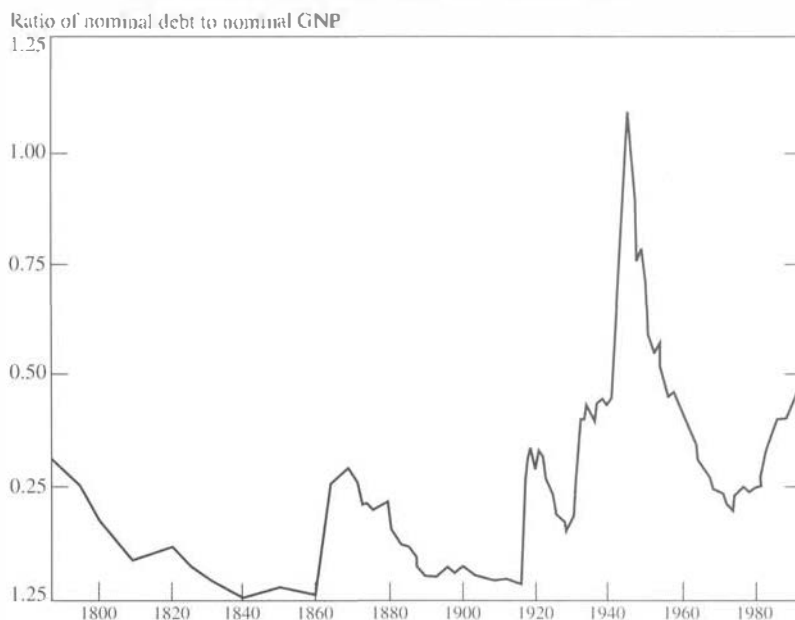
ture, budget laws, central bank laws, degree of decentralization, political stability, and social polarization) are quite different.

The purpose of this paper is to discuss how the political economy literature can answer two crucial questions:

1. Why do we observe large and persistent deficits in peacetime, and why now?
2. Why do we observe large debts in certain countries and not in others?

An explanation that can answer the first, but not the second, question is not convincing. For instance, a theory that implies that democracies are *always* in fiscal deficit is incomplete if it does not explain why *certain* democracies, but not others, have experienced fiscal imbalances.

The literature on the political economy of fiscal policy is very large and dates back to the nineteenth century with the Italian school of public finance. (See Buchanan (1960)). We do not attempt to cover all of this literature systematically; rather, we focus on the two questions highlighted above and we emphasize recent research.

Figure 3. *Behavior of the U.S. Public Debt, 1790-1991*

Source: Barro and Grilli (1994).

We begin our discussion with a review of the “tax smoothing” theory of the government budget (Barro (1979); Lucas and Stokey (1983)). This approach serves as a normative benchmark from which political economy models depart; in fact, most of the recent political models are “positive” explanations of observed deviations from tax smoothing. Furthermore, the proponents of this theory (for instance, Barro (1986 and 1987)) views it not only as “normative,” but also as “positive,” that is, as a description of actual fiscal policy.

We will then proceed to a discussion of political economy models, which we organize in six groups: (1) models based upon opportunistic policymakers and naive voters with “fiscal illusion”; (2) models of inter-generational redistributions; (3) models of debt as a strategic variable, linking the current government with the next one; (4) models of distributional conflicts within social groups and/or political parties; (5) models of geographically dispersed interests; and (6) models emphasizing the effects of budgetary institutions. After this critical review, we briefly discuss the policy implications of this research.

## 1. Optimal Budget Policy

The tax smoothing theory of the government budget considers a closed economy without capital in which a representative agent consumes, works, and saves. The government is a “benevolent social planner” that maximizes the utility of the representative agent. Both the representative agent and the government have the same time horizon, which, for simplicity, is infinite. The theory abstracts from intergenerational aspects and from finite terms of office for governments.

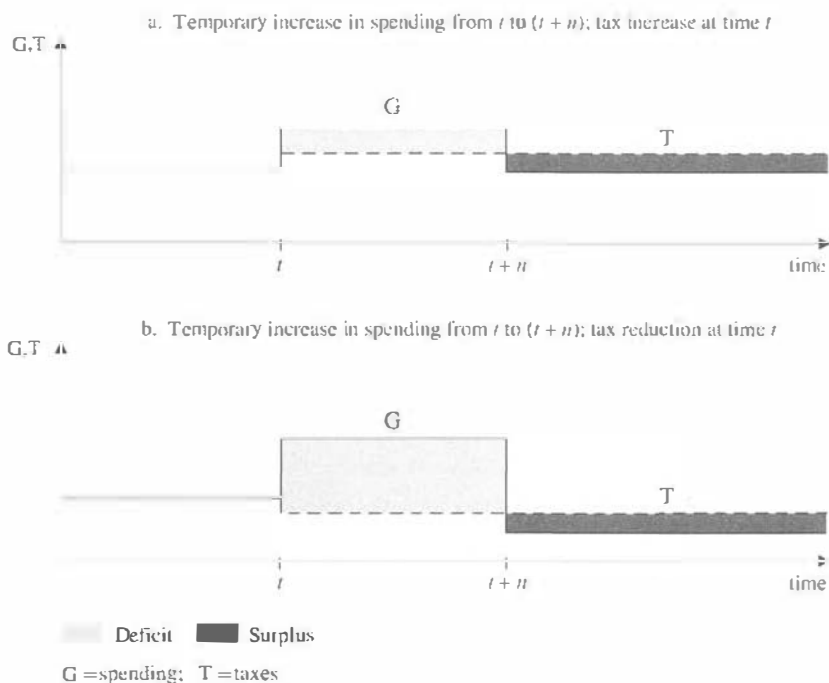
The government needs to finance a certain amount of spending in every period by means of taxes on labor income, which are distortionary since they affect labor supply. The representative agent’s utility function depends upon private consumption and leisure; but not on the amount of public good, which we can, for simplicity, define as defense spending.<sup>1</sup> The aim (Barro (1979)) is for the social planner to keep the tax rate constant. The level of taxes is determined by the intertemporal budget constraint, which implies that the present value of spending (which is exogenously given) has to be equal to the present value of taxes. Therefore, budget deficits and surpluses are used as a buffer; deficits occur when spending is temporarily high, and surpluses, when it is low.

These results directly follow from the concavity of the individual utility function. Suppose that government spending has to be “high” today and “low” tomorrow. A balanced budget policy implies high tax rates today and low tax rates tomorrow. The tax smoothing policy, instead, prescribes constant tax rates, a deficit today, and a surplus tomorrow, which (in present value terms) compensates for today’s deficit. The second policy dominates because the additional tax distortions today more than compensate (in utility terms) for the welfare gains of the lower tax rates of tomorrow, due to decreasing marginal utilities. This simple principle has far-reaching implications for fiscal policy, which a few examples highlight.

