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Local Fiscal Behaviour in a Federal Country: Empirical and Institutional Issues
in the Brazilian Case

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Introduction

Fiscal Discipline in decentralised framework

The delegation of expenditure responsibilities and the power to tax from the central government to sub-national entities is perhaps one of the most distinguishing features of the fiscal decentralisation process.

Decentralisation policies have been widely encouraged for the gains they are supposed to bring in terms of improved economic efficiency, because in decentralised setting fiscal policies are differentiated according to local needs, and the costs of these policies are borne by the benefiting constituency (Musgrave, 1959 and Oates, 1972).

Nonetheless, if the incentives are not well-structured, fiscal decentralisation can undermine the efficiency gains to the extent that sub-national units could find it convenient to engage in opportunistic behaviour and moral hazard producing negative externalities for other local jurisdictions (Rodden, Eskeland and Litvack, 2003).

Decisions about local spending, taxing and borrowing are the policy areas in which the free riding and moral hazard problems are more likely to crop up, and where the negative externalities to other jurisdictions and to the country as a whole could be stronger. For this reason, the maintenance of fiscal discipline at the local level has become a topic of primary concern in both the theoretical and the empirical literature on fiscal federalism.

In a decentralised framework the presence of soft budget constraints might induce local governments to overspend or overborrow as they do not face the full cost of their decisions.

The distinction between hard and soft budget constraints was first introduced by Kornai (1992) to describe how state-owned enterprises could rely on increased subsidies if they increased their losses. Later on, Maskin (1996) extended this concept to the relationship between firms and creditors to describe a situation where “(...) *the enterprise can extract ex post a bigger subsidy or loan than would have been considered efficient ex ante*”.

In a decentralised context, local jurisdictions are said to face a soft budget constraint if they are able to pass on to the central government their own liabilities, which are settled through the use of common resources, thus resulting in a negative externality to other jurisdictions. The liabilities that local governments can pass on to the central government may consist, among others, of the following components: direct borrowing, underfunding of public sector pensions and underprovision of local public goods (i.e. education, health services). Hence, if local governments are aware that they are able to extract additional resources from the central government they will have an incentive to engage in fiscally irresponsible behaviour resulting in overspending and overborrowing¹. In this case, as argued in Rodden et al. (2003), not only real bailouts, but *bailout expectations* as well could represent soft budget constraints that may induce a fiscally irresponsible behaviour.

In a decentralised context bailout expectations arise because of the central government inability to credibly commit to a no bailout policy towards sub national units; there are different forces at work in feeding these expectations. First of all, there is a time inconsistency problem since local governments believe that, if a sub national entity is on the verge of default, the central government will find it convenient to rescue the distressed unit in order to avoid the negative spillovers that would otherwise accrue to the other jurisdictions. Secondly, bailout expectations often arise when sub national governments have already benefited from central government bailout; if this is the case; both the creditors and the local governments are likely to believe that sub national liabilities are implicitly backed by central government guarantee thus continuing to overlend and overborrow respectively. Thirdly, the characteristics of the fiscal and political institutions also play a central role in shaping bailout expectations. Intergovernmental transfers are in principle justified on efficiency and redistribution grounds; however, if the central government is vulnerable to pressures from regional interests, transfers are more likely to be granted according to political economy determinants than automatic rules. As a result, if intergovernmental transfers respond flexibly to partisan interests, the credibility of no-bailout policy is considerably undermined.

¹ In this case the theoretical literature says that local fiscal behaviour exhibits a *deficit bias*.

The characteristics of the federal institutions in charge of oversight of sub national government finances are likely to further exacerbate the central government's inability to commit to a no bailout policy. This occurs when regional interests are strongly represented in the central legislature (i.e. the Congress) or if decisions at the legislature are made through regional logrolling. In this case fiscally irresponsible local governments can reasonably expect to obtain a bailout through their influence in the national legislature, by trading votes with other legislators, or by threatening to veto unrelated policy proposals (Rodden et al. 2003). Finally, political bargaining for bailout is further exacerbated when small jurisdictions are overrepresented in the national legislature; in this case small states have a disproportionate power and their votes can be cheaply traded in political bargaining.

In this situation, hierarchical oversight and central regulation by the central government have often been envisaged as the most effective ways to curb bailout expectations and to induce a fiscally responsible behaviour at the local level². Hierarchical oversight can take different forms ranging from the prohibition to borrow to the imposition of numerical ceilings on the amount of new credit operations.

The Brazilian Case

The framework depicted above reflects quite well the underpinnings of the present work. Starting from an analysis of the Brazilian fiscal federalism in its political, institutional and economic aspects, this work focuses on the hierarchical rules on sub national borrowing that have been imposed to the States since the late 1960s, and tries to empirically assess the impact that *soft budget constraint expectations* have had on the fiscal behaviour of the Brazilian States during the 1986-2001 period.

The case of Brazil is worth of consideration for several reasons. First of all it is one of the largest decentralised countries in the developing world, and the one with the oldest tradition of sub national borrowing regulation amidst less developed countries. Argentina and India are federal countries as well, but in Argentina the first attempt to

² As a matter of fact other solutions have been put forward to solve the problem of bailout expectations. Among these letting sub national governments to compete for credit in the capital market is one of the most recommended solutions. However, for the capital market to exert a disciplining effect on local fiscal behaviour several conditions have to be met that often many countries, especially the developing ones, fails to comply with.

control sub national borrowing was made in 1992 with the first fiscal pact between the central government and the provinces (Schwartz and Liuksila, 1997), while in India for very long time States were forbidden from borrowing abroad (Hemming, Mates and Potter 1997).

Secondly, sub national foreign borrowing in Brazil dates back to the 1960s and since then three debt crises have unfolded which threatened the macroeconomic stability of the whole country, as in the case of the financial crisis of the late 1990s.

Thirdly, Brazil is an interesting case study in what concerns the historical and the political elements that are likely to weaken the credibility of the central government no bailout promises. On the redistribution side, although intergovernmental transfers are in principle determined according to a formula constitutionally grounded, a large share of transfers are voluntary, in the sense that their amount is determined by the President of the Republic and it is not fixed by any law. Hence, the amount of voluntary transfers going to each federal unit is likely to be determined through a process of political bargaining that further nourishes expectations of soft budget constraints.

Over the last four decades intergovernmental fiscal relations in Brazil have registered a large series of central government attempts to adopt a tight stance toward local fiscal laziness; nevertheless, these efforts lacked credibility and sub national governments continued to accumulate excessive debt that at maturity ended up being rescheduled by the Federal Treasury. Besides the history of past bailouts, the characteristics of the Brazilian politics and the system of hierarchical oversight are perhaps the most important elements nourishing soft budget constraint expectations. States' interests are widely represented in the federal legislature and their influence over federal politics is pervasive. The Federal Senate is the most important channel through which regional interests have hearing at the federal level. Each State elects three senators, and then small States end up being largely overrepresented with respect to the largest ones.

Historically, the Federal Senate is the organ responsible for regulating sub national borrowing and over the last four decades it has exerted this authority by means of legal measures, the so-called *Resolutions*³, which are binding for all levels of government. The Federal Constitution of 1988 confirmed this mandate and also gave to the Senate the power to authorise particular kinds of borrowing operations. A common feature of

³ From the Portuguese *Resolução*.

the set of regulations issued by the Senate is that they all contain an escape clause that can be activated by majority voting at the Federal Senate⁴. These escape clauses allowed sub national governments to ask for a temporary suspension of the numerical ceilings on borrowing. Hence, here's the main weakness of the Brazilian system of oversight: the control and regulation on sub national borrowing is assigned to the most representative organ of regional interests in the federal sphere!

State-based interests affect federal politics through other channels as well. Party discipline in Brazil is rather weak especially in what concerns national parties organizations. This creates a situation in which elected federal representatives are more responsive to state party organizations than to the national ones; therefore they often end up bringing pork-barrel to their home state while neglecting issues of national interest. Another element that further strengthens the ties between federal representatives and regional interests is the dynamic underlying the electoral campaign of deputies and senators. As Samuels (2000) pointed out, federal deputies tend to organise their electoral campaign around candidates running for gubernatorial elections: rather than around those running for Presidential elections because of the larger benefits they can earn in their home state in terms of jobs and rent positions once the candidate they support wins the elections. This mechanism confers to state governors a great deal of influence over federal representatives, and sometimes it makes it difficult for the President to form a legislative coalition around issues of national interest. In these instances the state governors represent the only instrument through which the President can gather a consensus within its coalition around nationwide issues.

Method of analysis

The novelty of this work lies in the empirical and the institutional analysis it performs, and in the measure of soft budget constraint it develops, which plays a crucial role in the empirical analysis.

The study of the Brazilian institutional setting sheds light on the main weaknesses of the system of fiscal federalism: the lack of clarity in the attribution of spending responsibilities to state governments create a grey area in which the latter are left free to

⁴ As a matter of fact the federal legislation on sub national borrowing has evolved over the years, but this is the topic of the analysis presented in chapter two of this work.

define their own spending priorities while the central government has no power of intervention; the analysis of the system of hierarchical rules and their evolution throughout the sample period depict very neatly the ups and downs of the federal government stance towards excessive borrowing at the sub national level. It is only under the Cardoso administration (1995-1998 and 1999-2002) that the central government ceased to be a mere coalition of regional interests and became able to prioritise issues of national interest. The dissection of the Central Bank regulations on the supply of credit to the public sector also uncovers how the monetary authority often adopted an accommodating stance towards the central government bailout policy.

The empirical part is entirely new in what concerns the dataset, some of the political variables used as well as most of econometric tests it performs. The dataset has been purposely constructed using states' budget data and economic data available from the Brazilian Central Bank, the Ministry of Finance and the Statistical Institute (IBGE). Political economy data (i.e. the number of state representatives at the Federal Congress, their political affiliation, and the political affiliation of the state governors) have been constructed using information available on the outcome of the elections held in Brazil for: the Federal Congress, the President of the Republic and the State governors from 1986 to 2001. The measure of soft budget constraint expectations is constructed assuming that the history of past bailouts feeds expectations of this to occur again in the future. However, this variable has not been constructed using textbook information about the episodes of collective debt renegotiation, but it adopts a more subtle approach, which also captures the effectiveness of the rules imposed by the federal senate. Since all the resolutions issued until 2001 contained an escape clause, which could be activated in exceptional circumstances by majority voting at the Federal Senate, the aim is to capture the bailout expectations as nurtured by the mere presence of this escape clause. Therefore, based on the Federal Senate Resolutions issued during the 1986-2001 period, all the episodes in which a single state has been authorised to temporarily borrow above the numerical ceilings by virtue of these escape clauses have been recorded. This information was used to construct a binary variable which takes value 1 if state i in year t has been authorised to borrow above the limits and zero otherwise; this binary variable was then used to obtain a proxy for the expectations of a soft budget constraint to occur.

Besides a preliminary test on the determinants of redistribution among states, the econometric analysis assesses which factors affect the probability of a state to obtain a loosening of its budget constraint in a given year by virtue of the escape clause. This analysis aims to test whether this probability is affected by the economic size of a state and by political economy variables. The core of the empirical analysis lies in the assessment of the impact that expectations of soft budget constraints, as defined above, have on the spending behaviour of state governments. Based on the assumption that extra-borrowing should be allowed only for the purpose of financing investments, the empirical analysis tries to test whether these expectations feed effectively into higher capital spending.

Structure of the work

This work is structured into the three chapters. The first chapter is devoted to a review of the theoretical and empirical literature on fiscal rules, its aim is to ground theoretically and empirically the analysis that follows. The literature review tries to answer two questions: i) where do rules come from? ii) under which conditions can fiscal rules effectively enforce fiscal discipline?

Since the issue of fiscal discipline is not limited to a federal country, but it is of some interest also for a monetary union lacking a central fiscal authority, the first part of the theoretical review focuses on the need of fiscal rules in a monetary union. In this case the main reasons underlying the adoption of fiscal rules relate to the need to preserve the monetary stability of the whole Union, and to prevent the opportunistic behaviour of national fiscal authorities that is likely to arise when they give up on the control of monetary policy. The second part of the theoretical review focuses on the case for fiscal rules in a federal country. Although the rationales mentioned above apply to this case as well, the risk sharing function that intergovernmental transfers usually play in a decentralised context represent additional incentives to free riding and excessive deficit accumulation

The review of the empirical literature provides an overview of the existing contributions on the topic. The vast majority of the econometric analyses reviewed in this chapter focus on the case of the U.S. States, but none of them adopt an approach similar to the

one found in this analysis. This is probably due to the fact that in the U.S., unlike Brazil, each State defined its own fiscal rules which most of the times are constitutionally grounded thus being hardly amendable. This provides researchers on the U.S. case with a large variability of rules across states and with a stable regulatory framework that has allowed the Advisory Commission on Intergovernmental Relations (ACIR, 1987) to elaborate a cross state index on the stringency of fiscal rules. The ACIR index has been widely used in the empirical works analysed in Chapter one as an indicator of the degree of fiscal discipline enforced in each state. In the case of Brazilian States it is not possible to follow this procedure since none of them has defined its own fiscal rules, but these have been imposed from the central government and have been amended several times⁵. The first chapter concludes with a summary review of the core features of an effective set of fiscal rules, which provide a useful tool to compare the Brazilian rules with those adopted by the U.S. States which represent the benchmark of sub national borrowing regulation.

The second chapter focuses on the Brazilian fiscal federalism in its economic, political and institutional aspects. After having examined the assignment of revenues and expenditures responsibilities among government tiers, this chapter describes how the electoral system and the system of representation at the federal congress shape intergovernmental relations. The second part of the chapter presents a detailed analysis of the system of hierarchical rules and oversight of sub national borrowing as laid down by the Federal Senate and the Central Bank Resolutions. This analysis paves the way for the empirical analysis of Chapter three and permits to detect some shortfalls in the existing regulation. Too often the Central Bank failed to adopt an independent stance towards sub national borrowing to accommodate the central government bailout initiatives. Comparison of the Federal Senate resolutions with the U.S. benchmark permits to identify some gaps in the set of rules as they lack a precise definition of the conditions under which the escape clause could be activated and they are ambiguous about the penalties to be inflicted to non compliant entities.

⁵ The reader could argue that the time variability of hierarchical rules could have been exploited to assess the impact of changing regulations over time. This is not possible either as the resolutions issued by the federal senate differed very little from one another in their substantive requirements and were also too complicated to allow for a categorisation of the different requirements (for further details see Chapter two).

After a preliminary description of the database, and the soft budget constraints dummy, the econometric analysis is performed using a panel data including information for all the 26 Brazilian States plus the Federal District over the 1986-2001 period. A large set of econometric techniques is adopted in the analysis.

The determinants of intergovernmental transfers are estimated through a fixed effect specification, while the probability of a soft budget constraint to occur is estimated by means of a conditional logistic fixed effect regression. The logistic regression is also used to generate soft budget constraint expectations using the dummy variable as the dependent variable; the predicted probability obtained from the logistic regression represents our proxy for soft budget constraint expectations.

The impact of these expectations on the states' spending behaviour is estimated using a dynamic model with one lag of the dependent variable in right hand side of the equation. As an indicator of fiscal behaviour the analysis uses states' government spending split into three different specifications: capital expenditures, personnel expenditures and other net current expenditures, in order to assess on which of this three categories the soft budget constraint expectations have the largest effect. Since the model to be estimated suffers from different endogeneity problems, an instrumental variable approach is adopted. As a preliminary step, an instrumental variable fixed effect specification is tested; the endogenous variables are the log of current State Gross Product and intergovernmental transfers. The second set of estimates uses dynamic statistical packages that permit to implement a Generalised Method of Moments estimator (System GMM or Arellano-Bover estimator). This second technique makes available a broader set of instruments and permits to account for the endogeneity due to the presence of the lagged dependent variable among the regressors. Concluding remarks follow.

Empirical findings and concluding remarks

The empirical findings of this work provide some interesting suggestions about the dynamics underlying redistribution and the effects of the escape clause on the spending behaviour of local governments.

Most of the Brazilian States exhibit a high degree of dependence on intergovernmental transfers, in 12 States out of 27 the transfers to revenue ratio ranges from 50% to 80%.

According to the econometric analysis, redistributive considerations or countercyclical policy objectives seem to play a minor role as determinants of intergovernmental transfers, while the political economy variables feature among the factors that most affect the level of redistribution. Federal transfers increase in periods of economic expansion and decrease in periods of economic downturns, while a higher per capita income is associated to higher per capita transfers. The level of transfers responds positively to last year's level of personnel expenditures, while the coefficient on other net current expenditures and net capital expenditures is not significantly different from zero. Finally, States that are closer to the legislative coalition of President of the Republic receive higher transfer than those that are not; this result is driven mainly by the political affiliation of the state representatives, thus testifying that political bargaining plays a major role in determining the amount of transfers.

The political affiliation of state representatives is also an important determinant of the probability of a state to obtain a loosening of its budget constraint. This time however, the sign attached to the coefficient is negative, while the level of per capita income and the number of state representatives in the Federal Congress affects positively the probability of a soft budget constraint to occur; the lagged level of intergovernmental transfers instead reduces this probability. The empirical evidence on the positive impact of the political variables and the negative sign on the previous year's transfers, tells an interesting story about the dynamic underlying the states' financing mechanisms: the states that are politically closer to the President have at their disposal a higher amount of resources in the form of intergovernmental transfers than those that are not, and they also have a lower probability to resort to the escape clause.

Evidence on the determinants of State government spending is robust to both the fixed effect instrumental variable and the system GMM estimation methods. State government spending exhibit a pro-cyclical stance, it increases in periods of fiscal expansion and decreases during recessions. In the use of intergovernmental transfers the States exhibit a bias in favour of personnel expenditures, while they affect negatively the amount of capital expenditures.

In what concerns the expectations of soft budget constraints, the empirical findings are quite surprising since an increase by 1% in the probability of loosening of the budget constraint affects positively personnel expenditures, while the effect on capital expenditures is negative and significantly different from zero. This contrast with the initial assumptions according to which States are supposed to borrow only to finance capital expenditures and points to a different rationale underlying state borrowing. The conclusion that follows from this evidence is that the mere presence, in the current regulation on sub national borrowing, of an escape clause seems to create perverse incentives for the states by stimulating personnel expenditures, with no effect on capital expenditures.

The empirical and institutional analysis presented in this work permits to draw some interesting conclusions about the "*Brazilian way*" to fiscal discipline and to put forward some policy suggestions about possible improvements in the current system.

The set of incentives in the existing system of fiscal federalism seem to be poorly designed. The predominant influence of regional representatives over federal politics and the vulnerability of the President to the pressure of state-based interest are such that regional issues come before national priorities.

The crucial role of the Federal Senate in the regulation of sub national borrowing and its strong ties with the states are the major roadblock toward a sound fiscal adjustment at the state level, and the factor that most contributes to nurturing soft budget constraint expectations and irresponsible fiscal behaviour.

Nonetheless, removing the escape clause from the federal legislation on borrowing is not necessarily the right thing to do: escape clauses are valued for the flexibility they provide in case of unforeseen economic shocks. The stimulating effect of soft budget constraint expectations, as stemming from the presence of the escape clause, is rather symptomatic of the need to change the system of oversight and the sanctions underlying the rules on sub national borrowing.

First of all, the links between the "controller" and the "controlled" should be cut off; regulation and oversight of sub national borrowing should be assigned to an independent organ which is able to guarantee an impartial enforcement of the regulations. Secondly, a stronger national executive would be welcome, which is able to put national interests before the regional ones. Finally, a system of intergovernmental

transfers, which is really redistributive in purpose and partially linked to the state's fiscal performance, would represent the most powerful mechanism through which states incentives could be changed.

Chapter 1

Fiscal Discipline and Fiscal Policy Restraints: what does theory say?

Introduction

The desirability of rules limiting discretion in the conduct of fiscal policy is a long standing subject of debate in many countries in both the developed and the developing world,¹ but neither the theoretical nor the empirical literature offer a clear-cut answer to the issue.

Following Kopits and Symansky (1998) fiscal rules can be defined as a permanent constraint on fiscal policy, which usually takes the form of an indicator of overall fiscal performance. The most commonly used fiscal indicators relate to: the government budget deficit, borrowing and debt, whose level or growth rate is capped to a given numerical ceiling usually expressed as a share of GDP. Besides consisting of restrictions on some fiscal indicators, another element characterising fiscal rules is the system of penalties and/or rewards they are equipped with, which affects the incentives of fiscal policy maker in order to induce the desired behaviour.

Critics of fiscal rules argue against their adoption in order to preserve the flexibility to adopt the stabilisation policies necessary to offset exogenous shocks. In particular, there is growing concern that such rules would prevent the functioning of automatic stabilisers thus increasing output volatility and further depressing growth (Eichengreen and Wyplosz, 1998, Levinson 1998)². Besides the stabilization argument, the tax-smoothing theory of budget deficits as well argues against the adoption of fiscal rules

¹ Although, as argued in Eichengreen and von Hagen (1995), the debate on fiscal discipline and the adoption of fiscal constraints affect unitary and federal countries alike, the former are beyond the scope of this analysis

² The opposite point is made in Fatas and Mihov (2002). They argue that discretionary economic policy increases output volatility, which in turn lowers economic growth by 0.6% points for every percentage point increase in volatility.

since budget deficit and surpluses are necessary to smooth the distortionary costs of taxation.

On the other hand fiscal activism has been opposed for the fiscal policy being either ineffective or source of inflationary bias. The first argument rests on the *Ricardian equivalence* put forward by Barro in the 1970s, according to which if the intertemporal budget constraints for the households and the government is introduced, fiscal policy may not be effective in affecting national saving and consumption. The second argument originates from the "*unpleasant monetarist arithmetic*" of Sargent and Wallace according to which persistent fiscal imbalances put pressure on the central bank to finance the government deficit (Buti and van den Noord, 2004).

In addition to these theoretical arguments, two other factors are usually put forward to justify limitations to the fiscal behaviour of sub national governments in a federal setting. First, fiscal rules can be helpful in curbing the deficit bias that arises when several entities have full discretion in fiscal decision making; secondly, fiscal rules correct the spillover effects accruing to the members of a currency area or a federation from the fiscal profligacy of one member or sub national government.

In the last decade the debate on the desirability of fiscal policy constraints and on the proper route to fiscal discipline has gained new impetus, in the wake of the adoption of the Stability and Growth Pact within the EMU³. Thereafter, theoretical contributions in support of fiscal policy restrictions in a monetary union thrived. However, as Kopits (2001) pointed out, the worry about fiscal discipline dates back to the 1960s and the 1970s when both the European countries and the United States started to adopt procyclical fiscal policies exhibiting a persistent deficit bias. In the same period many emerging countries as well experienced growing deficits and debt as a consequence of the pursuit of development goals. Hence, since the 1980s, the fear that an excessive debt accumulation could have harmful effects on investments and growth, induced several

³ The Stability and Growth Pact was formally adopted at the Amsterdam Summit in June 1997. The SGP clarified the provisions contained in the Excessive Deficit Procedure, set forth by the Maastricht Treaty, and requires the fiscal positions of the member countries to be balanced or in surplus in normal times so that automatic stabilizers can operate. In particular, the SGP implements a system of supervision over the fiscal position of the member countries so that an early warning procedure is alerted each time the respect of the reference parameters is at risk. In case of non compliance with the ceilings set forth by the pact, the non-compliant member country will be punished by being forced to pay of fine calculated as a share of the State GDP.

governments to adopt fiscal stabilisation programmes that were recently followed by the adoption of fiscal rules (Kopits, 2001).

