# ELECTORAL INSTITUTIONS, CABINET NEGOTIATIONS, AND BUDGET DEFICITS IN THE EUROPEAN UNION

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### **ABSTRACT**

A rough consensus has emerged that states with proportional representation systems are likely to run larger deficits than plurality states. We argue that electoral institutions matter because they restrict the type of budgetary institution at the governmental phase which a state has at its disposal. Cabinet members may willingly delegate authority to a finance minister who can monitor spending ministers and punish those who "defect" in a process we label "delegation," and this procedure is feasible in states where one-party governments are the norm. Such states usually have plurality electoral systems. In multi-party governments, which are common in states with proportional representation, the coalition members are not willing to delegate to one actor the ability to monitor and punish the others. Negotiated targets in the form of fiscal contracts provide an alternative in multi-party governments. Pooled time series regression results for the current European Union states in the period 1981-94 support our contention that it is the presence or absence of one of these budgetary institutions, rather than the plurality/proportional representation dichotomy, which has the greatest impact on debt levels.

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#### I. Introduction

Large government budget deficits are a concern in most OECD countries. In the United States, both major political parties, while differing on how to reach the goal of a balanced budget, have nonetheless agreed to make a balanced budget a top policy priority. Within the European Union, high budget deficits may soon affect a member state's ability to participate in monetary union--the Maastricht Treaty stipulates that governments with excessive debt levels, defined as yearly deficits of 3% of GDP and total debt burdens of 60% of GDP, should be excluded from participation in the common currency. One reason for a renewed commitment by politicians to reduce deficits is a recognition of the negative economic effects of chronic deficits and debt levels. They lead on average to higher interest rates, lower economic growth, a depreciated currency, and a restriction on spending on valued public services. States have had varying levels of success in keeping deficits low. Some, like Germany, Great Britain, and France, have managed to maintain relatively low deficit and debt levels, while others, such as Italy, Greece, and Belgium, have suffered under chronic deficits and/or debt levels.

Two literatures in political economy argue that differences in political institutions explain much of the variation in the success of countries in their efforts to run small deficits. One group of authors considers how differences among electoral systems affect the size of budget deficits, while the second group concentrates on the governmental institutions which structure the formation of the yearly budget.

Among the "electoral institutionalists," a consensus is beginning to emerge which treats proportional representation systems as a cause of high levels of public debt. Proportional representation (PR) systems are often considered inherently more unstable than pluralist electoral systems. Government ministers who expect to lose their positions soon after they gain them do not anticipate dealing with the consequences of their actions, and they willingly increase debt levels (Persson and Svensson 1989; Roubini and Sachs 1989; Alesina and Tabellini 1990; Grilli, Masciandaro, and Tabellini 1991; Hahm 1994; for a dissenting view on the stability of policies in PR systems, see Rogowski 1987). Others emphasize that coalition governments, which are common in PR systems, are less able to deal with negative shocks to the economy. Such governments face a prisoner's dilemma of whose ministry should suffer the budget cuts. Coalition partners may have enough power to block change, but not enough leverage to effect positive change on their own (Roubini and Sachs, 1989, Alesina and Perotti 1995). PR systems

also lead to greater polarization in the political system. If the party or parties in government anticipate that their opposition will someday assume power, they may seek to confine future governments by generating present debts, and the incentive to generate larger debts increases with political polarization (Tabellini and Alesina 1990). In contrast, governments that emerge under a pluralist system are more decisive, the system discourages extremist parties, and the governments stay in power longer and are more stable. For all of these reasons pluralist electoral systems lead to lower levels of government debt.

While the theoretical work has sparked interest, the empirical support for this argument has been uneven. In a reconsideration of Roubini and Sachs' data set, Edin and Ohlsson (1991) find that minority governments, rather than PR states per se, are more likely to run large budget deficits. Alesina and Perotti (1995), while confirming a link between coalition governments and low success rates in the implementation of austerity programs in OECD countries, discover paradoxically that minority governments are the most fiscally responsible form of government, more fiscally responsible than even one party majority governments. De Haan and Sturm (1994), in a pooled time-series analysis of European Community countries from 1981 through 1989, find no statistically significant relationship at all between the form of government and budget deficits.<sup>2</sup>

The "fiscal institutionalists" consider how budgetary institutions affect the size of deficits. During the formulation of the budget at the cabinet level (the governmental phase), a strong finance minister can force the decision makers to consider the true benefits and costs of increased spending and taxation (von Hagen 1992; von Hagen and Harden 1994a, 1994b, 1996; Alesina, Hausmann, Hommes, and Stein 1995; Hahm, Kamlet, and Mowery 1996). Similarly, negotiated spending targets for each ministry can also lead to smaller deficits (von Hagen 1992; von Hagen and Harden 1994a, 1994b, 1996). The approach examines the structure of other parts of the budget process as well, such as how parliament deals with the government's proposed budget, how the budget is implemented, and whether there are any ex-post controls. While the statistical evidence in support of the effects of such institutions has generally been stronger, 3 this approach does not explain why some states choose a given budgetary institution and others do not.

In this paper, we argue that these two literatures complement one another. Electoral institutions matter because they restrict the type of budgetary institution at the governmental phase which a state has at its disposal. A strong finance minister is feasible in states where one-party governments are the norm, and such states usually have plurality electoral systems. In multi-party governments, which are common in states with proportional representation, the coalition members are not willing to delegate to one actor the ability to monitor and punish the others. Negotiated targets provide an alternative in multi-party governments. They will be credible, however, only if all the parties can monitor and punish each other. Since parties often lack the ability to provide one or the other of these functions, targets are harder to maintain successfully than a strong finance minister. This result explains why many electoral institutionalists find that PR states, on average, are more prone to run larger deficits. At the same time, since such states which do maintain negotiated spending targets will have deficits that are as low as plurality states with a strong finance minister, a general comparison of plurality states with PR states misses the effect of budgetary institutions.

We first develop a model of the budget process and show that the distinction between one-party and multiparty governments affects which institution, either a delegation of fiscal powers or the commitment to negotiated
fiscal targets through a contract among the members of the executive, a country can use to reduce spending. Next,
we consider one distinguishing feature of electoral systems, namely their effects on the likelihood of one-party or
multi-party majority governments. The existing literature indicates that plurality systems are much more likely to
have one-party governments than PR states. At the same time, PR states with a low average district magnitude,
which is the number of candidates per electoral district, are also more likely to have one party win a majority of votes
and form a government.