Example 1: If government spending is constant throughout the planning horizon, the optimal policy prescribes a balanced budget every period.

Example 2: Suppose that from time 0 to time  $t$  government spending is constant, and is expected to be constant forever. At time  $t$  an unexpected “war” occurs, which it is known will last until  $(t + n)$ . The optimal policy implies a balanced budget until time  $t$ , a “small” permanent tax

<sup>1</sup>The case in which the public goods enters in the utility function of the representative agent introduces some complications that are immaterial for our purposes.

Figure 4. *Tax Smoothing Policy*

increase at  $t$ , a deficit between  $t$  and  $(t + n)$ , and a surplus afterward. Figure 4a illustrates the implications of this policy.

Example 3: Suppose that at time  $t$  government spending unexpectedly increases temporarily, and then at  $(t + n)$  falls permanently below the original level, so that in present value terms we have a reduction of the total amount of spending. (That is, the permanent reduction after  $(t + n)$  more than compensates for the temporary increase.) The optimal policy implies a *reduction* of taxes at time  $t$ , a deficit between  $t$  and  $(t + n)$ , and a surplus after  $(t + n)$ . Figure 4b illustrates this example.

The principle of tax smoothing is quite clear: budget deficits and surpluses are used optimally to minimize the distortionary effects of taxation, given a certain path of spending.<sup>2</sup> An important extension of this principle concerns the cyclical fluctuations of tax revenues due to the

<sup>2</sup>The theory becomes formally more complex if government spending is stochastic, but the basic principles of tax smoothing generalize (Lucas and Stokey (1983)).

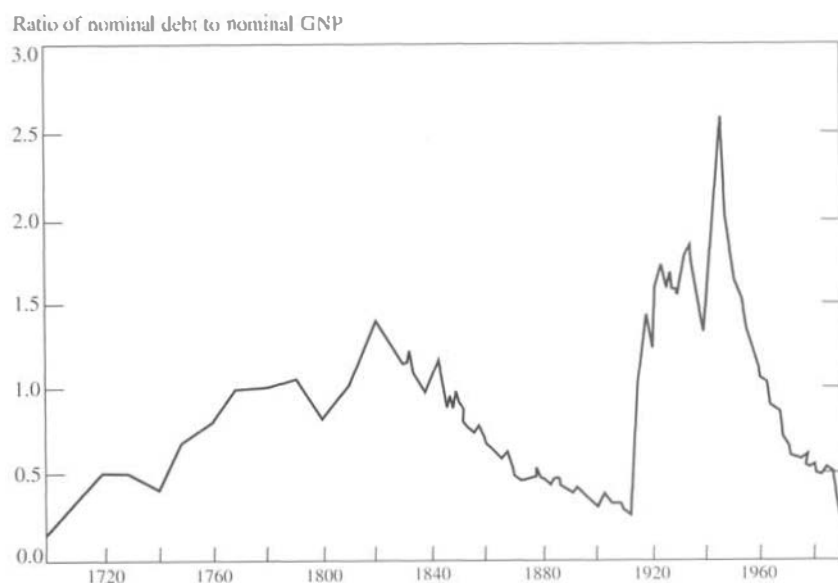
business cycle. For essentially the same reasons discussed above, the principle of tax smoothing implies that tax rates should be approximately constant over the business cycle; therefore, one should observe deficits during recessions compensated by surpluses in expansions. Therefore, the case of example 1 extended to a model with cyclical fluctuations of output implies a *cyclically adjusted*, balanced budget rule: the budget should be balanced over the business cycle, but not every fiscal year. In this model, there is no role for a Keynesian stabilization policy, since output is not demand determined. In a model with stabilization policies, cyclical fluctuations of the budget should be even more pronounced. In summary, the punch line is that budget deficits should be observed during “wars” and recessions.

As a normative theory, the tax smoothing model is extremely valuable. Indeed, any positive model of fiscal policy begins with tax smoothing as a benchmark. However, as a positive theory of budget deficits, it is deficient in that it does not answer our two questions. Barro (1986 and 1987) tested the tax smoothing model on 200 years of American and British data. Figures 3 and 5 show that Barro’s exercise was quite successful. Both the American and British experiences are generally consistent with the basic principles of tax smoothing: the debt-to-GNP ratios increase during wars, decrease in peacetime, and fluctuate with the business cycle. However, one can identify periods in which fiscal policy appears inconsistent with this theory. For example, the sharp increase in the debt-to-GNP ratio in the 1980s in the United States is, at least at first sight, inconsistent with the tax smoothing model.

To be sure, the tax smoothing theory could explain even this decade (Barro (1991)). Suppose that in the early 1980s it became known that, with a temporary increase in military spending, the cold war could have been won and, by the 1990s, military spending could be cut *below* the initial level in 1980. This is essentially example 3 as described above. The optimal policy in this case is to cut taxes and increase military spending in 1980, run deficits in the 1980s, and run surpluses in the 1990s.

This explanation is not entirely convincing because it relies too heavily on specific assumptions about expectations held in 1980. In some sense, *any* fiscal policy can be rationalized from a tax smoothing perspective, if expectations are a free variable. More generally, this model does not provide totally convincing answers to our two questions on OECD economies.

First, why now? The tax smoothing model can certainly explain why debt-to-GNP ratios started to increase as a result of the 1973–74 recession. One can also argue that policymakers underestimated the need for a fiscal adjustment, since the rates of growth in the decade that

Figure 5. *Behavior of the U.K. Public Debt*

Source: Barro and Grilli (1994).

followed (1974–1984) were generally lower than in the previous decade. However, it is hard to imagine that these miscalculations alone can explain the skyrocketing debt-to-GNP ratios observed, for instance, in Belgium, Ireland, and Italy.

Second, the tax smoothing theory has very little to say in response to the second question: why did the debt-to-GNP ratios increase in certain countries, but not in others? Certainly, different countries may have been hit differently by different shocks and their expectations of future spending might have been different, but we find it quite difficult to explain the variance in the data displayed by Figures 1 and 2 with shocks and predictability of revenues and expenditures.

Therefore, we will now move to politico-institutional approaches.

## II. Fiscal Illusion

The “public choice” school, which flourished with the work of Buchanan, Tullock, and associates, has the discussion of excessive deficits in modern democracies as one of its central themes. It goes beyond the



scope (and the space constraints) of the present paper to provide a detailed analytical survey of this literature. Instead, we focus on two crucial ideas that underlie much of the work of this school: fiscal illusion and asymmetric stabilization policies.