The United States are an exception in this respect since constitutional limits on state borrowing were adopted since the 1840s, in the wake of the defaults on state bonds issued during the 1830s (Eichengreen, von Hagen 1995). After World War II many industrial countries introduced balanced budget rules (i.e. Germany, Italy, Netherlands) and recently many other countries have done the same, this is the case of New Zealand, which adopted the Fiscal Responsibility Act in 1994, Canada, and other developing countries as well like Argentina, Columbia, Peru (Kopits, 2001).

Amid the group of developing countries Brazil is a highly illustrative example, since in this country sub national foreign borrowing started since the 1960s in order to face the revenue shortage that occurred under the military regime. The excessive debt accumulation of this period, and the sharp increase in interest rates further deteriorated the ability of sub national governments to repay their debt, thus forcing the central government to intervene several times in order to avoid state default. Since then, several attempts have been made to limit the amount of borrowing by sub national governments and to induce a fiscally responsible behaviour. However, as Chapter two will show in greater detail, the quest for hard budget constraints has proved very difficult to achieve and somewhat ineffective.

This chapter provides a survey of the theoretical and empirical literature on fiscal policy restraints in federal countries. The purpose of this literature review is twofold. Firstly, it aims to ground theoretically the tendency, as observed in Brazil over the last few decades, towards the adoption of rules limiting the fiscal discretion of all government units. Secondly, the review of the empirical literature motivates the analysis of Chapter three which aims to empirically test the effectiveness of those rules in curbing excessive spending at the State level.

Therefore, this chapter tries to answer two fundamental questions: i) where do rules come from? ii) under which conditions can fiscal rules effectively enforce fiscal discipline?

In order to answer these questions the literature review is organised as follows. The first section analyses the rationale behind the adoption of fiscal constraints. To some extent the issue of fiscal discipline in a monetary union and in a federal country overlap, in fact

supranational organizations in the form of union of sovereign countries can be assimilated to federal countries as far as the interaction between the monetary and fiscal policy is concerned. In both cases member states devote to a central authority the full control over the monetary policy (i.e. the central bank) while retaining autonomy in national fiscal policy-making. Hence, the theoretical analysis developed for a monetary union applies to a large extent to the case of federal countries as well. The second section briefly reviews the available empirical contributions on the impact of fiscal rules on sub national fiscal behaviour, and draws mainly from the experience of the U.S. States. The third section briefly summarise the insights from the literature about the features that characterise a strong set of fiscal rules. The fourth section uses these insights to put the Brazilian rules in a comparative perspective in order to evaluate them against the international benchmark.

1. Where do rules come from?

As already stated above, given the strong similarity in the interaction between the monetary and the fiscal policy in a monetary union and a federal country, this section will draw from the most recent theoretical contributions to the adoption of rules limiting the fiscal behaviour of countries participating to a monetary union. The theoretical contributions in the second part of this section will make the case for the adoption of fiscal rules in federal countries.

The models analysing the rationale behind the Stability and Growth Pact (SGP, henceforth) provide a theoretical counterpart to the reasons that may induce countries participating to a monetary union to tie their hands in the conduct of fiscal policy. When the monetary policy is under control of a common central bank, it is possible that high-deficit member countries, or a member country in recession, exert pressures for a loosening of the monetary policy, whose inflationary effects will be borne by other member countries as well (Beetsma and Uhlig, 1999). Generally speaking, the common concern is to limit the negative externalities that could accrue to the whole union from the fiscal and financial difficulties of a member of the federation.

This argument can be extended without loss of generality to federal countries. In this case however, each sub national unit can adopt fiscal rules autonomously, as it is the case in the U.S., or they can be imposed by the central government to all the sub

national units, as it is the case of Brazil and several other countries. Kopits (1998) qualifies the first case as an autonomous or *bottom-up* approach to local fiscal discipline which usually stems in countries where sub national governments have direct access to financial markets to borrow and where central government bailout is rare, hence they have an incentive to maintain a good credit rating in the markets. The second case is labelled as coordinated or *top-down* approach to fiscal discipline. This approach prevails in those countries where the central government have been forced to intervene in support of distressed states; hence, coordination is deemed necessary to introduce a long lasting and credible fiscal adjustment.

1.1 Fiscal rules in monetary unions

The deficit bias and the coordination failures are two of the most common sources of negative externalities of the kind mentioned above.

The deficit bias originates from the incentives that independent fiscal authorities have either to spend or to borrow above the socially optimum level. Several arguments have been proposed in the literature to explain the deficit bias and various solutions have been put forward to mitigate its negative effects.

Beetsma and Uhlig (1999) show that in a monetary union national fiscal policy makers have an incentive to over borrow since they fail to internalise the consequences of their debt policies for the common inflation rate. In this context a stability pact is desirable and the improvements it can bring are larger the more independent is the common central bank.

To prove these results they use a simple two-period model in which n countries form a monetary union and the control over monetary policy is assigned to a common central bank, while each member country retains full autonomy in the conduct of national fiscal policy. The driving force behind the deficit bias is the short-sightedness of national policy-makers that are in office only for the first period, as in the second elections take place. During their term in office national policy makers have an incentive to raise additional debt in order to finance expenditures that benefit their constituency, leaving to the next administration the burden to repay the debt. As a result, in the second period, the new administration will rely on a mix of inflation and taxes to pay the debt. This

strategic debt accumulation is likely to result in a negative externality to the other members of the federation to the extent that the high-debt members might exert pressures on the common Central Bank to loosen its monetary policy in response to their high debt level. In this scenario the adoption of a stability pact could be beneficial to all the participating countries, especially if penalties are foreseen for members accumulating excessive deficit. This is because in a monetary union penalties for non compliance can have a disciplining effect on debt accumulation to the extent that their impact can be assimilated to an increase in the effective interest rate, thus inducing a substitution away from current government consumption towards future government consumption. Therefore, they show that under a stability pact the optimal debt level chosen by each member is a decreasing function of the punishment imposed under the pact.

Without monetary union national governments do not have any incentive to monitor each other's debt policies as there are no negative spillovers from one state's debt policy to the others. Under national monetary policy national policy makers have an incentive to restrain debt accumulation, even if short-sighted, because the utility function they maximise when choosing the optimal debt level is assumed to be a decreasing function of the level of inflation; hence discretionary monetary policy has a *disciplining effect* on its own.

When a monetary union is formed the incentive to contain debt accumulation is weakened since the effect of a unilateral reduction in debt on the common inflation rate is only $1/n$; and this contribution becomes lower the higher is the number of countries participant to the Union. Furthermore, in a monetary union without a stability pact, the deficit bias becomes larger the higher is the degree of central bank independence in targeting zero inflation. This apparently counterintuitive result is due to the fact that under central bank independence a zero expected inflation weakens the incentive of national fiscal policy makers to restrain debt accumulation.

To sum up, in the model proposed in Beetsma and Uhlig (1999) the adoption of a stability pact is favourably viewed since it is deemed to mitigate the average deficit bias that arises when member governments do not fully internalise the inflationary consequences of their debt policies.

Unlike Beetsma and Uhlig, according to which the need for fiscal rules comes naturally with the creation of a monetary union, *Chari and Kehoe (2004)* bring forth a somewhat different argument in favour of fiscal rules in a monetary union. They argue that the desirability of fiscal constraints depends on the ability of the monetary authority to commit to a given inflation target: if the monetary authority is able to commit, then debt constraints are unnecessary and only impose a cost; if a time inconsistency problem exists and the monetary authority is unable to commit, member countries are likely to adopt a free-riding behaviour that results in excessive borrowing and inflation, under this scenario fiscal rules become necessary.

The authors use a two-period model in which I countries enter a monetary union and are free to choose their preferred debt contracts, consisting of an amount of nominal debt sold to foreign lenders, b_i , and a nominal repayment x_i , associated to the nominal debt. The monetary authority is responsible for choosing the price level prevailing in the second period; output is assumed to depend negatively on inflation.

Within this framework two situations can occur. The first is one in which national governments choose their preferred debt contracts non-cooperatively: in this case each government maximises its own utility function and does not consider the negative effect their debt policies can have on other countries' utility. The second scenario is the cooperative equilibrium in which each government chooses the debt contract that maximises a weighted average of the utility functions of all member countries. The final outcome in these two scenarios depends on whether the central bank is able to commit or not.

In the non-commitment scenario the central bank chooses the price level in the second period, after member countries have chosen their debt contracts; in this case the debt contracted by member countries clearly affects the inflation level.

In the commitment scenario the central bank instead set the price level at the beginning of the first period; in this case inflation is not affected by the debt chosen by member countries.

The authors find that without commitment by the central bank the social welfare achieved under the non-cooperative equilibrium is lower than under the cooperative regime, hence the debt level in the second case is too high. This occurs because in a non cooperative setting member countries fail to internalise the impact that their preferred

debt contract has on the utility of other members via its effect on the common inflation level. Hence, member countries have an incentive to over borrow and this leads to excessive inflation that reduce output and then social welfare. When the central bank is able to commit the cooperative and non-cooperative equilibria coincide and the socially optimum debt contracts are achieved.

The free riding problem that arises in the non-commitment and non-cooperative regime provides a rationale for policy constraints. The adoption of a stability and growth pact allows to implement the cooperative solution since it mitigates the free riding problem by curbing states' incentives to accumulate excessive deficit.

Hence, the authors use this argument in favour of the adoption of fiscal rules within the EMU since even though price stability is a prior in the European Central Bank agenda "... *monetary policy is set sequentially by majority rule*".

In *Dixit and Lambertini (2001)* fiscal policy constraints in a monetary union act as a tool to coordinate the policy objectives of the monetary and the national fiscal authorities that otherwise would be likely to conflict each other.

Under the assumption that both fiscal and monetary policy affect the equilibrium level of output and inflation, the authors find that when the two authorities have conflicting objectives in terms of production and price level, the resulting Nash equilibrium entails a final level of output that is above the monetary authority target and an inflation level that is below the one desired by the fiscal authorities. Moreover, even if the central bank has the ability to commit to a predetermined inflation level discretionary fiscal policy nullifies such commitment since the fiscal authorities' reaction function act as a constraint on the monetary rule. Hence, in order to avoid such extreme outcomes the imposition of constraints on fiscal policies would be desirable to the extent that they induce both authorities to fix their policies in advance, and make these objectives less conflicting each other.

Based on the above argument *Uhlig (2002)* shows how in a monetary union the *failure* to coordinate the tasks of the central bank and of the national independent fiscal authorities could exacerbate the deficit bias already examined in *Beetsma and Uhlig (1999)*. Ensuring price stability in a monetary union usually calls for central bank's intervention in the occurrence of a cost-push shock that induces upwards pressures on

the price level; on the other hand, national fiscal authorities are responsible to manage demand side shocks.

The lack of coordination between these two tasks induces a policy distortion to the extent that each member state will have an incentive to adopt an expansionary fiscal policy not only in response to demand shocks, but also to offset the negative effects on the domestic economy of the anti-inflationary measures adopted by the central bank in response to the cost-push shocks. This argument adds to the free-riding problem that naturally arises when each member state sees its policy decision as having only a minor effect on the economic conditions of the union as a whole. In this context states have an incentive to increase their deficit without considering the spillover effects accruing to other countries via the common monetary policy. Nonetheless, if each country adopted this policy, the net effect would be a generalised increase in public deficit which puts upward pressures on the price levels thus forcing the central bank to further raise the interest rates. Hence, unlike previous models the final effect is not generalised inflation, since the central bank keeps it under control, but raising interest rates within the Union with harmful effects on output growth.

To avoid this free-riding problem and to mitigate the coordination failures, increased collaboration among the monetary and fiscal authorities in the form of a stability pact represent a good tool to limit country specific deficits and to assure that national fiscal policies stick to their task.

Therefore, this provides an argument for fiscal coordination even if the central bank is able to commit to a specific inflation level, thus contradicting the predictions of Chari and Kehoe (2004) illustrated above.

Unlike the mainstream approach illustrated so far, *Eichengreen and von Hagen (1996)* argue that the rationale for limiting sub central fiscal behaviour is not necessarily linked to concerns about the stability of the common currency, but it is related to the structure of the tax base that prevails within the union. The authors observe that if borrowing restrictions were solely motivated by currency stability concerns, then they would prevail in every monetary union. Nonetheless this is not always the case⁴, and with

⁴ The authors' claim is based upon the evidence that out of a sample of 16 federal countries and 33 unitary countries, 8 of the federal countries do not impose any kind of restriction on sub national governments, while among the unitary countries only four leave sub national governments free to borrow while the other adopt some limitations either in the form of strict golden rule or central government approval of sub national borrowing.

respect to the United States they point out that the adoption of constitutional limits on borrowing by state governments was not motivated by reasons related to the stability of the U.S. Dollar, rather by the widespread defaults on state bonds in the 1840 (Eichengreen and von Hagen 1995).

The authors claim that when sub national governments have low tax raising autonomy, as it is the case in many unitary countries, they are highly vulnerable to adverse macroeconomic shocks. Hence, when a sub national entity incurs into fiscal distress, the central government has only two options, it can either allow it to go bankrupt or it can bail it out; and usually the second option prevails. However, if sub national governments anticipate that they will almost certainly benefit from a bailout, they will have an incentive to engage in risky activities and to behave in a fiscally irresponsible way. On the contrary, when sub national governments have large revenue raising autonomy, a third option is available to the central government to resist bail out pressures: it can refuse to offer a bailout and force the distressed entity to raise local taxes in order to repay its liabilities. This argument is also supported by the empirical evidence: the probability of imposing a restriction on sub national borrowing is lower in countries where local governments control a large share of the tax base.

As a result, the larger incidence of borrowing restrictions in unitary compared to federal countries is explained by the lower revenue autonomy sub national governments enjoy in the former with respect to the latter.

Therefore, their conclusions go in opposite direction to those presented above. While previous studies justified the adoption of policy constraints as a means to avoid destabilising effects on monetary stability, Eichengreen and von Hagen (1996) conclude that in the actual context of EMU, where member countries control the bulk of the European tax base, the ability of the European Central Bank to resist to bail out pressures is not at stake⁵: if this occurs it can force the member states to raise taxes to avoid default. Clearly their argument runs against the adoption of the Stability and Growth Pact but, what is interesting for the purpose of this work is that the authors

⁵ The authors claim that the enforcement of fiscal discipline as envisaged by the Stability and Growth Pact would have the opposite effect to the extent that depriving national governments of the ability to respond to adverse shocks, push them to lobby the European Union to act in their behalf, eventually leading to a kind of fiscal federalism where the European institutions increase their taxing power to the detriment of national governments, thus increasing the degree of vertical fiscal imbalances. In such a scenario the pressures for bailouts will become stronger thus undermining the capacity of the Central Bank to resist bailout pressures.

make a strong point in favour of the adoption of borrowing limits in states characterised by high vertical fiscal imbalances regardless of their unitary or federal structure.

1.2 Fiscal rules in federal countries

The theoretical contributions presented so far, undoubtedly provide an interesting explanation of why a federal country or a monetary union could find it necessary to impose fiscal restraints on the fiscal conduct of its members. These theories, however, emphasise only one part of the story since they focus on the interplay among several fiscal decision makers and one monetary authority and on the effects of this interactions on monetary stability. The analytical framework underlying these theoretical contributions fails to consider that in federal countries the central government acts as a third player in the interaction between the central bank and the national fiscal authorities. The central government enters this game by carrying on a redistributive function by means of both grants and revenue-sharing arrangements⁶.

In this context additional incentives arise which are likely to exacerbate the deficit bias and the free riding problem already analysed. In the theory of public finance these forces are known as “*common pool*” and “*moral hazard*” problem; the remaining of this section briefly goes through the theoretical contributions that focus on these two issues.

According to Weingast, Shepsle and Johnsen (1981): “*a [re]distributive policy is a political decision that concentrates benefits in a specific geographic constituency and finances expenditures through generalised taxation*”.

The mainstream economic theory on fiscal federalism justifies redistributive policies to the extent that they fill vertical fiscal imbalances and provide insurance against risks (Persson and Tabellini, 1994); nonetheless in most countries, especially the developing ones, intergovernmental transfers end up financing a sizeable share of lower government expenditures thus introducing a wedge between the costs and benefits of

⁶ As a matter of fact in a federal country the central government continues to play its traditional allocation function, which mainly consists of the provision of public goods whose benefits are nationwide. Nevertheless this chapter does not emphasize the allocation function of the central government, as it is beyond the scope of this chapter whose goal is to provide theoretical foundation to the adoption of rules limiting the discretion of local authorities in the conduct of fiscal policy. The redistribution function, instead, is worth of consideration since, by altering the correspondence between the benefits and the costs of the spending decisions of local policy makers, it might lead to overborrowing and overspending thus motivating the adoption of fiscal rules.

their spending decision. Therefore, as many authors have pointed out (Velasco, 2000), since local governments understand that a fraction of the costs will be borne by others, there will be a widespread incentive to overspend and overborrow. This leads to the well known trade-off between risk sharing and common pool.

Velasco (2000) analyses the common pool problem using a dynamic model of fragmented fiscal policymaking where agents have an infinite horizon. In this setup several interest groups benefit from transfers from the upper level of government and use these funds partly to finance their own expenditures. The author further assumes that the central government is weak; hence each group can influence the amount of resources its constituency will receive. The author concludes that transfers are higher than the amount that would be chosen by a benevolent planner, fiscal deficits emerge even when there are no reasons for intertemporal smoothing and in the long run public debt is excessively high.

Persson and Tabellini (1994) provide an analysis of the trade-off between moral hazard and risk sharing within a federation in which the amount of risk sharing, to be implemented at the federal level, and the amount of public investment, to be implemented at the local level, is chosen simultaneously through the election mechanism. When the member countries act non-cooperatively, i.e. each country fails to internalise the effect of its fiscal policy choices on the other countries, then full international risk sharing prevails which reduces the incentives for member countries to enact policies that decrease local risk. Within this framework moral hazard is modelled as leading to underprovision of local public investment if compared to the first best. A possible solution to mitigate this trade off relies on a combination of delegation and centralisation of the risk sharing function to a federally elected policymaker (i.e. the federal president).

This scenario is modelled as a two-stage game in which the federal president is elected in the first stage, while in the second stage local and federal policies are chosen simultaneously. In her choice of the optimal amount of risk sharing the federal president is assumed to maximise her own expected utility function and since median risk type voters are decisive in presidential elections, the president as well will be a low risk type. Hence, the ensuing equilibrium is a second best equilibrium in which the federal

president chooses less than full risk sharing while the local governments implement more public investment.

Although this setting does not explicitly support the adoption of rules of fiscal discipline, it provides a nice modelling of the trade off between moral hazard and full insurance that arises when local governments finance a large share of their expenditures out of central government transfers. If they are aware that the federal government will provide them with the amount necessary to offset adverse shocks, they will not have the incentive to exert as much effort as possible to reduce that probability of adverse shocks hit the domestic economy. An irresponsible fiscal behaviour and the accumulation of excessive deficits at the local level could be a clear example of moral hazard.

Carlsen (1998) pushes these arguments further to make the case for the adoption of central regulation on local borrowing and spending. The author analyses the effects of strategic distortions arising from the interactions between the central and the local sector in a two-period game. In this setting the local government is responsible for financing two activities⁷ while the central government appropriates ordinary grants in each period; local governments choose the amount of funding for each activity, then the central government decides whether to provide additional grants. In this model the central government is assumed to have perfect information and to have knowledge of the optimal allocation of resources to each of the two activities. Without central regulations of both the revenues and the spending mix, local governments would have an incentive to distort the spending mix by running a deficit in the first period in order to achieve higher transfers in one or both periods⁸. In the final equilibrium, however, local governments refrain from distorting the spending mix since the central government finds it more convenient to raise grants in the first period rather than providing additional grants in the second period.

This result hinges upon the assumption that local governments' incentive to behave strategically and to distort the spending mix depends on the marginal benefit on intergovernmental transfers. Wealthy local governments are more concerned with an even allocation of spending across time and activities rather than with obtaining higher

⁷ These activities can be thought of as either two categories of local public spending or private and local public spending respectively.

⁸ in this case it is irrelevant which activity is financed out of debt and which through local own revenues.

transfers; while poor local governments are much concerned with raising intergovernmental transfers thus having a greater incentive to behave strategically.

In this setting the threat of strategic behaviour induces the central government to provide a higher amount of intergovernmental transfers, hence in equilibrium local spending is too high if compared to the social optimum. The rationale for central regulation follows from this outcome: the adoption of revenue and spending regulation would prevent local governments from underproviding local public spending, while borrowing regulations (and penalties for non compliance with the rules) would make less attractive for local governments strategic accumulation of debt.

Likewise *Inman (2003)* claims that regulation of local fiscal behaviours, through independently enforced regulations, allows curbing sub national governments' incentive to play a default-bailout strategy.

In a federal setting sub national governments can shift the costs of local public services in three ways: i) they can fund the production costs of local services through federally funded transfers; ii) they can run a deficit and borrow money in order to cover the gap and then refuse to repay the debt; iii) they can still run a deficit and use deficit rollovers year after year until current local tax payers have left the jurisdiction, leaving to future residents the burden to repay the accumulated debt. *Inman (2003)* models the cost shifting game as a prisoner dilemma in which the decision to allow cost shifting at the local level is taken at the central government level by locally elected representatives: The equilibrium outcome is inefficient since all governments will adopt a cost shifting strategy receiving the socially inefficient payoff, and the provision of local public goods will be above the social optimum⁹. In order to solve the prisoner dilemma the incentives of locally elected policymakers must be changed with the introduction of appropriate *penalties and rewards* in order to induce independent local legislators to implement to cooperative non-shifting strategy. Nonetheless, even though the efficient cooperative solution can be enforced at this stage, the central government is still vulnerable to the threat of default since local governments can decide to implement the socially

⁹ In this game local representatives must choose between cost shifting, which provides benefits to its citizens while part of the costs are shifted to citizens of other communities, and the no-shifting action in which its citizens bear the full cost of their action. Under specific assumptions about the structure of the payoffs from each strategy, *Inman* shows that the game is a prisoner dilemma and the final equilibrium is one where all governments will adopt a cost shifting strategy receiving the socially inefficient payoff. The shifting strategy can be thought of as submitting a local subsidy for national financing, while the no shifting strategy can be thought of as non submitting a local subsidy for national budget.

inefficient level of local spending by borrowing in the first period and refuse to pay the maturing debt in the second period asking for central government bailout¹⁰. Whether the final equilibrium will be one in which the central government effectively offers a bailout, depends once again from the structure of the payoff matrix. According to Inman if the costs the central government bears in case of local government default are significant the inefficient equilibrium would prevail in this game; on the contrary, if these costs are small the default-bailout outcome will be avoided and the efficient solution will be implemented. Within this analytical framework, the default-bailout game is triggered by a *time inconsistency* problem according to which central government promises of no bailout in the first period are not credible against the real threat of a default to occur in the second period. To mitigate this time inconsistency problem, Inman proposes the regulation of local fiscal behaviours through independently enforced regulations. She suggests different institutional arrangements to handle the problems outlined above: i) to control inefficient local transfers; ii) to limit by constitution, intergovernmental transfers only to those local activities with demonstrable intergovernmental spillovers; iii) to include in the constitution a no-bailout clause and establish a national bankruptcy standard that requires all local debt to be repaid out of local taxes; iv) to adopt a constitutionally grounded golden rule according to which the current account must be balanced within each fiscal year and borrowing would be allowed only to finance long term capital investments.