The final section examines the use of such institutional constraints within the current 15 European Union states from 1981 through 1994. These states are of theoretical interest because economic shocks, which often have short-run consequences for a country's fiscal balance, should impact this group more or less equally. One can therefore provide a control for such external factors. From a policy perspective, these state are also of interest because of the Maastricht Treaty's provisions concerning yearly deficits and aggregate debt. If certain institutions have been effective in some states, they may provide a way for high debt states to bring their fiscal policies in step with the Maastricht Treaty's guidelines. This section indicates a strong relationship between one-party majority

government and the use of delegation to a strong finance minister on the one hand and multi-party governments and fiscal contracts on the other. Pooled time-series regressions that are presented at the end of the paper indicate that the presence or absence of these constraints, rather than the electoral system *per se*, is the crucial variable which affects the size of the budget deficit. Not all of the states chose one of the institutions, and those that did so registered significantly lower yearly deficits and overall debt levels than those states which chose to forego the institutional constraints.

## II. The Budgeting Process within Cabinet Governments

In this section, we present a model of budgeting decisions in a cabinet government. We show that the structure of the bargaining process within the cabinet affects the size of the budget. If spending ministers are left to determine their own budgets, they will select amounts that are larger than what is collectively optimal for the government in power. The reasons for this is that the budget process resembles a common pool resource problem. Each minister determines the spending priorities of her department, but she does not consider the full marginal tax burden of an extra dollar of spending. Instead, each minister worries only about that part of the tax burden that her constituency must bear. An agriculture minister, for instance, will be most concerned about the services and goods she can provide to farmers and about the taxes that those farmers must pay. We then go on to discuss institutional mechanisms to remedy the resulting spending and deficit bias.

#### a. The Model

To make our point, we present a two-period model of budgeting in a cabinet government. Consider a government consisting of i = 1, ..., n departments each headed by a spending minister. Government expenditures consist of transfers  $d_i$  to groups i in society. The government receives political support from these groups in return for the transfers. All transfers are paid out of a general revenue fund.

Revenues consist of taxes levied on all groups of society, and borrowing. Obviously, in a two-period model, all first-period borrowing must be repaid with interest in the second period. We assume that the government can

borrow or lend at a fixed real interest rate,  $\tau$ . To capture the idea that the government borrows against future tax revenues, we assume that the government receives a predetermined (by past tax legislation) amount of tax revenues  $\tau_1$  in the first period. In the second period, the government receives an amount  $\tau_2$  of non-tax revenue. In addition, it sets taxes endogenously to meet the intertemporal budget constraint. The tax system creates an economic loss, or excess burden of taxation, which depends on the amount of total taxation. Thus, budgeting involves a trade-off between the benefit from paying out more transfers in the first period and the cost of taxation in the second period.

The cabinet's collective utility function in period t is4

$$U = \frac{1}{2} \int_{t=1}^{2} \delta^{t-1} \left[ \prod_{i=1}^{n} d_{i,t}^{\alpha} \right]^{2} - \delta mT_{2},$$

$$0 < \alpha_i < 1, 0 < \delta \ln \frac{1}{1+r} < 1.$$

In equation (1), the utility weights,  $\alpha_i$ , indicate the share of transfers to group i the government wishes to pay out of a given budget. Later, we will assume that the differences among political parties can be expressed in terms of different  $\alpha$ 's: different parties favor different groups in society. We assume that the government's discount rate  $\delta$  equals 1/(1+r). Furthermore, "m" is the share of the excess burden from taxation falling on the government's constituency, and the excess burden of taxation is

$$T_{t} = \eta T_{t} + \frac{\theta}{2} T_{t}^{2}.$$

Thus, the excess burden of taxation is positive, and the marginal cost of taxation increases with the level of taxation. For simplicity, we assume from now on that i = 2, so that  $\alpha_2 = 1 - \alpha_1 = 1 - \alpha$ , and that  $\eta = 0$ . The government's budget constraint over the two periods is

$$\frac{3}{3} \left( d_{i,1} + \frac{1}{1+r} d_{i,2} \right) = \tau_1 + \frac{1}{1+r} \left( T_2 + \tau_2 \right) .$$

As a reference point, consider first the budgeting decisions made by a single actor maximizing (1) subject to (2) and

(3). For our purposes, we need to consider only the first period level of spending,  $B_1$ , and deficit  $B_1 - \tau_1$ . The optimal decisions from the point of view of the cabinet as a group are

$$B_1^c - \tau_1 = \frac{\theta m(\tau_2 - R\tau_1) + \gamma R\tau_1}{\theta m(1+R) - \gamma}, \ \gamma = \alpha^{\alpha}(1-\alpha)^{1-\alpha}, R = 1+r.$$

A sufficient condition for the government to borrow in the first period is that its revenue from sources not burdening its constituency is larger in the second period than in the first period,  $\tau_2 > R\tau_1$ , and that the marginal cost parameter  $\theta$  is sufficiently large, which we assume from now on. Two further parameters determine the size of the deficit in the first period, m, the weight of the cost of taxation in the budget, and  $\gamma$ . The latter implicitly describes the sharing rule of a given budget among the departments; the more uneven the government's preferences are, the larger will be its spending and deficit.

Consider next the budgeting decision of the spending ministers. A spending minister is responsible for the expenditures of her department, but in bidding for funds she takes into account only that part of the excess burden of taxation that falls on her constituency. This is reflected in the utility function

$$U_{i} = \frac{1}{2} \frac{2}{3} \delta^{t-1} \left[ \prod_{i=1}^{n} d_{i,t}^{\alpha_{i}} \right]^{\sigma} - \delta m_{i} T_{2}, \quad m_{i} = \frac{m}{n}.$$

In a completely decentralized budget process, each spending minister bids for and obtains the funds maximizing her utility given the bids of the other spending ministers. The resulting first-period deficit is

$$B_{i}^{d} - \tau_{i} = \frac{\theta m_{i}(\tau_{2} - R\tau_{1}) + \gamma R\tau_{1}}{\theta m_{i}(1+R) - \gamma} > B_{1}^{c} - \tau_{1}$$

This illustrates the common pool problem of budgeting. Individual spending ministers disregard the externality resulting from the common revenue fund and, hence, spend and borrow more than a single planner would.

A large literature has developed examining the conditions under which the players will choose to cooperate with each other in such situations (Olson 1965; Hardin 1982; Ostrom 1990; Ostrom, Gardner, and Walker 1994). All of these solutions involve the use of selective punishments or incentives and the monitoring of the actors. In the next two sections we discuss institutional mechanisms to achieve a cooperative solution and reach budget decisions that are closer to the one that is collectively optimal for the government. The first approach involves delegation: one member of the government is vested with special strategic powers that allow him to achieve a cooperative solution. The second approach involves commitment to fiscal contracts: playing a cooperative bargaining game at the outset of the budgeting process to agree on the main budgetary parameters allows one to reach the same goal.