In a nutshell, the idea of fiscal illusion is that the voters do not understand the intertemporal budget constraint of the government. When offered a deficit-financed expenditure program, they overestimate the benefits of current expenditures and underestimate the future tax burden. Opportunistic politicians who want to be reelected take advantage of this confusion by raising spending more than taxes in order to please the “fiscally illuded” voters. One of the most forceful discussions of the concept of fiscal illusion is in Buchanan and Wagner (1977).<sup>3</sup>

According to this school, Keynesianism has also contributed to excessive deficits and the abandonment of the responsible budget balance rule. Keynesian stabilization policies become asymmetric: politicians are always willing to run deficits in recessions, but never willing to run surpluses when recessions are over. The fiscally illuded voters do not punish this behavior.<sup>4</sup>

These explanations of budget deficits are not totally convincing for several theoretical and empirical reasons. First, they rely crucially on the notion of fiscal illusion, a notion that goes well beyond the reasonable idea that it is difficult for the electorate to understand the complexity of the government budget. There is a crucial difference between errors and illusions. If voters make uncorrelated errors, on average they do not overestimate or underestimate the costs and benefits of taxes and spending. An illusion implies a systematic bias in these errors. While it is uncontroversial that voters make mistakes and are imperfectly informed, it is not at all obvious why the mistakes should be biased in a certain direction, that is, underestimation of the tax burden relative to the benefits of spending. Second, this theory does not adequately answer the question of “why now?” The deficit problem in the countries of Figure 1 appeared after the early 1970s and in the United States, in the early 1980s. So, why does “fiscal illusion” create problems starting in the 1970s but not before?<sup>5</sup> Third, how do we explain cross-country differences? Are voters more illuded in certain countries than in others? Are politicians more opportunistic in certain countries than in others?

<sup>3</sup>For an early treatment of fiscal illusion see Puviani (1903). See also Wagner (1976).

<sup>4</sup>See Buchanan and Wagner (1977), and several chapters in Buchanan, Rowley, and Tollison (1986).

<sup>5</sup>Note also that Keynesian stabilization policies were more in vogue in the 1960s than in the 1980s.

Buchanan and Wagner (1977) suggest that different tax structures and fiscal institutions may lead to more or less fiscal illusion. For instance, a more complicated tax structure may send noisier signals to the taxpayers concerning the true level of the tax burden.<sup>6</sup> However, we are not aware of comparative studies of OECD tax structures that establish a link between the size of public debt and the amount of fiscal illusion created by different institutions.

An argument somewhat related to the fiscal illusion approach is put forward in the political business cycle literature. The idea is that in election years politicians follow expansionary policies. The voters reward the politicians without understanding (or learning from the past) that pre-electoral expansionary policies will have to be paid for by post-electoral recessions. The literature is large and deserves separate treatment.<sup>7</sup> The point that concerns us is that political business cycles models are not well equipped to explain long-run trends in the debt-to-GNP ratios, while they can explain short-term fluctuations of spending and taxes around elections. For instance, Alesina, Cohen, and Roubini (1992 and 1993) find budget electoral cycles in a sample of OECD democracies. However, their magnitude is small and cannot explain the pattern of debt-GNP ratios shown in Figure 1.

We now turn to several different types of models that do not rely on fiscal illusion and, instead, are based upon rational behavior and expectations. We begin with intergenerational models.

### III. Intergenerational Redistributions

The intertemporal nature of fiscal decisions creates links across generations. If each generation cares enough about its offspring, the finite horizon of each generation is immaterial. In particular, the Ricardian equivalence result (Barro (1974)) implies that, given enough intergenerational altruism, the choice of how to finance a given level of spending is irrelevant.<sup>8</sup> In particular, the distribution of tax burden across generations is not influenced by the size of the debt: changes in public debt are compensated by changes in private bequests.

In models where the Ricardian equivalence does not hold, public debt may instead generate intergenerational redistributions if the generation that is alive today leaves the burden of the debt to future generations.

<sup>6</sup> Actually, it is not a priori obvious why a noisier signal implies a systematic downward bias in the perception of the true tax burden.

<sup>7</sup> For a recent survey of this literature see Alesina (1993).

<sup>8</sup> Taxes are nondistortionary in this model.

Since only the current generation votes, in principle, a selfish generation could vote for policies that shift the burden of taxation to the future. However, this behavior is limited by intergenerational altruism: parents do care about their children.

Cukierman and Meltzer (1989) propose an interesting political model of intergenerational redistributions. Suppose that in the current generation we have "rich" and "poor" parents. The former are individuals who plan to leave positive bequests to their offspring and for whom Ricardian equivalence holds: they are indifferent to the debt policy since they can compensate any change in current taxes and deficits with adjustments in their bequests.<sup>9</sup> The "poor" are individuals who would like to leave negative bequests. Since, however, negative bequests are not permitted, the poor would like to run government deficits; as a result, they indirectly borrow from future generations. Therefore, one group of agents (the rich) is indifferent to any debt policy, the other group (the poor) favors public debt. As a result, the social choice is likely to lead to debt.<sup>10</sup>

The idea that public debt redistributes in favor of the current generation of voters, while future voters have no voice, is quite powerful. However, it is not sufficient to provide a complete answer to our two questions. First, why now? Why have these intergenerational redistributions through the government budget increased so sharply over the last twenty years and not before? Note that if growth is increasing, then it might make sense for the current generation to shift the tax burden to the next one. However, growth has, if anything, been decreasing in OECD countries in the last twenty years relative to the previous two decades. Second, why in certain countries and not in others? Is intergenerational altruism stronger in certain countries than in others? High public debts have often been accumulated and sharply reduced within the lifetime of one generation (Alesina (1988)). Why should future generations (i.e., the children of today) honor public debt obligations rather than default? This point is particularly relevant for Cukierman and Meltzer (1989), who assume that private negative bequests are not enforceable, while the public negative bequest (i.e., public debt) is enforceable, that is, the public debt cannot be defaulted.

Tabellini (1991) answers this last criticism by arguing that *intergenerational* redistributions interplay with *intragenerational* redistributions. A choice of default redistributes from debt holders to taxpayers, that is,

<sup>9</sup>Taxes are lump-sum in this model.