The imposition of revenues and spending regulations could prevent local governments' from underproviding public goods, while borrowing regulations prevent them from running strategic deficits.

2. Do fiscal rules curb excessive deficit accumulation?

Once the desirability of fiscal restraints has been theoretically grounded, this section reviews the empirical evidence on their effectiveness in limiting government deficits in

¹⁰ In this default-bailout game the local government has two options. In the first case it can choose to finance its spending out of tax revenues and the socially efficient outcome is implemented. In the second case it can decide to finance part or the whole cost through borrowing and to play a default-bailout strategy. In this instance it can declare default in the second period and ask for central government bailout. The central government can either bail it out, thus bearing a cost, or refuse to offer financial relief to the local government which is left the option to repay the debt by raising taxes, or to default.

order to draw some insights about the desirable properties fiscal rules should have to be successful.

The empirical literature on the effectiveness of fiscal rules has had as its privileged field of analysis the US States since, in Inman's (2003) words, "*the historical experience of U.S. States provides a natural experiment for testing the effectiveness of balanced budget rules in controlling lower government fiscal deficits*". However, before going into the details of these empirical studies, it is worth sorting out the most common fiscal rules, having the US States as a benchmark.

Fiscal rules can be divided into three categories (Hemming and Kell, 2001): deficit rules, debt rules and expenditure rules.

Deficit rules, also labelled as balanced budget rules (BBR, henceforth), usually define a numerical target on overall deficit¹¹. BBRs can in turn be grouped into four categories depending on which stage of the budget process the balance is required (Poterba and Reuben, 1997). The first group includes the weakest form of BBR, which only requires that the governor must submit a balanced budget; the second group requires that the legislature must pass a balanced budget; the third category of BBRs imposes that unexpected deficits must be corrected in the next cycle; the fourth category of BBRs is the most stringent since besides imposing the approval of a balanced budget, the law forbids the states to carry the deficit over on the next budget cycle. Finally, a golden rule is adopted when the BBRs impose a current balanced budget but allow deficit accumulation for the financing of investments. Nonetheless, BBRs prescribing a balanced budget in every year have been criticized since they would prevent the use of budget deficits and surpluses as a tool to implement an optimal tax policy. The adoption of a contingent budget balance law with escape clauses to permit a certain amount of tax smoothing, would instead be preferable (Alesina and Perotti, 1999). Other problems related to the adoption of BBRs, especially in the form of a golden rule, concern the fear that they might encourage creative accounting and other practices reducing the degree of transparency of the budget process (Hemming and Kell, 2001).

¹¹ The 3 percent of GDP limit to the general government deficit as defined by the Maastricht Treaty is an example of such rules.

Debt rules are usually defined in terms of a numerical ceiling on the amount of debt expressed as a share of GDP. However, defining the optimal debt level is not an easy task; hence in some cases a debt ceiling is preferred to a point target¹².

Expenditure rules as well impose ceilings on specific areas of expenditures such as personnel expenditures, debt service, and unemployment benefits¹³. As Hemming and Kell (2001) pointed out, caps on expenditures have some advantages: they can mitigate the deficit bias by forcing governments to keep under the control a source of deficit they can influence most directly; they are simple to understand and monitor; they allow to maintain fiscal discipline while also allowing the automatic stabilizers to operate. Nonetheless expenditure limits can encourage creative accounting practices, and do not provide a long term anchor for inflation and during economic downturns they are not sufficient to generate nominal surpluses.

Bohn and Inman (1996) performed a wide-ranging analysis on the effectiveness of BBR in US States using budget data for a panel of 47 US States for the period 1970-1991. They assess the effectiveness of BBR on actual government deficit by distinguishing the different categories of BBRs. They control for the impact of: the no carryover clause; the ex ante balanced budget requirement (i.e. whether the governor must submit a balanced budget and the legislature must pass a balanced budget); alternative provisions to override a BBR (statutorily vs. constitutional); and alternative enforcement mechanisms (appointed vs. elected Supreme Court).

The empirical evidence points out to a not significant effect of rules requiring only ex-ante balanced budget on the general fund deficit, while the no carryover rule proves as the most effective tool in reducing general fund deficit. They justify this evidence by arguing that when an ex ante balanced budget rule is imposed, state governors have an incentive to overestimate revenues and underestimate expenditures in order to balance the budget, so that if a budget deficit arise at the end of the year, "bad luck" is likely to be the main culprit. On the contrary, the no-carryover rule has more disciplining effects

¹² Another problem related to the definition of a debt rule is the appropriate measure of debt to be used as reference value. On the one hand the gross debt definition would allow cross country comparability but it could be a misleading indicator of debt sustainability. On the other hand net debt would be a better indicator of sustainability but it is highly controversial what to include on the financial asset side and the valuation of some assets can also be problematic (Hemming and Kell, 2001).

¹³ As documented in Hemming and Kell (2001) expenditure limits have been adopted in the United States, Sweden, Finland and the Netherlands. In 1995 the personnel expenditures Brazilian states were capped at 60% of state liquid revenues, while caps on the amount of annual debt service have been imposed since 1975. For further detail see chapter two.

since it requires mid-year adjustments to revenues and expenditures to balance the budget. The authors also find that the probability for a state to run a deficit at the end of the fiscal year is lower when a no-carryover BBR is adopted.

Differences in the system of BBRs enforcement also matter. Bohn-Inman (1996) find that the states where BBR violations are authorised by a supreme court appointed by the state's legislature or governor, have larger deficits than those states in which the Supreme Court is directly elected by voters. Finally, states with constitutionally grounded rules run larger surpluses than the states with statutorily based rules, since the former are more difficult to amend or to override than the latter.

Poterba and Reuben (1997) assess the impact of BBRs from a different perspective. They assume that anti-deficit rules can affect deficit in two ways: i) by constraining the action and the incentive of fiscal policy makers; ii) by affecting the bond market perceptions about the creditworthiness of the borrowing entity thus resulting in lower risk premium and in lower interest rates on bonds. Unlike Bohn and Inman (1996) that mainly focused on the first link, they investigate how financial markets react to cross states differences in fiscal rules by analysing the effect of balanced budget rules and borrowing restrictions on the yields on state general obligation bonds¹⁴. They use data on the tax-exempt yields on bonds issued by different US states over the 1973-1996 period, and estimate a model for the relative yield on a general obligation bond issued by a generic state compared with a similar bond issued by the State of New Jersey. As independent variables they include: a set of state-specific economic and fiscal conditions that are likely to affect borrowing costs (i.e. unemployment rate that affects the probability that the state will be able to repay its obligations); the stock of state debt outstanding; the top state income tax rate in state i in year t . State budget and tax institutions are proxied by a set of indicators including: a variable indicator constructed on the basis of the ACIR index of fiscal stringency¹⁵; an indicator about the ease with which states can issue long-term general obligation debt; whether a state has a tax or

¹⁴ General Obligation Bonds are state bonds issued on the capital market whose proceeds are used to fund general investment projects. These bonds are backed by "the full faith and credit" of the borrower i.e. by resources on the general fund.

¹⁵ This is the ACIR index of budget stringency whose values are comprised between 0 and 10. This index is constructed on the basis of the characteristics of the BBR in each state. Points are awarded in the following way: 1 point if the governor must submit an ex ante balanced budget; 2 points if the legislature has to pass a balanced budget; 4 points if it allows the state to carry over the deficit into the next year; 6-8 points if it does not allow deficit carry over. The indicator used by the authors is a discrete indicator, which takes different values according to whether the ACIR index for the single state is of six or below.

expenditure limit. This last indicator is included since these two limitations can have very different effects on the bond market perceptions about a state creditworthiness: limiting the tax autonomy of a state may increase its risk profile since it may not be able in the future to meet interest payments, while expenditure limitations may be perceived favourably since they rise the probability of a state to be able to meet its liabilities.

Econometric estimation of this model, however, poses some problems in terms of endogeneity of a state's outstanding debt level, since the stock of outstanding debt affects a state's risk premium, but causation can also work in opposite direction since the stock of debt is likely to be affected by the prevailing interest rate on state bonds. State fiscal institutions as well are likely to be endogenous, since fiscal institutions are not fixed, but can be changed by voters and legislatures¹⁶.

The principal findings from their analysis show that state fiscal institutions affect the return that lenders demand on states tax-exempt bonds. States facing limitations on tax revenues have higher borrowing rates than those without such limitations, while expenditure limitations have exactly the opposite effect. Borrowing costs are also lower in the states with strong anti-deficit provisions than in those with weak provisions. Finally, restrictions on the state's ability to issue bonds also matter in reducing borrowing costs though the coefficient magnitude is lower than for other fiscal rules. Evidence about outstanding debt shows that when that variable is treated as exogenous, a higher outstanding debt increases borrowing costs; when it is treated as endogenous the coefficient is still positive but loses significance¹⁷.

Alesina and Bayoumi (1998) address one of the most debated issues on the desirability of fiscal rules i.e. the trade-off between lower deficits and reduced flexibility in fiscal policy. They use as a measure of fiscal constraints the ACIR index mentioned above, and estimate a set of equations aimed to test the effects of this index on: i) the average primary surplus over the 1988-1992 period; ii) the variability of surplus as measured by

¹⁶ To solve the endogeneity problem, the authors use two different empirical strategies. In what concern the outstanding debt they estimate a reduced form model with and without the outstanding debt level. They also use an instrumental variable approach using as instruments for current debt levels a state's historical constitutional debt restrictions on debt issued and information on how it is difficult to change debt restrictions and other fiscal institutions. Endogeneity of fiscal institutions, instead, is addressed in two ways. Firstly they control for some measures of voters preferences in order to reduce the correlation between budget rules and fiscal outcomes. The second approach is to instrument the fiscal institutions variables by using as instruments variables that affect budget rules but not fiscal policy.

¹⁷ The authors, however, conclude that this result is likely to arise because the instruments they use are not valid in the sense that they explain only a minor fraction of the variation in the state outstanding debt.

the standard deviation of the change in surplus as a share of state product; iii) the cyclicity of fiscal policy, as measured by the coefficient obtained estimating the change in fiscal surplus on the changes in the logarithm of real output; iv) the variability of output, as measured by its standard deviation.

The empirical findings point to a positive effect of fiscal rules on fiscal discipline, since more stringent fiscal rules are associated with a higher average surplus. Fiscal rules, however, impose some rigidity on fiscal policy since tighter fiscal constraints reduce both the variability of surplus and the cyclical variability of surpluses. Finally, more stringent fiscal rules are not significantly associated with higher variability of output thus leading to the conclusion that the adoption BBRs in the US States has no costs in terms of output variability.

Unlike Alesina and Bayoumi (1998), *Levinson (1998)* argues against the adoption of fiscal rules, since they have economic costs in the form of increased volatility of the business cycle. Unlike the previous works that use the ACIR index as a summary indicator of the stringency of fiscal rules, Levinson's analysis focuses only on the most binding categories of fiscal rules i.e. those BBRs that prevent states from carrying over budget deficits to the next fiscal year (ex post BBR, henceforth). The author estimates a cross section relationship between BBRs and the cyclical fluctuation of output for the US States and compares the magnitude of cyclical fluctuations¹⁸ in states with strict BBR (i.e. ex post BBR) and in states with lenient BBR (i.e. only ex ante BBR). She finds that strict balanced budget requirements exacerbate business cycle fluctuations and that this effect is stronger in large states compared to the small ones, since the former are more able to conduct fiscal policy than the latter.

Poterba (1994) investigates the dynamics of state spending and taxes during the 1980s in order to analyse whether states with more restrictive fiscal rules react more rapidly to unexpected deficits than states with less stringent constraints. Unexpected deficits are measured as the difference between revenue and expenditures shocks; revenue shocks are given by the difference between the revenues that would have been collected during the fiscal year given the tax system that was in effect at the beginning of that year, and

¹⁸ The author adopts two different measures of business cycle fluctuations. The first measure is the standard deviation of the quarterly difference between the log of actual personal income per capita and that predicted by the mean log growth rate. The second measure is the difference between the largest peak over the period and the deepest trough.

the revenues that this tax system was forecast to collect at the beginning of the fiscal year¹⁹; expenditure shocks are computed as the difference between actual outlays and forecasted outlays. The empirical analysis tests how changes in spending and taxes after a deficit shock differ across states as a function of: i) cross-state differences in fiscal rules; ii) different partisanship between the state governor and the legislature (i.e. divided government); iii) the position in the electoral cycle. The sample contains data for the 27 continental states with annual budget cycles during the 1988-1992 period. Changes in spending and taxes are the dependent variables used in each set of estimates. As an indicator for fiscal rules the author uses a binary variable taking value 1 for the states with a value of the ACIR index of 5 or below (i.e. weak anti deficit rules) and 0 if the index is between 6 and 10 (i.e. strict anti deficit rules). Interacting the binary indicator with the deficit shock variable allows to capture the impact of weak rules on the reaction of states to unexpected deficit shocks. The main finding of this analysis is that states with weak anti-deficit rules adjust their spending behaviour in response to an increase in budget deficit less than states with strong fiscal rules, while there is not evidence that anti deficit rules affect tax changes.

The divided government hypothesis tests whether cross-state differences in the response to fiscal shocks are to some extent related to the governor and the legislature belonging to different political parties. The author finds that states in which one party controls both the governorship and the lower house in the legislature (i.e. single party governments) respond more quickly to unexpected deficits than states with divided governments. This evidence can be ascribed to the fact that in single party governments the costs of reaching a political agreement are lower than in the case of divided governments in which both the governor and the legislature are likely to be vulnerable to political pressures thus being somewhat reluctant to take unpopular actions. Furthermore, states with strict fiscal rules and single party government seem to cut spending and raise taxes in response to deficit shocks, while there is no evidence of any significant relationship between the divided government variable and the response to fiscal shocks in states with weak fiscal rules. Finally, the position in the electoral cycle

¹⁹ This measure is corrected for any change in tax revenues that occurred during the fiscal year under consideration because of changes in the tax system introduced during that year and not accounted for in the forecasts.

as well seems to matter; in years immediately prior to gubernatorial elections spending cuts and tax increases are smaller than in other periods.

Alt and Lowry (1994) perform an empirical analysis to test the impact of the no-carryover constraints on the fiscal behaviour of US states using state data for the 1968-1987 periods. They also test the divided government hypothesis, to see whether states with split legislatures adjust their revenues and expenditures less quickly than single party legislature. They estimate a simultaneous equation system for revenues and expenditures and find that when faced with unexpected revenue shortfall unified party governments subject to a no deficit carry over law will adjust their revenues and expenditures more quickly than states not subject to such constraint. Divided governments adjust less than unified parties regardless of the legal constraints they face, perhaps because they find it more difficult to take unpopular fiscal decisions or because they are accountable to different constituencies with different preferences about fiscal outcomes.

To sum up, both institutional and political factors seem to affect significantly the magnitude as well as the timing of state response to fiscal shocks. The available empirical evidence, gives some useful suggestions about the requisites that are likely to increase the effectiveness of fiscal rules; these requirements are the topic of the next section.

3. How to design effective fiscal rules

The issue of how to design effective fiscal rules is a widely debated topic especially since proposals on the reform of the Stability and Growth Pact have been put forward in the last few years.

The empirical evidence presented above testifies how BBRs imposing no deficit carryover to the next fiscal year are the most effective in curbing fiscal deficit²⁰.

Prescriptions about the desirable features of effective fiscal rules abound in the literature, but the core “ingredients” require fiscal rules to be: i) simple; ii) well-defined; iii) flexible; iv) must use ex-post deficit accounting; v) constitutionally grounded; vi)

²⁰ The work from Bohn and Inman is particularly illustrative in this respect since their analysis is not limited to the no carryover clause but they also test for other requisites.

enforced by an open and politically independent review panel with significant sanctions;
vii) costly to amend.

Rules should be *simple* since complicated rules can be circumvented by creative accounting and also be difficult to monitor (Alesina and Perotti, 1999). In practice simple rules should define a numerical ceiling for the variable of interest, in this respect the deficit and debt rules defined in the Stability and Growth Pact satisfy the simplicity requirement (Buiter, 2003).

A corollary of simplicity is that rules should be *well defined* in terms of the indicator to be constrained (i.e. expenditure ratio, deficit ratio, debt ratio), the institutional coverage (i.e. the government level they apply to), and the escape clause, which specifies the exceptional circumstances under which rules can be overridden (Kopits and Symansky, 1998). Although an escape clause is desirable for the flexibility in fiscal management, it can be dangerous since, as argued in Wyplosz (1998), it could feed expectations that temporary suspension of the rules can be easily obtained thus distorting fiscal behaviour in an undesirable way; hence the conditions under which the escape clause can be invoked have to be specified as precisely as possible in advance.

Criteria from (iv) to (vii) are laid down in Inman (1996) with reference to the US BBRs, and represent the outstanding features of *strong* fiscal rules. The author argues in favour of ex post versus ex ante deficit accounting since the former impose a stiffer budget constraints upon fiscal policy. Ex ante rules only require either to submit a balanced budget or to pass a balanced budget, while ex post rules that require the budget to be balanced at the end of the fiscal year force fiscal policymaker to adopt mid-term adjustment in the revenue and expenditure flows and prevent them from carrying over deficits to the next fiscal year:

The fifth criterion concerns the legal foundation of fiscal rules. As argued in Kopits and Symansky (1998) the legal basis of fiscal rules can be found in a variety of instruments: constitution, law, regulations, policy guidelines or international treaty. Although the instrument selected by a given country is a function of custom, legal precedent or convention, a constitutionally based fiscal rule is to be preferred to statutorily based rules since temporary suspension in the first case can occur only through a constitutional amendment while in the second case they can be overridden simply through majority voting. Therefore, as in the first case activating the escape clause

becomes quite difficult a constitutionally grounded fiscal rule could be successful in daunting states' expectations of "easy waiver".

The nature of the organ responsible for the enforcement of fiscal rules is a further element that enhances the credibility of fiscal rules. In this respect many authors prescribe that enforcement has to be under the responsibility of a politically independent court and that costly sanctions are to be inflicted in case of non-compliance. An independent enforcer would ensure impartiality in the assessment of violations of the rules while a politically appointed review panel is vulnerable to partisan pressures in the interpretation of the rules. The effectiveness of fiscal rules is strengthened if the procedure to certify whether a violation of the rules occurred could be initiated also by citizens and it is not restricted to the institutional level (i.e. open vs. close rules).

Finally, rules are more likely to affect the fiscal behaviour of sub national governments if they are perceived as long lasting and difficult to change. In this respect a costly amendment would be desirable in order to prevent current political interests to change the rules at their will. Once again a constitutionally set rule or a rule grounded in an international treaty would satisfy this requirement since it could be changed only through a constitutional amendment or an amendment to treaty which is more difficult to obtain since they require a large consensus.

The literature review presented so far answers the questions posed at the beginning of this chapter. The need for fiscal rules arise in a monetary union and a federal country alike in order to preserve monetary stability and to avoid the negative spillovers that are likely to arise from the free riding behaviour of one member of the federation.

The available empirical evidence on the U.S. States shows that strong BBRs, in the sense of Inman's criteria, are effective in curbing deficit accumulation and stimulating a prompt response of local fiscal policy to offset unexpected shocks.

This review also provides a useful framework for interpreting the Brazilian experience of local fiscal discipline. The institutional and empirical analysis of chapters two and three respectively, highlight how Brazil has adopted a top-down approach to fiscal discipline in order to curb the default-bailout game triggered by excessive debt accumulation at the state level since the 1960s. These rules, however, did not prove very effective in attaining this goal as the episodes of state bailouts of the last four decades testify. Only in the last couple of years new efforts have been done in order to strengthen

the budget constraint of sub national governments, but it is too early to evaluate the effect of this new set of rules.

The empirical analysis of Chapter three is novel with respect to the methods adopted in the works reviewed in this chapter because of the peculiarities of the Brazilian case that will emerge clearly in the next two chapters.

Chapter 2

Fiscal Discipline in Brazil: the Institutional Setting

Introduction

This chapter provides a general overview of the Brazilian federalism both in its institutional, political and economic aspects, with a special focus on the way they shape intergovernmental relations. The aim of this analysis is not merely to introduce the “Brazilian case”, but it is also to provide a broad framework within which the empirical findings of chapter three might be interpreted. This is necessary insofar as the rules of fiscal discipline are not elaborated in an institutional vacuum, and the institutional context is a key determinant of the rules’ effectiveness in bringing sub national fiscal conduct into a virtuous path.

This chapter is organised as follows: this section provides a brief introduction to the current system of fiscal federalism; section 2 illustrates the main features of the Brazilian electoral system in order to disentangle its implications for the system of intergovernmental relations; section 3 describes the economic aspects of the fiscal federalism and section 4 analyses the issue of sub national borrowing and states’ defaults. The second part of the chapter is devoted to the issue of local fiscal discipline and to an in-depth analysis of the main legislative provisions that have been adopted so far.

1. The Brazilian Fiscal Federalism

Brazil is a three-tier Federal country composed of the Union, 26 States plus the Federal District and by more than 5,000 municipal governments; states and municipalities are driven by elected governors and mayors respectively.

Although officially introduced by the 1988 Federal Constitution, the process of fiscal decentralisation in Brazil goes back to the authoritarian period²⁶ when the centralisation of the power to tax and to spend made local governments as mere executors of central government will. The revenue autonomy of sub national governments became even lower in the late 1960s when central government reduced by half the amount of transfers. As a remedy to such low degree of financial autonomy, states resorted to both external borrowing and financing from state banks. The adverse impact of the oil shocks during the '70s and the recession of the '80s precipitated states fiscal distress and forced them to cut investment and social policies spending. Since then, states' claims for greater financial autonomy induced the central government to start a revenue decentralisation process that was formalised in the 1988 Federal Constitution (Mora and Varsano 2001).

The political climate of the post-authoritarian period was inspired by a thorough reaction to the former centralising tendencies; hence, strengthening the federation and the prerogatives of sub national governments became the central priorities of the newborn democracy.

The new Constitution introduced major changes in the relationship among levels of government. First of all it recognised to both the states and the municipalities the status of autonomous entities within the federation²⁷; secondly, it deprived the Federal Government of a substantial share of tax revenues on behalf of sub national governments²⁸, but it failed to clearly define the spending responsibilities of each level of government. The new Constitution also encouraged the creation of new municipalities without establishing minimum conditions on their size or financial sustainability. This resulted in the rapid growth of small, financially weak municipalities depending on Central Government finances.

