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BUDGET INSTITUTIONS AND FISCAL PERFORMANCE IN LATIN AMERICA

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1. Introduction

The last two decades have witnessed a sharp increase in public debt accumulation in many countries around the world. While some countries have reacted promptly to this development, others have delayed the necessary fiscal adjustments. The variance of cross-country fiscal experiences is remarkable: even within economically homogeneous groups of countries, fiscal positions are very different. For instance, within the OECD group debt to GNP ratios currently range from more than 120 percent to less than 40 percent. Total deficits vary from more than ten percent of GDP to close to zero. In Latin America, as Figure 1 shows, the variance of fiscal position is also very large. The average central government deficits in the 1989-93 period ranged from 13.6 per cent of GNP in Guyana to a surplus of 3 percent of GNP in Jamaica. Figure 2 shows that this variance was even higher in the early eighties, and has been declining since then, in conjunction with a widespread improvement in the regions' fiscal accounts.

It is hard to explain these very large differences in fiscal positions purely based upon economic differences or in the timing of "wars" and "recessions", as implied by the tax smoothing theory of budget deficits, due to Barro (1979). Therefore, a recent lively literature has studied how politico - institutional factors can explain this cross-country variance of fiscal experiences[1]. This line of research has emphasized political polarization, government structure and electoral systems as some of the main political determinants of budget deficits. The evidence, drawn mostly from OECD economies, is generally favorable to this approach[2].

The goal of this paper is to explain cross country differences in fiscal positions by focusing upon the procedures which lead to the formulation, approval and implementation of the budget. Unlike virtually all the literature on the subject, we consider not a sample of OECD countries, but a sample of Latin American countries. We find that the nature of budget procedures strongly influence fiscal outcomes. More specifically, what we define as more hierarchical/transparent and less collegial procedures lead to lower primary deficits and more fiscal discipline. Hierarchical

[1] See Alesina and Perotti (1995 a) for a recent survey of this literature.

[2] See, in particular Roubini and Sachs (1989a,b), Grilli, Masciandaro and Tabellini (1990)and Alesina and Perotti (1995 b)

FIGURE 1

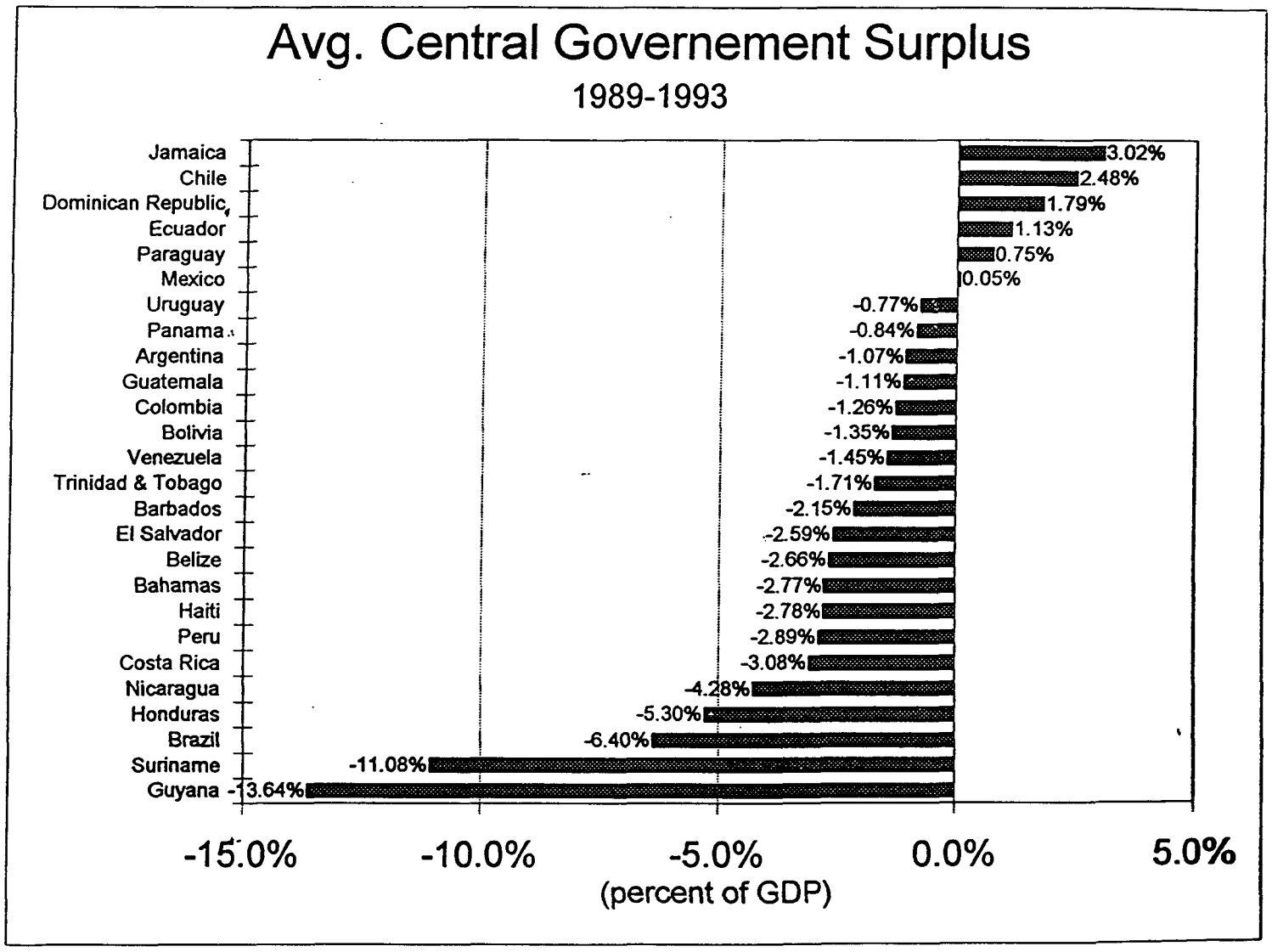
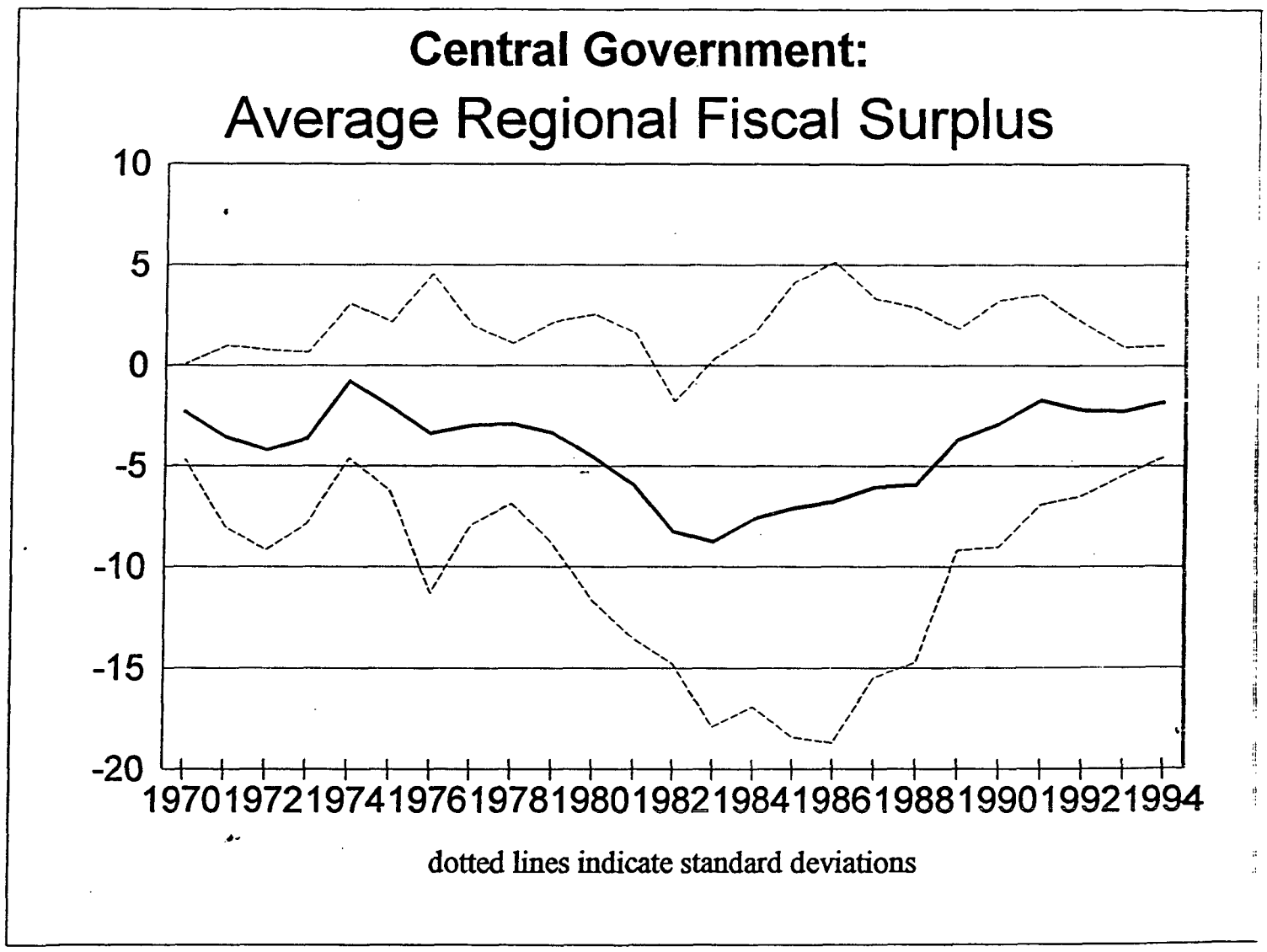

Avg. Central Governement Surplus
1989-1993
Jamaica 3.02%
Chile 2.48%
Dominican Republic 1.79%
Ecuador 1.13%
Paraguay 0.75%
Mexico 0.05%
Uruguay -0.77%
Panama -0.84%
Argentina -1.07%
Guatemala -1.11%
Colombia -1.26%
Bolivia -1.35%
Venezuela -1.45%
Trinidad & Tobago -1.71%
Barbados -2.15%
El Salvador -2.59%
Belize -2.66%
Bahamas -2.77%
Haiti -2.78%
Peru -2.89%
Costa Rica -3.08%
Nicaragua -4.28%
Honduras -5.30%
Brazil -6.40%
Suriname -11.08%
Guyana -13.64%
-15.0%
-10.0%
-5.0%
0.0%
5.0%
(percent of GDP)

FIGURE 2


Central Government:
Average Regional Fiscal Surplus
10
5
0
-5
-10
-15
-20
1970
1972
1974
1976
1978
1980
1982
1984
1986
1988
1990
1992
1994
dotted lines indicate standard deviations

procedures are those that, for instance, limit the role of the legislature in expanding the size of the budget and its balance, attribute a strong role to a single individual (typically the Treasury Minister) in the budget negotiations, limit the prerogatives of the spending ministers, impose macroeconomic constraints on the admissible size of deficits.