<sup>10</sup>Although Cukierman and Meltzer (1989) emphasize a social choice reached by majority rule, even a benevolent social planner would choose to issue debt. In fact, one group of agents is indifferent to debt, while the other benefits from it, since it removes the non-negativity constraint on private bequests.

from the old to the young and from the rich, who hold the debt, to the poor, who do not. A rich young taxpayer may dislike default even though he does not hold any debt because he cares about the welfare of his old and rich father. Thus, the antidefault coalition includes some of the young people who do not hold debt, because of intergenerational altruism. Tabellini (1991) shows that, under certain conditions, the political equilibrium implies issuing debt, which is then honored.

The interesting contribution of Tabellini's paper is its emphasis on intragenerational distribution. In fact, we shall argue below that the answers to our two questions have more to do with *intra*generational conflicts over distribution rather than with *inter*generational conflicts. However, even Tabellini's paper cannot answer the two crucial questions: why now and why only in certain countries? In the next two sections we move to models that consider conflicts within the same generation.

#### IV. Debt as a Commitment: The Strategic Role of Debt

The stock of debt links past policies to future policies. The current policymaker can affect the state of the world inherited by his successors through his fiscal choices, which determine the size of the debt.

Alesina and Tabellini (1990) argue that a government can take advantage of this strategic possibility and show that this political game between governments in office at different points in time can lead to an accumulation of government debt beyond the optimal level prescribed by the tax smoothing model. The simplest illustration of this idea is as follows: consider a two-party system in which the two parties have different preferences over the composition of public spending. For concreteness, let us say that one party likes "defense," while the other likes "social welfare." The two parties are ideological, that is, they represent the interests of different constituencies.<sup>11</sup> Suppose that the party that likes defense is in office today, and the result of the next election is uncertain. This party spends on defense and issues debt so that if the social welfare party is in office tomorrow, it will have to service the debt and will not be able to spend much on welfare. By committing future tax revenues to debt service, today's government can reduce spending of future governments. This strategic interaction leads to deficits even though a social planner who maximizes the weighted average of utilities of the two groups would choose to balance the budget in every period. The amount

<sup>11</sup> See Wittman (1983), Calvert (1985), Alesina (1988), and Alesina and Rosenthal (1995) for discussions of voting models with ideological parties.

of borrowing of today's government is larger the more *polarized* are the two groups' preferences on the composition of government spending and the more unlikely it is that today's government will be reappointed tomorrow.

Persson and Svensson (1989) provide a related model in which the two parties disagree, not about the composition of government spending but about its level: they consider a high spender and a low spender. An important difference between the two models is that while Alesina and Tabellini (1990) predict that both parties will issue debt, Persson and Svensson do not: only the low spender does. The intuition is that by lowering taxes and issuing debt, the low spender constrains future spending. On the other hand, by creating surpluses the high spender encourages future spending.<sup>12</sup> The model by Persson and Svensson is symmetric: one party creates deficits, the other one surpluses.

Tabellini and Alesina (1990) develop a more precise relationship between deficits and polarization of *individual* preferences, rather than *party* preferences. They consider a model where decisions are taken by majority rule, and any proposal can be made and voted upon in pairwise comparisons. Under these conditions, the "median voter theorem" implies that the policy adopted is the one most preferred by the median voter.<sup>13</sup> With uncertainty about the preferences of future majorities over the composition of spending, the current median voter prefers to issue debt to tilt the future composition of spending in his favor. Tabellini and Alesina show that the amount of debt issued is increasing in the dispersion of voters' preferences: the more concentrated toward the extreme are the electorate's preferences, the larger is the debt.

This class of models suffers from the same problem we pointed out in models of intergenerational redistributions: public debt does not commit future governments if the latter can default. Alesina and Tabellini (1989) address this problem in a model of an open economy where the costs of default are modeled (quite roughly) as an output loss. The costs of default imply a constraint on the current government's ability to issue debt: at most, today's government can issue an amount of debt that makes the next government indifferent between defaulting and servicing the debt. This principle is quite general and should not depend on the specific assumptions concerning the costs of default.

<sup>12</sup> Persson and Svensson's results differ according to how "extreme" the two parties are in their preferences.

<sup>13</sup> This model is equivalent to one in which two parties compete for office and only care about winning. Both parties converge to the policy preferred by the "median voter"; this is the "median voter theorem" (Black (1963) and Downs (1957)).

In all the models reviewed thus far in this section, the strategic role of debts consists of creating constraints for future governments, but the level of debt does not directly influence the electoral result. Aghion and Bolton (1990), Milesi-Ferretti (1995), and Milesi-Ferretti and Spolaore (1994) argue that incumbent governments can use strategically public debt to influence the election outcome, by influencing the preferences of the electorate. For example, suppose that the party of the left is expected to be more prone to default, since the upper class holds the largest fraction of the public debt. Aghion and Bolton show that right-wing governments would choose to issue debt in order to make a larger fraction of the population debt holders. As a result, the left, which favors default, loses support. Milesi-Ferretti shows that the composition of debt between nominal and indexed can be used strategically along the same lines, if the left-wing party is more inflationary than the right wing one. Milesi-Ferretti and Spolaore (1991 and 1994) investigate in this context the general problem of "strategic inefficiencies," namely, when it is in the interest of a rational incumbent to create inefficiencies on purpose and by doing so increase the probability of reelection.

How do these strategic models face the facts? Let us begin with the question "why now?" As we have seen, Alesina and Tabellini (1989 and 1990) and Tabellini and Alesina (1990) argue that political polarization and frequent government changes should be associated with larger debts.<sup>14</sup> The 1970s and 1980s have witnessed much more frequent changes of governments from left to right and vice versa than the previous two decades. In the period 1960 to 1972 (up to the first oil shock), one observes in the OECD economies a significant government change on average about once every 10.5 years; from 1973 to 1987 about every 6.5 years.<sup>15</sup> Thus, governments have been less certain of their reappointment in the post-1972 period than in the previous decades. The OECD economies have also become much less stable in the post-1973 period: political and economic instability are likely to be strictly interconnected and feed upon each other (Alesina and others (1992) and Alesina and Perotti (1995)).

Why do public debts accumulate in certain countries and not in others? Theory implies that high-debt countries should have more polarized

<sup>14</sup> The frequency of government changes can be taken as a very rough indicator of uncertainty.