## b. Delegation: A Strong Finance Minister

With delegation, governments lend authority to a "fiscal entrepreneur," whose function is to assure that all actors cooperate. To be effective, this entrepreneur must have the ability to monitor the others, possess selective incentives that he can use to punish defectors and/or reward those who cooperate, and have some motivation to bear the costs of monitoring himself (Olson 1965; Frohlich and Oppenheimer 1978; Cox and McCubbins 1993). Among the relevant cabinet members, the finance minister often plays the role of this entrepreneur. His interests generally coincide with the general interests. He has the responsibility to coordinate the formation of the budget, and, fair or not, the size of the budget deficit is often the principal indicator that others use to judge his effectiveness. He often also has only a trivial budget himself compared with other ministers, and he cannot "defect" in the prisoner's dilemma game being played in the cabinet. Finally, the finance minister's staff gives him the means to monitor the actions of the other ministries, and, since his prestige and hence his personal benefits depend on the effectiveness of his ministry, he has a private incentive to guarantee that the monitoring occurs. The only question is whether the finance minister has the power to offer selective incentives and/or punishments to the spending ministers.

To model delegation, assume that the finance minister serves as an agenda setter in the cabinet meeting where budget decisions are being made. Thus, the finance minister has the right to make the first proposal for the budget, and he has the power to constrain any amendments that the spending ministers might submit to his proposal. The finance minister's power as an agenda setter can be measured in terms of the utility his proposal must leave to the spending ministers in order not to be overruled. The stronger he is, the closer the outcome of these negotiations

must be to his ideal budget. Formally, the finance minister will submit proposals for transfers d<sub>i</sub> that maximize (1) under the constraint that each spending minister obtain sufficient utility. This can be modeled by assuming that the finance minister chooses d<sub>i</sub> maximizing the weighted utility function

$$U_{mf} = \beta U + (1 - \beta)U_{i},$$

where  $\beta$ ,  $0 \le \beta \le 1$ , is a measure of his bargaining power. The resulting first-period deficit is

$$B_{1}^{mf} - \tau_{1} = \frac{\theta m_{mf}(\tau_{2} - R\tau_{1}) + \gamma R\tau_{1}}{\theta m_{mf}(1 + R) - \gamma} < B_{1}^{d} - \tau_{1}, \quad m_{mf} = \beta m + (1 - \beta)m_{1}.$$

The larger the finance minister's agenda-setting power, the closer the deficit comes to the collectively optimal outcome, for  $\beta = 1$  the collectively optimal solution is achieved.

Spending ministers have reason to support a strong finance minister, as they obtain greater utility from the budget decision (8) than from (6) provided that all members of the government adhere to that decision. However, given that n-1 spending ministers adhere to (8), it is optimal for spending minister n to defect from this decision and increase her spending if she can. Thus, in addition to agenda-setting powers, the finance minister needs enforcement powers to assure that (8) is implemented. Control devices like the requirement to obtain authorization for disbursing public funds during the fiscal year are examples for such enforcement powers.

#### c. Commitment to Fiscal Contracts

With contracts, the government commits itself to a set of fiscal targets collectively negotiated at the start of the budgeting process. The emphasis here is on the multilateral nature of the negotiations, which implicitly forces all participants to consider the full tax burden created by additional spending. Using a Nash-bargaining solution, and assuming that all cabinet members have the same bargaining power, the first-period deficit becomes

$$B_1^n - \tau_1 = \frac{\theta m(\tau_2 - R\tau_1) + \gamma R\tau_1}{\theta m(1+R) - \gamma} = B_1^c - \tau_1.$$

Once again, the agreement reached in these negotiations must be enforced. A necessary condition for enforcement is the existence of a monitoring technology to detect potential defectors from the agreement. The contract approach, therefore, requires that one member of the government, usually the finance minister, possesses sufficient screening power to control the spending ministers during the implementation of the budget.

# d. Comparison of Delegation and Fiscal Contracts

This discussion above suggests the availability of two institutional approaches, delegation and contracts, to overcome the deficit bias in public budgeting. The natural question then is, what determines the choice of governments between these two mechanisms. Here, we argue that the choice depends on the type of government. Specifically, we distinguish between single-party and multi-party governments. Delegation is the proper approach for single-party governments, but difficult for coalition governments. Contracts is the proper approach for coalition governments but more difficult to achieve for single-party governments.

Members of the same political party likely hold similar political views. In terms of our model, members of the same party have the same utility weights  $\alpha_i$  applying to the different groups of transfer recipients. The players therefore share the same views regarding the distribution of funds over the various departments, and conflicts of interest arise only from the common pool problem.<sup>6</sup> In a coalition government, in contrast, cabinet members are likely to have different views regarding the distribution of transfers over the groups of recipients. Agreement on a budget, therefore, involves a compromise between the coalition partners regarding the distribution of funds for a given budget size.

Delegating agenda setting powers to the finance minister now becomes more difficult, as the latter necessarily is a member of one of the coalition parties himself. Delegation then creates a principal agent problem. The members of the other parties in the coalition must fear that the finance minister will abuse his strategic powers to shift the distribution of transfers in the budget towards his own preferred distribution, at the cost of the recipients favored more strongly by themselves. These members will, therefore, be reluctant to vest the finance minister with

strong agenda-setting powers. But, as shown above, with limited agenda-setting powers the finance minister becomes unable to achieve the collectively optimal decision. The same principal agent problem does not arise in the case of contracts, since the contracts are negotiated by all cabinet members. Thus, coalition governments are more likely to opt for the contracts approach.

The second important distinction between the delegation and the contracts approach is in the scope and strength of the punishments and rewards a finance minister can use to assure the adoption of his proposal.

During the budget negotiations, the finance minister's power must be backed up by the prime minister and, therefore, depends heavily on the prime minister's relative power in cabinet. The prime minister in one-party governments especially is the strongest member of the cabinet. The prime minister is the leader of the governing party, and this position reinforces her power within the cabinet. The prime minister also can often select cabinet members and can reshuffle her government. Even in the United Kingdom, where the norm of "first among equals" is historically strong, a prime minister dictates the shape of her cabinet. If a given spending minister consistently presents unsatisfactory budgets, the prime minister can then replace her with someone who will develop more sympathetic policies. Finally, a prime minister can call a vote of confidence on a given issue which puts the very existence of the government at issue if a given minister does not support her position (Huber 1996). If the prime minister prefers that the party's ideal budget be reached, which should usually be the case, she will have identical preferences on the budget as the finance minister. She can then delegate her power to the finance minister, and the finance minister will represent a faithful "agent" of the prime minister.8

In coalition governments, the finance minister would lack the ability to insist on his proposal, because the prime minister cannot give him as much meaningful support as in the one-party case. The distribution of portfolios is, as far as the sitting prime minister is concerned, exogenously given, since agreement over forming the coalition determines which parties get which ministries. The prime minister cannot easily dismiss or otherwise discipline intransigent spending ministers from a different party, since that would be regarded as an intrusion into the internal party affairs of his coalition partners.