Our results are consistent with recent work of others. Von Hagen (1992) and von Hagen and Harden (1994) study countries of the European Community with a perspective very similar to ours. While their motivation and ours are similar, our paper is significantly different from theirs: our indices of procedures, our statistical methodology and our sample are all quite different. Eichengreen (1992), Poterba (1994) and Alt and Lowry (1994), among others, study how different budget laws in American States affect their fiscal positions and their reaction to fiscal shocks. The present paper and this previous work, point in the same direction: budget procedures and budget institutions have significant impact on fiscal outcomes. In fact, these different papers nicely complement each other since they reach qualitatively similar results, although using different methodologies and drawing evidence from very different samples, namely European countries, American states and, in our case, Latin American countries.

This paper is organized as follows. Section 2 discusses theoretical arguments underlying our empirical tests. Section 3 describes the construction of our indices of budget procedures. Sections 4 and 5 describe our data and our empirical results. The last section concludes.

2. Budget Institutions and fiscal outcomes: Theoretical issues[3]

Budgetary institutions are all the rules and regulations according to which budgets are drafted, approved and implemented. We assume that these institutions are exogenous, or, at least, predetermined, and we use them as an explanatory variable for fiscal outcomes. This approach must be grounded on two arguments. First, it must be the case that fiscal outcomes are not independent of institutions, that is, government and legislatures must not be able to produce whatever fiscal outcome they (collectively) choose, regardless of the budget procedures which are in place. In this

[3] See Tanzi (1995) and Alesina and Perotti (1995c) for a more extensive discussion of these issues and for a survey of the relevant literature.

section we discuss theoretical arguments which suggest why institutions might in fact matter, and below we test these arguments empirically. Second, it must be the case that institutions are not themselves endogenous to the fiscal outcomes; that is, institutions cannot be easily changed as a result of current or past fiscal outcomes. To a certain extent, institutions are indeed endogenous, both to past fiscal outcomes and to "third factors", For instance, in the medium-long run unsatisfactory fiscal performances may lead to reforms of budget institutions. In fact, in our sample we observed a few important institutional reforms, in response to the large fiscal imbalances of the early eighties. As we show below, the fiscal position of the reforming countries improved. However, budgetary institutions are relatively stable over time so that at least in the medium run (measured in, say, up to a decade or more) they can be considered fixed. Since it is costly and complex to change institutions, the existing ones have to be very unsatisfactory, before it is worth changing them; in other words there is a strong "status quo" bias in institutional reforms. If institutions are relatively costly to change, than they can be considered predetermined explanatory variables. As for the issue of "third factors" explaining both budgetary institutions and fiscal outcomes, one cannot rule out a series of socio-cultural-political variables as candidates for this role[4]. These are issues which, however, we largely ignore in this paper.

The government budget is the result of a collective decision process with several agents involved: the Treasury, spending ministries, legislators, bureaucrats etc. The critical point is that many of these agents have incentives to overexpand the budget and create deficits, while other agents have stronger incentives to internalize the overall government budget constraint. For example Weingast, Shepsle and Johnsen (1981) argue that legislators with geographically based constituencies underestimate the cost of financing "pork barrel" projects, since the benefits are concentrated locally and the taxes distributed nationally. Velasco (1995) argues that spending ministers in a government create a "tragedy of the commons" situation, by favoring programs for their departments which draw on a common pool of tax revenues. Since spending ministers have relatively little incentives to internalize the budget constraint, a strong role for the Treasury Minister

[4] A similar discussion has emerged in the context of the literature on the effects of Central Bank independence on inflation. On the particular issue of endogeneity of institutions (i.e. of independence of Central Banks), see the discussion in Posen (1995) and Alesina (1995).

should enforce more fiscal discipline. More generally, budget institutions can influence fiscal outcomes because they determine how the "game is played" amongst agents with different incentives concerning fiscal discipline.

One can identify three types of budgetary institutions: i)laws (Constitutional or not) which establish fiscal targets, such as balanced budget laws; ii)procedural rules; iii)rules concerning the transparency of the budget. We examine them in turn.

2.i. Balanced budget laws

The theory of dynamic optimal taxation, which delivers the "tax smoothing" principle (Barro (1979), Lucas and Stokey (1983)) implies that balanced budget laws are sub-optimal. In fact, these laws would make it impossible to use budget deficits as the necessary buffer needed to implement the tax smoothing policies, in years when spending is temporarily high or revenues temporarily low, for given tax rates. Standard Keynesian arguments of countercyclical fiscal policy also point in the same direction. Theoretically, one can imagine contingent rules which allow for departures from the balanced budget for cyclical reasons or for major natural or military calamities. However, complicated rules are difficult to implement, present monitoring problems and are rarely observed.

On the other hand, several arguments suggest that actual policies depart from principles of optimality but, instead, are the result of various politically induced deficit biases.[5] In these cases, a balanced budget law may be a second best solution. One would have to trade-off the distortions of the balanced budget law on the optimal tax policies, against the reduction of politically induced distortions on actual policies. In choosing along this trade off, however, one needs to consider another objection to balanced budget laws: they create incentives to engage in creative accounting, in order to circumvent them. Thus, their "bite" is severely limited and they may actually be counterproductive, since they make the entire budget process less transparent.

An alternative to a balanced budget rule, which may achieve some of the benefits of the latter without some of its costs of excessive rigidity, is a Macroeconomic Program Requirement. In fact, in a few countries in our sample, the government is required to prepare a budget which is consistent

[5] See the survey by Alesina and Perotti (1995a).

with a general macroeconomic program, often agreed upon with the Central Bank. These programs typically include targets for the inflation rate, the external balance and monetary and fiscal policy targets given certain assumption about the expected growth rate, saving rates etc. A Macroeconomic Program Requirement may add some discipline to the budget process if it clearly identifies limits to the size of the budget and its balance compatible with other economic goals.

2.ii. Procedural Rules

One can identify three phases in the budget process:

1) the formulation of a budget proposal within the executive;

2) the presentation and approval of the budget in the legislature;

3) the implementation of the budget by the bureaucracy.

We focus mostly on the first two aspects. We emphasize a critical trade-off between institutions which we define, for lack of a better word, "hierarchical" and institutions which we define "collegial". "Hierarchical" institutions emphasize a "top-bottom" approach. They attribute a leading role to the Treasury Minister in the formulation of the budget within the executive, a leading role of the executive vis a vis the legislature, they severely limit the prerogative of the latter in amending the budget, and generally emphasize the power of the majority. "Collegial" institutions have the opposite features. Collegial institutions emphasize the democratic rule at every stage of the process, such as the prerogatives of spending ministers within the government, the prerogatives of the legislature vis a vis the government, and the rights of the minority opposition in the legislature. We argue that "hierarchical" institutions promote fiscal discipline: thus, budget deficits should be lower in countries with less "collegial" budget procedures.

Unfortunately, typically we do not have "free lunches", but trade offs. Here the trade off is that while "hierarchical" institutions may deliver fiscal discipline, they have the tendency to produce budget heavily tilted in favor of the majority, thus, with more concentrated net benefits. This trade-off emerges very clearly in the literature on voting rules on pork-barrel spending. As discussed above, Weingast, Shepsle and Johnsen (1981) argue that representatives with geographically based constituencies favor spending programs with local benefits and national financing. As a result, in equilibrium one observes an overexpansion of the budget. Baron (1989) and Baron and Ferejohn (1991) study how different voting rules influence the spending allocation and efficiency of the

budget, defined as the ratio of total spending over total taxation. They emphasize a critical distinction between "closed rules" and "open rules". A "closed rule" is one in which a proposal made by a member of the legislature has to be voted immediately up or down. If the budget is approved, the "game is over"; if it is rejected a new member of the legislature can make another proposal which is voted, again, up or down. An "open rule" is one in which the proposal made by the member selected is subject to amendments on the floor. A proposal involves the choice of a budget and an allocation of benefits amongst districts, i.e., representatives.

The critical difference between the two procedures is that a closed rule attributes more power to the first agenda setter. In fact, with a closed rule the agenda setter needs only to offer to the minimal majority (50 percent plus one) enough benefits to make them prefer the proposal to the continuation of the process with the proposal of another agenda setter, if the first proposal is rejected. With an open rule the power of the agenda setter is diminished, and he will take that into account when making a proposal. When making the first proposal the agenda setter faces a trade off. If he offers a universal program, with benefits for every district, he may get immediate approval because no legislator would want to amend. However, this strategy is expensive,' since it saves relatively small benefits for the district of the agenda setter. On the other extreme, if the first agenda setter makes a proposal which distributes benefits to a bare majority, there is a relatively high chance that a member of the minority will be selected next period to make amendments, and he will object to the proposal, attempting to form another majority.

These considerations provide the intuition for several results: 1. An open rule creates delays in the approval of a proposal, where "delays" means that more than one vote is needed for a budget to pass. 2. A closed rule leads to the adoption of more inefficient budgets, namely budgets where the ratio of aggregate benefits over aggregate taxation is lower. 3. A closed rule leads to the adoption of "majoritarian" allocation rules, i.e. such that the benefits are allocated to "50 percent plus one" fraction of the legislature. Open rules may lead to a distribution of benefits in which more than the minimum majority' of legislators receive positive net benefits. 4. With an open rule the distribution of benefits within the winning majority are more egalitarian than with a closed rule.

These results highlight very clearly several aspects of the trade-off between hierarchical and collegial procedures. A closed rule achieves a quick approval of proposal, at the cost of

implementing more "unfair" budgets. Budgets are unfair in the sense that they are tilted in favor of those who make the first proposal, and always distribute benefits to the smallest possible majority.