<sup>15</sup> A government change is defined as significant when it involves a change in the party in office or a substantial change in the coalition. Data are from Alesina, Cohen, and Roubini (1992), who also provide more precise definitions and the list of 18 OECD economies included in the sample used for these calculations.

political parties and a more polarized electorate, with strong extremist groups. Alesina (1989) constructs a very rough index of political stability for OECD countries for the 1970s and 1980s based on several politico-institutional characteristics.<sup>16</sup> The index increases in instability over the period. The average value for the countries in Figure 1 is 3.3; the average value for countries in Figure 2 is -0.1. This difference is large, since the highest value of the index for the countries included in the two figures is 6 and the lowest is -3.0.<sup>17</sup>

The models reviewed in this section have also been used to explain several specific episodes of debt accumulation. For instance, Alesina and Tabellini (1990) interpret the U.S. deficits during the Reagan administration as a maneuver to constrain future Democratic administrations' spending on social welfare.<sup>18</sup> It is quite certain that President Clinton's budget would have been more generous on domestic spending if he had faced a lower interest bill. Persson and Svensson (1989) have argued that their model explains the deficits of the Reagan years and the Swedish deficits resulting from the conservative government of 1976-82. Aghion and Bolton's (1990) model also explains episodes of deficits under conservative governments.

In summary, the class of models reviewed in this section suggests a relationship between the nature of party competition, polarization of preferences, and electoral uncertainty. These are variables that can be measured and that do vary across countries and time periods. Therefore, these models are testable and, in principle, can provide answers to the questions "why now?" and "why in certain countries?" However, the empirical work based upon these models has thus far been sketchy and, at best, suggestive.

## V. Distributional Conflicts and Wars of Attrition

The models discussed in the previous section emphasize a strategic interaction between political parties in office at different points in time.

<sup>16</sup> These are: whether or not the country has experienced one transition from dictatorship to democracy; whether one finds significant extreme right-wing parties and communist parties in the country; a measure of frequency of government changes; whether or not the country has linguistic or regional conflicts; whether elections can be called by the executive, or their timing is fixed by the constitution; and the average size of coalitions.

<sup>17</sup> Ireland is not included in these calculations because the instability index is not available for this country.

<sup>18</sup> An op-ed article of the *New York Times* on January 25, 1987, stated that "This deficit is no despised orphan. It is President Reagan's child, and secretly, he loves it, as David Stockman has explained: The deficit rigorously discourages any idea of spending another dime for social welfare."

In this section we review models in which deficits are the results of strategic conflicts between political parties or social groups that have an influence on policy decisions *at the same time*. For instance, while previously we focused on the conflict and the ideological polarization between parties that alternate in single-party governments, here we are concerned with the polarization of parties that are members of the same coalition government.

Alesina and Drazen (1991) propose a war of attrition model of delayed fiscal adjustments in which different sociopolitical groups fight about the distribution of the fiscal burden. The model assumes that a permanent shock perturbs the government budget, so that at the existing tax rates, a deficit appears and the debt begins to accumulate. A social planner would react immediately to this shock and raise tax revenues in order to keep a balanced budget.<sup>19</sup> The point of the model is that the distributional struggle among social groups delays the adoption of the efficient policy of balancing the budget. More specifically, when the deficit appears, it is financed partly by external debt accumulation<sup>20</sup> and partly by some form of highly distortionary taxation, for instance, seigniorage. A stabilization is defined as a change of policy that stabilizes the debt-to-GNP ratio and substitutes the prestabilization taxation with a less distortionary "regular" form of taxation.

Suppose that two groups have to decide on how to share the fiscal burden of the stabilization.<sup>21</sup> The longer they wait, the higher are the costs. The prestabilization fiscal distortions persist over time; the debt accumulates, so that higher taxes are needed to service it after the stabilization. An immediate agreement on how to share the fiscal burden of stabilization makes both groups better off relative to the same agreement reached with delay. However, rational delays occur under two conditions: if the proposed stabilization is "inequitable," namely, one group has to bear a disproportionate share of the fiscal burden; and if neither group knows how costly it is for the other to postpone the stabilization.<sup>22</sup>

These costs can be interpreted in two non-mutually exclusive ways: one emphasizes the economic costs of the prestabilization distortions, and the

<sup>19</sup> For simplicity and clarity of exposition, this model implies that the optimal tax smoothing policy implies a permanently balanced budget.

<sup>20</sup> With some modification in the notation and in the model construction, the analysis can be applied to the case of domestic debt.

<sup>21</sup> With some complications, the model can be extended to more than two groups.

<sup>22</sup> The original model of war of attrition in a biological context was formalized by Riley (1980). Bliss and Nalebuff (1984) further developed it. Kennan and Wilson (1988) apply this model to labor strikes.



other emphasizes the political costs (lobbying, political action) of preventing the other group from imposing an undesirable fiscal plan.

The “loser” is the group that pays the larger share of the fiscal stabilization; the “winner” is the other one. Generally, neither group will accept being the “loser” immediately; each hopes that the other will concede first. The optimal concession time is determined by equating the marginal cost of waiting with the marginal benefit of waiting. The marginal cost is the utility cost of living another instant in the unstable and distorted economy. The marginal benefit is given by the conditional probability that the other group will concede in the next instant multiplied by the difference in utility between being the “winner” and being the “loser,” that is, between paying the lower or the higher share of the fiscal burden.

The more unequal is the distribution of the stabilization costs, the later is the expected time of stabilization. The intuition is clear: the more unequal is the burden of stabilization, *ceteris paribus*, the higher are the benefits from waiting. Furthermore, the lower the costs of living in an unstable economy are, *ceteris paribus*, the later stabilization occurs. This suggests that economic mechanisms, such as indexation clauses, which reduce the cost of macroeconomic instability, tend to postpone adjustments; and political mechanisms, which make it easier and less costly to exercise a veto power and “block” proposed stabilization plans, also delay stabilization.

Drazen and Grilli (1993) extend this model by showing that an economic crisis may anticipate the stabilization by forcing a solution to the war of attrition. An increase in the prestabilization costs due to a crisis makes it so costly to continue the war of attrition that one group concedes. Thus, an economic crisis can, in the end, be socially beneficial: while it has its costs, it shortens the delay in the adoption of the necessary stabilization.<sup>23</sup>

Spolaore (1993) applies war of attrition models to coalition governments. He considers fiscal shocks that create budget deficits. Given these shocks, a social planner would follow the optimal policy, which is modeled as a function of the costs of adjustment and the persistence of the shock. Spolaore takes this optimal policy as a benchmark and shows that a coalition government delays adjustment, while a single-party government reacts too much relative to what a social planner would do. This result arises because different parties represent the interests of different constituencies, each of which would like to be spared from

<sup>23</sup> Drazen and Grilli (1993) note that Hirschman (1985) made a similar argument informally.

taxes. A coalition government delays the fiscal adjustment until the veto power game among coalition members is resolved;<sup>24</sup> as a result, a coalition government does not adjust as often or as much as a social planner would do. On the contrary, a single-party government overreacts to the fiscal shock, since it underestimates the social costs of adjustment. In fact, its constituency can be protected so that it does not bear any cost. Spolaore also shows that the inefficiencies in policy reactions in a coalition government increase with the number of coalition members. In summary, Spolaore's research attributes the accumulation of public debt, in part, to the fragmentation of governments and to the degree of political cohesion.