The main constitutional provisions defining the institutional relationship among levels of governments are those contained in articles 34, 35 and 52. Articles 34 and 35 of the Federal Constitution authorise the Federal Government to intervene into the

²⁶ The authoritarian regime started in Brazil during the 1960s and came to an end only in the second half of the 1980s.

²⁷ Art 18 of the 1988 Federal Constitution.

²⁸ The Federal Constitution not only transferred to sub national governments the power to administer some kind of taxes but also envisaged some revenue-sharing schemes that forced the Federal Government to transfer to local governments a share of the revenues collected through centrally administered taxes. This topic will be addressed in more detail in section 1.2

administration of both the States and Municipalities only in special circumstances. Art. 34 authorises the Federal Government to reorganize the finances of the State or the Federal District that: a) stops the payment of its funded debt for more than two years except for reasons of *force majeure*; b) fails to deliver to the municipalities the tax revenues established by the Constitution, within the time periods set forth by law, (art. 34, par. V (a-b))²⁹. In the same way art. 35 prohibits both the Federal and State government from any intervention into the municipal administration except when: the funded debt is not paid for two consecutive years without reasons of *force majeure* (art. 35, par. I); when the due accounts are not rendered in the terms prescribed by the law (art.35 par II); when the municipality fails to apply to the maintenance and development of education the minimum required amount of municipal revenues (art. 35 par. III).

Art. 52 of the Constitution confer upon the Federal Senate³⁰ the power to supervise public finances at all levels of government. According to the constitutional dictate the Federal Senate is responsible for: authorising external financial operations of the Union, the States, the Federal District and the Municipalities (par. V); defining, on the President's proposal, numeral ceilings over the consolidated debt of the Union, the States, the Federal District and the Municipalities (par. VI); setting conditions and global limits over the internal and external credit operations of the Union, the States, the Federal District and the Municipalities and other entities under federal control (par. VII); setting limits and conditions over the amount of bonds that can be issued by the States, the Municipalities and the Federal District (par. IX).

The provisions of art. 52 par. VI are crucial for the purpose of this work since they define the domain of federal intervention in the conduct of state fiscal policy.

Throughout the years the Federal Senate has exerted this power by imposing numerical ceilings on sub national borrowing whose legal base are legislative provisions called *Resolutions*, which are binding for all the levels of government. The analysis of these

²⁹ Federal intervention is also authorised if aimed to: maintain national integrity; repel foreign invasion or that of one unity of the federation into another; to put an end to serious jeopardy to public order; to guarantee the free exercise of any of the powers of the unit of the Federation; provide for the enforcement of the Federal Law; ensure compliance with the fundamental constitutional principles (i.e. republican form democratic regime, human rights, municipal autonomy, rendering of accounts of both direct and indirect administration); application to the maintenance and development of education of the mandatory minimum of the income originating from state taxes and revenue sharing agreements.

³⁰ The Federal Senate is composed of 81 members elected at the State level; each state elects 3 representatives for a eight years mandate. Elections for the Federal Senate are held each four years; in the first tranche each state elects one senator while the two remaining are elected in the next tranche.

resolutions is the central focus of the second part of this chapter and the effectiveness of the rules they introduced will be empirically assessed in Chapter three.

To sum up, except the above-mentioned constitutional provisions, which envisage a direct intervention of the federal organs (i.e. the President of the Republic and the Federal Senate) in the States' affairs, the Federal Constitution leaves sub national governments free to set their own policy priorities. This is formally stated in the Constitution according to which: "*all the powers that this Constitution does not prohibit the states from exercising shall be conferred upon them*" (art. 25, par. I).

Other important features of the Brazilian federal design contribute to confer upon sub national units strong influence over federal politics and also affect the system of intergovernmental relations. The next section will touch upon these institutional features and will briefly summarise the main political consequences thereof.

1.1. The Brazilian electoral system and the intergovernmental relations

The literature on political institutions has widely recognised that electoral rules have important political consequences.

In the case of Brazil these consequences are even more complicated, since this country has a mixture of representational formulas that are not common in the advanced industrialised democracies (Mainwaring, 1991). Elections for President, Governors and Mayors follow a majoritarian rule with runoff between the two most voted candidates if none obtains 50% of the votes in the first round of elections; senators are elected through a first-past-the-post system, while federal deputies are elected through a system of open list proportional representation. Each state is a single, at-large, multimember district whose magnitude ranges from eight to seventy in the case of Sao Paulo.

Electoral rules can be defined as the mechanisms according to which voters' preferences are aggregated and the power to make decisions over economic policy is acquired by the political representatives (Persson and Tabellini, 2003). Electoral rules play a key role in affecting politicians' electoral strategies as well as their performance once in office. Persson and Tabellini (2000) study the impact on electoral competition and politicians' performance under two different electoral rules: the *proportional representation*, where the parties obtain a seat share in perfect proportion to their vote share in the entire population, in the case of single district elections, versus the *majoritarian rule*, where

only the party who obtains the highest vote shares gets seats in a given district under the assumption of multiple-district elections. They find that majoritarian elections concentrate electoral competition in some key marginal districts thus determining more targeted redistribution toward narrow constituencies compared to the proportional representation system. In addition, majoritarian systems are also associated to a smaller supply of public goods since the benefits to the non-marginal districts are ignored.

These two authors also emphasise another difference between the two electoral systems (Persson and Tabellini 2000). While majoritarian elections allow voters to condition their vote on the performance of the specific incumbent in their district and to remove him from office in case of disappointing performance, in proportional elections this is not possible since there are several candidates running for election in the same district and voters often vote for a list not a specific candidate. Therefore, in the last case the incumbents' incentives to perform well become weaker because reappointment is not directly linked to their own past performance.

According to Mainwaring (1991) the formula of open list proportional representation; which is adopted in Brazil for the election of federal deputies, induces individualism and antiparty behaviour of the elected representatives, since preference votes completely determine the intraparty order of candidates, thus weakening party control over candidates. In this system a citizen casts a vote for one deputy only and this vote cannot be transferred to other individuals. Seats are distributed first to parties according to the total number of votes their candidates get and then within parties according to the number of individual votes. Therefore, politicians perceive parties simply as a mean through which they get elected but generally they do not have strong bonds with the national party organisations, which are unable to exert a political control over their elected members.

The federal nature of the political system as well contributes to weakening national party organizations. State party organizations in Brazil have pervasive powers since they control nominations and alliance making decisions thus reducing the control that national parties have on candidates elected at the State level. Hence, as observed by Ames (1995), politicians elected at the Federal Congress favour pork-barrel programs directed at their constituencies while they are largely inactive on issues of national interest.

Another factor that reduces cohesiveness of the national legislature is what Samuels (2000) calls "*the gubernatorial coattails effect*" according to which candidates for legislative office have strong incentives to organise their campaigns around a state level candidate for executive office (i.e. state governor) rather than a national level candidate (i.e. the President of the Republic) for at least two reasons. First, the weakness of Brazilian national parties and the low partisan affiliation of voters induce candidates to seek other ways to attract votes. Organizing their campaign around gubernatorial candidates is a good way to do so since they usually have strong networks based on patronage within their state. The second factor relates to the strong influence Brazilian state governors enjoy at the sub national level since they control a large share of state's budget and also have power to hire and fire. This is a strong incentive for federal candidates to coalesce around a gubernatorial candidate since if the latter wins they can enjoy privileged access to pork barrel programmes and obtain political jobs for their supporters.

The strongest implication of this state-centeredness of legislative elections is the president's inability to build a stable legislative coalition since elected deputies are more focused on state based issues and disregard issues of national interest as the former are more relevant than the latter in shaping their political futures. Clearly these factors bring state governors to the forefront in the federal arena since they exert on federal deputies a stronger appeal than the President himself. As observed by Samuels (2000 p. 251):

" (...) from the start of his administration Cardoso has wooed state governors to lobby the deputies from their states on his behalf, with promises of federal pork going to the governors, not the deputies. In sum, executive-legislative relations in Brazil involve a fourth branch of the presidential system: state governors."

1.2 Expenditures and revenues assignment

The assignment of spending and revenues responsibilities among government units, as laid down by the Federal Constitution, has been criticised by many authors (Rodden 2003, Ter Minassan 1997) for being unbalanced, especially in what concerns state level attributions. While on the revenue side both states and municipalities were assigned well-specified tax bases and benefited from a system of revenue sharing, spending

responsibilities were less clearly allocated except some specific spending items explicitly assigned to the Federal and Municipal Governments.

The Federal Government's attributions follow the musgravian taxonomy, then they have exclusive spending competence in the areas of: foreign affairs, control of the money supply, interstate commerce and national highways. The municipal level is responsible for intracity public transportation, preschool and elementary education, preventive health care, land use and historical and cultural preservation (Rodden 2003).

States' legislative competences are instead defined in a residual way. As already mentioned, art 25 of the Federal Constitution establishes that the States are free to legislate in all non-enumerated policy areas and assigns to the concurrent responsibility of the states and federal government the provision of the remaining bulk of public services such as: health, education, environmental protection, agriculture, housing, welfare and policy. In principle, the Federal Constitution establishes that the Federal Government has to set standards while the states are responsible for service delivery. In practice, this creates confusion about the specific task each unit has to perform, and induces inefficient and uncoordinated service delivery whose burden is eventually borne at the federal level. This system of attributions leaves the states' freedom to spend in the policy areas they prefer most, and deprives the federal government from any control over states' public policies except in the circumstances foreseen by art. 34 and 35 that only envisage an ex-post intervention.

On the revenue side the Federal Constitution enlarged the revenue autonomy of sub national governments through the decentralisation of some tax bases and the creation of a system of unconditional³¹ tax sharing which is redistributive in purpose (Mora and Varsano, 2001). The Federal Government administers the personal and corporate income taxes (shared with the states and municipalities); a selective value added tax (IPI)³²; a tax on rural property (shared with the municipalities at 50%); various types of social security contributions levied on payroll or turnover of enterprises; taxes on foreign trade and other taxes on financial operations.

³¹Unconditional non-matching grants are free from constraints on how to spend them and no minimum expenditure in any area is expected.

³² Impostos sobre Produtos Industrializados

States are widely privileged since they administer a value added type tax (ICMS)³³ that accounts for 23% of the total tax burden (Mora and Varsano 2001), a tax on motor vehicles (IPVA) and inheritance and gift taxes (ITCD). The following table summarises the contribution of the ICMS revenues to total tax revenues by macro-region in 2000³⁴; it illustrates how ICMS accounts for most of the states' own tax revenues. The table also contains information about the revenue autonomy of each macro-region, the states of the South and Centre West region enjoy larger revenue autonomy than those located in the North and Northeast. The States of Sao Paulo and Rio de Janeiro, by far the largest states in the country, collect on their own most of their total revenues.

Table 1. Revenue autonomy of Brazilian States by macro-region.

	<i>Icms as % total tax revenues</i>	<i>Tax revenues as % of total revenues</i>
<i>North</i>	96	39
<i>North-East</i>	94	44
<i>South</i>	91	49
<i>South-East</i>	90	68
<i>Sao Paulo</i>	90	76
<i>Rio de Janeiro</i>	92	56
<i>Centre-West</i>	88	51

Source: own elaboration on BNDES Data

Municipalities are assigned a tax on services (ISS); a tax on transfers of immovable properties (ITBI) and a tax on urban real estate property (IPTU). The ISS is the most important tax; it is levied on businesses, self-employed professionals etc. However, municipalities remain highly dependent from intergovernmental transfers.

The following table briefly summarises the decentralisation of taxing powers among levels of governments as defined by the 1988 Federal Constitution.

³³ Imposto sobre Circulação de Mercadorias e Serviços.

³⁴For administrative purposes Brazil is divided into five macroregions: (i) North, which includes the states of: Acre, Amazonas, Amapá, Roraima, Rondonia, Tocantins, Pará; (ii) North East, which includes: Maranhao, Piaui, Pernambuco, Paraíba, Bahia, Ceará, Rio Grande do Norte, Alagoas, Sergipe; (iii) Centre West, which includes: Distrito Federal, Goiás, Mato Grosso, Mato Grosso do Sul; (iv) South East, which includes: Minas Gerais, Rio de Janeiro, São Paulo; (v) South, which includes: Paraná, Santa Catarina, Rio Grande do Sul.

Table 2: Tax competence and taxing power of government units in Brazil

Tax competence	Taxes
Federal Government	<ul style="list-style-type: none"> • On foreign trade – on imports (II) and exports (IE) of goods and services • On income and earnings (IR) • On industrialized products (IPI), a value added tax levied on manufactured goods • On financial operations (IOF) • On rural land property (ITR)
States and the Federal District	<ul style="list-style-type: none"> • On inheritance and gifts (ITCD) • On circulation of goods and transportation and communication services (ICMS), a value added tax levied on goods in general and some services • On motor vehicles (IPVA)
Municipalities	<ul style="list-style-type: none"> • On urban land and property (IPTU) • On real estate conveyance (ITBI) • On services (ISS), except those subject to ICMS

Source: Ministry of Finance

1.3 The system of intergovernmental transfers

Intergovernmental transfers in Brazil take the form of: i) revenue sharing agreements; ii) transfers earmarked for specific purposes.

In theory transfers should fill vertical fiscal imbalances, reduce interregional disparity in income distribution and secure a minimum standard of public service provision. Nevertheless, as argued by Arretche and Rodden (2001) in Brazil political considerations play a larger role than equity and efficiency concerns, especially in the assignment of voluntary transfers.

The Municipal Participation Fund (FPM) and the State Participation Fund (FPE) are the main revenue sharing tools.

The FPM is composed of 22.5% of the net revenues of the IPI; 10% of the fund is distributed to the capitals of each State; 86.4% to other municipalities with population lower than 156.216 inhabitants and the rest to the remaining municipalities. Municipal governments also benefit from a wide range of other general purpose transfers including: 50% of the rural property tax (ITR), which is collected by the federal government and is transferred in proportion to the value of the real estate located in each municipality; 100% of payroll deductions from income taxes of municipal employees; 70% of taxes levied on gold that are distributed on an origin basis; 2.3% of

revenues from crude oil based on the value of production; 50% of hydroelectricity and mineral taxes based on the sales value of the mineral by origin. Municipalities also receive transfers from the State level; the 1988 Constitution entitles municipalities to receive 25% of the revenue from ICMS and stipulates that 75% of those transfers should be distributed among the municipalities on a derivation basis that is, according to the contribution of each municipality to the value added of the State.

The FPE is composed of 21.5% of the net revenues of the three main federal taxes: the personal (IRPF) and corporate (IRPJ) income taxes, and the selective value added tax (IPI). The fund is redistributive using criteria that are inversely proportional to per capita income, and directly proportional to State population and size. The poorer regions of the country (North, Northeast and Center-West) account for 85% of the FPE, while the States of the South and Southeast account only for 15% (Ter -Minassian, 1997). As the table below shows, On average, over the 1994-2001 period the Southeast region contributed the most to all the three categories of taxes that are earmarked to the FPE: 67% to the IRPF, 73% to the IRPJ and 75% to the IPI, while it received back only 9% in the form of transfers from the FPE. On the contrary, the poorest regions of the North and the Northeast contributed the least to those tax revenues but received 25% and 52% of the FPE respectively, thus confirming the redistributive nature of the FPE.

Table 3: The contribution of each macro region to personal income and industrial taxes and the share of transfers they receive from the FPE (%)

	IRPF	IRPJ	IPI	FPE
North	2.1	1.7	1.1	25.1
North East	9.7	5.2	7.6	52.0
South East	67.2	73.1	74.6	9.3
South	14.9	11.7	14.7	6.5
Centre-West	6.1	8.3	2.0	7.1

Source: own elaboration on BNDES Data.

Finally, the federal government uses a variety of specific purpose grants to finance programs in education, health and social areas. These include transfers to the municipalities to finance the health system (SUS); and transfers to municipal districts to finance the Fund of Development of Fundamental Teaching (FUNDEF). These two kinds of transfers are aimed at correcting inefficiencies in local public service provision. Most of these specific-purpose grants have been created to comply with laws rather than

the Constitution, while many other are not regulated by law and are based on negotiations between the federal and state governments individually. Table 4 contains summary information about the states' economic and demographic size as well as their *dependency ratio*, i.e. the share of states' total revenues that originates from intergovernmental transfers. The pattern that emerges is one where the largest and richest states enjoy more revenue autonomy and lower transfers' dependence compared to the smallest and poorest ones. The three largest states i.e. Sao Paulo, Rio de Janeiro and Minas Gerais, account for 42% of total population and almost concentrate 60% of total GDP. 10 States out of a total of 27 depend from intergovernmental transfers for more than 50% of their revenues, and in some cases this share attains 70%.

Table 4. Brazilian States: Population and Gross State Product

States	Population ^a	Economic Size ^b	Real GSP per capita (USD, base year 1995)	Total Transfers (as % of Total Revenues in 2000)
North	7.04	4.60	2 017	52
Acre	0.30	0.15	1 397	77
Amazonas	1.49	1.71	3 603	26
Parà	3.45	1.72	1 671	52
Rondonia	0.77	0.51	1 702	46
Roraima	0.16	0.10	1 445	79
Amapa	0.22	0.18	1 756	83
Tocantins	0.65	0.22	961	64
North East	28.68	13.09	1 356	38
Maranhao	3.34	0.84	746	55
Piaui	1.73	0.48	772	55
Bahia	7.99	4.38	1 703	30
Ceara	4.34	1.89	1 218	34
Rio Grande do Norte	1.64	0.84	1 546	51
Paraiba	2.14	0.84	1 184	53
Pernambuco	4.78	2.64	1 598	23
Alagoas	1.69	0.64	1 158	45
Sergipe	1.03	0.54	1 533	52
South East	42.71	57.79	4 075	12
Minas Gerais	10.67	9.64	2 814	19
Espirito Santo	1.78	1.96	2 977	18
Rio de Janeiro	8.64	12.52	4 383	9
Sao Paulo	21.62	33.67	4 657	10
South	15.02	17.57	3 424	16
Paraná	5.75	5.99	3 209	16
Rio Grande do Sul	6.17	7.73	3 672	16
Santa Catarina	3.10	3.85	3 338	16
Centre West	6.56	6.95	3 274	36
Distrito federal	1.13	2.69	8 087	49
Goiás	2.81	1.97	1 988	21
Mato Grosso	1.40	1.22	2 622	30
Mato Grosso do Sul	1.22	1.08	2 406	27

^a As % share of total Brazilian population. ^b It is the share of GSP over federal GDP in 2000.

Source: own elaboration on Ministry of Finance and BNDES Data

1.4 State borrowing and the bailout episodes of the 1980s and the 1990s

Sub national borrowing dates back to the 1960s when ease of access to credit operations and low interest rates fostered the growth of sub national borrowing (Lopreato, 2000).

Brazilian States have always borrowed from a wide range of financing sources. At the beginning they borrowed mainly from *federal financial institutions* such as the Federal Housing and Savings Banks (CEF) and the National Bank of Economic and Social Development (BNDES) that provided states with long term financing. In addition, the Federal Government channelled private savings to sub national governments (SNGs, henceforth) through its deposit taking commercial banks such as the *Banco do Brazil* (Rodden, 2003).

Private domestic banks represented a privileged source of short-medium term financing to SNGs especially through the provision of Revenue Anticipation Loans (AROs) that are short term loans secured with future revenue flow, whose purpose is to fill the gap between expenditures and revenues (Ter-Minassian, 1997).

Bond issue on the domestic capital market has been another source of financing for state and municipal governments. However, the placement of these bonds was considerably eased since twenty of the 26 States owned at least one state bank that was often the largest underwriter of state bonds.

States also borrow from international financial institutions in the form of medium term contractual debt. Finally there is a large set of informal mechanisms through which states finance their deficit: arrears on payment to suppliers and state employees and the *precatórios judiciais* that will be explored in greater detail below.

During the last two decades Brazilian States experienced three different debt crises, which ended up in Federal Government bailout.

The first debt crisis occurred during the international debt crisis of the 1980s when states defaulted on their external debt because of foreign exchange constraints that prevented them from rolling the external debt over.

During this decade the Federal Government refinanced both internal and external loans. The first round of debt renegotiation occurred in 1987 and included the internal debt of states and municipalities. The *Law 7614/1987* authorised the Federal Treasury to

refinance this debt through the Banco do Brazil that acted as its financial agent³⁵. States' admission to these refinancing agreements was conditional upon the Ministry of Finance approval of the State financial adjustment plan; moreover as collateral for these loans the States were asked to offer the constitutional transfers they received from the central government.

A second round of debt refinancing occurred in 1989, which involved the external debt accumulated by States and municipalities until December 31st 1988. The *Law 7976/1989* authorised the Union to refinance this debt transforming it into a single debt to the Federal Treasury. The Federal Government passed on to SNG the same financial conditions on the external loans it negotiated for the purpose of the refinancing agreement.

In the early 1990s states experienced new financial difficulties due to the economic consequences of the stabilisation Program adopted by the new elected President Collor³⁶. The slowdown of the economic activity and the reduction in the inflation rate reduced states' revenues and increased real expenditures thus exacerbating their fiscal position. This led to a new refinancing agreement, which covered internal credit, public bonds issued by the States and municipalities up to September 30th 1991, and those obligations that were not included into the rescheduling agreement approved by *Law 7976/1989*. *Law 8388/1991* defined the conditions of federal rescheduling but no refinancing agreements were signed by the states since they did not find advantageous the underlying conditions (Lopreato, 2000).

Between 1991 and 1993 the net debt of sub national governments increased from 7.5 to 9.3 percent of GDP³⁷. This sharp growth of state debt led to a new round of debt renegotiation in 1993 when the *Law 8727/1993* authorised the Union to reschedule the debit balance of the internal credit operations contracted by states and municipalities with federal financial institutions until September 30th 1991 and overdue by June 30th 1993; the rescheduled debt had a twenty years maturity. This law also authorised SNGs to refinance financial obligations negotiated with foreign commercial banks until June

³⁵ Banco do Brazil's loans were aimed to pay debt service on internal debt contracted until December 31 1987 as well as to finance the current deficit accumulated until 1987. According to art. 3 these credit operations must respect the ceilings on sub national borrowings set forth by the Federal Senate.

³⁶ In March 1990 right after his election Collor introduced the Collor Plan, a stabilisation Program based upon prices and wages freezing and public sector downsizing. The goal of the Collor Plan was to spur economic modernisation and the reform of the public sector administration.

³⁷ Figure 2 shows the trend of the growth rate of states' bonded debt during the 1991-2004 period.

30th 1993 and backed by federal guarantee. It was agreed that the debt service on the rescheduled debt should meet the ceilings set by the Federal Senate, and it was stipulated that if the debt service to revenues ratio exceeded these limits, the exceeding amount could be deferred and capitalised into the existing debt. The capitalised debt service would be repaid only when the debt service-revenues ratio fell below the threshold or within ten years after the twenty years rescheduling period was elapsed. In this round R\$ 33.4 billions of debt were rescheduled.