This theoretical discussion has important empirical implications. First, while in the theoretical literature the "agenda setter" is a randomly chosen legislator, in practice the government is the agenda setter . Thus, "closed rules" are those that limit the type of amendments to the budget which the legislature can propose and more generally, attribute strong prerogatives to the government vis a vis the legislature. Examples of these rules are those that prohibit legislative amendments which increase the deficit and total spending. The "fairness" in the process can be achieved by allowing open rules on the allocation of spending, once the total is approved by closed rule. Second, we can also interpret negotiations within the governments from the point of view of closed and open rules. Arrangements close to a "closed rule" are those which attribute strong prerogatives to the Treasury Minister vis a vis the spending ministers, if the Treasury Minister has the agenda setting power in intra government negotiations on the budget preparation.

The "delay" caused by open rule in the approval process can be viewed as a cause of persistent deficits, delaying fiscal adjustment, and resulting in debt accumulation. However, the models reviewed above are not explicitly dynamic, that is they do not consider directly the effect of voting rules on debt accumulation, even though the result on delays of budget approval can be interpreted in that direction. An explicitly dynamic model which allows for different procedural rules is provided by Velasco (1995). He shows that if multiple spending agencies (for instance spending ministers within a government) can influence the budget process, deficits emerge as a result of a "tragedy of the commons" situation. Thus, Velasco's results provide further theoretical underpinning to the view that a "strong" Treasury Minister vis a vis the spending ministers can enforce fiscal discipline.

Ferejohn and Kreibhel (1987) discuss another important issue concerning the order of voting in the legislature discussion of the budget. Intuitively, one may argue that voting first on the overall size of the budget and then on its composition should lead to more fiscal restraint than the opposite sequence of votes. However, these two authors show that this intuitive result does not necessarily hold. In fact, strategic legislators, when voting on the size of the budget, will anticipate how the first vote will influence the second vote in the allocation. Thus, according to this paper it is impossible

to make an empirical prediction linking the order of votes with the final budget outcome.

Despite these authors' useful warning, we still believe that, particularly for the countries in our sample, fiscal discipline is enhanced by procedures which require first a commitment to an overall balance compatible with macroeconomic objectives, and then a discussion of spending composition.

2.iii. Transparency

Even the most stringent and hierarchical procedures can be circumvented, and fiscal discipline relaxed, if cumbersome and untrasparent budget documents open wide doors to creative accounting.[6] Politicians have incentives to hide taxes, over emphasize the benefits of spending, and hide government liabilities, equivalent to future taxes. Thus, they have little incentive to produce simple, clear, and transparent budgets.

Two theoretical arguments support this claim. First the theory of fiscal illusion, (Buchanan and Wagner (1977)), according to which the voters overestimate the benefits of public spending and underestimate the costs of taxation, current and future. Lack of transparency of the budget can increase the voters' confusion and reduce politicians' incentives to be fiscally responsible.

The second argument relies on the notion of "strategic ambiguity" of rational politicians facing a rational electorate. Although not in the context of budget institutions, Cukierman and Meltzer (1986) and Alesina and Cukierman (1990) amongst others, show that opportunistic politicians would choose to introduce "noise" in the system, to make their choices less clear in the eyes of the electorate. Although this noise has efficiency costs, it creates a strategic advantage for the policy makers, who, in general, will not choose to minimize the noise to maximize efficiency.

Rogoff and Sibert (1988) and Rogoff (1990) raise a related point in the context of political business cycles models. They show that when a rational electorate cannot perfectly observe fiscal variables, such as expenditure composition and/or the incidence of various forms of taxation, the policy makers have incentives to follow loose fiscal policies in election years. These incentives would disappear if the electorate were fully informed.

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[6] Tanzi (1995) and Alesina, Maré and Perotti (1995) argue that this problem is in fact, critical for Italy, a country with extremely cumbersome budget procedures and a very high debt/GDP ratio.

In practice, creative accounting can take a variety of forms. From strategically unreliable forecasts of economic variables, to underprovision for entitlement programs, to transfers of liabilities to other parts of the general governments not included in the budget of the Central Government. For reasons which are almost self evident it is quite difficult to measure with a single number the degree of transparency of a budget. However, the difficulty of measurement does not diminish the critical importance of this variable. Even the most "hierarchical" voting procedures or most stringent balance budget laws can be severely undermined by untrasparent budget documents which do not reflect accurately the real fiscal situation.

2.iv. Summary

Our discussion suggests that: i) the presence of laws (or a binding macroeconomic program) limiting the permissible size of deficits; ii) "hierarchical" voting procedures and iii) budget transparency, should promote fiscal discipline, defined as low average deficits.

3. The index of budgetary institutions

3.i. The construction of the index

In order to study the incidence of budgetary institutions on fiscal outcomes, one needs a measure of the institutions of different countries according to the hierarchical/transparent-collegial/untrasparent criteria sketched above. For this purpose, we created an index with several components which refer to all the stages of the budget preparation, approval and implementation.

The data for the construction of the index was collected through two questionnaires that were answered by the budget directors of 20 Latin American and Caribbean countries.[7] In the first questionnaire we obtained detailed information about the budgetary processes as they are today, while through the second one we learned about their evolution, as described by the changes in a set of ten characteristics that cover the different stages of the budgetary process. It is on the basis of these ten characteristics that we built our index. The information about the evolution of the institutions over time was necessary because a few countries have experienced reforms of their

[7]Both questionnaires are reproduced in Appendix C.

budgetary institutions during our sample period.

For each of the questions in the second questionnaire, countries were given a multiple choice of answers to describe the present situation, and were asked to report the years in which changes in the rules had occurred, as well as the nature of such changes. A summary of their answers is reported in Appendix B. In each question, for each year, countries were assigned a score between 0 and 10 according to their answers, 10 for the case of the answer that we considered was the most "hierarchical-transparent", and 0 for the one most "collegial-nontransparent". In some cases, their answers to particular questions were complemented with more descriptive information contained in the first questionnaire. For the case of answers that ranged in the middle of these extremes, we assigned intermediate scores according to the number of possible answers. For example, if a question admitted three answers the possible scores were 0, 5 and 10. If there were 4 possible answers, the scores were 0, 3.33, 6.66 and 10.

In choosing the ten components of the index we followed two criteria. First, we wanted to capture as many as possible of the features discussed in Section 2, which characterize budget institutions on the hierarchical-collegial dimension. Second, we restricted ourselves to questions which received usable answers from all the countries. In some cases, we also checked the answers by comparing them to the available original written legislation. The advantage of using questionnaires rather than the written legislation alone is twofold. First, answers to questionnaires allow for an evaluation of "practices" above and beyond the letter of the law. Second, the amount of information collected through the questionnaires is much larger than it would have been possible to obtain independently.

We now briefly illustrate each question. Question 1 inquires about the importance of a macroeconomic program as a constraint for the elaboration of the budget by the executive branch. We assigned 10 points for those countries that reported that the macro program plays an important role as a prerequisite for the submission of the budget to Congress, 5 points for "some importance", and 0 for "not important or not required". Interestingly, in many countries in the region the macroeconomic program does not play an important role in the budgetary process.

Question 2 addresses the issue of the relative standing of the budget authority, typically the Treasury Minister, vis-a-vis the spending ministers in the budget preparation process. While

analyzing the answers to this question, we realized that the average tenure of a Treasury Minister is very different in different countries. Regardless of the letter of the law, it would be difficult to argue that a Treasury Minister has much influence if he is removed from office every year. For this reason, the answers to the questionnaire were combined with a measure of the average tenure of each finance minister since 1980. We assigned 5 points to countries where the finance minister had a considerably higher standing in discussions with the spending ministers in what respects to budget discussions, 2.5 points to for the case where he/she has somewhat higher standing, and 0 for the case where they are on equal footing. These scores were multiplied by 2 in cases where the average tenure of the finance minister was larger than three years, and by 1.5 when the tenure was between 1.8 and 3 years. In this way, the maximum score is 10, as is the case with the other variables that conform our index. Most of the variability in these question comes from differences in the average tenure of the Treasury Minister, since most countries reported that the Treasury Minister does have considerably greater power than the spending ministers in budget discussions (see Appendix B).

Questions 3 and 4 reflect the relative power of the government and the legislature during the discussions of the budget in Congress. In question 3, we ask about constraints on the legislature regarding amendments to the government's proposed budget. Those countries where amendments cannot increase the size of the budget and the deficit were given 10 points. If Congress requires government's approval to increase spending, we assigned 7.5 points, since in this case changes in the size of the budget could be subject to negotiations, where Congress could agree to pass other legislation proposed by the government in exchange for increases in the budget. We assigned 5 points for the case where Congress can only propose changes that may not increase the deficit. This constraint leaves a loophole for Congress to amend the budget increasing the expenditure level, and at the same time pass legislation creating new revenues (more or less "real"), which might then fall short of expectations, resulting in the end in larger deficits. Zero points were assigned in the case of no constraints.

Question 4 asks what happens if the budget is rejected or not passed by Congress within the constitutionally established time frame. Even in countries where the budget has always been approved on time, different rules in the event of rejection may result in different outcomes of the budgetary process. The weaker the relative position of the government in this issue, the greater the

incentives to propose a larger budget, in order to insure passage through Congress. An extreme "hierarchical" case, which applies to several countries in the region, is the one in which the budget proposed by the government is executed, even if Congress rejects it or fails to approve it (10 points were assigned to these countries). We considered the case where the previous year budget is adopted more favorable to the government than the case in which a new budget has to be presented to Congress, as long as the government can redistribute spending between items. In the cases where a new budget has to be presented, a greater degree of discretion for the government in terms of redistributing expenditures until the new budget is approved is given higher marks.

In some parliamentary governments, such as The Bahamas and Barbados, the government would resign in case the budget is rejected. In terms of the balance of power between Congress and the government, this drastic possibility could go either way. One could argue that, since rejection is very costly for the country, Congress will have incentives to always agree on a budget. On the other hand, this institutional arrangement may induce the government to propose a budget that is more palatable to Congress. Thus we assigned an intermediate score (5 points) to these countries.