The third important dimension regards the scope of punishments for defecting from the agreed budget. In the one-party case, the ultimate punishment is dismissal from office. Such punishment is heavy for the individual minister who overspends, but generally light for the government as a whole. It is therefore relatively easy for the prime minister to enforce, and ministers who overspend can expect to be dismissed for the good of their political party. In the case of coalition governments, a defecting minister cannot be dismissed easily by the prime minister for the reasons mentioned above. The most important punishment mechanism here is the threat that the coalition breaks up if a spending minister reneges on the budget agreement. Overspending by an individual minister from one party in the coalition implies a redistribution of public spending away from the transfer recipients most favored by, and, therefore, implies a cost of political support for the other parties in the coalition. This makes the threat of breaking up the coalition credible from the other parties' point of view. This suggestion is supported by the observation that fiscal targets are often part of the formal coalition agreement. Thus, punishment leads to the death of the government rather than the dismissal of a single individual. There are two important factors which affect the strength of this threat: the existence of alternative coalition partners, and, if a new coalition cannot be formed and new elections are necessary, the anticipation of electoral results.

If another partner exists with whom the aggrieved party can form a coalition, the threat to leave the coalition is clearly more credible. The number of parties in parliament is one obvious limit to the number of alternative coalition partners. Even among the parties which do exist, some may be undesirable for policy reasons or may not be considered *koalitionsfähig*, such as the Italian Communist Party. Other parties may simply be unexcludable from the coalition formation process. A party is "strong" according to Laver and Shepsle (1996), if it can veto every potential cabinet, and coalition partners may not be able to punish a party that occupies such a dominant position. Yet, to the extent that there are several possible coalitions, reputations will be important. Parties which are known not to keep coalition agreements will have problems finding partners, and as long as parties anticipate that none of them has a reasonable chance of winning an absolute majority of seats in the future they will value the possibility of cooperation in the future. The threat of new elections may also scare a defecting party into meeting its contracts, if this party must fear a defeat if elections are called.

For a single-party government, in contrast, the enforcement mechanism of the contracts approach is rather weak. To see this, consider a single-party government with a weak prime and finance minister. Assume that this

government negotiated an agreement on a set of fiscal targets at the outset of the budget process and that an individual spending minister reneges on the agreement during the implementation phase. In this case, the other cabinet members cannot credibly threaten the defector with a dissolution of the government, since they would punish themselves by calling for elections. Absent a credible threat, the entire cabinet would just walk away from the initial agreement.

To summarize, we predict that coalition government will typically choose commitment to fiscal contracts and single-party governments will typically choose delegation of powers to a strong finance minister as a device to limit the deficit bias.

# III. The Role of Electoral Systems

Electoral institutions strongly influence the likelihood of one party winning a majority of legislative seats and consequently having the ability to form a one-party majority government. One important factor is the number of parties; if there are few parties, there is a higher chance that one party can win an absolute majority, and an absolute majority is a virtual certainty in two-party systems. Several studies indicate that the number of effective parties in a given system is strongly and positively correlated with the number of representatives elected from each electoral district, known as district magnitude (Duverger 1954; Taagepera and Shugart 1989, 1993). Electoral systems with low district magnitudes distribute seats less proportionately than those with large district magnitudes, and lower proportionality usually favors larger parties. In Spain, for example, where the average district magnitude is just 6.73, the Socialist party was able to win 44.3% of the popular vote in the 1986 national elections but 52.6% of the seats in the Congress of Deputies. At the other extreme, the Netherlands has only one electoral district composed of 150 seats for the entire country, and a party that wins less than one percent of the national vote can gain seats in parliament. Other factors which affect proportionality include legal barriers which require a party to gain a certain percentage of the national vote to win legislative seats, the method used to apportion seats, and whether or not a second allocation of seats is used to reduce disparities at the district level. 10

Plurality systems, which elect only one representative per district, encourage a two-party system, and they are consequently most likely to have one-party majority governments. Proportional representation (PR) systems have more variation in their district magnitudes, though the magnitudes are always larger than those found in plurality systems. They tend to have a larger number of "effective" parties in parliament and are characterized by multi-party majority or either one-party or multi-party minority governments. Hempirical evidence has consistently supported this relationship--Arend Lijphart, for instance, found that from 1945 through 1980 plurality systems had on average 2.1 effective parties while PR systems had 3.8 effective parties (Lijphart 1984, 161). Behind these figures is a result that should be emphasized and which will appear again shortly--the stronger the relationship between the proportion of seats won and the proportion of votes, the higher the number of effective parties. Thus, Spain's PR system, which sharply discriminates against small parties with its low district magnitude, should have fewer effective parties than the Netherlands, which has a high district magnitude.

Based on the plurality/PR distinction, what is the likelihood of one-party majority governments within the European Union? One unfortunate fact for comparison's sake is that only two of the fifteen member states, Great Britain and France, have pluralist electoral systems. Yet, the variation in district magnitudes in PR systems does lead to some variation in the number of parliamentary parties as well.

Table 1 compares the political systems of the European Union countries. A few points require clarification. First, PR systems do not translate the percentage of votes directly into the percentage of seats, and smaller parties often cannot gain entry into the legislature. We noted previously that district magnitude affects the number of political parties possible, and a logical comparison would be between this figure and the likelihood of one-party government. Yet such a comparison would be somewhat misleading—as the third column in Table 1 indicates, states sometimes have different district magnitudes at different levels of the allocation process. In addition, other factors including legal thresholds (such as Germany's requirement that a party win either 5% of the nation-wide vote or three seats by plurality vote) and rules for the allocation of seats (use of D'Hondt, etc.) can also favor larger parties over smaller ones. Arend Lijphart solves our problem of how to aggregate these institutional effects with his translation of such factors into an "effective threshold," which is the percentage of the national vote a party expects it must receive to gain any legislative seats.