This refinancing agreement, however, did not include AROs operations as well as the debt refinanced by virtue of Law 7976/89. State bonds as well were excluded from rescheduling even though they accounted for 70% of the debt (Bevilaqua, 2000). As a consequence, and in order to keep bonded debt under control the Constitutional Amendment n. 3 of 1993 prohibited states from issuing new bonds until 1999, except those necessary to debt refinancing. Rodden (2003) observed that these agreements created perverse incentives for debt growth for several reasons. Although they reduced states' short-term debt service obligations, capitalization of the deferred debt service led to a growth of the stock of debt that would accelerate in presence of higher real interest rates. The possibility to contract new borrowing left the current administrations free to resort to debt financing and to leave the burden to future administrations. Finally, federal rescheduling of state debt strengthened the perception of both lenders and borrowers that such debt was, as a matter of fact, backed by the Federal Government.

The third debt crisis unfolded in the mid-1990s, when several factors contributed to the distress of state finances. First of all, the past episodes of debt renegotiations undermined the credibility of Federal Government no-bailout commitment, thus fuelling a moral hazard behaviour from the part of the states which continued to borrow at a growing rate; secondly, the Real Plan precipitated states' fiscal situation, because lower inflation reduced the scope for inflationary financing of state deficits³⁸; finally, the growing interest rates increased the burden of debt service obligations. As a result several states defaulted on their debt and once again the Federal Government rescued distressed states. In 1995 the National Monetary Council approved the *Program of States' Fiscal Adjustment and Restructuring*, which required the participating states to

³⁸ During this year a substantial increase in personnel expenditures occurred, especially during election periods. With the end of hyperinflation these expenditures had an impact in real terms thus hindering state finances' management.

implement a fiscal and financial adjustment programme. AROs liabilities were also included into the rescheduling agreement in order to reduce states' deficits³⁹. In order to be eligible for federal refinancing states' adjustment programs had to include, among others, the following measures: i) reducing personnel expenditures to 60% of current revenues and implementation of downsizing programs; ii) either privatising or contracting out of public services; iii) modernisation of tax administration in order to increase states' own revenues and to introduce greater transparency through public budget data disclosure; iii) introducing minimum targets in terms of fiscal performance; iv) reducing and strengthening controls on state borrowing.

The states admitted to the program were also forbidden from contracting new AROs operations and were forced to commit 11% of their real revenues to repay the debt refinanced according to Law 8727/1993.

This Program was supported by two credit lines intended to repay the maturing debt, and to finance programs aimed at reducing personnel costs respectively. In both cases the Caixa Economica Federal acted as financial agent for the Federal Government.

This new round of debt renegotiations was officially started by *Law 9496/1997*, which authorised the Federal Government to assume, until March 31st 1998: i) state bonds as well as internal and external credit operations contracted by the States to finance investments and overdue by December 31th 1994; ii) loans contracted by the States on the basis of the Federal Senate Resolution 70/1995⁴⁰.

Loans granted from multilateral institutions as well as credit operations previously rescheduled were not included in this round. Law 9496/1997 established that proceeds from this refinancing agreement should be entirely used to repay the public debt assumed by the Federal Treasury and special penalties would be inflicted to non-compliant states.

The following table shows the ratio of total debt to Gross State Product by macro-region over the 1998-2001 period. Total debt includes bond issues, loans from the Federal Treasury, commercial banks and multilateral organisations. The table shows that the States from the Centre-West region (i.e. the Federal District, Goias, Mato Grosso and Mato Grosso do Sul) were the most indebted.

³⁹ The debit balance on AROs due until November 30th 1995 was transformed into contractual debt and the refinancing provided by the Union had to be used only to repay existing AROs.

⁴⁰ See appendix 2.

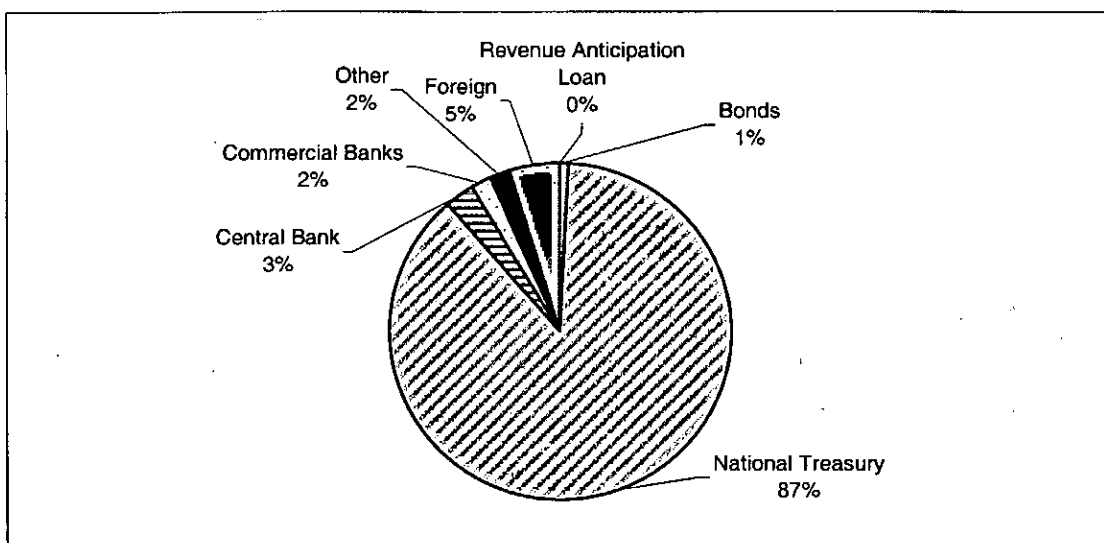
Table 5. Total Debt to GSP ratio by Macro Region (%)

	North	North East	South East	South	Centre West
1998	14	21	20	13	23
1999	16	24	22	20	28
2000	13	23	21	18	25
2001	13	23	22	18	25

Source: own elaboration on Central Bank Data

The following graph shows the composition of the total debt of all the Brazilian States as of December 2001.

Figure 1. Composition of States' Debt as of December 2001

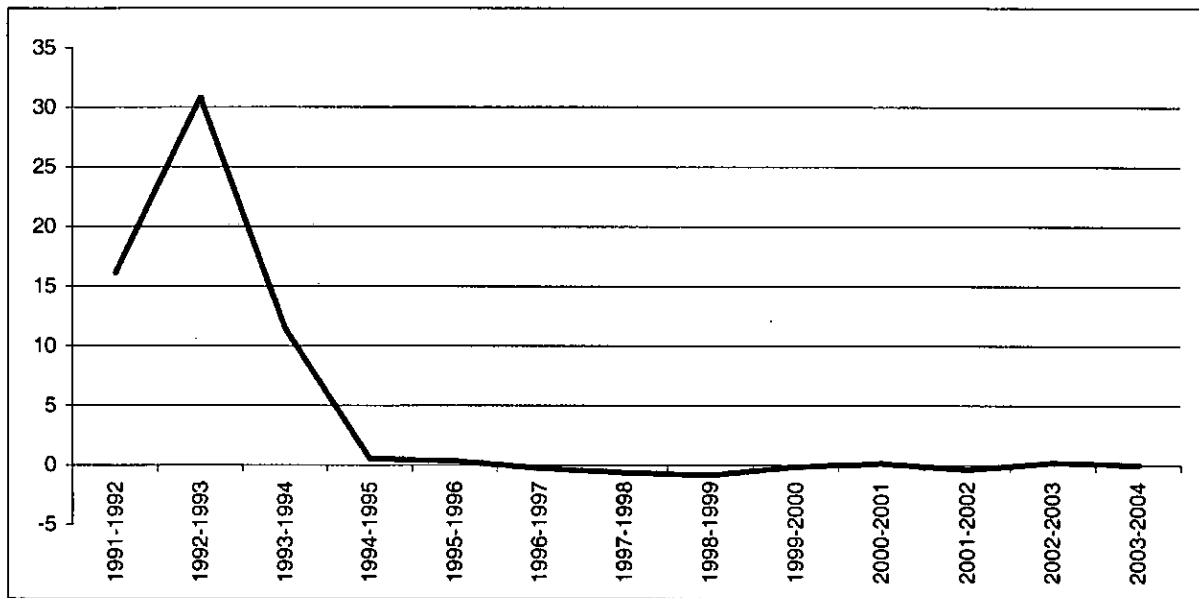


Source: own elaboration on Central Bank Data

It is worth noting that loans from the Central Bank represent a negligible share of total financing⁴¹ while AROs operations are no longer a source of state financing. Loans from the Federal Treasury account for most part of total states' debt, while loans from the commercial banks and bond issues play a marginal role as financing sources. This is probably due to the refinancing agreements that on the one hand converted the bulk of states' debt into debt to the Federal Treasury and on the other hand prevented them from issuing new bonds. This is confirmed by the following figure which illustrates the growth rate of the bonded debt of the Brazilian States over the 1991-2004 period.

⁴¹ This is probably due to the abrogation of the *troca* procedure as stated by the FRL in 2000, though this is a too short time lag for sizeable effects to show up.

Figure 2. The Rate of Growth of the Net Bonded Debt of the Brazilian States



Source: own elaboration on Central Bank's Data

After the sharp increase in 1993, when the amount of bonds issued increase at a rate of about 30%, the bonded debt of all Brazilian States remained almost stable from 1994-1995 on, registering negative rates growth during the 1998-1999 years.

2. Hierarchical rules on sub-national borrowing: the quest for hard budget constraints

Brazil has adopted a top-down approach to local fiscal discipline since the rules were defined by the Federal Senate and were equally binding for all levels of government. There are at least two explanations for this approach. The first one comes from the Constitution itself, which conferred upon the Federal Senate the power to set ceilings on the borrowing autonomy of each level of government. The second reason can be traced back to the frequent bailouts of local governments that eventually induced the federal level to impose numerical ceilings on debt in order to refrain both states and municipalities from excessive debt accumulation.

Nonetheless, as the analysis of the previous section shows, federal coordination of sub national government finances in Brazil has been a highly controversial issue.

On the one hand the Federal Constitution does not provide any legal foundation to this coordination task in the sense that it does not envisage a power of fiscal coordination for the federal executive, even though it would be necessary in order to increase sub

national acceptance of federal guidelines and would provide the Federal Government with an additional tool to ensure macroeconomic stabilization and avoid abrupt state defaults.

On the other hand, state governors hardly accept federal intervention both in the conduct of fiscal policy and in their borrowing decisions; this resistance was strengthened by the significant influence they have on both the President and the Federal Senate, as shown in section 1.2. As a result, over the last twenty years hierarchical rules on sub national borrowing have frequently changed thus becoming more or less stringent depending on the macroeconomic conditions as well as on the political strength the governors enjoyed vis-à-vis the federal government. The high vulnerability of the Senate to pressures from state governors can be explained if one considers that in each legislature the majority of the senators are either future or former state governors (Bevilaqua, 2000).

While the Federal Senate is responsible for regulating both domestic and external credit operations at all levels of government, the Central Bank is entitled to control sub national government borrowing by limiting the supply of credit of national financial institutions to the public sector and by creating credit lines aimed at supporting external debt rollover.

Therefore, the legal provisions regulating sub national borrowing consist of: Federal Senate resolutions, Central Bank resolutions, ordinary laws and in special circumstances Constitutional amendments can also be adopted.

This section analyses the legal provisions imposed at the federal level from the early 1980s until 2001, which mainly consist of resolutions emanating from both the Federal Senate and the Central Bank. The purpose of this institutional analysis is to pave the way for an empirical assessment of the effectiveness of federal rules in disciplining sub national fiscal behaviour.

2.1 The supply side constraints: the Central Bank Resolutions

Until 2000 the Central Bank of Brazil was responsible for both regulating the supply of credit to the public sector and certifying SNGs compliance with the hierarchical rules set by the Federal Senate. The Fiscal Responsibility Law attributed to the Ministry of Finance oversight over compliance with the federal legislation on borrowing, but the

Central Bank still retained the authority to regulate the supply of credit to the public sector.

As for the Federal Senate the Central Bank as well was vulnerable to the pressure of regional interests and its resolutions were often modified accordingly⁴². The resolutions adopted in the decade of the 1980s are representative of this situation: they prohibited official financial institutions from granting new loans to the public sector except AROs operations and credit operations granted by the National Housing Bank, the National Bank for Economic and Social Development and other regional development banks⁴³; at the same time they authorised those institutions to rollover the existing debt⁴⁴ of states and municipalities.

Resolution 831/1983 was the first provision limiting the amount of resources that financial institutions could lend to the public sector⁴⁵. These limits were imposed on the financing operations, loans and AROs to the public sector from commercial banks, investment and development banks as well as state banks.

Resolution 1135/1986 further limited the supply of credit to states and municipalities by freezing at the level existing by 30/04/86, the amount of *all* credit operations granted by the financial institutions.

However, during periods of serious state fiscal distress, as those occurred during the debt crises of the 1980s, the Central Bank was forced to soften its stance in order to accommodate the Federal Government initiative to provide financial relief to troubled states. In accordance with Law 7614/1987, Resolutions 1309 and 1399 both of 1987 contained special authorisations to commercial, financial and development banks to refinance SNGs debt and to grant them new credit operations. These credit operations were excluded from the general ceilings set by previous resolutions⁴⁶.

The accommodating stance of the Central Bank in favour of local governments' bailout was formalised with the *Resolution 1789/1991* which introduced the so-called "*troca*"⁴⁷ procedure. The *troca* consists of the Central Bank issuing letters of credit (i.e. *letras do*

⁴² The Fiscal Responsibility Law, however, tries to guarantee Central Bank independence. See section 2.4

⁴³ See Resolutions 991/1984, 1010/1985, 1012/1985 in appendix I.

⁴⁴ At the beginning rollover was limited to 90% of the total amount, Resolution 1012/1985 allowed the rollover of 100% of debt.

⁴⁵ These limits were defined as share of the debit balance. For example the circular 784/1983 established that for the month of June the growth rate of credit operations would be limited to 6% of the debit balance existing by May 30th 1983.

⁴⁶ For further details on these resolutions see Appendix 1

⁴⁷ *Troca* is the Portuguese word for exchange.

Banco Central, LBC henceforth) to be sold exclusively to state financial institutions holding state public bonds. LBCs had a two months maturity at the end of which the Central Bank would repurchase these bonds⁴⁸. *Resolution 1813/1991* maintained the basic provisions of R 1789 but it did not define the maturity of LBCs. In this way the Central Bank could offer relief to the states when their bonds became due for a longer period of time. In practice the *troca* operation amounted to a bail out of state bonds.

Resolution 1997/1993 introduced some innovations in the regulation of sub national borrowing, since it set up the Register of the Credit Operations with the Public Sector (CADIP), which keeps track of the credit operations realised by each financial institution with each public sector entity.

Ensuing resolutions maintained the *troca* procedure in its basic form but *Resolution 2081/1994* allowed the Central Bank to require the States to settle a fixed percentage of their securities when contracting a repurchase agreement. The Fiscal Responsibility Law abolished the *troca* mechanism.

It is only in 1995, with *Resolution 2218* that AROs operations were included into the quotas on credit operations; new AROs were limited to the amount existing by November 11th 1995⁴⁹ even though, special facilities were created in order to allow the states to settle part of outstanding AROs⁵⁰.

For the first time *Resolution 2271/1996* introduced specific rules on external credit operations contracted by the States, the Federal District and the Municipalities and without federal guarantee. This resolution established that: i) proceeds from these operations have to be used to refinance state financial obligations with the shortest maturity and the highest costs. The amount in excess will be paid in deposit account to the Central Bank; ii) as collateral for these loans the States have to escrow to federal financial institutions an amount necessary to repay the principal and interests on the external loan; iii) external lenders have to be financial institutions that usually lend to the country or that are rated, at least, at the BBB level; iv) lenders had to subscribe a clause of no federal guarantee, and commit themselves not to ask the Federal Government to assume state liabilities in case of States moratorium on their debt. The

⁴⁸ The amount of LBCs issued by the Central Bank was equal to the amount of states bonds held by the state financial institutions buying LBCs. Moreover, during this two-months period states financial institutions were forbidden from selling state bonds.

⁴⁹ See also R. 2237/1996, R.2443/1997.

⁵⁰ See Resolutions 2217/1995 and 2236/1996.

requirement of a deposit guarantee was loosened by *Resolution 2280/1996* for those SNGs being rated by at least two international credit rating agencies⁵¹; moreover, a federal guarantee was introduced for credit operations granted by either multilateral organizations or official organizations. *Resolution 2515/1998* extended the regulation on external borrowing to affiliated, subsidiaries and controlled enterprises of SNGs autarkies, as well as Foundations and Federal non financial enterprises.

In 1996 the Central Bank created, through resolution 2347, the so-called “Agencias de Fomento” or Development Agencies. The corporate purpose of these agencies is to finance investments in fixed and working capital. The Agencias de Fomento (agencia, henceforth) are not financial institutions in the sense of being part of the National Financial System but they are under the Central Bank supervision; each unit of the Federation can only own one *agencia*. The *agencias* can only grant loans with resources originating from constitutional transfers, state or municipal budget appropriations, national and international development organizations’ loans. The *agencia* has minimum capital requirements of R\$ 4,000,000 worth assets, and it is prohibited from i) obtaining financial assistance from the Central Bank; ii) accessing the reserve account in the Central Bank; iii) raising fund by issuing bonds; iv) financing investments whose rate of return is lower than the borrowing cost for the *agencia*. Its liabilities are not backed by the “Fundo Garantidor de Creditos” and they must use part of their own resources to setup a liquidity fund to be invested in federal bonds.

The regulation of the *agencia* was strengthened in 2001 after the Fiscal Responsibility Law was introduced. *Resolution 2828/2001* maintained the basic provisions of the former discipline and enhanced the role of the *agencias* in the financial management of sub national governments. The *agencia* can act as consultant as well financial agent of the federal unit they are controlled by and act as manager of those development funds that according to Fiscal Responsibility Law can no longer be owned by the States or the Municipalities.

In the wake of the Program of Fiscal Adjustment launched by the National Monetary Council in 1995, the Central Bank set up, through *Resolution 2365/1997*, the Program in support of the reduction of public sector intervention into the financial activity (PROES), in order to promote the financial adjustment of state financial institutions and

⁵¹ Later on, with the *Resolution 2383/1997* rating by only one international agency was deemed enough to exonerate the SNG from a deposit guarantee.

their privatisation. Financial institutions eligible to enter the PROES were commercial and development banks as well as any other financial institution under state control that were being either privatised or transformed into development agencies. Within this program the Central Bank offered the States special credit lines to be used for the purpose of restructuring the state financial institutions' portfolio (both assets and liabilities) and to induce the Federal financial institutions to assume part of state liabilities.

Resolution 2474/1998 imposed norms on risk diversification to the institutions of the financial system, by limiting to 25% of their liquid assets the amount of resources they could lend to each the public sector entity. With the *Resolution 2653/1999* the amount of credit operations to the public sector was raised to 45% of the liquid assets of each institution in the National Financial System⁵².

2.2. The demand side constraints: the Federal Senate Resolutions

During the last four decades Federal Senate resolutions were the main legislative provisions through which regulation on sub national borrowing has been implemented.

An in depth analysis of these resolutions shows that at the beginning federal control over sub national fiscal conduct was very narrow in scope since it consisted simply of debt rules without paying any attention to the process of revenue collection and expenditures generation underlying deficit creation and borrowing needs. These resolutions simply defined some caps on the amount of resources sub national units could borrow. Political reasons have played a central role in determining the limited scope of this regulation; but over the last few years, and in particular during the Cardoso administration, the federal executive gained some strength over regional interests to improve the federal regulation on debt by introducing a more comprehensive supervision-over-sub national fiscal-behaviour. The Fiscal Responsibility Law is a clear example of this improved situation as it introduced a more comprehensive set of rules of fiscal discipline, similar to the balanced-budget rules of the kind already analysed in Chapter one, spanning from the ex-ante budget planning to budget execution and fiscal management, was imposed to sub national governments. In the meanwhile the

⁵² For further details see appendix I.

Executive adopted additional provisions to regulate some of the most important spending items like personnel expenditures.

Although the sample period of this analysis covers the period from 1986 to 2001, this section will analyse Federal Senate resolutions and their evolution during the last 30 years, from 1968-2001, in order to give a broader overview of the federal regulation of sub national borrowing; moreover a brief outline of the additional legislative provisions that touch upon the issue of local fiscal behaviour will also be presented.

The federal resolutions adopted during the last 30 years have several common features: they defined a ceiling on borrowing and sometimes they prevented sub national government from accessing some sources of financing, but they always allowed some degree of flexibility by excluding some credit operations from the general ceiling especially those aimed at the financing of investments. Each resolution contained an escape clause that allowed sub national governments to borrow above the limits for a limited period of time in exceptional circumstances, probably to allow them to react to unforeseen events, but none of these resolutions precisely identified the circumstances under which the escape clause could be activated. Nonetheless, as the episodes of state default testify their efficacy in disciplining sub national fiscal behaviour has been somewhat limited.

Resolution 58/1968 was the first resolution to prohibit both the states and the municipalities from issuing new bonds until 1970⁵³. Three categories of borrowing were exempted from such prohibition: i) bond issues aimed at refinancing maturing debt; ii) AROs operations; iii) bonds issued for the purpose of financing activities generating a revenue flow sufficient to repay the ensuing debt service.

In 1970, AROs operations by the states and municipalities were also subject to regulation by *Resolution 92*, which limited to 5% of annual revenues the monthly disbursement for repayment of AROs.

The first set of rules on the credit operations of sub national units was introduced by *Resolution 62/1975* which covered the internal consolidated debt by limiting its global amount, its annual growth rate and the annual disbursement for debt service. These ceilings were defined as a share of each entity's revenues and primary surplus. This Resolution also envisaged the possibility for sub national governments to temporarily

⁵³ This prohibition was extended until 1975.

ask the Federal Senate authorisation to borrow above the limits either in exceptional circumstances or to fund financially sustainable economic activities deemed compatible with the national development plan. Later resolutions maintained the basic structure of resolution 62 and introduced only minor changes to the numerical ceilings defined in 1975; similarly most of them contained an escape clause allowing sub national governments to borrow above the numerical ceilings. The following table summarises the main numerical thresholds defined by the major federal resolutions on three different measures of sub national borrowing: the real annual growth of debt, the global amount of debt and the amount of resources that can be earmarked to service the debt which become due every year.

Table 6. Numerical Ceilings on sub national borrowing

Resolution	Real annual growth of debt	Global amount of debt	Annual debt service
62/1975	Internal consolidated debt ^a ≤ 20% of current revenues growth	≤70% last year revenues	≤ 30% of (total revenues – current expenditures)
93/1976	Internal consolidated debt ≤ 20% of current revenues growth	≤70% last year revenues	≤ 15% of last year revenues
94/1989	Internal and external credit operations =capital expenditures	≤ current debt service+10% of real disposable revenues ^b	≤ real saving ^c
58/1990	Internal and external credit operations =capital expenditures	≤ max (current debt service OR 20% real revenues)	≤ real saving ^d
36/1992	Internal and external credit operations =capital expenditures	≤ max (current debt service OR 27% real revenues)	≤ real saving and 15% of real revenues
11/1994	Internal and external credit operations =capital expenditures	≤ max (current debt service OR 27% real revenues)	≤min (real saving OR 15% of real revenues)
69/1995	Internal and external credit operations =capital expenditures	≤ max (current debt service OR 27% real revenues)	≤min (real saving OR 16% of real revenues)
78/1998	Internal and external credit operations =capital expenditures	≤ 18% real revenues ^e	debt service ≤ 13% real revenues; debit balance in 1998 ≤ 2,0 real revenues ^f .
43/2001		≤ 16% real current revenues	debt service ≤11.5% current revenues ; debit balance ≤ 2,0 real revenues

^a The art. 2 of the Resolution n° 62/1975 defines consolidated debt as including all state and municipal liabilities such as borrowing, bond issues and guarantees.