How do these models answer our two questions? First, "why now?" War of attrition models explain why countries delay adjustments to shock, and therefore can explain the procrastination of fiscal adjustments. However, these models do not explain the cause of the original shock that perturbed the fiscal balance. Roubini and Sachs (1989a and 1989b) and Von Hagen (1992) show that until the first oil shock, by and large the OECD economies had followed fiscal policies empirically indistinguishable from the tax smoothing model. After the oil shock, certain countries let their government debt explode by delaying the necessary adjustment. With different models one can explain different responses to a common shock, but not the origin of the shock itself.

Why certain countries and not others? Weak coalition governments have typically postponed fiscal adjustments and have accumulated debt. Roubini and Sachs (1989a and 1989b) construct a political indicator that assumes increasing values as government fragmentation increases. They show that, after controlling for several economic determinants of budget deficits (suggested by the tax smoothing model), their political variable is highly significant: the higher the number of parties in a coalition government, the higher is public debt. Grilli, Masciandaro, and Tabellini (1991) also show that longer-lived governments have smaller deficits. This finding is consistent with the previous one, since coalition governments typically have shorter lives than single-party governments.

The nature of party systems and of government structure depends on the electoral system. For instance, proportional, electoral systems typically create multiparty systems and coalition governments; on the contrary, majoritarian systems typically lead to single-party governments. Furthermore, government durability is lower in representational systems characterized by coalition governments (Grilli, Masciandaro, and

<sup>24</sup> Unlike Alesina and Drazen (1991), Spolaore (1993) relies not on asymmetric information but on randomization to obtain delays.

Tabellini (1991)). Therefore, one can suggest a relationship between the type of electoral system and the level of debt. This observation certainly fits the cases of Belgium, Ireland, and Italy, the three OECD countries with the largest debt-to-GNP ratios.

The American version of coalition government is the relatively common situation of divided government, that is, when the same party does not hold the Presidency, a majority in the House, and a majority in the Senate.<sup>25</sup> A widely held view, both in the popular press and in academia, is that divided government in the 1980s was responsible for the buildup of American deficits.<sup>26</sup> The problem with this argument is that divided government is not a novelty of the 1980s: it occurred often in the past. On the other hand, the 1980s are a rather unique example of peacetime, nonrecessionary buildup of debt. Why didn't divided government create the same deficits in previous decades as in the 1980s?<sup>27</sup>

Poterba (1994) and Alt and Lowry (1994) present evidence on the effect of divided government by looking at American states. They consider the policy response to fiscal shocks and find that the adjustment is slower in states with divided control than in states with unified control. Their results are remarkably similar in spirit to those by Roubini and Sachs (1989a and 1989b) on OECD economies: in both cases coalition or divided governments do not *create* budget deficits, but rather, procrastinate the adjustment to shocks.

In summary, the models surveyed in this section establish links between institutional features, party structure, and budget deficits. The empirical evidence is quite encouraging for these models, perhaps more so than for the somewhat related approach of Section IV. Finally, note that institutions such as electoral systems are themselves endogenous: they do change over time, although infrequently. Thus, the researcher faces a challenging question: to what extent can we take institutions as exogenous in explaining deficit biases?

In the next two sections we look at models that examine legislatures and the details of budget institutions more closely.

<sup>25</sup>For a more extended discussion of similarities and differences between divided government in the United States and coalition governments in Europe, see Alesina and Rosenthal (1995), Chapter 10; Fiorina (1991); and Laver and Shepsle (1991).

<sup>26</sup>See, for instance, McCubbins (1991) and the criticism by Barro (1991).

<sup>27</sup>McCubbins (1991) argues that what matters is not the division between the President of one party and a Congress with a majority of the other party, but division between Senate and House. The latter case, which occurred from 1981 to 1986, is much less common. However, McCubbins's argument still relies largely on one observation.

## VI. Geographically Dispersed Interests

A large political science literature has studied how the organization of legislatures leads to inefficient fiscal decisions.<sup>28</sup> Although this research focuses on the U.S. Congress, its implications are broader: for the purpose of our paper, we focus on models in which the geographic base of members of Congress leads to “excessive” spending.

Weingast, Shepsle, and Johnsen (1981) argue that representatives with a geographically based constituency overestimate the benefits of public projects in their districts relative to the financing costs, which are distributed nationwide. The aggregate effect of rational representatives facing these incentives is an oversupply of geographically based public projects. Specifically, the size of the budget is larger with  $N$  legislators elected in  $N$  districts than with a single legislator elected nationwide, and the budget size is increasing in  $N$ , the number of districts. The voters of district  $i$  receive benefits equal to  $B_i$  for a project, but have to pay  $1/N$  of the total costs if taxes are equally distributed among districts. Thus, a geographically based representative does not internalize the effect of his proposals on the tax burden of the nation.

These models typically explain the size of budgets and, in particular, of expenditures on pork barrel projects; therefore, they do not directly address the problem of budget deficits. However, these models can be very useful in answering our questions, if two issues are taken into account. First, the models should be made dynamic, so that they can address not only the *size* of the budget, but also its *balance*. Second, one must keep in mind that the share of OECD country budgets devoted to pork barrel projects is shrinking relative to the share of transfer programs and entitlement. To be sure, some of the transfer programs have geographically based constituencies. For example, Florida has a high concentration of old age pensions, and invalidity pensions have been used as a transfer system from northern to southern Italy (Emerson (1988)). These are cases in which income redistribution and geographical redistribution become highly interconnected. However, strictly defined pork barrel projects are only a relatively small part of current budget problems in OECD economies.