Second, while France had a plurality system in all parliamentary elections but those held in 1986, its use of two rounds of voting increases the effective number of parties in parliament. Unless a given candidate wins an absolute majority in the first round, a second round of voting is held. This process encourages parties that ran candidates in the first round to form electoral coalitions for the second round. The predicted emergence of two strong blocks facing each other under plurality does still occur, however, since the UDF (Union pour la Démocratie Française) allies almost exclusively with the RPR (Rassemblement pour la République) while the Socialist Party works equally as often with the French Communist Party. France will therefore be treated as a "one-party government" in most cases later in this paper.

Table 1 confirms the general link among electoral institutions, the number of parties, and the likelihood of a one-party majority government for the European Union countries. The correlation between the effective threshold and the number of parties has the correct sign at -.46, and it jumps to -.60 if France is excluded from the sample. The most important figure is the correlation which links the occurrence of one-party majority governments with higher effective thresholds, and the correlation of .55 (.82 if France is excluded) indicates that this relationship is relatively strong. Since states which have low district magnitudes also have higher effective thresholds, this result indicates that plurality elections or PR systems with low district magnitudes are likely to have one-party majority governments. In contrast, PR systems with high district magnitudes usually have either multi-party majority governments or minority governments.

#### IV. Comparison of Institutional Solutions

This section examines the choice of budgetary institutional tools within all European Union states. The statistical comparison, while unfortunately based on only fifteen cases, nonetheless indicates a strong relationship between one-party governments and delegation dominance solutions on the one hand and multi-party or minority governments and contracts on the other. Table 2 summarizes the predicted institutions based on the prevalence of one-party majority government and the actual institutions that the countries used from 1981 to 1994, which are the years for which we have data available for all the current European Union member states. We expect that delegation

to a strong finance minister develops in states where one-party majority governments are the norm. We therefore code the two states which had one-party government over 90% of the time, Greece and the United Kingdom, along with France as potential "delegation" states. The others are presumed to be able to use contracts.

Of the three states expected to use delegation, France and the UK did while Greece did not. However, Greece did not adopt an institutional solution to the problem of deficit bias at all. The United Kingdom is the only state in the sample which uses a pure plurality system in its parliamentary elections, and according to the theoretical discussion it is a good candidate for delegation. Indeed, the structure of the budget process at the governmental level follows this form. The prime minister is exceptionally strong and can reshuffle the cabinet as well as appoint ministers almost at will. The chancellor of the exchequer is generally regarded as second in power only to the prime minister, and he is given the power to negotiate one-on-one with spending ministers about their budget allocations. If there is a dispute between the finance minister and a given spending minister, it goes to a committee composed of senior ministers without portfolio for consideration and not to the full cabinet for resolution. These ministers do not have budgets of their own, and a logrolling situation in favor of the spending minister is not possible. Since the senior ministers are appointed to consider the general interests of the cabinet as a well, they usually support the finance minister (von Hagen and Harden, 1996).

Similarly, in France the prime minister and the finance minister together set budget targets for every spending ministry in the "framework letter" issued at the outset of the budgeting process. The finance minister then negotiates bilaterally with the spending ministers on adjustments to the size of their budgets, and the prime minister is the final arbiter of any disputes.

A similarly strong pattern emerges for the states where multi-party coalitions are common. Seven of the remaining twelve states predicted to use a contracts approach did so, while the remaining five opted for neither of the solutions. Five of the six states which did not use one of these institutions were predicted to choose contracts. The sample size is too small to make any statistical comparison conclusive, but this high failure rate among states where one-party governments are not the norm is consistent with the argument presented here. Both the monitoring and punishment functions are presumably harder to execute in multi-party governments than in one-party governments.

The Netherlands have the most representative system in the European Union, and as a consequence have never had a one-party majority government during the post-war period. In contrast to her counterpart in the United

Kingdom, the prime minister has little power. Negotiations among the parties during the formation of the coalition determine most items of importance, including the distribution of portfolios, and the prime minister consequently lacks the ability to remove defiant ministers. The prime minister also does not have the power to settle any disputes, and she votes in cabinet meetings only in cases of a tie. Instead of using a strong finance minister, the coalition negotiations inscribe into the coalition agreement explicit budgetary targets which constitute the fiscal contract among the parties. As expected, there are several institutional devices which promote the ability of parties to monitor each other's behavior. The legislature in particular serves an important oversight role. Committee jurisdictions are matched with specific ministries, and the committee chair is required to come from a different party than the one which provides the minister (Andeweg and Irwin 1993, 141). Parties also have the means to punish defectors. The same parties are likely to be potential coalition partners again, and, since there is little likelihood that any of them could win an absolute majority, the parties anticipate the need for a multi-party coalition government in the future. There is also competition among them for positions in the government: with the exception of a few extremist parties which receive almost no parliamentary seats, all of the parties are potential coalition partners, and a given party which breaks a coalition agreement can be excluded from future governments. It is therefore in a party's best interest to assure that it cultivates a reputation as a party that keeps its coalition agreements.

Germany is the difficult case in this sample. Germany's electoral system is based on a two ballot structure that contains elements of both plurality and proportional representation, making a clear prediction difficult to begin with. During the post-war period a major party (the CDU/CSU or the SPD) always formed a coalition with a smaller partner (either the FDP or the DP) except during the grand coalition between the two large parties from 1966 to 1969. Although it has never had a one-party majority government, Germany also adopts a delegation approach. Thus, at a first glance, out of fifteen cases only Germany went against our expectations. However, in previous elections coalition partners usually pledged a continuation of the coalition, if together they received enough votes, and the Green Party made it clear that it would enter a coalition only with the SPD. Thus, the number of "effective" parties was only two. To the extent that the coalition partners see their electoral fortunes as being one and the same, spending ministers regardless of party persuasion may prefer a strong finance minister who can deliver lower deficits.

Note also that the German finance minister's role is restricted to one of a veto-player rather than an agenda setter, which implies that his ability to bias spending in favor of his party's preferences is much reduced.<sup>13</sup>

The conduct of the coalition partners during the grand coalition supports out view. When the SPD and the CDU/CSU formed the coalition, they both anticipated that it would last no longer than through the national elections in 1969, and during the elections they campaigned vigorously against each other. The Chancellor, Kurt Georg Kiesinger, was weak relative to other post-war chancellors, and the coalition parties negotiated most major decisions in the smaller *Kressbonner Kreis* composed of senior cabinet members from both sides. The finance minister during the time period, the Christian Social Union leader Franz-Josef Strauss, consequently did not have the freedom of action his predecessors had nor which his successors would have, and the coalition forced him to coordinate budget policy with the Social Democratic Economics Minister, Karl Schiller. Under such circumstances only budget contracts were politically practical as a device to combat budget deficits, and indeed that is exactly what the coalition partners used. Schiller and Strauss together formulated the so-called "Mifrifi" (*Mittelfristige Finanzplanung*), which, among other things, detailed explicit spending targets for the coalition (Hildebrand 1984, 290). After the end of the grand coalition, Mifrifi is still practiced as required by law, but it has no practical importance.