Question 5 asks about the degree of borrowing autonomy by the government. The most restrictive institution is one in which the government has legal restrictions in its ability to borrow. Von Hagen and Hardin (1994) have suggested the creation of an independent agency in charge of setting the borrowing ceilings. None of the Latin American countries have this institutional arrangement. We considered it more conducive for fiscal discipline to have Congress setting a ceiling on what the government may borrow, or approving total borrowing together with the budget, rather than having the government setting a constraint upon itself. In fact, having Congress setting the debt ceiling before the budget is approved is equivalent to discussing the size of the budget first, and its composition later. Having each borrowing operation approved by Congress may have negative effects, since it may lead to bargaining between government and Congress on other budget issues, shifting the balance of power from the Executive to Congress. The worst situation is that in which the government can borrow without constraints, whenever revenues fall short of expenditures.

If the budget can be easily revised after its passage, it will not be taken very seriously, and the whole budgetary process becomes less meaningful. In question 6 we inquire whether the budget can be modified after approval by Congress, and on whose initiative. We assigned the best score in

the case where it is not possible to modify it (10 points). Consistent with the case of questions 3 and 4, we rate those systems where the initiative to modify the budget falls on the government as more disciplined than those where it may be modified at Congress' initiative. However, provided the government has the initiative, we assigned a larger number for the case where they require Congress approval. When the government can modify the budget autonomously, we distinguished those systems where they may do so up to a limit of 10 percent and those where the limits are less stringent or do not exist.

Question 7 asks whether the government can cut spending after the budget is passed. Here there are conflicting arguments in favor of more or less discretion for the government in terms of its ability to cut the budget. Intuitively, it would seem that the possibility of cutting the budget will result in better fiscal outcomes. However, it is also possible that the government will not have incentives to submit a small budget to Congress if they can cut it later at their discretion. And later on, it may be difficult to cut it even if this was intended from the beginning. For this reason, we assigned the highest score to those countries where the government can only cut the budget when revenues are lower than projected, rather than those who can cut without restrictions. The worse situation is that in which the government cannot cut spending unilaterally under any circumstance.

The next two questions attempt to capture important aspects of "transparency". In particular, they focus upon whether the budget of the central government is truly meaningful, or whether other public agencies, through their borrowing procedures, can make it less disciplined in an uncontrolled, and untransparent way. Question 8 asks about the conditions for the central government to assume debt originally contracted by other agencies, and the frequency of this occurrence. The ideal case in terms of transparency is one in which the Central Government never assumes debt contracted by other agencies, but none of the countries had this type of arrangement. The next best case is one in which the government only assumes the guaranteed debt, and this occurs only on an occasional basis. Frequent cases of assuming guaranteed debt was considered as untransparent as unfrequent assumptions of debt, guaranteed or otherwise. A score of zero was given to those countries where the Central Government frequently assumes even the non-guaranteed debt. In our first questionnaire, we asked what percentage of the current Central Government debt was originally contracted by other public agencies. We used the response to this question to complement the one about the frequency

of debt assumption: the response "occasionally" was changed to "frequently" for those countries that reported that a large portion of the current debt of the Central government was originally contracted by other agencies.[8]

Question 9 inquires about the borrowing autonomy of the state and local governments, and the public enterprises. The highest marks were assigned to those countries where these agencies cannot borrow autonomously. In the case of the local governments, the requirement of approval by the local legislature was not considered to add much discipline to the budgetary process compared to the case where there are no restrictions to borrowing, which is clearly the worst case.

Finally, question 10 asks about the existence of constitutional constraints on the fiscal deficit, such as balanced budget rules. None of the countries has a balanced budget rule, which would have resulted in 10 points. 5 points were assigned to countries that answered that any deficit must be properly financed, while zero points were given to those countries that responded that there are no constitutional constraints on the deficit.

The simplest way of constructing an index based upon the ten question described above is to simply add all the scores. This is in fact what we do. The value of the index for each country is reported in Figure 3.

3.ii. Robustness of the index to changes in its specification

The procedure of simply adding the scores of the different questions, of course, implies giving equal weight to all the answers. It also implies that the different components of the index are perfect substitutes. In other words, that having very hierarchical procedures in some aspects of the budgetary process, and very collegial procedures in others is the same, in terms of the overall index, as having "intermediate" procedures in all aspects of the budgetary process. In order to check the sensitivity of our results to these perfect substitutes and equal weights assumptions, we perform three experiments. First we construct different indices with different assumption about substitutability between components, by using the following formula:

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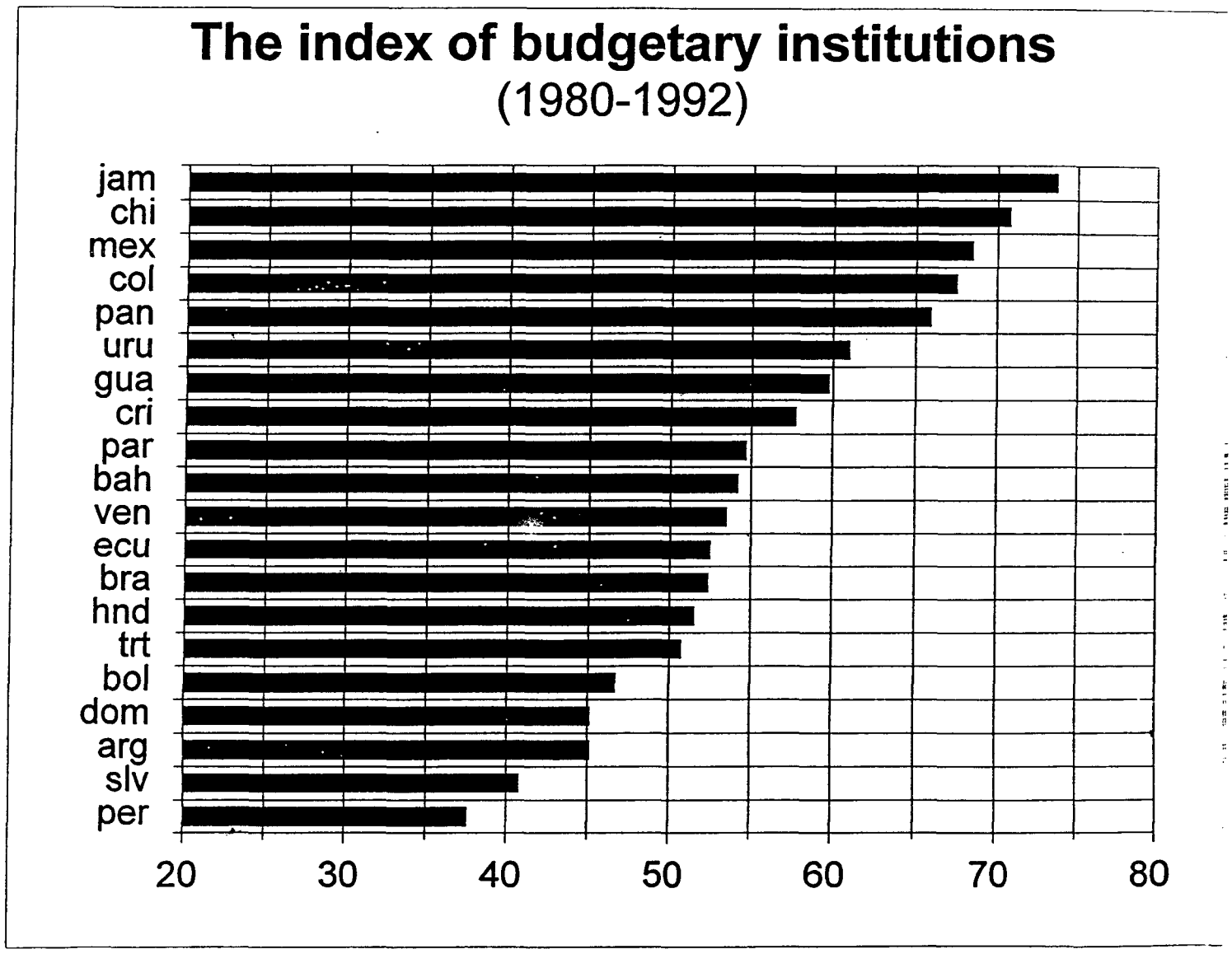
[8]Within the group of countries than reported occasional assumption of guaranteed debt, Mexico was given a slightly higher score, since they report that the agencies which could not pay their debts were subject to restructuring or liquidation.

FIGURE 3


The index of budgetary institutions
(1980-1992)
jam
chi
mex
col
pan
uru
gua
cri
par
bah
ven
ecu
bra
hnd
trt
bol
dom
arg
slv
per
20
30
40
50
60
70
80

$$I_j = \sum_{i=1}^{10} c_i^{\,j}$$

where the c_i are the values of the different components of the index. When j=1, we have our main index, where all the components are perfect substitutes and are simply added to each other. For 0 < j <1, countries that show intermediate values in all categories will rank higher than those whose institutions are very "hierarchical-transparent" in some respects, and very "collegial-non transparent" in others. The opposite will be true for the case of j > 1.[9] In order to check the robustness of the index, we chose .4 and 2 as alternative values of j.[10] Table 1 reports the ranking of countries corresponding to the three different values of j. Note that countries are ranked according to their average indices between 1980 and 1992, rather than the current state of their budgetary institutions, which in some cases have been subject to reform in recent years.

Table 1

Ranking of countries for different indices

	j = .4	j = 1	j = 2
Jamaica	1	1	1
Chile	4	2	2
Mexico	2	3	3
Colombia	3	4	5
Panama	5	5	4
Uruguay	6	6	7
Guatemala	11	7	6
Costa Rica	8	8	8
Paraguay	9	9	13
Bahamas	12	10	10
Venezuela	10	11	16
Ecuador	13	12	9

[9] A simple example of two countries and two components will illustrate this point: Consider that for country A, c_{1A}=10 and c_{2A}=0; and for country B, c_{1B}=5 and c_{2B}=5. Then, for j=1, I_A=I_B=10. But if j=0.5, then I_A=3.16 while I_B=4.47. For j=2, I_A=100 while I_B=50.

[10] The reason to choose these values of j is that we feel comfortable enough that the true model of how the different components interact falls within this range. At j=3, for example, a country that had a value of 5 in each of the components would have an index equal to a country that has 10 in one component, 5 in two others, and zero in the other seven. This value of j seems to give an unreasonable premium to high scores in a reduced number of components. In contrast, for j=2, a country with 5 in all components would be the same as one that has 10 in one, 5 in six others, and zeros in the other three components. This seems more reasonable. Similar considerations were used to define .4 as the other "reasonable limit" for j.