The crucial insight of this literature is, nevertheless, important: the geographical distribution of costs, benefits, and decision power can make an important difference to the aggregate budget. In particular, one can

<sup>28</sup> See, for instance, Ferejohn (1974); Fiorina and Noll (1978); Shepsle and Weingast (1981); Weingast, Shepsle, and Johnsen (1981); and Baron and Ferejohn (1989).

think of an analogy between some issues of fiscal federalism and the model by Weingast, Shepsle, and Johnsen (1981). Suppose that spending decisions are taken at the local level, and are financed with transfers by the national government, which raises taxes. The same mechanism operates in this case as in the case of geographically elected representatives. The local authorities do not fully internalize the effects of their spending decisions over the overall budget for the same reasons that the geographically elected representatives do not. Clearly, the incentives for the local authorities are different if they are responsible for both taxing *and* spending decisions.<sup>29</sup>

The discussion of federalism has recently picked up momentum, both in the United States and Europe.<sup>30</sup> Fiscal arrangements linking the center to local authorities vary greatly across countries. Furthermore, Hughes and Smith (1991) suggest that from 1975 to the late 1980s one can detect an increase in the fiscal responsibilities of local authorities. Whether or not this cross-country and temporal variation of federalist arrangements can explain budget deficits is still an open question,<sup>31</sup> and is an important topic for future research.

## VII. Budgetary Institutions

Budgetary institutions are all the rules and regulations according to which budgets are drafted, approved, and implemented. These rules greatly vary across countries; thus they can potentially explain cross-country variations in deficits and debts.

Budget institutions have an effect on fiscal policy outcomes if two conditions hold: if budget institutions are more difficult to change (*de jure* or *de facto*) than the budget law itself, and if budget institutions influence the final vote and the implementation of the budget. Both conditions are met in reality, at least up to a point. Budget institutions change rather infrequently, although they *can* be changed when they do not satisfy the needs of a community.<sup>32</sup> The crucial issue, however, is that budget institutions cannot be changed as easily and frequently as the budget itself; if they could, they would be totally ineffective.

<sup>29</sup> Different federalist arrangements can have important implication for fiscal redistributions and fiscal stabilization.

<sup>30</sup> See the recent survey by Hughes and Smith (1991) and the references cited therein.

<sup>31</sup> For a fragment of evidence along this line see the comments by Tabellini on Hughes and Smith (1991).

<sup>32</sup> The Congressional Budget Act of 1974 in the United States is an example of a major reform of budgetary institutions.

Whether or not institutions actually affect the final outcome of a legislative vote (and its implementation) is a major item on the research agenda of modern political science. Shepsle (1979) shows that the structure imposed by certain procedural institutions helps solve the Arrow's impossibility problem in legislatures.<sup>33</sup> For instance, a key issue is who holds the agenda setting power and what types of amendments are admissible in the legislature floor: generally speaking, the theory suggests that procedural rules that limit universalism and reciprocity are conducive to fiscal restraint. "Universalism" is defined as the property of a budget that includes "something for everybody." "Reciprocity" is an agreement not to oppose another representative's proposal in exchange for the same favor. As for the case of the models of the previous section, research in this area has an American focus, and virtually all the formal models are more oriented to explaining the *size* of the budget than the intertemporal allocation of spending and taxation (i.e., the budget balance).<sup>34</sup>

A recent paper by Von Hagen (1992) answers our two questions concerning budget deficits by focusing on the budgetary institutions of the 12 members of the EEC. He tests an interesting structural hypothesis, namely, that budget procedures lead to greater fiscal discipline if they give strong prerogative to the prime minister or the finance minister; limit universalism, reciprocity and parliamentary amendments; and facilitate strict execution of the budget law."

Von Hagen constructs indices that summarize several budgetary institutions. The most comprehensive index used in this study includes classifications of countries as a function of: (1) the strength of the position of the prime minister (or finance minister) in intragovernment negotiations; (2) the limits (or lack thereof) to parliamentary amendments; (3) the type of parliamentary votes (item by item, global, etc.); (4) the timing of parliamentary votes; (5) the degree of transparency of the budget; and (6) the amount of flexibility in the implementation process.

The classification of countries according to these criteria inevitably requires some judgment calls, particularly since the author attempts to capture *de facto* procedures, beyond the letter of the law. Nevertheless, the strong support that he finds for the structural hypothesis is convincing. In particular, he finds that several related indices of budgetary

<sup>33</sup>For more specific application to the budget process see Ferejohn and Krehbiel (1987), Ferejohn, Fiorina, and McKelvey (1987), Baron and Ferejohn (1989), Baron (1991), and Weingast and Marshall (1988).

<sup>34</sup>For a more comparative approach see Wildavsky (1986) and the reference cited therein.

institutions are significant explanatory variables for cross-country differences in the debt-to-GNP ratios and budget deficits in the 1980s in the EEC; the structural hypothesis receives rather strong support.

Von Hagen's institutional data are quite rich and deserve further exploration. For instance, these aggregate indices incorporate many institutional differences. A comparison between two "fiscally responsible" countries, France and Germany, illustrates the point. France has a very high index<sup>35</sup> owing to its voting rules and the role of the Prime Minister. Germany's voting rules are actually among the least compatible (at least on paper) with fiscal responsibility; however, Germany also has a high index because of budget transparency and inflexibility in the implementation.<sup>36</sup> That is, one finds much variability of institutional arrangements, even within countries with the same aggregate index.<sup>37</sup>

American states are a second example on which one can test the idea that budgetary institutions matter. American states have a variety of different arrangements concerning their budget. In addition to different procedures for budget formation, some states have "hard" balanced budget rules, others have "soft" balanced budget rules, while a few have no such rules. Three recent empirical papers make the point that budget rules do make some difference, although probably not as much as the letter of the law would imply. Von Hagen (1991) concludes that budget rules have some effect on the level and composition of state debts. Alt and Lowry (1994) and Poterba (1994) argue that American states with harder balanced budget rules react more promptly and more energetically to negative revenue shocks or positive spending shocks.

In summary, the crucial message of this research is that budgetary institutions influence fiscal policies. Does this insight help to answer our two questions? Institutional differences can certainly contribute to answer our second question: why in certain countries and not in others? As for the first question (why now?), there might be more of a problem. As Von Hagen (1992) notes, budgetary institutions are relatively stable over time. Thus, how can we explain the sharp increase in the cross-country variance of fiscal performances in the 1970s and 1980s relative to the two previous decades?

<sup>35</sup> The indices are defined as increasing with the structural hypothesis.

<sup>36</sup> In fact, in variations of the basic index in which these two characteristics are not considered, Germany's rank drops a few positions.

<sup>37</sup> Von Hagen (1992) also tests less successfully another hypothesis, focusing on the existence of long-term (i.e., multiyear) budget plans. This hypothesis is harder to test and the proposed indices probably rely too heavily on the existence of long-term budget proposals that are not truly binding. See Tanzi (1994) for a discussion of the perverse effect of noncredible long-term budget plans.

One possible answer is to consider the effect of economic shocks in countries with different budgetary institutions, along the line of war of attrition models. Perhaps the consequences of budgetary institutions not adequate to enforce fiscal responsibility have a particularly negative impact in periods in which fiscal adjustments are needed. In our view, this is a promising avenue to be explored further with careful comparative empirical work.