# V. Budgetary Institutions and Deficit and Debt Levels

The use of these institutions also contributed to sounder fiscal policies, although debt level comparisons should be treated with some caution. Von Hagen and Harden (1996) indicate that if states lack an institutional solution to the common pool problem for any one of four characteristics of the budget process (the governmental, legislative, and implementation stages, as well as the informativeness of the budget draft) then budget deficits will be comparatively high. This paper examines the process for just one of the characteristics, the governmental stage, and hence the solutions discussed here will not by themselves always lead to lower deficits.

Nonetheless, even with these caveats Figure 1 indicates a striking difference between the states which used either contracts or delegation and those which chose neither of the institutions. The graph displays yearly deficit data for the period 1990-94, which are the five most recent years for which we have data. The states with the institutions had a much lower average yearly budget deficit of -2.7, whose difference was statistically significant at the .01 level from the much higher average budget deficit of -7.6 for the states without the institutions. All of the "no

institutional constraint" states had an average yearly deficit that was larger than the highest average yearly deficit among the states with one of the institutions, the United Kingdom.

Similar figures also exist for the net total debt burden that the states carried. Once again one must be careful with interpreting the figures, since the debt levels indicate cumulative fiscal policy decisions that extend beyond the period 1990-94. Yet one may also anticipate that, everything else being equal, over time the states with either contracts or delegation will be able to adjust more readily to fiscal shocks than states that lack such institutions, and that the total debt figures will reflect this tendency. Indeed, the average size of net debt burden in states without the institutions is almost twice as high at 87.0% of GDP in comparison to 53.5% of states with one of the two budget mechanisms, with the difference in means significant at the .06 level.

Of course, these comparisons are based on only five years, and they do not take into account other potentially important variables, such as changes in the economic health of a country or political variables such as possible partisanship effects or governmental instability. A more general claim of this paper is that the plurality/PR dichotomy is important because it affects the form of budgetary institutions which are politically feasible, but that it is the presence or absence of these institutions, rather than the plurality/PR distinction itself, which affects the budget balance. How does the model presented here compare to other explanations?

Table 3 presents preliminary ordinary least square results from a panel data set for the fifteen current members of the European Union from 1981 to 1994. Our list of variables generally follows those provided in Roubini and Sachs (1989) as well as in De Haan and Sturm (1994 and Forthcoming) with the important distinction that we add dummy variables for the presence or absence of a strong finance minister or budgetary contracts. <sup>14</sup> There are two sets of variables. The first set of variables measure fluctuations in a given country's economy, and they are expected to have some impact in budget deficits regardless of the presence or absence of government policies meant to reduce public debt levels. Changes in Gross Domestic Product should improve the budget situation, while increases in the unemployment rate are likely to add to the size of the deficit due to automatic payments of unemployment compensation. In addition, changes in real interest rates affect the size of interest payments on the debt, and, if the real interest rate is higher than the real growth rate, interest payments will generally cause an increase in the total

debt level. We therefore include a variable for the net change in debt servicing costs. <sup>15</sup> A lag for our dependent variable, which is the change in the debt level, is also included to reduce autocorrelation in the model.

The second set of variables covers some of the most frequently cited political explanations. Consistent with Grilli, Masciandaro, and Tabellini (1991), a change in government, which is defined as either one or more changes in coalition partners or the occurrence of an election, is expected to increase the size of government debt. Roubini and Sachs (1989) also argue that multi-party majority and all minority governments face a prisoner's dilemma of whose constituency should bear the brunt of budget cuts, with the dilemma becoming worse as the number of parties in the coalition increases. Following Edin and Ohlsson (1991), we include dummy variables for the number of parties in a majority coalition government (either 2-3 parties or 4-5 parties) and for the presence of minority governments, with a one-party government equal to the case where the 2-3 party, 4-5 party, and minority government dummies all equal zero. One would therefore anticipate that the presence of any of these dummies would positively affect the debt level, with coefficients that increase as one moves from 2-3 party majority government to minority government.

The partisan hue of the government may also be important. The general expectation is that left-wing governments are more tolerant of larger budget deficits than right-wing governments. Yet previous empirical studies offer little guidance--Roubini and Sachs(1989) indicate that left-wing parties are associated with larger deficits, Alesina and Perotti (1995) pin the blame on center parties, while Borrelli and Royed (1995) consider right wing governments the least able to control deficits. To keep this study comparable with Roubini and Sachs (1989) and De Haan and Sturm (1994 and Forthcoming), we code this variable as the percentage of cabinet seats held by left-wing parties in a given year. Finally, we include a dummy variable for the presence or absence of a strong finance minister or of contracts.

The results of the regression are encouraging. The variables for the two budgetary institutions are both significant and have the correct sign. The more negative coefficient for a strong finance minister than for the budgetary targets also confirms the intuition that a strong finance minister is more effective in keeping the deficit lower than contracts, other things being equal. <sup>16</sup> Section 2 argues that a strong FM reduces both the common pool resource problem and the problem of budget-maximizing cabinet members, while contracts combat just the former problem. These results fit that argument. All of the economic variables but the change in debt servicing costs are

also significant and have the anticipated sign.<sup>17</sup> This is to be expected--if fluctuations in the economy did not have some sort of impact on the budget one would have reason to doubt the empirical results.

With the exception of changes to the government, other strictly political variables do not fair so well. The dummy variables for the contention that the form of government impacts the size of the budget are all insignificant, and the dummy for minority governments even has the wrong sign. The measurement for partisanship is also not significant, although its sign indicates that left-wing parties are more likely to reduce the size of the debt burden.

Only a change in government has a significant impact on the growth of debt.

One interesting possibility is that there is an interactive effect among the budgetary institutions and a change in government. Countries with the proper institutions may be able to isolate their fiscal health from political instability. Table 4 presents results which include interactive terms for a change in government with a strong finance minister and with negotiated contracts. The significance of the two institutions on their own disappears, although they continue to have an impact in the expected direction. More importantly, however, the interactive terms are both negative and significant. The regression indicates that, in years where there was a change in government, the aggregate debt burden grew by almost three percentage points of GDP. If those states also had one of the budgetary institutions, however, that effect was eliminated. Thus, the negative consequences of political instability appear to be neutralized if a country puts in place either delegation or commitment to negotiated budget contracts.