^b real disposable revenues are defined as the revenues of the previous 12 months less revenues from credit operations and from goods sale.

^c real saving = (real disposable revenues) – (current expenditures disbursed + disbursed debt service).

^d real saving is defined here as real revenues less current expenditures. In this case interest payment and transfers to municipalities are included in the calculation of real saving. Real revenues do not include grants aimed at financing capital expenditures.

^e real revenues are defined as the revenues of the previous 12 months less revenues from credit operations, special purpose transfers, voluntary transfers and any other endowment specifically aimed at the financing of capital expenditures.

^f This ratio must decrease by one tenth per year until being equal to 1 by 2008

Source: own elaboration on Federal Senate Resolutions, www.senado.gov.br

Next resolutions innovated in some respects. *Resolution 94/1989* introduced major changes in the regulation on sub national borrowing compared to those prevailing during the late 1970s and the 1980s. First of all it limited the amount of new credit operations contracted by SNGs rather than limiting the stock of the internal consolidated debt as R 62/75 and 93/76 did. Secondly, these limitations were extended to external credit operations. Thirdly, instead of linking the amount of new credit operations to the volume of real revenues collected in one year, R 94/89 introduced a golden rule, which by limiting new borrowing to the amount of budgeted capital expenditures, implicitly required the current account budget to be balanced. This amounted to introducing a balanced budget plus golden rule, of the kind already examined in Chapter one. Fourthly, art. 3-II established that annual disbursement for debt service should be equal to budget surplus. Finally, Resolution 94 eliminated extra limits operations introduced by the Resolution 93/1976 art 2⁵⁴.

Overall, the effects of Resolution 94/1989 on sub national borrowing constraints are hard to evaluate. On the one hand the elimination of extra limit operations deprived SNGs of an escape clause that allowed them to borrow outside the limits. In fact, during the 1986-1989 period, almost all the Brazilian states contracted at least one credit operation on the basis of art. 2 as the following table shows. Hence, it is tempting to think that this provision was used to circumvent formal limitations and to borrow to finance current deficit.

⁵⁴ Art. 2 of Resolution 93/1976 established that the threshold set by R. 62/75 did not apply to credit operations contracted by SNGs with the National Housing Bank the National Fund for Urban Development Support and the Social Development Fund.

Table 7 - Number of extra-limit credit operations contracted on the basis of art 2. R. 93/1976

States*	1986	1987	1988
Acre	1	0	5
Alagoas	2	0	2
Amapà	0	0	0
Amazonas	2	3	3
Bahia	6	3	1
Cearà	1	0	1
Distrito Federal	2	1	2
Espirito Santo	1	3	0
Goias	3	0	0
Maranhao	2	0	0
Mato Grosso	2	0	0
Mato Grosso do Sul	3	1	0
Minas Gerais	4	3	0
Parà	7	0	0
Paraiba	12	3	1
Paranà	1	2	2
Pernambuco	5	0	0
Piaui	2	0	0
Rio de Janeiro	1	0	5
Rio Grande do Norte	0	2	1
Rio Grande do Sul	0	0	0
Rondonia	0	4	0
Roraima	0	0	0
Santa Catarina	2	0	0
Sao Paulo	4	2	0
Sergipe	2	0	2
<i>Total</i>	<i>65</i>	<i>27</i>	<i>25</i>

*The State of Tocantins is missing since it was created only in 1988.

Source: own elaboration on Federal Senate Resolutions

On the other hand with respect to the provisions of article 3-II Lopreato (2000) argued that this resolution eased sub national borrowing, since it amounted to forcing SNGs to run a surplus at least equal to the interest payments thus leaving the states the possibility to roll over the principal on debt. Nonetheless, forcing the states to run a primary surplus, at least equal to the amount of debt service, could be judged as a good thing to the extent that it introduces a slight form of fiscal discipline. In what concerns the introduction of a golden rule for public borrowing, the critiques already expressed in Chapter one also apply to this case. While in principle this norm is consistent with the prescriptions of economic theory, according to which borrowing by the public sector should be allowed only for financing investments so that the cost of financing is equally

spread among current and future generations who also benefit from the investment, there is the risk that this norm could be circumvented by creative accounting and used to divert borrowed funds to the financing of current expenditures. In order to avoid these shortcomings, a tight central government monitoring on the use of borrowed funds would be desirable.

Resolution 58/1990 put under the Federal Senate jurisdiction also internal credit operations and bond issues. Compared to resolution 94, this resolution enlarged *de facto* the reference value for determining the amount of annual debt service. Although both resolutions used real saving as the reference value, the latter was defined as the amount of primary surplus in Resolution 94 while in Resolution 58 its definition is closer to the operational surplus, which also includes interest payments. Moreover, Resolution 58 enlarged the set of credit operations exempted from the general caps on borrowing; these operation were: i) credit operations backed by state or municipal guarantee; ii) the guarantees granted by SNG within the refinancing contracts signed with the Banco do Brasil by virtue of law 7976/89; iii) the guarantees granted by SNG to back credit operations aimed at investment financing or debt rollover; iv) bonds issued for the settlement of the so-called "*precatorios judiciais*"⁵⁵. As far as temporary suspension of the rules is concerned, this resolution established that the excess borrowing could not exceed 20% of the initial regular amount.

The major innovation introduced by resolution 36/1992 was to forbid both mayors and governors to contract new credit operations in the last six months of their mandate. The rationale behind this provision was clearly to limit the strategic behaviour of current administrations which have an incentive to accumulate debt during their mandate whose burden will be eventually borne by future administrations.

Resolution 117/1997, supported the objectives of the *Program of States' Fiscal Adjustment and Restructuring*. This resolution established that the authorisation to new credit operations was conditional upon the Audit Court certifying that 50% of the proceeds from the new loan were used to repay outstanding bonds, *precatorios judiciais* and loans. Hence, this resolution introduced stricter controls on the use of revenues and forced the states to devote a share of them to debt repayment.

⁵⁵ As a matter of fact this provision de facto reintroduce the extra limit operations there were previously abolished by R. 94/1989

Resolution 78/1998 innovated in many respects. For the first time the federal government tried to put sub national governments into a path of debt reduction: i) it imposed them to reduce the debit balance –revenue ratio by 1/10 per year until this ratio equalled 1 in 2008; ii) the Central Bank would not submit to the Senate’s authorisation the borrowing application of those federal units exhibiting a negative surplus; iii) the prohibition to issue new bonds for purposes other than debt refinancing was extended to 2010; iv) the amount of debt that could be renegotiated during one year was limited to 95% while the remaining 5% had to be repaid ; v) those federal units that had their debt refinanced by the Union were prevented from issuing new bonds; vi) States were forbidden from receiving transfers from the entities they controlled. Resolution 78 still maintained the escape clause and excluded from the general ceilings the credit operations granted by multilateral organizations or federal financial institutions for the financing of improvements in the fiscal and financial management of the public sector.

Resolution 43/2001 confirmed many of the provisions of resolution 78 and implemented those contained in the Fiscal Responsibility Law⁵⁶. In particular, it made operational the provision according to which state financial institutions were forbidden to grant loans or guarantees to the state entity they are controlled by, thus eradicating one of the most harmful threats to states fiscal discipline. Resolution 43 extended to the last eight months before the end of the executive mandate the prohibition to contract new credit operations. The escape clause is still maintained, Art. 12-III permits the States to ask the Federal Senate for a temporary suspension of the numerical ceilings on debt accumulation but only in exceptional circumstances.

2.3 Further provisions limiting sub national government spending

Besides the Federal Senate and the Central Bank there is a third player that can adopt legislative provisions to limit sub national government spending, this is the Federal Executive which can intervene by means of both complementary and ordinary laws.

Nonetheless, the possibility for the President to effectively butt in on the realm of sub national autonomy depends on both political and economic circumstances.

⁵⁶ See section 2.4 in this chapter.

The most important provisions limiting sub national fiscal profligacy were adopted during the Cardoso administration whose strength vis-à-vis sub national governments raised as a consequence of the successful monetary stabilisation policy this administration implemented since the beginning of its mandate. The strong consensus the new President enjoyed gave new impetus to the adoption of tighter fiscal rules.

As mentioned above, the *Constitutional Amendment n° 3 of 1993* prohibited the states from issuing new bonds until 1999 except those necessary to debt refinancing.

President Cardoso tried to limit sub national fiscal profligacy indirectly through legal measures whose effect was to reduce sub national revenue and spending autonomy. The *Constitutional Amendment n° 1 of 1994* set up the Social Emergency Fund to which 20% of the State Participation Fund was earmarked; in 1996 this fund became permanent with the name of Fiscal Stabilisation Fund; in that way an important source of states revenues was curtailed.

The *Complementary Law 82/1995*, the so-called *Lei Camata*, introduced a cap on one of the largest expenditure items of sub national governments, i.e. personnel expenditures. This law established the yearly amount of total personnel expenditures of each federal unit could not exceed 60% of liquid current revenues.⁵⁷ Non-compliant entities must bring the excess back to the limit within three years by reducing it of 1/3 per year, at least. Insofar as the limit is not respected, the non-compliant entity was prohibited from any intervention increasing personnel expenditures⁵⁸. The provisions of *Lei Camata* were replaced by *Law 96/1999* which strengthened the penalties to be inflicted in case of non-compliance with the ceilings on personnel expenditures: art. 5 established that insofar as these expenditures were not brought within the limits, the non compliant entity was denied access to federal guarantees and loans from federal financial institutions. Moreover, in order to ease compliance with the rules, this law entitled states to take measures such as the reduction of the working time with ensuing reduction of the wages.

⁵⁷States' liquid current revenues are defined as total current revenues less the amount transferred to municipalities by virtue of tax sharing agreements.

⁵⁸ In addition, the Union and SNGs must disclose a monthly balance detailing the amount of resources appointed to each item in order to compute the liquid current revenues to be used as a reference value, to determine whether personnel expenditures exceeded the limit and to define the amount of tax sharing going to the municipalities.

Furthermore, the *Complementary Law 87/1996* the so called *Lei Kandir*, modified the mechanism underlying ICMS collection since it exempted exports from the ICMS tax base, thus reducing one of the most important tax bases of state governments. However, later on the States and the Union agreed upon a refund mechanism according to which the Union paid back to the States an amount of R\$ 1.6 billion in order to compensate them for the losses deriving from application of this law.

2.4 The Fiscal Responsibility Law

The *Fiscal Responsibility Law* (FRL, henceforth) was passed by the Federal Congress in 2000, and represents the most comprehensive attempt to enforce responsibility in fiscal management since the end of the military regime.

The provisions of this law go beyond the simple numerical ceilings on public sector borrowing, and touch upon several aspects of fiscal management from budget planning to budget execution. Most of these provisions are prudential measures aimed at avoiding unexpected negative shocks that can threaten public finances stability. The FRL imposed to all government units the elaboration of a balanced budget and the adoption of both a *Fiscal Target* and *Fiscal Risk Appendices*⁵⁹ to be enclosed to the Budgetary Directives Law. The annual budgetary law must also contain a contingency reserve in order to meet contingent liabilities and other unforeseen events. On the budget execution side, a bi-monthly monitoring is foreseen in order to allow a timely revision of the fiscal targets in case of a revenue shortfall hindering compliance with the primary result targets.

Unlike previous legislative provisions on public finance, the FRL pursues the objective of strengthening responsibility in fiscal management through a tight regulation of the most important variables determining fiscal behaviour. The main provisions are illustrated in what follows.

Expenditures. The generation of new expenditures must be accompanied by an estimate of its financial/budgetary impact in the year it becomes effective and the two subsequent

⁵⁹ The Fiscal Target Appendix is a document enclosed to the Budgetary Directives Law where annual targets in terms of revenues, expenditures, nominal and primary results and public debt are set for the current and the two subsequent years. The Fiscal Risk Appendix as well is enclosed to the Budgetary Directives Law and contains an assessment of the risks that can affect public accounts.

years (art. 16 FRL); this increase should not affect the fiscal targets set in the appendix and its financial effects must be offset by a permanent revenue increase or expenditure decrease (art 17). The law maintained the cap on personnel expenditures; these cannot exceed 60% of the State net current revenues⁶⁰ (art. 19), and it prohibited the States from increasing personnel expenditures within the 180 days before the end of the term of the Head of the respective executive branch; if personnel expenditures exceed the above mentioned limits the excess must be eliminated within the two subsequent 4-months periods, otherwise the non compliant entity will be prohibited, among other things, from receiving voluntary transfers and contracting new credit operations (art. 23).

Revenues and voluntary transfers. The FRL aims to increase the revenue autonomy of all government units. Art. 11 states that:

“The creation, forecast and effective collection of all taxes levied by the member of the Federation pursuant to the Brazilian Constitution are basic requirement for responsibility in fiscal management.

Sole Paragraph. No voluntary transfers can be made to the member of the Federation that fails to comply with the provisions mentioned in the caput”.

The granting or broadening of tax incentives must be accompanied by an estimate of its financial/budgetary impact, it must be considered in the revenue estimate of the Annual Budgetary Law and it has to be accompanied by countervailing measures.

Perhaps most noteworthy are the provisions regulating access to voluntary transfers which is made conditional upon the fiscal conduct of sub national governments. Besides the instances mentioned in art. 11 and art 23, a government unit is eligible to receive voluntary transfers if it is compliant with the constitutional regulations on education and health; the limits on consolidated and securities debt as well as those for credit operations.

Debt and Borrowing. The power to regulate public sector borrowing is once again conferred upon the Federal Senate that defines numerical ceilings on credit operations on the basis of the President’s proposal.⁶¹ The law provides that if the consolidated debt of a unit of the federation exceeds the limits set in the corresponding Federal Senate resolution, the excess must be reduced within the three subsequent periods, otherwise

⁶⁰ This limit is set to 50% for the Federal Government and to 60% for Municipal Governments.

⁶¹ The numerical ceilings set in execution of the FRL are those contained in the RSF 43/2001.

the non compliant entity will be prohibited from receiving voluntary transfers and from contracting internal or external credit operation, including revenue anticipations unless aimed at the refinancing of the principal of securities debt.

On the borrowing side, the main innovations of the FRL concern the financial relationship among government units. Each unit of the federation cannot contract credit operations with another unit or with its own financial institution (art. 35 and 36); the Central Bank of Brazil cannot purchase government securities on the date of their placement in the market except when issued by the Federal Government to repay maturing federal securities debt; art. 39 par- II of the FRL abolished the *troca* mechanism as it prohibits the Central Bank from exchanging, even on a temporary basis, debt securities of a member of the federation for federal public debt securities, and it bans forward purchase or sale of such securities when the final result is similar to an exchange.

The entities of the federation can grant guarantees on behalf of another entity's credit operations (i.e. the federal government on behalf of both the states and municipalities and the states on behalf of the municipalities) but this is conditional upon the provision of a counter-guarantee, which consists of the amount of transfers the beneficiary entity is entitled to receive from the guarantor by virtue of the tax sharing agreement set forth by the Federal Constitution. The guarantor is authorised to retain these transfers and use them to repay overdue debt.

In order to ensure transparency in fiscal management the FRL also requires disclosure of public accounts, and the four-monthly elaboration of a fiscal management report. Oversight of the compliance with the FRL is referred to the legislative branch of each government unit in cooperation with the Audit Court.

The Fiscal Management Council is held responsible for the ongoing monitoring and evaluation of public policies and fiscal management; moreover, it has to promote harmonization and cooperation among the members of the federation and to disseminate practices leading to greater efficiency in the allocation and execution of public expenditures, borrowing control and fiscal management.

Waivers to the Law's prescriptions are envisaged only in cases of public calamity, while more tolerance is granted in case of negative real growth of the national, regional or state GDP. Finally, violation of the Law is punished according to the Fiscal Crime law.

3. The enforcement of fiscal rules and the waiver procedure

The regulation on sub national borrowing and the enforcement of the related discipline are concurrent responsibility of both the Federal Senate and the Central Bank. As the above analysis shows, their roles are strictly intertwined since both organs are responsible for regulating the supply and demand side of credit to the public sector, and both have jurisdiction in authorising credit operations from one member of the federation.

Sub national governments' compliance with the rules established by the Federal Senate was under the Central Bank supervision; since 2000, however, this task was assigned to the Ministry of Finance. According to the federal senate regulation examined above, the states and the municipalities are obliged to transmit to the Central Bank monthly information about their debt position and the maturing schedule of their liabilities.

The early resolutions of the Federal Senate are ambiguous about the sanctions to be inflicted to non-compliant entities. This issue is referred to the Central Bank, which applies also to sub national entities the general law on the development of the capital market⁶² (i.e. law 4728/1965); this law in turn refers⁶³ to law 4595/1964⁶⁴ for the precise sanctions to be applied to entities non compliant with its own prescriptions. Chapter V of law 4595/1964 establish that in case of non-compliance the sanctions will range from early warnings to imprisonment of the authority responsible for violations of the rules.

The Fiscal Responsibility Law specifically regulates the violations of the fiscal rules set therein, and innovates in that besides the penalties usually inflicted to the authority responsible for the violations, it establishes that the non-compliant entity has no claim on its share of voluntary transfers.

The Federal Senate has a far-reaching authority: besides defining the caps on borrowing, the Senate retains the authority to amend its own resolutions, and since the 1960s it has the power to authorise the states to temporarily borrow above these limits. To activate the escape clause SNGs have to apply first to the Central Bank, then the application is transmitted to the Federal Senate, which takes the final decision.

⁶² According to this law the National Monetary Council is responsible for defining the general rules, while the Central Bank is in charge of the enforcement of such rules.

⁶³ Art. 4 par. 6 of Law 4728/1965

⁶⁴ This law contains the general discipline on the monetary and banking institutions.

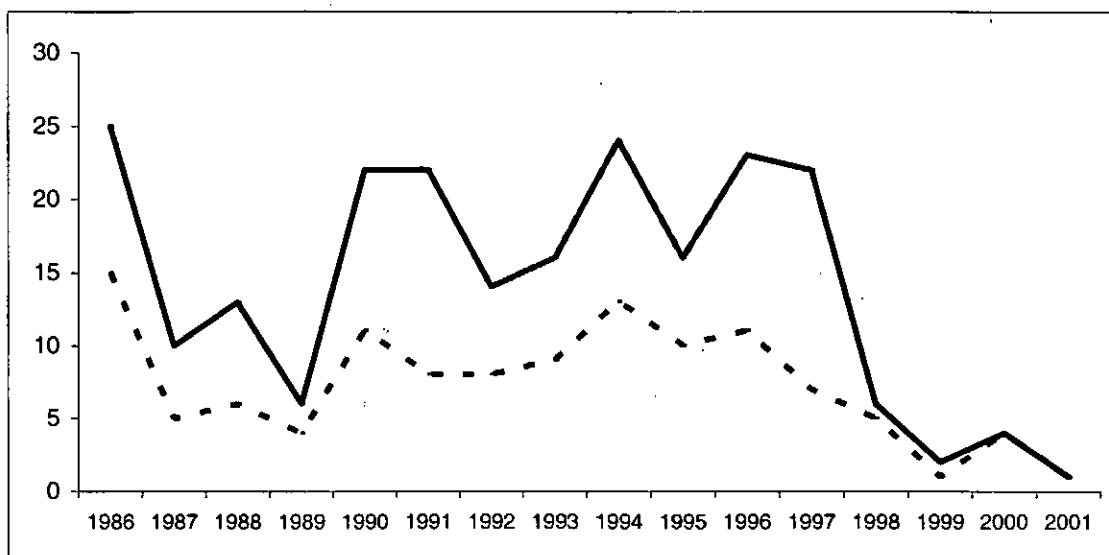
Approval of the waiver by the Federal Senate requires absolute majority of the Senate members; since the Senate has 81 members, a waiver is approved with 41,5 votes in favour. This procedure represents one of the major weaknesses of the Brazilian discipline on sub national borrowing since, as observed by Bevilaqua (2000) the typical political career path in Brazil is one in which the majority of the senators are either future or former state governors, then they are highly sensitive to the instances of local governments and this is a source of conflict of interest in the States' debt regulatory issues. The responsiveness of federal senators to the governors instances', coupled with the mere existence of an escape clause, creates into sub national governments expectation that the escape clause could be easily activated in case of fiscal distress (Wyplosz, 2002).

The escape clauses have evolved over the years, while the earlier resolutions formally admitted borrowing above the limits only for investment financing purposes, the Resolution 78/1998 art 11-III established that authorisation not to respect the restrictions was allowed only if aimed at debt refinancing. This provision can have harmful effects on the fiscal discipline of sub national governments since regular refinancing of debt permits to postpone fiscal problems thus softening the budget constraints and encouraging fiscal profligacy. During the period under consideration the Federal Senate authorised 43 credit operations above the limits only for investment financing purposes while the number of authorisations to borrow above the limits for debt rollover was 226 times⁶⁵. These figures show that the impact of these restrictions on states fiscal discipline has been quite poor if we interpret the need to refinance the debt as a proxy of state finances health⁶⁶. The graph below shows the number of states that were authorised to rollover their debt each year from 1986 to 2001 (dot-line), and the number of times debt rollover occurred during each year from 1986 to 2001 (bold line).

⁶⁵ For further details see table 2 in chapter 3.

⁶⁶ Actually, other exogenous variables effects that are out of Federal and state control can affect sub national fiscal health.

Figure 3. Number of states renegotiating their debt and number of renegotiations (1986-2001)



Source: own elaboration on data collected on the basis of the Federal Senate Resolutions.

As the figure shows there were states that refinanced their debt more than once per year, and this tendency was constant almost throughout the sample period. The number of states requiring debt rollover as well as the number of operations drops in proximity of the debt renegotiation episodes⁶⁷. This evidence has to be interpreted with caution since the dataset is constructed on the basis of the Federal Senate resolutions authorising debt rollover state by state, and it does not capture episodes of collective debt renegotiations involving all the states. In fact it should be noted that after each episode of debt renegotiation both the number of states refinancing their debt and the number of refinancing operations tend to rise again. The pick around 1994 can be ascribed to the effects of the Real Plan since the lower inflation deprived the States of a source of deficit-financing thus forcing them to refinance their debt. Finally, both variables really started to decrease after 1997 that is after the introduction of the Program of Fiscal Adjustment and Restructuring and almost approached zero in 2000 and 2001, clearly because of the stricter rules imposed by the Fiscal Responsibility Law.