Brazil	7	13	14
Honduras	14	14	12
Trinidad & Tobago	15	15	11
Bolivia	17	16	17
Dominican Republic	19	17	15
Argentina	18	18	18
El Salvador	16	19	20
Peru	20	20	19

The Spearman rank correlations between the first two indices is 0.941. That between the second and third column is 0.938, while the rank correlation between the "extremes" is 0.842. These correlations are very high, suggesting that the index is quite robust to changes in its specification.[11] For the rest of the paper, therefore, we will utilize the index with $j = 1$.

A second approach to the problem of robustness is to divide the countries in three groups, according to their ranking. In the group with the highest rankings we included Jamaica, Chile, Mexico, Colombia, Panama, and Uruguay. As can be seen in table 1, these countries have budgetary institutions that can be considered "hierarchical-transparent" regardless of the specification of the index. In the middle group are Guatemala, Costa Rica, Paraguay, The Bahamas, Venezuela, Ecuador and Brazil. Finally, Honduras, Trinidad and Tobago, Bolivia, Dominican Republic, Argentina, El Salvador and Peru conform the group of countries which, on average, had "collegial/non transparent" budgetary institutions. The groups were divided according to our main index ranking, and at the same time making sure that no country in the top group ranked badly under different specifications of the index, and no country in the bottom group ranked well under different specifications. Most of the countries whose ranking changed substantially under alternative indices fell in the middle group. As a result, the composition of these groupings is very robust, and would only change marginally had we used one of the alternative indices as a criteria for the division. In addition to the regressions using our index, we will perform others using dummy variables based on these groupings.

[11]Exceptions to this are Guatemala, Venezuela, and most notably Brazil. The ranking in these countries does change significantly depending on the specification of the index. In the cases of Brazil and Venezuela, this is due to the fact that these countries have an unusual number of answers that fall in between hierarchical and collegial. The exact opposite is true for the case of Guatemala.

Third, in section 5 below, we partially address the issue of equal weights, by grouping the components of the index into subindices, to check which of them seem to have a larger effect on the budget balance.

4. Do budget institutions matter for fiscal performance?

4.i Model specification and data

We analyze yearly data between 1980 and 1992 for a sample of 20 countries in Latin America and the Caribbean. The countries, which are listed in table 2 above, are those that answered our second questionnaire. As a measure of fiscal performance, we use the ratio of the primary deficits of the central government over GDP.[12] The reason to focus on the central government is that the availability of data on public sector deficits was limited for several countries. As a measure of fiscal outcomes, the primary deficit is superior to the total deficit. One reason for this is that some of the countries in the region have experienced episodes of very severe inflation over the period of our study, and this has greatly affected the size of their interest payments. Beyond the effects of inflation, the difference between primary and overall deficits is to a large extent predetermined by accumulated debt, and does not necessarily reflect the government's current fiscal stance.

The index described in the previous section varies substantially across countries, but has little time variation. For half of the countries in the region, the index is constant over time. In most of the other countries, it changes only once during our sample period. For this reason in our estimations we treat the index as a cross-country variable. Our budget institutions variable (INDEX), therefore, is the mean of the country's index during the sample period. Alternatively, we use dummy variables for the group of countries with highest rankings (HIGH), and for those in the middle group (MID). The rest of the control variables used in our empirical analysis are listed in the following table; a more detailed description is provided in Appendix A.

[12] The sources and details of all the data used in this study are reported in appendix A

Table 2

CATAS	Dummy variable for natural catastrophes and wars
GDPGR	Real GDP growth rate
HIGH	Dummy for countries which have a high average value of the index
INTL	Debt interest payments from the Central Government as a share of GDP
MID	Dummy for countries with an average value of the index in the middle range
OV65	Share of the population over 65 years old.
PED79	Stock of Public Sector External Debt as a share of GDP
PRCONG	Real Private Consumption growth rate
TRADE	Rate of change of Terms of Trade times the degree of openness
UND15	Share of the population under 15 years old.

We followed two different estimation procedures. In the first one, we just run cross-country regressions. A problem associated with this approach is that of scarcity of degrees of freedom. In the second approach, the estimation is done in two steps.[13] In the first step, the primary deficits are regressed on all the determinants which have time variation, and the coefficients of these variables are estimated. All variables in the first step enter as deviations from their country means. Using the first step estimation, a cross-country second step is run to obtain the estimate for the index. Compared to the cross-country regressions, this procedure gains some degrees of freedom, since only the index enters the second step as a right hand side variable. In addition, it uses all the available information in the case of those variables that do have time variation.[14]

4.ii. Budget institutions and fiscal outcomes: are they correlated?

[13]For a detailed description of the twp-step methodology see Hsiao (1989).

[14]Both the cross-country regressions and the second step regressions in the two-step procedure are estimated by weighted least squares in order to correct for the heteroskedasticity which arises because the number of observations used to calculate the mean values for those regressions differs across countries. For those regressions, the corrected R^2 reported in tables 4, 5 and 6 below correspond to the transformed model.

Figure 4 shows a scatter diagram where our index of budgetary institutions appears on the horizontal axis, and the primary deficits on the vertical axis. For each country, both the index and the primary deficit are averages for the period 1980-1992. The picture clearly shows that there is a negative correlation between the index and the value of the primary deficits. The regression coefficient for the index shown in the graph is statistically significant, and suggests that a country with an index value of 65 (fairly high) is expected to have average primary deficits which are nearly 2.8 percentage points of GDP lower than a country with an index of 45 (fairly low).

Similar results are found when we divide the countries into groups, according to their ranking. The average index for each of the groups, together with their average primary deficit are reported in table 3 below. Note that the difference in primary deficits between the HIGH and the MID groups is much smaller than that between MID and LOW.:

Table 3

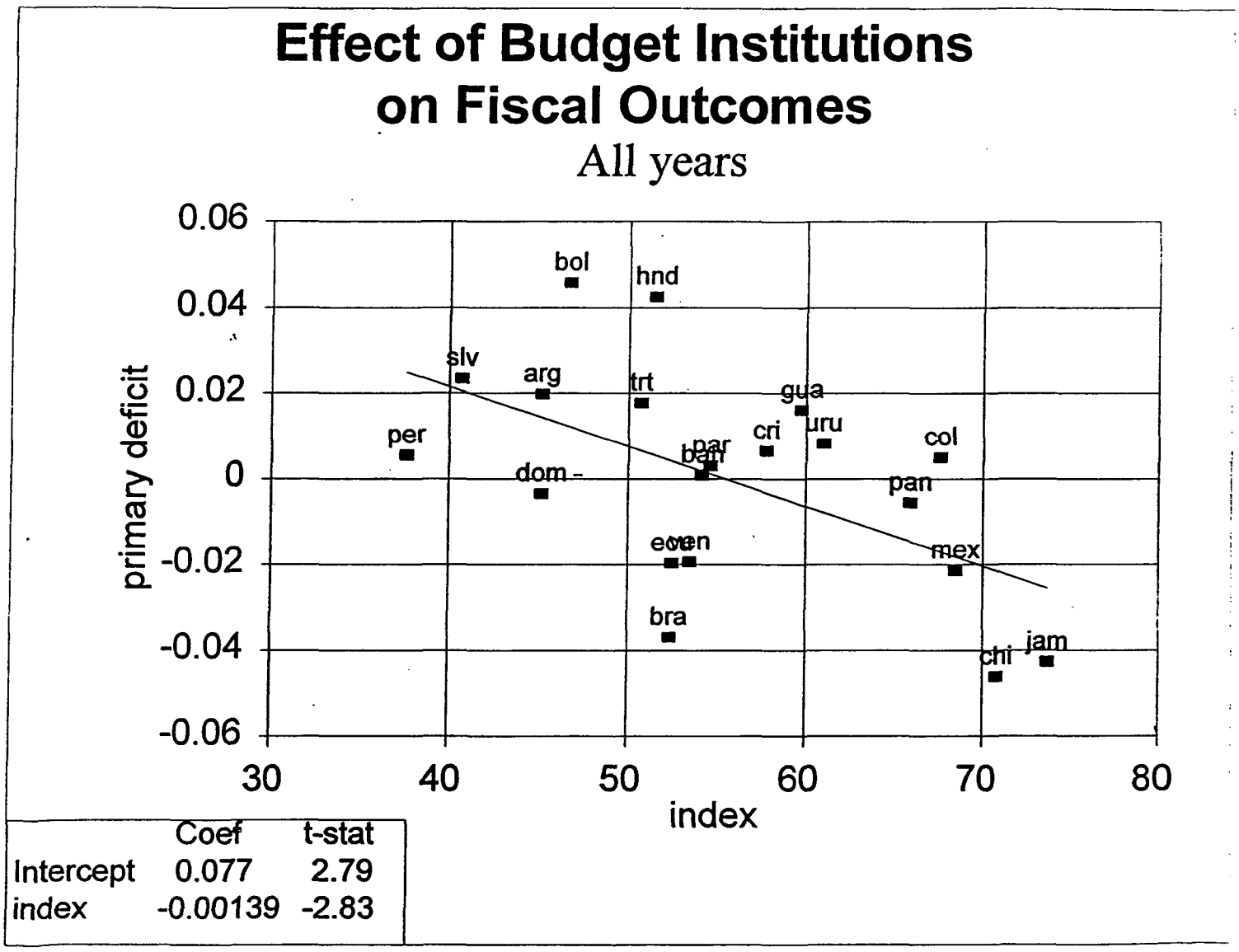
Group	AVG Index	AVG Prim Def
HIGH	67.91	-1.71%
MID	54.16	-1.09%
LOW	44.34	1.82%

Figure 5 shows the same relationship as Figure 4, but restricted to years of democratic government. The reason to focus on democratic years is that it could be argued that our index better reflects the budgetary institutions during democratic periods, since some of the components address the relative power of the executive and the legislature. On the other hand, by focusing only on democratic years, one loses many observations. In democratic years, the index continues to be significant at the 5 percent level, and the coefficient is only reduced slightly.[15]

Figure 6 shows the evolution of the primary deficits for those countries that have gone through reform of their budget institutions, as measured by changes in our index. This figure