#### VI. Conclusions

The Maastricht Treaty's debt and deficit guidelines for states which want to join a future common currency may help to create a common interest in lower deficits in states where such a consensus has so far been lacking. Our statistical evidence indicates that the use of either delegation to a strong finance minister or commitment to negotiated budget contracts can have a significant impact on the growth of the budget deficit. Such institutions are especially effective in keeping deficits down in countries were there is some political instability.

States which want to reduce their deficits should choose one of these budgetary institutions based on the form of government that they commonly experience, either one-party majority government or multi-party coalition

government. One-party governments are most suitable for delegation, while multi-party governments have reason to rely on commitment. The comparison of the various systems and solutions which are now used indicates that, under certain circumstances, the use of a strong finance minister can be expanded to multi-party governments. The key is that all the parties in the government see their electoral fortunes as one, as in France and Germany. This indicates that delegation may soon be a viable solution for Italy. The new electoral system introduced in 1994, which relies on the plurality method for 75% of the seats in parliament, has led to two distinct constellations of parties. The presence of a center-left minority government indicates that contracts may be the only feasible short-term solution, but if the electoral system continues to evolve and one of the two blocs can expect to win a majority of seats in future elections, a strong finance minister may become a better choice.

In other problem states with multi-party governments, such as Belgium and Portugal, a target-based approach will likely be the most practical route to solving the common pool problem. Coalition partners have little reason to support a strong finance minister because they doubt that the finance minister will safeguard the collective interests of all. In such states it is important that contracts be made credible, and further research is needed to determine how contracts can be made credible when the threat of a coalition collapse is not a realistic deterrent.

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  A Neoclassical Approach to Distributive Politics." Journal of Political Economy 89, no. 41 (1981): 642-664.

Table 1: Comparison of Electoral Systems within the European Union

tate	System	District E Magni- tude.		Effective Y Threshold	ears in the Lijphart Study	% One- Party Majority Govern- ment, 1945- 1990
Austria	2-Tier PR, Remainder Transfers	20/91	2.42	2.6	71-90	44
Belgium	PR	23	4.63	4.8	46-87	17
	2-Tier PR, Adjustment Seats	7/175	4.92	2	64-88	C
Finland	PR	13	5.03	5.4	45-87	(
France (Fifth Republic) Germany	Plurality  2-Tier PR,	1/497	2.95		57-83	(
(West)	Adjustment Seats					
Greece	'Reinforced' PR	6	2.08	3 16.4	74-85	9
Ireland	STV	4	2.79	9 17.2	48-89	3
Italy	2-Tier PR, Remainder Transfers	19/625	3.6	2 2	58-87	
Luxemb	g PR	14	3.	5.1	45-89	
Nether.	PR	150	4.5	9 0.67		
Portuga	l PR	12	3.0			3
Spain	PR	6	2.7	2 10.2	77-89	5

Sweden	2-Tier PR	11/350	3.4	4	70-88	10
U. K.	Plurality	1	2.1	35	45-87	99

"PR" corresponds to "Proportional Representation," "STV" to "Single Transferable Vote," and "ENPP" to "Effective Number of Parliamentary Parties." All figures but those on one-party majorities come from Lijphart 1994, 17, 22, 31,33-35, 44, 160-162; the one party majority figures are based on Woldendorp, Keman, and Budge (1993). Greece, Portugal, and Spain were not democracies during the entire period, and the years covered are, respectively, 1974-90, 1975-90, and 1977-90. This data is published in various issues of the European Journal of Political Research, and is based on the date of an election instead of the date of investiture used for the other countries. The figures for France are just for its Fifth Republic, or 1958-90, and include the period 1986-88 when the country used a proportional representation system. The Austrian, Irish, and Portugese data were not completely accurate in Woldendorp, Keman, and The authors supplemented the Austrian and Portugese data themselves, Budge (1993). while Jesse (1996), Chapter 2, was used for Ireland, which includes the period 1951-90 here. District magnitude figures are rounded to the nearest whole number.

Table 2: Predicted and Actual Institutional Solutions, 1981-94

State	Predicted Institution	Actual Institution		
Austria	Contracts	Contracts (1985-92)		
Denmark	Contracts	Contracts (1982-94)		
Finland	Contracts	Contracts		
Ireland	Contracts	Contracts (1987-94)		
Luxembourg	Contracts	Contracts		
Netherlands	Contracts	Contracts		
France	Delegation	Delegation		
Germany	Contracts	Delegation		
UK	Delegation	Delegation		
Belgium	Contracts	No Such Constraint		
Greece_	Delegation	No Such Constraint		
Italy	Contracts	No Such Constraint		
Portugal	Contracts	No Such Constraint		
Spain	Contracts	No Such Constraint		
Sweden	Contracts	No Such Constraint		

Data for the incidence of contracts and delegation are from von Hagen and Harden (1996). A state which almost always had one-party governments (p > .9) was coded as "delegation" as its predicted institution.

Table 3: Comparison of Alternative Explanations for the Growth or Decline of the Gross Debt Burden, 1981-94

Dependent Variable: Change in the Gross Debt Level as a Proportion of GDP according to Maastricht Definitions.

Variable	Coefficient	Std.	t-ratio	Prob
		Error		
Constant	3.6	0.81	4.45	0.0001
Change in Debt t-1	0.30	0.05	5.62	0.0001
Change in GDP, Real Values	-0.90	0.16	-5.46	0.0001
Change in Unemployment	0.76	0.28	2.71	0.01
Rate				
Change in Debt Servicing	-0.04	0.1	-0.38	0.70
Costs				
Change in Govt.	1.57	0.44	3.55	0.0005
2-3 Party Majority Govt.	0.81	0.73	1.12	0.26
4-5 Party Majority Govt.	0.40	0.88	0.46	0.65
Minority Govt.	-0.52	0.86	-0.61	0.55
Left	-0.92	0.65	-1.43	0.15
StrongFM	-1.95	0.73	-2.67	0.01
Contracts	-1.45	0.63	-2.30	0.02

R squared = 53.9% R squared (adjusted) = 51.4%

Data Sources: European Commission (1995), De Haan and Sturm (1994), European Journal of Political Research (Various Years), Woldendorp, Keman, and Budge (1993), and von Hagen and Harden (1996).

Diagnostics: A lagged dependent variable was added to eliminate significant autocorrelation. The Lagrange multiplier statistic did not reject the null hypothesis of homoskedasticity. A comparison of the group-effects model with the standard OLS regression also indicated the lack of country-specific effects.