In what concerns authorisation to borrow above the limits, 43 operations over 16 years could seem a quite small amount and surely not enough to jeopardize the impact of hierarchical rules on fiscal performance. A small number of such operations does not necessarily point out to respect of the rules from the part of the states, they might find

⁶⁷ It is noteworthy the contraction in the number of debt rollover that occurred in 1987, 1993 and 1998.

other ways to circumvent federal restrictions and to borrow in order to finance current expenditures. Apart from extra limit operations of the kind authorised in art 2 R 93/76 (see table 1 above), AROs operations represented another possible route to circumvent rules. AROs were subject to a different set of restrictions with respect to contractual debt and they were often a source of short term financing heavily used during periods of borrowing restrictions (Lopreato, 2000). This was particularly true after price stabilisation: while hyperinflation reduced the gap between revenues and expenditures in real terms, price stabilization worsened the financing gap of local governments thus forcing them to use AROs for primary deficit financing. The amount of AROs operations grew mainly from 1993 to 1995⁶⁸.

Another set of operations exempted from restrictions were bond issues aimed to repay the so-called "*precatórios judiciais*". Art. 33 of the Temporary Constitutional Provisions of the Federal Constitution states that:

"With the exception of credits for alimony the amount due by virtue of court orders for which payment is outstanding on the date of the promulgation of the Constitution, therein included remaining interests and adjustment for inflation, may be paid in legal tender, with readjustments, in equal and successive annual instalments, within eight years at the most, counted from July 1, 1989, in accordance with a decision by the Executive Power within one hundred and eighty days of the promulgation of the Constitution.

Sole paragraph - In order to comply with the provisions of this article, the debtor entities may issue, each year, for the exact amount of the expenditure, public debt bonds which shall not be computed for purposes of determining the total limit of indebtedness"

Court orders referred to above are the "*Precatorios judiciais*" through which the judge ascertains that the Federal Government, the States or the Municipalities have an outstanding debt and force them to include the overdue amount into the balance sheet of the following year. According to art. 33 of the Federal Constitution, the Federal Government and SNG are allowed to issue bonds whose proceeds are to be used to repay the *precatórios*. SNGs were allowed to repay this debt within 8 years, starting

⁶⁸ Data provided by the Financial Department of the Central Bank show that the total amount of AROs operations jumped from R\$83.929,30 Million in 1994 to R\$1.496.149,77 Million in 1995. For an in depth analysis of the ceilings see appendix 3.

from 1989. However, States and municipalities often used the *precatórios* to circumvent restrictions. In 1996 the Federal Senate created an internal commission in order to investigate about the creation of false “precatórios” by the States in order to issue bonds whose proceeds were diverted to other purposes than paying arrears.

As a result, all these loopholes in the federal legislation let us to suspect that the low number of times the states were authorised to borrow above the limits instead of pointing to a satisfactory fiscal performance of the States is symptomatic of a poor performance of the rules since the states found other ways to circumvent them.

4. Towards an ideal set of fiscal rules?

How do the Brazilian rules of fiscal discipline rank with respect to the core criteria of successful fiscal rules surveyed in Chapter one?

The criteria identified in the previous chapter states that rules should be: i) simple; ii) well-defined; iii) flexible; iv) must use ex-post deficit accounting; v) constitutionally grounded; vi) enforced by an open and politically independent review panel with significant sanctions; vii) costly to amend.

Simple rules are highly valued for being easy to monitor and to understand. On this front the bulk of fiscal rules reviewed so far scores very poorly. The Federal Senate put numerical ceilings on different borrowing items but the reference value upon which the cap was computed changed very frequently.

The indicators to which these rules apply are well identified but the cases under which the escape clause can be activated are far from being precisely defined, and the set of “exceptional circumstances” is potentially unbounded. Moreover, since authorisation to a temporary suspension of the rules is under the Federal Senate jurisdiction, the strong ties between this organ and the regional interests are very likely to strengthen states’ expectations that the escape clause can be easily activated.

The aspect on which these rules appear weakest relates to the Inman criteria for strong balanced budget rules. The early resolutions issued by the Federal Senate did not contain an ex-ante nor ex-post balanced budget requirement. Later on, with the Resolution 94/1989 a golden rule was introduced, which in principle imposed a balanced budget on the current account, but no ex-post balanced requirement was

foreseen. It is only with the Fiscal Responsibility Law that mid term review of the budget target is imposed and end of the year balance is required.

Rules appear to be weak also on the enforcement side. First of all, assessment of violation of the rules can be activated only by the Central Bank. Although this organ should be independent from regional interests, the analysis of the resolutions issued by this organ show that until the Fiscal Responsibility Law was adopted, the Central Bank was very responsive in its regulation of the supply of credit to the central governments decisions to bail out distressed states. The Federal Senate can modify the numerical ceilings on borrowing simply by majority voting as these rules are not constitutionally grounded; therefore, it is plausible to assume that current political interests have the possibility to pressure the federal senate in order to change the rules in the direction they like most.

Drawing from Inman (1996), the following table summarises the basic features of both weak and strong BBR and ranks the Brazilian rules with respect to these criteria by distinguishing the pre- FRL scenario from the new rules introduced by the FRL.

Table 8. Brazilian Fiscal Rules versus Inman's criteria

SPECIFICATION	WEAK BBR	STRONG BBR	BRAZILIAN BBR	
			PRE FRL	POST FRL
Rule				
Timing for Review	Ex-ante	Ex-post	Ex-ante	Mid term and ex-post review
Override				
Majority Rule	Allowed	Not Allowed	Allowed	Allowed
Enforcement				
Access	Close	Open	Close	Close
Enforcer	Partisan	Independent	Partisan	Partisan
Penalties	Small	Large	Small/Ambiguous	Large
Amendment process	Easy	Difficult	Easy	Difficult

Source: adapted from Inman (1996).

As the above table shows, the Fiscal Responsibility Law is a watershed in the Brazilian system of fiscal rules, since it introduces some novelties that make the current set of rules more similar to strong BBRs. This law introduced major improvements in what

concerns the ex-post review of the budget targets, the adoption of a more severe set of sanctions ranging from suspension of voluntary transfers to the non-compliant entity up to penalties determined according to the fiscal crime law to be inflicted to the authority responsible for non compliance. In what concerns the system of enforcement, it is still to be judged as partisan since it assigns to the legislative branch of each entity oversight of compliance with the rules; hence there are no reasons to believe that the legislative branch would not be sensitive to pressures from the executive. As far as temporary suspension of the rules is concerned the Fiscal Responsibility Law admits a temporary suspension of the rules only in cases of public calamity or negative real growth of the national, regional or state GDP. Resolution 43/2001, makes operational the FRL's provisions, and also envisages the possibility for the States to ask a temporary suspension of the rules.

Chapter 3

Fiscal Discipline in Brazil: Empirical Evidence

Introduction

This chapter investigates the impact of sub national borrowing rules, analysed in Chapter two, on the fiscal behaviour of Brazilian states, during the 1986-2001 period. So far, the empirical literature has mainly focused on the role of both budget institutions¹ and numerical targets on the budget in explaining different fiscal policy outcomes across countries. At the sub national level, the analysis has focused mainly on the US States and on the impact that state-specific balanced-budget rules have had on the fiscal behaviour of the federal units².

This analysis adopts a different approach with respect to previous empirical works. On the one hand, the within country dimension of the analysis does not allow to use budget institutions as an explanatory variable for differences in states' fiscal performance³. On the other hand, hierarchical rules on sub national borrowing have represented the main tool to impose fiscal discipline (i.e. hard budget constraints) to sub national entities in Brazil, but none of them set up fiscal rules on its own. Moreover, throughout the sample period sub national borrowing rules, as laid down by federal senate, were amended very frequently; however only minor changes were introduced from one episode to another⁴.

As a result, the lack of time variation does not allow to define a time trend over the stringency of these rules; the rapidity with which they have changed makes it difficult to capture the effect of the single resolution during a long enough period of time.

¹ Alesina and Perotti (1999), define the budgetary institutions as "*the rules and regulations according to which budgets are prepared approved and carried out*".

² See ACIR (1987), Alesina and Bayoumi (1998), Levinson (1998).

³ As a matter of fact one could exploit cross state differences in budget institutions but in the case of Brazilian states the latter do not differ sensibly from one state to another.

⁴ On this point see table 3 in chapter two which summarises the main characteristics of each federal senate resolution.

Finally, all the legislative provisions on sub national borrowing contain some loopholes that could eventually undermine the stringency of the rules. Every single resolution provided that the states could apply for federal senate authorisation in order to borrow above the numerical ceilings imposed on them. Although the granting of a waiver was in principle limited to the financing of financially sustainable economic activities, deemed compatible with the National Development Plan⁵, in practice borrowings above the ceilings were also allowed for the purpose of refinancing maturing debt. Moreover, since Resolution 78/1998 temporary suspensions of the rules have been allowed only for the purpose of refinancing overdue debt.

This last provision, coupled with the lack of a strong enforcement of the rules, might have legitimized a fiscally irresponsible behaviour by the states, and this is the starting point of the empirical analysis proposed in this chapter.

The empirical analysis assumes that the presence of an escape clause in the federal legislation on sub national borrowing nourishes states' expectations that a loosening of the budget constraints may occur during each fiscal year⁶. However, at the beginning of the year, when expenditures are planned, states are uncertain about whether they will need and obtain a temporary authorisation to depart from the rules. Hence, this analysis aims to tests whether the mere presence of an escape clause is enough to induce a fiscally irresponsible behaviour, and to this purpose it includes soft budget constraint (SBC, henceforth) expectations among the explanatory variables of states' fiscal behaviour. Therefore, instead of testing the impact of "*hard budget constraints*" on local fiscal behaviour, this chapter tests the impact that "*expectations of soft budget constraints*" have on states' fiscal behaviour. The specific hypothesis to be tested is whether the expectations of soft budget constraints stimulate a higher level of capital spending from the part of the states. This assumption rests on the claim that if a state is allowed to run a deficit only for investment financing purposes (*golden rule*), and if temporary suspension of the rule is permitted only under exceptional circumstances then it is reasonable to expect that a softening of the budget constraint might have a positive impact on capital expenditures, while leaving unchanged the other spending items.

Therefore, states' expenditure is the dependent variable used in this analysis. In order to test the above hypothesis states' expenditure is split into three different specifications:

⁵ See Federal Senate Resolutions 62/1975, 94/1989, 11/1994, 69/1995.

⁶ On this point see Wyplosz (2002).

1) capital expenditures net of payments on principal, which include investments and capital transfers to municipal governments; 2) personnel expenditures, which represent almost 60% of total current expenditures; 3) other current expenditures net of interest payments, which include operation and maintenance outlays and transfers to municipal governments.

Surprisingly, the main finding of the empirical analysis is that SBC expectations affect positively states' fiscal profligacy by increasing personnel expenditures, while the impact on capital expenditures is negative and significantly different from zero, thus contradicting the initial assumptions.

This chapter is organised as follows. The next section briefly describes the dataset. Even though the main concern of this analysis is the impact of SBC expectations on states' spending, section 3 presents the empirical evidence on the determinants of soft budget constraints and intergovernmental transfers in order to provide an empirical background to the analysis that follows. Section 4 firstly introduces the empirical model on the determinants of states' spending and the main econometric problems related to the estimation framework; secondly the empirical findings are presented.

1. The Data

The database used in this chapter covers all the 26 Brazilian States plus the Federal District for the period 1986-2001. There are three different categories of data: fiscal, economic and political data.

From 1986 to 1994 Brazil adopted 4 different domestic currencies⁷ because of the severe hyperinflations of the pre-1994 years; hence, in order to make data comparable across time, fiscal and economic variables have been expressed into 1995 USD⁸.

⁷ In 1986 the Cruzeiro (Cr\$) was abandoned and the Cruzado (Cz\$) was adopted until 1989 (1Cz\$=1000Cr\$). In 1989 the Cruzado Novo (1NCz\$= 1000Cz\$) replaced the Cruzado until 1990 when the new currency became the Cruzeiro again. In 1993 the Cruzeiro Real (CR\$) replaced the Cruzeiro (1CR\$=1000Cr\$). Finally in 1994 the Real (R\$) was adopted (1R\$=2750 CR\$). The exchange rate between the Real and the 1986 Cruzado was 3.63636⁻¹³; hence, converting all data in Reais would have reduced to almost zero observations for the 1986-1989 period.

⁸ Data on the exchange rates of USD against the different currencies are available from the Central Bank of Brazil website: www.bcb.gov.br.

1.1 Budget Data

Budget data refer to state governments' tax revenues, total transfers, current expenditures, including personnel expenditures, and capital expenditures. Interest payments on debt are included into the current spending item while payment on principal is included into capital spending. The database contains some gaps since the State of Tocantins was created only in 1988, while budget data are not available for the State of Rio Grande do Norte for the 1986-1994 years. These data are available from the Federal Treasury's website⁹ and are collected on yearly basis in collaboration with the States' Finance Secretaries, hence they are homogeneous and comparable across time and states. Table 1 summarises the main budgetary data.

Table 1. Summary Statistics^a (million USD)

<i>Variable^b</i>	<i>Number of obs</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Minimum</i>	<i>Maximum</i>
<i>States with real per capita income above average^a</i>					
<i>Real per capita personnel expenditures</i>	160	.1826387	.2480373	.0331196	1.512416
<i>Real per capita net current expenditures</i>	160	.1981432	.1583519	.0400167	1.08127
<i>Real per capita net capital expenditures</i>	160	.0754405	.0572213	.007668	.3186993
<i>Real per capita tax revenues</i>	160	.2485516	.1307034	.0731284	.672633
<i>Real per capita total transfers</i>	160	.1268811	.23333	.0003972	1.185472
<i>Real per capita total revenues</i>	160	.4889089	.3931604	.1378565	2.060183
<i>States with real per capita income below average</i>					
<i>Real per capita personnel expenditures</i>	259	.1360177	.1194545	.0154039	1.037403
<i>Real per capita net current expenditures</i>	259	.1183081	.0929357	.0105427	.5879664
<i>Real per capita net capital expenditures</i>	258	.0755795	.0852719	.0035258	.5983427
<i>Real per capita tax revenues</i>	253	.100225	.0602837	.0158584	.3501732
<i>Real per capita total transfers</i>	259	.185541	.2248027	.0006777	1.307074
<i>Real per capita total revenues</i>	259	.339616	.2411839	.0594329	1.431605

a. Fiscal variables and state domestic product are expressed in per capita 1995 USD.

b. Average real per capita income is equal to 2194.611 USD.

Source: own elaboration on Ministry of Finance Data.

⁹ www.stn.fazenda.gov.br.

On average high income states have higher current expenditures per capita both in the form of personnel expenditures and other current expenditures compared with poorer states. This seems to point to a larger size of the public sector in wealthy states compared to the poorer ones, but this result is mainly driven by the presence of the Federal District among the “high income” states. Brasilia is the centre of the Brazilian power and per capita income equals 6325 USD. Once the Federal District is dropped from the sample average personnel expenditures in high-income states decreased to .13413, which is very close, or even slightly lower, than the one observed for poorer states.

As expected, on average, high income states have higher per capita tax revenues and lower per capita total transfers than low-income states, thus suggesting that poor states depend greatly from central government finance and enjoy lower revenue autonomy. Another overwhelming feature is that per capita capital expenditures are equal in magnitude and extremely low in both sub samples. This is probably due to the prohibition, imposed to the States since 1993, to issue new bonds except than those necessary to debt refinancing, which deprived them of an important source of investment financing¹⁰.

1.2 Economic Data and Soft Budget Constraints Expectations

Data on Gross State Product arise from the “*Contas Regionais do Brasil - 2001*” published by the Brazilian National Institute of Geography and Statistics (IBGE)¹¹ in cooperation with the States’ Statistical Institutes. Data are collected on the basis of state annual statistics on production, consumption and value added for each category of economic activity, which are compiled using the same criteria as those adopted in the elaboration of the National Accounts. The “*Contas Regionais*” statistics also contain states’ price index of goods and services that have been used to convert all the variables in real terms.

¹⁰ As already mentioned in the previous chapter, the first ban on new bond issues, for purposes other than debt financing was imposed by the Constitutional Amendment n° 3 of 1993 and it lasted until 2000. Resolution 78/1998 extended this prohibition up to 2010.

¹¹ www.ibge.gov.br.

Data on state population are provided by the IBGE, which estimates the resident population in each state of the federation using the method of demographic components as well as the results of the demographic censuses of 1980, 1991 and 2000.

Expectations of SBC are not directly observed, but past realisation of the event are. Information about soft budget constraints episodes have been collected through a review of the federal senate resolutions authorising each state to borrow above the numerical ceilings, i.e. to all the instances in which the escape clause has been activated. We have detected two groups of authorisations. The first group contains those authorisations granted for the purpose of investment financing (waivers, henceforth); the second group includes the cases in which the state has been authorised to borrow above the limits in order to refinance the maturing debt (debt rollover, henceforth)¹².

The information about the waivers and debt rollover episodes was used to construct the soft budget constraint variable as a binary variable taking value 1 each time a state was authorised either to borrow above limits or to roll its debt over or both, and 0 otherwise. The table below illustrates the number of times each state was authorised by the Senate to roll its debt over or to borrow above the limits during the 1986-2001 period. States are divided into two sub-sets according to whether their average real GSP is above or below the states' average.

¹² The reason for including debt rollover authorisations among the soft budget constraint episodes is that debt refinancing allows a state to postpone debt repayment thus delaying fiscal adjustment.

Table 2. The Soft Budget Constraint episodes state-by-state (1986-2001)

	<i>Real p. c. GSP (thousands USD)</i>	<i>Total episodes of soft budget constraints</i>	<i>Waivers</i>	<i>Debt Rollover</i>
<i>Real per capita GSP above average</i>				
<i>Amazonas</i>	3792.701	0	0	0
<i>Distrito Federal</i>	6325.971	0	0	0
<i>Espirito Santo</i>	2646.653	11	3	8
<i>Mato Grosso</i>	2207.636	6	2	4
<i>Minas Gerais</i>	2640.602	30	2	28
<i>Paraná</i>	3012.804	5	1	4
<i>Rio de Janeiro</i>	3721.708	45	6	39
<i>Rio Grande do Sul</i>	3538.803	35	6	29
<i>Santa Catarina</i>	3066.698	27	3	24
<i>Sao Paulo</i>	4659.839	27	1	26
TOTAL		186	24	162
<i>Real per capita GSP below average</i>				
<i>Acre</i>	1374.237	0	0	0
<i>Alagoas</i>	1131.234	1	0	1
<i>Amapá</i>	1951.886	0	0	0
<i>Bahia</i>	1547.69	11	0	11
<i>Ceará</i>	1138.918	10	4	6
<i>Goiás</i>	1834.575	12	2	10
<i>Maranhão</i>	680.7795	3	2	1
<i>Mato Grosso</i>	2152.437	20	3	17
<i>Pará</i>	1816.185	0	0	0
<i>Paraíba</i>	1013.968	11	2	9
<i>Pernambuco</i>	1493.639	5	4	1
<i>Piauí</i>	670.5819	4	1	3
<i>Rio Grande do Norte</i>	1304.255	3	0	3
<i>Rondonia</i>	1584.309	0	0	0
<i>Roraima</i>	1402.39	0	0	0
<i>Sergipe</i>	1632.493	4	1	3
<i>Tocantins</i>	911.4934	0	0	0
TOTAL		84	19	65

Source: own elaboration

As table 2 shows, the number of episodes in which a softening of the budget constraints occurred is significantly larger in high-income states compared to low income ones. However, in both high and low income states authorisations to rollover overdue debt account for most of the authorisations granted by the Federal Senate. As a proxy for SBC expectations this analysis uses the predicted probability of SBC to occur in state i

in year t as estimated by means of an auxiliary regression where the dependent variable is the soft budget constraint dummy variable¹³.

1.3 Political Data

The set of political data includes information on: the governor's election year; the political affiliation of state governors; the number of state representatives elected in the Federal Congress; the number of state representatives at the Federal Congress that belong to the President's legislative coalition. These variables have been constructed using information on the electoral outcomes which are available from the dataset of the Research Institute of Rio de Janeiro (IUPERJ)¹⁴.

Governor election year (gelecy) is a dummy variable taking value 1 in years of governors'¹⁵ election and 0 otherwise. This variable is included in order to test the electoral cycle hypothesis according to which public expenditures increase during election years in order to raise political consensus (Poterba, 1994).

The *political affiliation (polaff)* variable measures the partisanship of the state governor in relation to the president's legislative coalition. This is a dummy variable; it takes value 1 all the years in which the governor of a state belongs to one of the parties in the President's coalition, 0 otherwise. The reason for matching governor's political affiliation to the President's legislative coalition rather than to President's party turnout resides in the peculiarities of the Brazilian system of fiscal federalism that have already been analysed in Chapter two. State governors have a strong influence on the legislators of both chambers since the former are important players in the future political career of the latter¹⁶. As a result, state governors are useful to the President in building support coalitions since legislators in the Brazilian Congress face strong incentives to bring expenditures to their home state, and party discipline is rather weak.

¹³ This way to proceed is reminiscent of the "generated regressors" (GR) approach, which has been widely used in the literature on empirical expectations. Oxley and McAleer (1993) provide an excellent survey of the literature on this issue; the exact equation to be estimated is presented in section 4.

¹⁴ www.iuperj.br

¹⁵ Gubernatorial elections in Brazilian States are held contemporaneously each four years. During the period analysed in this chapter elections occurred in 1986, 1990, 1994, and 2002. The unique exception is the State of Tocantins where the first elections were held in 1988 the year of its creation.

¹⁶ As Samuels (2000) pointed out, electoral incentives in Brazil are state-centred in the sense that candidates for congress focus on gubernatorial race instead of presidential race

Since the Senate is the federal organ responsible for defining rules on sub national borrowing and for authorising departures from these rules, two variables measuring the *number of state representatives (strep)* at the Federal Congress and the *partisanship of state representatives* in relation to the President legislative coalition (*prcoal*) are included in order to capture the influence of each State over two of the most important federal organs supervising their fiscal conduct. The instability of the Presidents' legislative coalitions during the post-military regime induces variability in these data, even within the four-year term of both the President and the state governors' mandate. Until the 1990 elections, during José Sarney's administration, all the states were driven by governors affiliated to the PMDB¹⁷. In 1990 Fernando Collor de Mello was elected President of the Republic but in 1992 he was impeached for corruption and Itamar Franco became President of a coalition government until the 1994 elections. Collor de Mello did not enjoy strong parliamentary support, at the time of election he was supported by the Democratic Social Party (PDS) and the Liberal Front Party (PFL). Only in 9 states out of 27 governors belonged to the President's legislative coalition. Itamar Franco instead was supported by a larger coalition of parties and during his administration 18 governors out of 27 belonged to his legislative coalition.