### VIII. Policy Implications

The policy implications of the political economy literature are particularly relevant for institutional reforms. If policy outcomes are influenced by politico-institutional variables, then in order to improve policymaking one has to intervene at the institutional level. Several OECD economies are struggling with fiscal adjustment programs and fiscal reforms. Formerly planned economies are in the process of building new fiscal institutions, and their policy advisors have to deal with institutional questions.<sup>38</sup>

There are two types of institutional reforms: changes in the legislation directly regulating the budget formation, and more general institutional reforms, such as changes in electoral laws.

#### The Budget Formation

##### *Balanced Budget*

One of the most commonly advocated reforms of the budget process is the introduction of a balanced budget law, or more generally, of regulations that limit the discretion of each government in running deficits.<sup>39</sup> The tax smoothing theory implies that, in general, a balanced budget policy is suboptimal. However, we have also argued that this theory is not a completely accurate description of actual fiscal policies. Thus, two questions arise: is a suboptimal balanced budget policy superior or inferior to the suboptimal policy obtained without the balanced budget law, and how can one make a balanced budget law enforceable?

The first question is difficult, since it involves comparisons of second-best outcomes. Generally, the larger are the politically induced inefficiencies, the more attractive is the option of a balanced budget law. For

<sup>38</sup> On this point see Tanzi (1992) and (1993).

<sup>39</sup> For instance, Buchanan and Wagner (1977).



instance, if it is true that proportional electoral systems with coalition governments are more likely to procrastinate budget adjustments, then a balanced budget law is particularly appropriate in these systems.

The costs of a balanced budget law are the loss of fiscal stabilization over the cycle and the loss of flexibility in reacting to shocks on expenditure or revenues. In theory, these problems could be overcome by a contingent rule—for instance, a cyclically adjusted balanced budget rule. However, the more complicated the rule, the harder it is to enforce it.<sup>40</sup>

The enforceability of a balanced budget law is also a complex question. Any law can be changed by a sovereign, even though certain laws are more difficult to change than others. For instance, a constitutional amendment is typically the most difficult law to change, since it requires the most complex procedures and the highest qualified majorities in the legislature. This is why the most enthusiastic supporters of balanced budget rules favor this institutional solution.

The procedural choice runs into the usual trade-off between commitments and flexibility: by making it very difficult to change the law, one makes commitments more credible but reduces the possibility of reacting to unforeseen shocks. When a certain government, representing a certain majority, is in office, it has an incentive to break the balanced budget rule and impose it on future governments. By doing so, the current government achieves the flexibility needed to favor its constituency and leaves the costs of debt *and* the constraint of the balanced budget law on its successor. Thus, if the balanced budget rule can be broken by simple majority and the government commands this majority, then the rule is not credible.

By increasing the size of the majority needed to break the rule, one gains credibility but loses flexibility. A challenging normative problem is to decide what is the optimal qualified majority required to abandon the balanced budget. This majority requirement should be increasing with the politico-economic forces that increase the incentive to run deficits (as discussed in the previous sections), increasing in the predictability of expenditures and revenues, and decreasing the benefits of fiscal stabilizations.

#### *Procedures for Budget Approval*

War of attrition models suggest that by limiting the veto power of players involved in the budget formation, one reduces delays in fiscal adjustments and enforces fiscal responsibility.

<sup>40</sup> For a discussion of this point, see Tanzi (1994).

A first-stage war of attrition may be played within the government among spending ministers at the stage of budget formulation; this is most likely to happen in coalition governments where different ministers belong to different parties. Spending ministers are more likely to be sensitive to special interest pressures than the Prime Minister or the Finance Minister; the latter are more sensitive to the overall size and financing of the budget. The effect of intergovernmental wars of attrition is reduced if either the Prime Minister or the Finance Minister has a strong role in the budget formation process. Procedures that make a Prime Minister strong are those that limit the veto power of spending ministers.

A second stage at which wars of attrition may take place and special interests can endanger fiscal responsibility is during the process of legislative approval of the budget. Procedures that limit the type of admissible amendments, and impose *first* a vote on the size of total spending and *then* a discussion of specific items are more likely to limit deficits.<sup>41</sup> By voting first on the overall size of the budget and the balance, one avoids the likely outcome of reconciling conflicting spending needs with an increase in the deficits.

### *Central Bank Independence*

Several authors have highlighted the superior achievements of independent central banks on the inflation front.<sup>42</sup> Independent central banks may also enforce fiscal responsibility by limiting the government's access to seigniorage as a more or less hidden tax. With an independent central bank, deficits have to be bond financed; this leads to an increase in the debt-to-GNP ratio and, possibly, higher interest rates. In other words, the government faces a harder budget constraint.

### *Electoral Reforms*

Proportional electoral systems lead to coalitions and fiscal deadlocks, which delay stabilizations. Majoritarian systems, by concentrating power in a single party, avoid deadlocks but may create excessive variability of policies, since the party in office is not moderated by coalition partners.<sup>43</sup> As usual in economics, there is a trade-off.

<sup>41</sup>The empirical results of Von Hagen (1992) bring support to these views. For more theoretical discussion, however, see Ferejohn and Krehbiel (1987).

<sup>42</sup>For instance, Alesina and Summers (1993), Cukierman, Webb, and Neyapti (1992), and Grilli, Masciandaro, and Tabellini (1991).

<sup>43</sup>For an interesting formalization of these ideas see Spolaore (1993). For a discussion of policy moderation in coalition government, see Alesina and Rosenthal (1995). See Tabellini and Alesina (1990) for some results on the relationship between the distribution of voter preferences and policy variability.

What position should one take on this trade-off? The literature reviewed here provides partial answers to this question. For instance, countries with a very polarized distribution of preferences (perhaps related to income distribution) may need more proportional electoral systems to avoid extreme policy variability, owing to changes in governments with extreme positions. On the other hand, in periods of economic crisis or transition, coalition governments may be an obstacle to the much-needed swift policy action.

Clearly, electoral laws cannot be changed very frequently; thus countries have to make a relatively permanent choice on this trade-off. Generally speaking, choices toward the extremes of the trade-off are unlikely to be optimal. As for the budget deficits, a mistake toward excessive proportional representation is likely to have more negative consequences than the opposite mistake. This is particularly true if proportional electoral systems are accompanied by budgetary institutions that are not likely to enforce discipline; for instance, a weak Prime Minister in the cabinet or unlimited amendments in the legislature.

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