Table 4: Consideration of the Interaction of the Change in Government with Either a Strong Finance Minister or Budgetary Contracts

Variable	Coefficient	Std.	t-ratio	prob
		Error		
Constant	2.85	0.84	3.39	0.0001
Change in Debt t-1	0.32	0.05	6.07	0.0001
Change in GDP	-0.88	0.16	-5.40	0.0001
Change in Unemployment	0.78	0.28	2.81	0.005
Rate			: :	
Change in Debt Servicing	-0.02	0.1	-0.18	0.86
Costs				
Change in Govt.	2.86	0.63	4.51	0.0001
2-3 Party Majority Govt.	0.71	0.73	0.98	0.33
4-5 Party Majority Govt.	0.06	0.88	0.07	0.94
Minority Govt.	-0.79	0.84	-0.93	0.35
Left	-0.59	0.65	-0.91	0.37
StrongFM	-0.81	0.86	-0.95	0.34
Contracts	-0.32	0.77	-0.41	0.68
Change in Govt.*StrongFM	-2.61	1.17	-2.22	0.03

Change	in	Govt*Contracts	-2,34	0.99	-2.37	0.02
1				<u> </u>		

R squared = 55.7% R squared (adjusted) = 52.8%

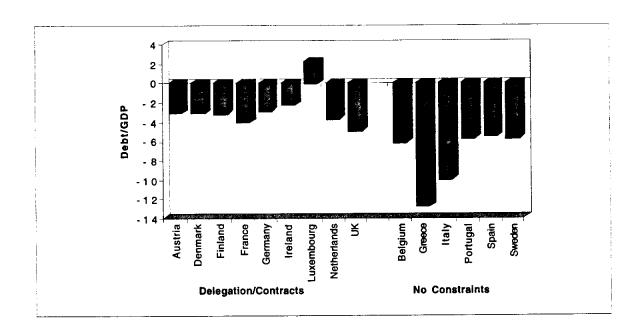
See Table 3 for data sources. The diagnostic results were virtually identical to the regression presented in Table 3.

- 1. Grilli, Masciandaro, and Tabellini also theorize that the existence of extremist parties in proportional representation systems should lead to higher levels of debt, but they do not find polarization to be statistically significant in their regressions.
- 2.De Haan and Sturm (Forthcoming) widen their study to include 21 OECD countries for the period 1982-92. They again find no significant relationship between the type of government and changes in gross debt.
- 3. De Haan and Sturm (1994), in their comparison of different explanations for the size of the deficit, find von Hagen's (1992) institutional variable statistically significant.
- 4. In equation (1), we assume that the utility gained from transfers takes a Cobb-Douglas form, which implies (1) that each group must get at least some positive transfer, that the marginal utility of transfers to a group is positive but declining, and that the government will want to divide any budget with constant shares  $\alpha_i$  among the transfer recipients.
- 5. In order to keep actors straight, the finance minister will be referred to as 'him,' while the other ministers will be referred to as "her."
- 6. Laver and Shepsle (1994, 9-10), for instance, in summarizing the findings of the case studies in their edited volume, note that the distribution of portfolios among members of the same political party has little effect on the policies which the government adopts; much more important is the distribution of portfolios among different parties.

- 7. The prime minister does not have unlimited freedom, since the formation of a cabinet under a one-party government involves intra-party negotiations and agreements. Yet the prime minister does generally have some flexibility in deciding which faction will acquire which portfolio, as well as who will represent that faction in cabinet.
- 8. Lupia and McCubbins (1994) indicate that an agent will choose the principal's optimal policy if two conditions are met: the principal understands the implications of maintaining the current policy or accepting the agent's proposal, and the policy that is most favorable for the principal is the one that the agent proposes. Especially in cases where spending cuts are needed, the prime minister can clearly see the implications of continuing spending at current levels or accepting the finance minister's negotiated settlement, and both principal and agent alike have the same interest to reduce the budget deficit. With both conditions met, the finance minister makes the same proposal the prime minister would have had she had better information.
- 9. Thomas T. Mackie and Richard Rose (1991, 397, 399). The average district magnitude figures is reported in Lijphart (1994, 22).
- 10. A succinct summary is found in Gallagher, Laver, and Mair (1992, 153-159).
- 11. A reasonable measure for the number of parties considers the strength of parties as well as their absolute number. The measure that will be used here is for the effective number of parties in parliament and is taken from Mark Laakso and Rein Taagepera, as quoted in Lijphart (1884, 68). It is calculated as  $N=1/\Sigma s_i^2$ , where N equals the effective number of parties and  $s_i$  equals the proportion of seats party i possess in the legislature.
- 12. Other empirical studies that confirm this link include Lijphart (1994) and Taagepera and Shugart (1989 and 1993).

- 13. See von Hagen and Harden (1996).
- 14. There are also some differences in the countries and years covered in the respective studies. De Haan and Sturm base their regressions on the E.C. 12 from 1981 to 1989, while Roubini and Sachs consider 14 OECD countries from 1960 to 1985.
- 15.<sup>1</sup> Following De Haan and Sturm (1994, fn. 8, 169) we code this variable as (Nominal Long Term Interest Rate -Inflation Rate Real GDP Growth Rate)\*Debt Level (t-1).
- 16. We also did one minor recoding of the 'contracts' variable and did another regression run. In 1992-93 Belgium and Portugal negotiated convergence programs with the European Commission that they then put into place. These programs resemble commitment to contracts. We therefore coded Belgium and Portugal as having contracts in 1993 and 1994. The results make the case for our institutional variables even stronger. The coefficients for both the Strong Finance Minister and Contracts variables increased in size to -2.42 and -1.86 respectively while the standard errors stayed almost the same at .80 and .61. The results for the other variables changes only trivially. We thank Jorge Braga de Macedo for bringing this issue to our attention.
- 17. This is the possibility that there is a simultaneity problem because the GDP term appears in some form on both sides of the equation. We therefore redid the regressions with a new indicator for the change in GDP as follows. We regressed the change in GDP in time t on GDP at t-1 as well as on the average change in GDP at time t within Europe. We then used the fitted values as our independent variable to measure the effects of economic growth. The results were virtually identical to those reported here.

Figure 1: Comparison of Average Yearly Budget Deficits, 1990-94



The budget data are found in <u>OECD Outlook</u> 57 (June 1995), pp. A33 and A69, with the exception of yearly budget deficits for Luxembourg, which are published in <u>OECD Economic Surveys 1994-95</u>: <u>Belgium/Luxembourg</u>, p. 122. The Luxembourg budget figures for 1993 and 1994 are classified "provisional."