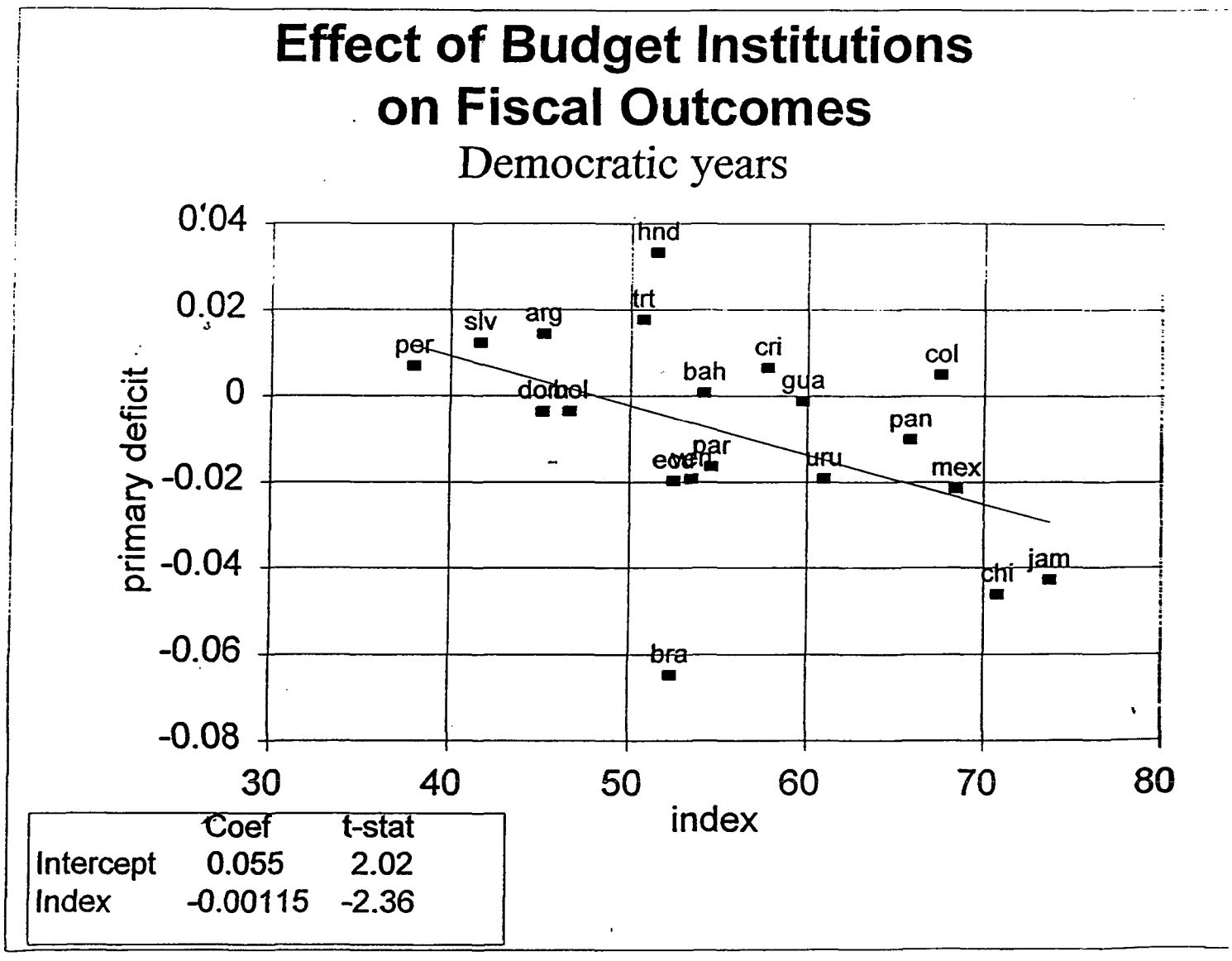
[15]Note in the figure that Brazil is the most notable outlier in the regression. If we exclude Brazil, which is also the country which is least robust to changes in the specification of the index, the coefficient for the index becomes 0.0125, it is significant at the 1 percent level.

FIGURE 4



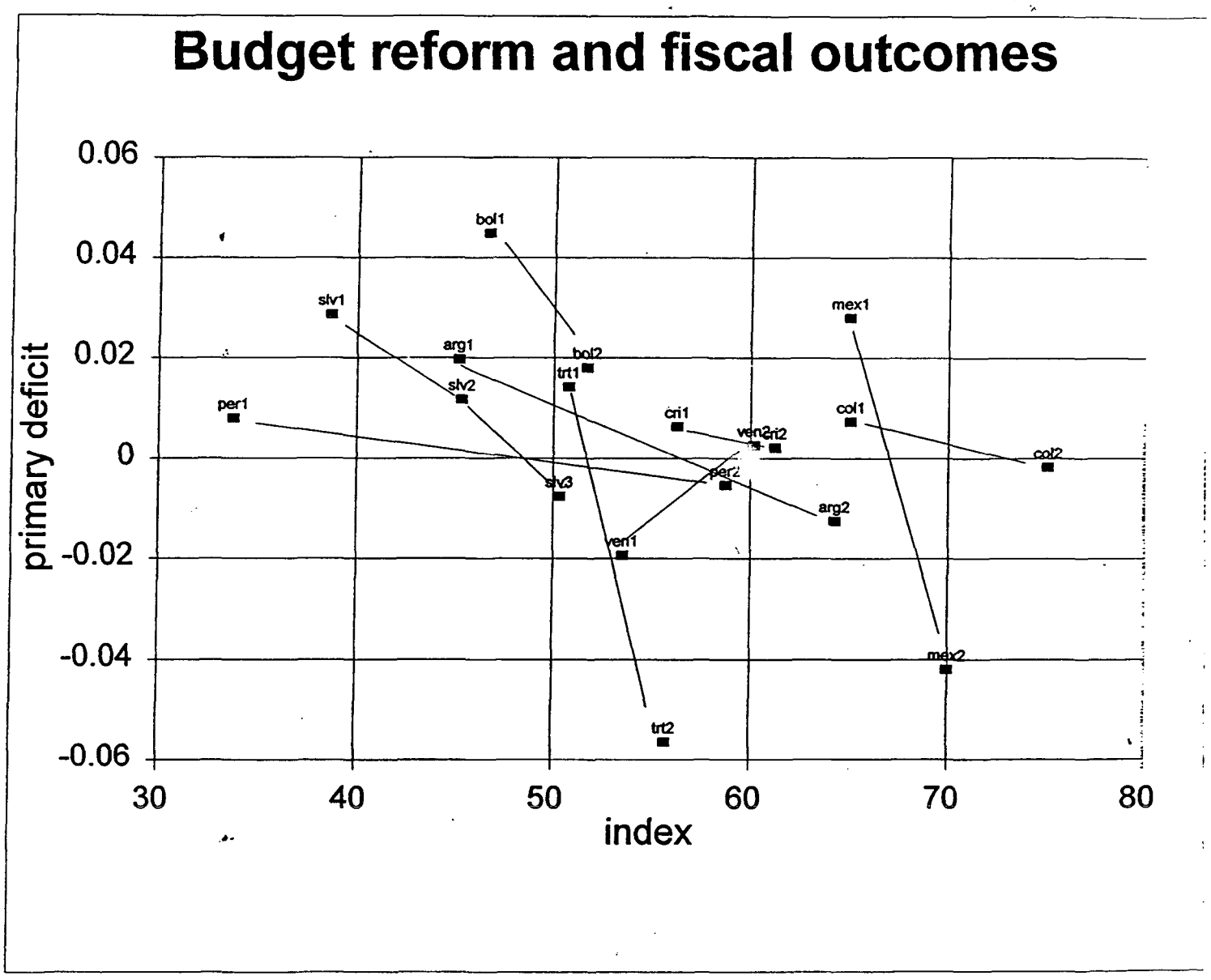
	Coef	t-stat
Intercept	0.077	2.79
index	-0.00139	-2.83

FIGURE 5



	Coef	t-stat
Intercept	0.055	2.02
Index	-0.00115	-2.36

FIGURE 6


Budget reform and fiscal outcomes
primary deficit
0.06
0.04
0.02
0
-0.02
-0.04
-0.06
30
40
50
60
70
80
index
bol1
slv1
arg1
bol2
trt1
slv2
per1
cri1
ven2
cri2
col1
col2
per2
slv3
arg2
ven1
mex1
mex2
trt2

provides additional evidence of the importance of these institutions. Almost all the countries that experienced an increase in the index showed reductions in their average primary deficits, the only exception being Venezuela. The countries that showed the largest improvement in their institutions are Argentina and Peru. In Argentina, reforms implemented in 1993 included an increase in the importance of the macroeconomic program as a prerequisite for the elaboration of the budget, the introduction of restrictions on the type of amendments that Congress can propose (they can no longer propose amendments that increase the deficit), as well as constraints on the borrowing ability of the government and the public enterprises. In addition, they modernized their information systems allowing a much better control of the execution of the budget. In Peru, which had the lowest index in the region, important changes were introduced in 1990. The macroeconomic program, that until then did not play any significant role in the elaboration of the budget, became very important; the authority of the finance minister in budget discussions was increased, and Congress was limited in its ability to propose amendments that increased the size of the budget or the deficit.

4.iii. Regression analysis

a) Cross-country regressions:

Table 4 presents the results of the cross-country regressions. The dependent variable is the average primary deficit. In the odd numbered columns, the effects of the budget institutions are represented by the index. In the other ones, by the dummy variables MID and HIGH. In the first two columns, we included the following control variables: TRADE is the growth in the terms of trade interacted with the degree of openness of the economy. Since in some countries tax revenues are heavily linked to export activities and import tariffs, we expect growth in the terms of trade to be associated with smaller deficits, and these effects to be more important for the case of economies that are more open to international trade. OV65 and UND15 are the proportion of the population over 65 and under 15 years of age, respectively. These variables are expected to result in larger deficits due to higher social security and education expenditures, and to a lower proportion of tax payers. The remaining control variable is the initial public external debt (PED79). This variable accounts for the fact that highly indebted countries need to run primary surpluses in order to service their debts. Total public debt would have been preferable, but the data was not available for a number of countries.

All the coefficients in the first regression have the predicted sign but, among the control variables, only TRADE is significant at the 10 percent level. Both indicators of budgetary institutions (the index and the dummies) appear to have a significant effect on primary deficits, as predicted by the theory. The value of the coefficient for HIGH may be interpreted as follows: on average, a country with "hierarchical-transparent" institutions can be expected to have primary deficits 2.9 percentage points lower than a country with "collegial-nontransparent" budget procedures. In contrast, the difference between the top and middle countries seems to be rather small. In the following columns we exclude the initial debt level (columns 3 and 4) and both the debt level and the age composition variables (columns 5 and 6). The significance of the budgetary institutions variables increases when these variables are excluded, and so does TRADE. The coefficients for the index and the group dummies are very robust to changes in the specification of the regression, and somewhat smaller compared to what was reported in the scatter diagram in Figure 4.

In the last two columns, we present the result of regressions similar to those in the previous ones, but restricting the sample to include only years of democratic government. Consistent with what we showed in the scatter diagrams, in this case the coefficient for the index is slightly smaller, although still significant. In contrast, the coefficients for the dummies HIGH and MID remain at the same levels as in the case where the sample is not restricted.

b) Two step regressions:

In the first step we include several variables which control for economic determinants of primary deficits. As Table 5 shows, we include: a) a measure of wars and natural calamities (CATAS); b) a control for cyclical conditions, either the rate of growth of GDP (GDPGR) or the rate of growth of private consumption (PRCONG); c) two measures of the age structure of the population, UND15, the ratio of the population under the age of 15 over the total and OV65, the ratio of the population above 65 over the total; d) our measure of terms of trade interacted with openness (TRADE); e) a lagged measure of interest payments (INTL) and f)the lagged dependent variable. In addition we always included year dummies, which are not explicitly reported in the Table.

The first two variables, CATAS and GDPGR or PRCONG, are directly called for by the tax smoothing theory. The age structure is important because it captures the ratio of active, tax paying population relative to those who are not. Lagged interest payments are meant to capture the fact that

TABLE 4
CROSS-COUNTRY REGRESSIONS

DEPENDENT VARIABLE: PRIMARY DEFICITS	(1)	(2)	(3)	(4)	(5)	(6)	DEM (7)	DEM (8)
TRADE	-0.0072 (-1.94)	-0.0069 (-2.01)	-0.0047 (-1.74)	-0.0048 (-1.93)	-0.0055 (-2.11)	-0.0053 (-2.28)	-0.0036 (-1.54)	-0.0036 (-1.71)
PED79	-0.0175 (-0.69)	-0.023 (-0.96)						
UND15	0.0019 (0.90)	0.0019 (0.68)	0.0027 (1.50)	0.0019 (1.13)				
OV65	0.0045 (0.99)	0.0032 (0.74)	0.0062 (1.48)	0.0047 (1.16)				
INDEX	-0.00105 (-2.13)		-0.00112 (-2.42)		-0.00112 (-2.48)		-0.00104 (-2.38)	
MID		-0.025 (-2.44)		-0.025 (-2.53)		-0.028 (-2.99)		-0.27 (-2.88)
HIGH		-0.029 (-2.46)		-0.032 (-2.92)		-0.032 (-3.23)		-0.031 (-3.16)
$\bar{R}^2$	0.33	0.44	0.34	0.44	0.32	0.46	0.23	0.39

countries which have accumulated a large interest burden are forced to run primary surpluses (or smaller primary deficits) to meet interest obligations. The lagged dependent variable captures persistence and the role of TRADE has been discussed above. The first stage regressions look reasonable. All the coefficients have the expected sign, and many of them are significant. Also note that the coefficients on the time dummies (not reported) highlight the average reduction of average deficits in the sample period.

In the second step we use two measures of our index; the index itself and two dummies for the middle and high groups. The results are generally consistent with the theory. The coefficients on INDEX have always the correct sign, although they are not always significant at conventional levels. However the coefficient on the HIGH group is always significant at the 5 per cent level in all the specifications. On the other hand the coefficients on MED are always insignificant, indicating that the differences in budget outcomes are observable mostly by comparing the top and the bottom groups of countries.

These results on the INDEX are generally robust to a variety of sensitivity tests. For example, we dropped, in turn, CATAS and TRADE from the first step, and the results on the index or group dummies do not change very much. When the age structure variables are not included, the significance of the index improves notably, although the size of the coefficient is reduced. The results on the index are also virtually unchanged when we instrument GDPGR (or PRCONG). Finally, we also explored whether the results change when we restrict the sample to democracy years. Generally the results do not improve. As a matter of fact, the results on the index when restricted to democracy years become more sensitive to the specification. In particular, the result on the index seems to be affected by the cyclical variables included or excluded in the first stage.

5. A disaggregation of the index

Our aggregate index summarizes a fairly large amount of different institutional features. One may wonder which of them is more directly correlated with fiscal performance. In order to shed some light on this issue we considered four sub indices. Subindex 1 (SUB1) is given by the answers to question 1 and 10, namely the importance of the macro program and the existence of constitutional constraints on borrowing. Thus, this subindex captures something like the importance of legislative and other constraints on the budget. Subindex 2 (SUB2) is the answer to question 2,

TABLE 5
TWO STEP REGRESSION

DEPENDENT VARIABLE: PRIMARY DEFICIT

	(1)	(2)	(3)
$TRADE_{it}$	-0.00061 (-2.27)	-0.00061 (-2.29)	-0.00062 (-2.25)
$CATAS_{it}$	0.0089 (1.18)	0.0060 (0.79)	0.0090 (1.18)
$GDPGR_{it}$		-0.088 (-1.95)	
$PRCONG_{it}$			-0.0177 (-0.651)
$INTL_{it}$	-0.2194 (-2.55)	-0.241 (-2.79)	-0.220 (-2.49)
$UND15_{it}$	0.0026 (0.94)	0.0033 (1.19)	0.00273 (0.95)
$OV65_{it}$	0.0224 (1.29)	0.027 (1.56)	0.0258 (1.47)
$PRDEFL_{it}$	0.4035 (6.19)	0.379 (5.76)	0.397 (5.87)
$\bar{R}^2$	0.53	0.54	0.53

$INDEX_i$	-0.00128 (-1.50)		-0.00137 (-1.34)		-0.00184 (-1.96)	
MED_i		-0.000175 (-0.009)		0.00345 (0.15)		-0.0096 (-0.48)
$HIGH_i$		-0.0422 (-2.19)		-0.0462 (-1.98)		-0.0591 (-2.81)
$\bar{R}^2$	0.32	0.41	0.32	0.40	0.39	0.50

which captures the relative standing of the Treasury Minister vis a vis spending ministers within the government. Subindex 3 (SUB3) includes the answers to questions 3,4,6 and 7. These are the questions which capture the relative position of the Government vis a vis the legislature. Finally subindex 4 (SUB4) is based on the answers to questions 5,8 and 9. These are questions which, more or less satisfactorily, attempt to measure the degree of budget transparency.

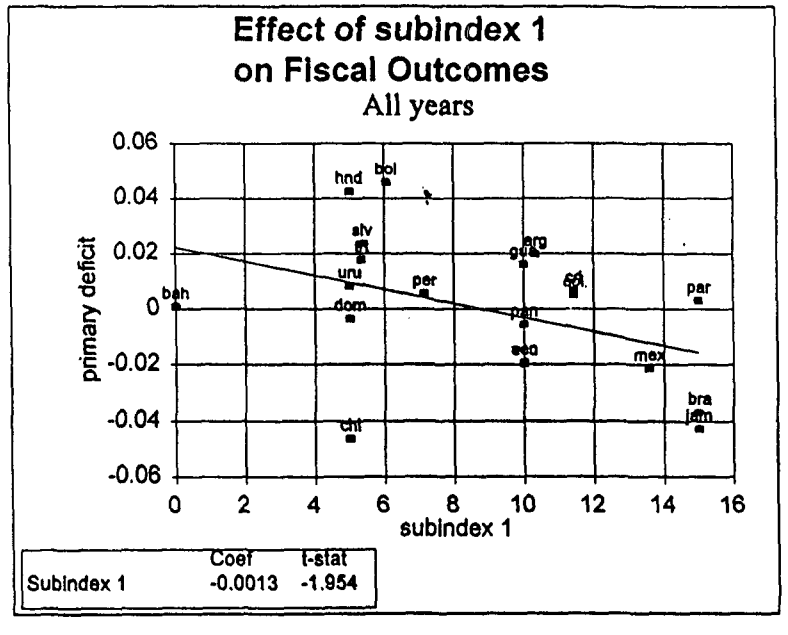
This disaggregation of the index seemed the most instructive, from the point of view of isolating different institutional features emphasized in the theoretical literature. Figure 7 shows the correlation between the four subindices and the average primary deficits. This figure highlights a rather strong negative correlation for subindices 1 and 3, a small negative correlation for the fourth one, and essentially no correlation, in fact slightly positive, for the second one.

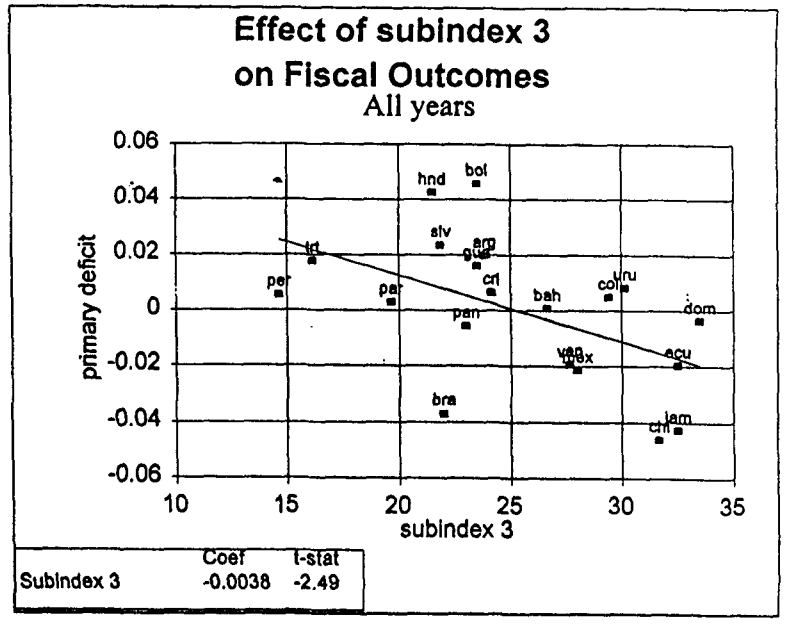
These results are confirmed by the cross-section regressions presented in Table 6. In both the specifications presented (and in other not displayed but available upon request) the first and third sub indices have significatively negative coefficients. The coefficient on SUB1 is only slightly larger, in absolute value, and slightly more significant than SUB3. The coefficient on SUB4 is negative but with a t-statistic of about -1 while the coefficient on SUB2 has the "wrong" sign, but is insignificant.

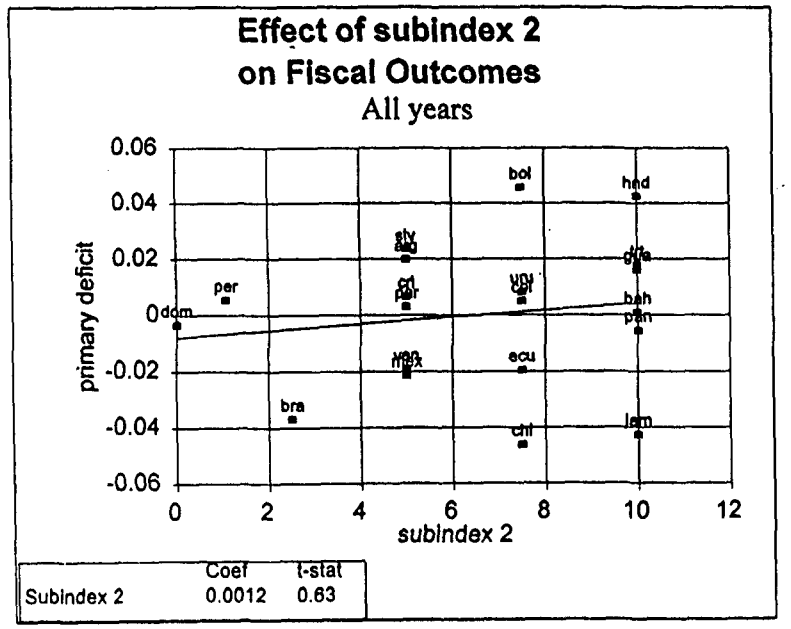
Thus, the two components which seem to work "less well" are those which refer to transparency and, particularly, the role of the Treasury Minister. In our view, these results do not imply that these features of budget procedures are unimportant, but rather that in our sample they are the most difficult to measure accurately. We discussed above the problems associated to measuring transparency, given the variety of shapes and forms that creative accounting can take. Also the coding of the answers included in this subindex were not the most straightforward, as we discuss in section 3. We were a bit more surprised in our finding concerning the Treasury Minister; one of the four authors was particularly disappointed by them! Probably the lack of variability in the answers to this question, plus a complex interaction of the letter of the law, actual practices, specific personalities and the role of cabinet instability, only partially accounted for in our index may explain this inconclusive result.

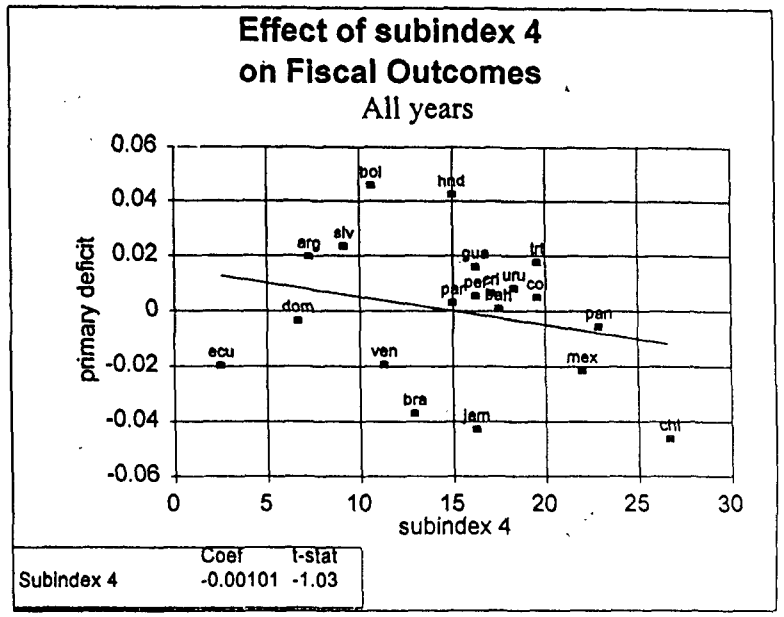
In summary we can draw three lessons from this disaggregation. First, legislative and Macroeconomic Requirement constraints on the budget seem to be effective. Second, a strong

FIGURE 7


Effect of subindex 1
on Fiscal Outcomes
All years
primary deficit
subindex 1
Coef t-stat
Subindex 1 -0.0013 -1.954


Effect of subindex 3
on Fiscal Outcomes
All years
primary deficit
subindex 3
Coef t-stat
Subindex 3 -0.0038 -2.49


Effect of subindex 2
on Fiscal Outcomes
All years
primary deficit
subindex 2
Coef t-stat
Subindex 2 0.0012 0.63


Effect of subindex 4
on Fiscal Outcomes
All years
primary deficit
subindex 4
Coef t-stat
Subindex 4 -0.00101 -1.03

government vis a vis the legislature is important in enforcing fiscal discipline. Third, we need better measures of transparency to address its quantitative impact on fiscal discipline.

6. Conclusions

Budget procedures influence the overall degree of fiscal discipline, at least in our sample of Latin American countries. Together with similar results on European countries and American States, this suggests that budget institutions are not irrelevant for fiscal stability and differences in these institutions can contribute to explain the wide variance of fiscal experiences around the world. Several questions remain open. First, aggregate measures of procedures are imperfect, and sensitivity analysis using different indices is particularly useful. Also, while we briefly discussed how various components of our aggregate index have different effects, much room for improvement is left in understanding which institutional features are more important than others in enforcing fiscal discipline.

Second, the effects of different budget procedures may be different in different political regimes; not only in democracies versus dictatorships, but also in presidential systems versus parliamentary regimes, two party systems and coalition governments, etc. For instance, hierarchical procedures may be particularly beneficial in countries with coalition governments, which typically exhibit delays in fiscal adjustments.

Third, while in this paper we focus on the effects of procedures on the level of deficits, budget rules may influence the speed of adjustment to shocks, as explicitly discussed in particular by Poterba (1994) and Alt and Lowry (1994) for the American States.

Fourth, it would be quite useful to study whether budget reforms have the expected effect on fiscal outcomes. The evidence provided in this paper hints that this may in fact be the case, but much more should be done on this point.

TABLE 6
SUBINDICES

DEPENDENT VARIABLE: AVERAGE PRIMARY DEFICIT

	(1)	(2)
TRADE	-0.00241 (-0.90)	—
SUB1	-0.00250 (-2.42)	-0.00270 (-2.69)
SUB2	0.00157 (1.05)	0.00198 (1.41)
SUB3	-0.00194 (-2.44)	-0.00212 (-2.76)
SUB4	-0.00107 (-1.32)	-0.00107 (-1.33)
$\overline{R^2}$	0.44	0.45

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APPENDIX A: THE DATA SET

CATAS This is a dummy variable which measures natural catastrophes (major earthquakes, hurricanes, etc) and wars; it takes value 1 for catastrophes' years, and 0 otherwise.
Sources: Direct survey to the IADB country economists for the countries studied.
The World Almanac and Book of Facts, Ed. Robert Famighetti.
Funk&Wagnalls Corporation, St.Martin Press, New York, 1995

DICT Dummy for dictatorship, it takes value 1 in years when the government regime was a dictatorship, and value 0, otherwise
Dictatorships are defined as those governments which were not elected into office.
Source: The Statesman's Year-Book. Ed.Brian Hunter.
St.Martin Press, New York, 1993

GDPGR Real GDP growth rate, this variable was constructed as rate of growth of real GDP
Source : Economic and Social Database(ESDB), IADB

HIGH Dummy for countries which have a high average value of the index
Source: Own calculations

INTL Total debt interest payments from the Central Government as a share of GDP
Source: Economic and Social Database(ESDB), IADB

MID Dummy for countries which have an average value of the index in the middle range.
Source: Own calculations

OV65 Share of the population over 65 years old.
Actual data points for this variable were available every five years; for 1995, there were three estimates available, low, medium and high variant, the medium variant was the one used.
The yearly series was constructed by linear interpolation among every two data points.
Source: The Sex and Age Distribution of the World Populations, The 1994 Revision, United Nations

PED79 Stock of Public External Debt, in US$, as a share of GDP, in US$.
It was not available for Bahamas
Source: World Debt Tables, World Bank 1995

PRDEF Primary Deficit of the Central Government as a share of GDP (a positive value represents a deficit, a negative value represents a surplus)
Source: Economic and Social Database(ESDB), IADB

PRCONG Real Private Consumption growth rate, this variable was constructed as rate of growth of private real consumption, in local currency
It was not available for Argentina
Source : World Tables 1993-1994, World Bank, 1994

TRADE This variable was constructed as the product of the growth in the terms of trade times the degree of openness of the economy, defined as the sum of exports and imports of goods and services, in local currency, as a share of GDP, in local currency.
Source: World Tables 1993-1994, World Bank, 1994

UND15 Share of the population under 15 years old.
Actual data points for this variable were available every five years; for 1995, there were three estimates available, low, medium and high variant, the medium variant was the one used.
The yearly series was constructed by linear interpolation among every two data points.
Source: The Sex and Age Distribution of the World Populations, The 1994 Revision, United Nations, 1994

THE INDEX, ITS COMPONENTS AND SUBINDICES

INDEX Index of budgetary institutions. Sum of variables v1 through v10

V1 Macroeconomic program as a prerequisite for submission to congress
V2 Minister of Finance has greater authority than other ministers in budgetary matters, weighed by average office term of the Finance Minister
V3 Legal constraints on congress' authority to amend the gvt's proposed budget
V4 Options available to the government when its proposed budget is rejected or not passed by congress
V5 Govt' borrowing autonomy
V6 Flexibility and execution
V7 Govt's ability to cut spending unilaterally after passage of the budget by congress
V8 Does the govt. assume debt originally incurred by other public entities?
V9 Borrowing autonomy of state and local gvts of decentralized institutions and of state and local gvts of parastatals
V10 Constitutional constraints on the fiscal deficits

SUB1 Subindex 1. Constructed as the sum of variables v1 and v10
SUB2 Subindex 2. Corresponds to variable v2
SUB3 Subindex 3. Constructed as the sum of variables v3, v4, v6, v7
SUB4 Subindex 4. Constructed as the sum of variables v5, v8, v9

Source: OCE's survey to the Budget Directors of the different countries and OCE's calculations