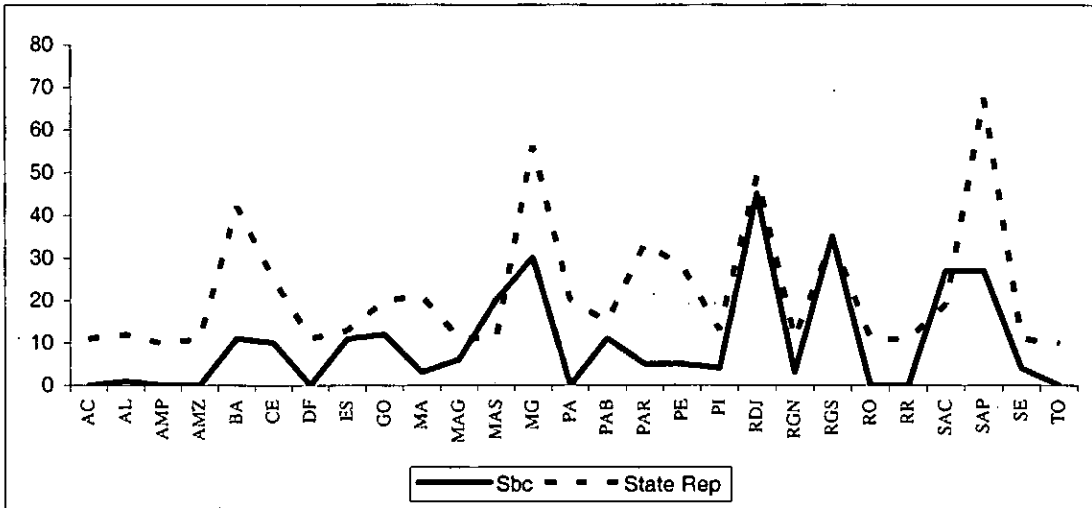
Finally, during the first Cardoso administration (1995-1998) 15 governors belonged to the President's legislative coalition, they increased to 21 in the first two years of his second mandate (1999-2002), which are also the last two years of data included in the sample.

These last three variables aim at controlling for the political economy determinants of redistribution and soft budget constraints i.e. to test whether more represented states in both the President's coalition and the Congress are able either to obtain a higher amount of transfers or have a higher probability to obtain a loosening of the budget constraints or both. To this purpose the graphs below illustrate the relationship between the total number of times a single state benefited from SBC during the 1986-2001 period, and the average number of times a state governor was affiliated to the President's legislative coalition (graph a); the share of total state representatives belonging to the president's legislative coalition averaged over the 1986-2001 period (graph b); the number of state representatives averaged over the 1986-2001 period (graph c).

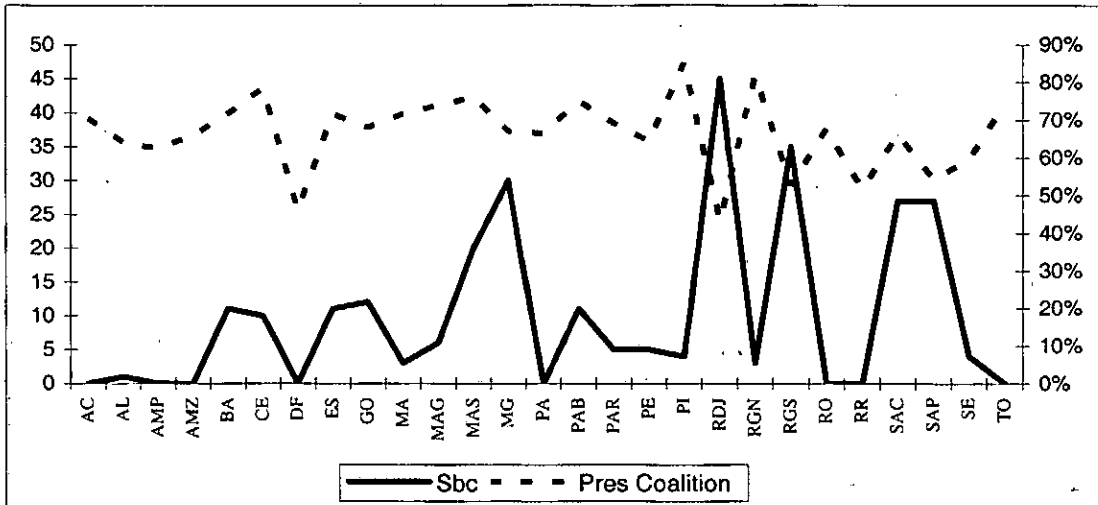
¹⁷ PMDB is Partido do Movimento Democrático Brasileiro.

Figure 1. Soft budget constraint episodes versus political variables (1986-2001)

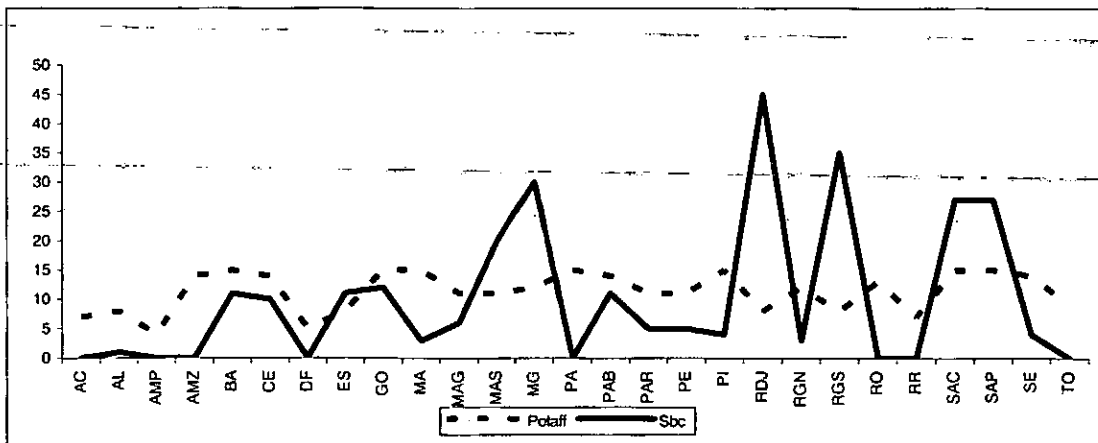
(a)



(b)



(c)



Source: own elaboration

The above graphs provide useful insights for a preliminary assessment of the influence of political variables on the number of times a state obtained a softening of its budget constraint.

The number of state representatives seems to be associated, on average, to a higher number of SBC, this is the case of Rio de Janeiro (RDJ), Rio Grande do Sul (RGS) and Minas Gerais (MG) (graph a). The share of state representatives in the President coalition and the partisan affiliation of states' governors are associated to a lower number of SBC, this is the case of the states of Parà (PA), Tocantins (TO), Piauí (PI) and Rio Grande do Norte (RGN) (graphs b and c).

Therefore, it seems that the closer a state is to the President's legislative coalition the lower is the probability of both to need and to obtain a soft budget constraint.

2. The determinants of intergovernmental transfers

This section presents an empirical analysis of the determinants of central government transfers to the Brazilian States. Since transfers are an important source of revenues for most of the states, it is interesting to investigate to what extent their amount is determined according to an automatic formula or redistributive considerations (as is the case for the FPE) or are driven by political forces¹⁸. This analysis sheds some light on the relationship between the amount of transfers and the SBC episodes in order to test whether higher transfers are associated to a lower number of SBC episodes.

The basic specification of the model to be estimated is the following:

$$Grants_{it} = \alpha y_{it} + \beta_1 polaff_{it} + \beta_2 prcoal_{it} + \beta_3 strep_{it} + \gamma prelec_{i,t-1} + \delta g_{it-1} + t + \tau_i + v_{it}$$

$$i=1,2,\dots,N; t=1,2,\dots,T$$

(1)

$Grants_{it}$ is the log of real per capita total transfers, y_{it} is the log of real per capita GSP;

g_{it-1} is a control variable for last year fiscal policy of the state government in order to

¹⁸ Arretche and Rodden (2003) performed an empirical analysis on the political economy of fiscal redistribution among the Brazilian States and found that states with more legislative seats per capita receive larger transfers per capita and that states with stronger representation in the president's legislative coalition also receive larger transfers per capita.

capture whether the amount of transfers depends on a state's past fiscal performance. This is represented either by the fiscal surplus realised in the previous year (model 1) or by the last year level of state expenditures (model 2). Moreover, in order to test which category of public expenditures affect the most the amount of transfers, the model is also estimated by including one by one each category of public expenditures (models 3 to 5). The other variables account for the political determinants of redistribution by including: *prelec_1* which is a binary variable taking value 1 in the year preceding Presidential elections, 0 otherwise; *polaff* is the political affiliation of the state governor with respect to the President's legislative coalition; *strep* is the number of state representatives at the Federal Congress; *prcoal* is the political affiliation of state representatives in relation to the president legislative coalition; τ_i is the state specific heterogeneity and v_{it} is the common error term. The model is estimated by fixed effect specification and the results are shown in table 3¹⁹.

Table 3. Fixed Effect estimates of the determinants of intergovernmental transfers

	(1)	(2)	(3)	(4)	(5)
<i>Log of Real per capita Gsp</i>	1.620	1.164	1.162	1.554	1.636
	(7.02)***	(4.72)***	(4.57)***	(6.64)***	(7.12)***
<i>Lagged total spending</i>		.911			
		(4.42)***			
<i>Lagged personnel spending</i>			0.561		
			(3.92)***		
<i>Lagged other net current spending</i>				0.291	
				(1.51)	
<i>Lagged net capital spending</i>					0.182
					(1.79)*
<i>Lagged budget surplus</i>	-0.886				
	(0.39)				
<i>State Representatives</i>	-0.028	0.036	-0.025	-0.032	-0.025
	(0.49)	(0.66)	(0.46)	(0.57)	(0.45)
<i>Governor's political affiliation</i>	-0.002	.057	0.038	0.009	0.016
	(0.01)	(0.40)	(0.26)	(0.06)	(0.11)
<i>State Representatives in president coalition</i>	0.049	0.050	0.046	0.053	0.049
	(3.77)***	(3.88)***	3.57)***	(3.99)***	(3.78)***

¹⁹ The F Test on the significance of the individual heterogeneity confirms that the states' fixed effects are significantly different from zero, thus supporting the fixed effect estimates. Moreover the results from the Hausman Test, performed for each specification, indicate that the coefficients estimated by means of fixed effect and random effect differ significantly thus further supporting the reliability of the fixed effect estimates.

<i>Year preceding President election</i>	0.509	0.399	0.499	0.478	0.459
	(3.58)***	(2.91)***	(3.70)***	(3.40)***	(3.23)***
<i>Time trend</i>	0.025	-0.021	-0.009	0.006	0.020
	(1.53)	(1.13)	(0.51)	(0.28)	(1.26)
<i>Constant</i>	-14.635	-10.344	-10.265	-13.882	-14.839
	(5.77)***	(4.60)***	(4.38)***	(6.31)***	(7.29)***
<i>R-squared</i>	0.28	0.32	0.31	0.29	0.29
<i>F Test that all $u_i=0$</i>	F(26, 346) = 6.48 Prob > F = 0.0000	F(26, 346) = 4.06 Prob > F = 0.0000	F(26, 346) = 3.19 Prob > F = 0.0000	F(26, 346) = 5.36 Prob > F = 0.0000	F(26, 345) = 5.48 Prob > F = 0.0000
<i>Hausman Test</i>	chi2(7) = 25.48 Prob>chi2 = 0.0006	chi2(7) = 42.94 Prob>chi2 = 0.0000	chi2(7) = 40.79 Prob>chi2 = 0.0000	chi2(7) = 65.05 Prob>chi2 = 0.0000	chi2(7) = 41.71 Prob>chi2 = 0.0000

Absolute value of t statistics in parentheses

* significant at 10%; ** significant at 5%; ***significant at 1%

First, in each specification of the transfers' equation the log of real per capita GSP is positive and significantly different from zero. This points to a pro-cyclical transfer's policy of the federal government: transfers increase in periods of economic expansion and decrease in periods of economic downturns²⁰. Secondly, intergovernmental transfers do not seem to follow a redistributive purpose since a higher per capita income is associated to higher per capita transfers.

On the fiscal performance side, last year budget surplus does not affect significantly the amount of intergovernmental transfers even though its sign is negative; while a higher level of government spending in the previous year positively affects the amount of transfer a state receives. In particular, as shown by specifications 2 to 6 this result is mainly driven by personnel expenditures: indeed the coefficient on other net current expenditures and net capital expenditures is not significantly different from zero.

Among the political variables, the coefficient on the year preceding Presidential Election year is positive and significantly different from zero; this evidence confirms the political cycle hypothesis that in years preceding elections intergovernmental transfers increase in order to gather political consensus. Finally, the partisanship of both governors and state representatives positively affects the amount of transfers even though only the latter coefficient is significantly different from zero; the number of state representatives at the federal congress affects negatively the amount of transfers but its

²⁰ These results are robust even if the rate of growth of real per capita GSP is included among the regressors in place of the log of real per capita GSP. In these cases the coefficient is not significantly different from zero but the sign is positive.

coefficient is not significantly different from zero. Overall, the empirical evidence points to a positive effect of proximity to the President of the Republic on the amount of intergovernmental transfers, instead redistributive considerations or countercyclical policy objectives play a minor role. This result is likely to be driven mainly by the share of “voluntary intergovernmental transfers” which are not determined by law or constitutional formula.

3. The probability of soft budget constraints

The probability of soft budget constraint to occur is estimated by means of a logistic fixed effect regression²¹.

In the formulation of the logistic model, the soft budget constraint variable is taken as the observed counterpart of a latent continuous random variable crossing a threshold (Hsiao 2003) represented by the net benefits to the Federal Government from authorising the states to borrow or to rollover the debt. Therefore, a temporary departure from borrowing rules is granted if net benefits to the Federal Government were positive; otherwise authorisation is denied. Net benefits to the Federal Government accrue in the form of political consensus and increased support from state governors to both the President’s legislative proposals and the states representatives’ ambitions of political career within their home state. Moreover, avoiding sub national default brings further benefits to the macroeconomic stability of the country as a whole. On the other side softening budget constraints nourishes expectations for federal bailouts thus undermining federal government credibility to impose fiscal discipline to the states.

The unobserved net benefits from soft budget constraints can be modelled as follows:

$$b_{i,t} = \alpha_1 y_{it} + \alpha_2 \text{polaff}_{it} + \alpha_3 \text{prcoal}_{it} + \alpha_4 \text{strep}_{it} + \alpha_5 \text{grants}_{it-1} + \alpha_6 \text{gelecy}_{it} + t + \mu_i + \varepsilon_{it}$$

$$i = 1, 2, \dots, N; t = 1, 2, \dots, T$$

(2)

and

$$sbc_{it} = \begin{cases} 1 & \text{if } b_{it} > 0 \\ 0 & \text{if } b_{it} \leq 0 \end{cases}$$

²¹ The choice between Random and Fixed Effects specification depends on a number of issues. Among these Balestra (1996) includes the *nature of the sample* and suggests that when the sample is closed in the sense of consisting of a number of units drawn from the same region or the same state the fixed effect specification is the best suited for estimation of panel data.

where b_{it} represents the net benefits to the federal government from granting a waiver to state i at time t ; the log of real per capita GSP (y_{it}) captures whether benefits to the federal government are higher in the case of high-income states compared to the poorest ones. This may occur either because the former enjoy a higher bargaining strength in the Federal Senate than the latter, or because of the “*too big to fail*” argument proposed by several authors²². $polaff$ and $prcoal$ represent the political affiliation of the state governor and the state representatives respectively; $strep$ is the number of state representatives at the Federal Congress. As the Federal Senate grants authorisation, the most represented states in the Federal Congress are expected to have a higher probability of loosening budget constraints. Therefore we expect the coefficient on $strep$ to be positive. Besides, states closer to the President are also likely to have a higher probability of waivers; hence, the coefficients on $polaff$ and $prcoal$ are expected to be positive as well. The lagged value of total transfers is included in the above equation in order to check whether intergovernmental transfers affect the probability of obtaining a soft budget constraint in the next year. It would be plausible to assume that the higher the amount of transfers a state receives in the previous year, the lower is the probability for the state to fall short of financial resources necessary to pay back its debt or to finance investments, hence $\alpha_5 < 0$ is expected. In some specifications, the lagged level of transfers is replaced by other variables related to the state fiscal performance. Lagged budget surplus is likely to reduce the probability of obtaining a soft budget constraint; hence the coefficient on this variable is expected to be negative. When we include past levels of government expenditures the expected sign of the coefficient is positive, since a higher level of government spending is likely to raise the probability of waiver. μ_i is the unobserved state specific heterogeneity, and ε_{it} is the error term component that is assumed to have a logistic distribution.

The probability of a soft budget constraint to occur is estimated by using a logistic specification and states' heterogeneity is modelled as fixed, in order to account for potential correlation with the regressors in the right hand side of equation (3)²³.

²² Wildasin (1997) shows that jurisdictional size systematically affects the likelihood and size of bailouts under specific assumptions about preferences. In particular the author finds that larger localities can extract larger bailouts from the central governments than smaller ones.

²³ As observed by Greene (2003) the fixed effects specification is appealing since it does not impose the orthogonality of the independent variables and the heterogeneity.

The log likelihood function for the fixed effects logit model is given by:

$$\log L = \sum_{i=1}^N \sum_{t=1}^T \log P(sbc_{it} = 1 | \mu_i + q_{it}'\rho) = - \sum_{i=1}^N \sum_{t=1}^T \log [1 + \exp(\mu_i + q_{it}'\rho)] + \sum_{i=1}^N \sum_{t=1}^T sbc_{it} (\mu_i + q_{it}'\rho) \quad (2a)$$

where q_{it} is the vector of explanatory variables in the RHS of equation (3) and ρ is the vector of coefficients to be estimated.

In order to deal with the *incidental parameters problem*, which makes inconsistent the maximum likelihood estimates of the parameters of interest²⁴, equation (3a) is estimated using the conditional likelihood method. This approach differs from the maximum likelihood procedure since it allows to remove the individual heterogeneity and to obtain an estimation function independent from μ_i ²⁵. The conditional likelihood function is the likelihood function conditioned on the sum of the number of ones in the sample.

As observed by Chamberlain (1980) the conditional likelihood function is given by:

$$L^C = \prod_{i=1}^n \text{Prob} \left(Y_{i1} = y_{i1}, Y_{i2} = y_{i2}, \dots, Y_{iT_i} = y_{iT_i} \mid \sum_{t=1}^{T_i} y_{it} \right)$$

or

$$L^C = \prod_{i=1}^n \frac{\exp \left(\sum_{t=1}^T y_{it} x_{it}' \beta \right)}{\sum_{\sum_t d_{it} = S_i} \exp \left(\sum_{t=1}^T d_{it} x_{it}' \beta \right)}$$

where the function in the denominator is summed over the set of all the different sequences of zeroes and ones for which the sum is $\sum_{t=1}^T y_{it} = S_i$. The above function is clearly independent of μ_i and produces consistent estimators of the parameters of interest.

²⁴ This occurs because unlike the linear regression model, where heterogeneity is eliminated either by the first differencing or the demeaning procedure, in a non-linear framework it is not possible to employ these techniques to get rid of the heterogeneity that, by assumption, is correlated with the regressors. Another problem with the fixed effects estimates is the small sample bias in the estimates. How severe is this bias remains a debated issue in the literature (Greene, 2003)

²⁵ In the logistic regression context this is possible because a minimum sufficient statistic is available for μ_i ; this statistic is $\sum_{t=1}^{T_i} sbc_{it}$. In practice, conditioning the joint probability to the sum of the number of ones in the sample allows to obtain a conditional likelihood function that does not depend on μ_i . See Greene (2003) and Hsiao (2003).

Thus, in the first stage regression the following equation is estimated for the i -th state:

$$\text{Prob}(sbc_{it} = 1 | \sum_{t=1}^{T_i} (sbc)_{it}, q_{it}) = \frac{\exp\{\rho \left[\sum_{t=1}^{T_i} q_{it} (sbc)_{it} \right]\}}{\sum_{\sum d_{it}=S_i} \exp\{\rho \left[\sum_{t=1}^{T_i} q_{it} d_{it} \right]\}}$$

where the function in the denominator is summed over the set of all $\binom{T_i}{S_i}$ sequences of

T_i zeroes and ones that have the same sum as $S_i = \sum_{t=1}^{T_i} sbc_{it}$.

The conditional log-likelihood function is (Chamberlain, 1980):

$$\log L^C = \sum_{i=1}^N \left\{ \rho \left[\sum_{t=1}^{T_i} q_{it} (sbc)_{it} \right] - \log \left[\sum_{\sum d_{it}=S_i} \exp \left(\rho \left[\sum_{t=1}^{T_i} (sbc)_{it} q_{it} \right] \right) \right] \right\} \quad (2b)$$

Estimation of the above model provides consistent estimates of the parameters of interest, the results are shown in table 4.

Table 4. The Determinants of Soft Budget Constraints

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Lagged log of real p.c. total transfers</i>	-0.440 (2.30)**						
<i>Lagged log of real surplus</i>		-1.069 (0.13)					
<i>Log of real surplus</i>			-1.570 (0.20)				
<i>Lagged log of real p.c. total expenditures</i>				-1.707 (2.33)**			
<i>Lagged log of real p.c. personnel expenditures</i>					-0.489 (0.94)		
<i>Lagged log of real p.c. other net current expenditures</i>						-0.917 (1.32)	
<i>Lagged log of real p.c. net capital expenditures</i>							-0.373 (1.26)
<i>Log of real p.c. GSP</i>	3.926 (4.67)***	3.452 (4.29)***	2.682 (3.68)***	4.459 (4.76)***	3.893 (4.18)***	3.677 (4.48)***	3.571 (4.41)***
<i>Political affiliation of the State Governor</i>	-0.473 (0.88)	-0.424 (0.80)	-0.868 (2.12)**	-0.609 (1.13)	-0.495 (0.93)	-0.469 (0.88)	-0.463 (0.87)
<i>Political Affiliation of the State Representatives</i>	-0.135 (3.16)***	-0.135 (3.04)***	-0.087 (2.32)**	-0.148 (3.33)***	-0.135 (3.12)***	-0.156 (3.31)***	-0.135 (3.08)***
<i>Number of State Rep.</i>	0.059 (0.42)	0.049 (0.35)	0.108 (0.83)	0.094 (0.67)	0.046 (0.33)	0.067 (0.49)	0.045 (0.33)
<i>Governor election year</i>	-0.154 (0.32)	0.437 (0.99)	0.994 (2.70)***	0.406 (0.95)	0.380 (0.90)	0.417 (0.99)	0.476 (1.13)
<i>Time trend</i>	-0.174 (2.89)***	-0.200 (3.41)***	-0.220 (3.90)***	-0.119 (1.75)*	-0.172 (2.64)***	-0.139 (1.86)*	-0.197 (3.33)***
<i>Observations</i>	255	255	288	255	255	255	255
<i>Number of nc</i>	17	17	18	17	17	17	17

Absolute value of z statistics in parentheses. *significant at 10%, **significant at 5%, *** significant at 1%

According to the above results the probability of obtaining a waiver depends positively and significantly on the level of real per capita income, but evidence about the fiscal variables is mixed. A higher amount of intergovernmental transfers in the previous year reduces the probability of a state to obtain a waiver in the current period thus confirming the initial assumptions. Neither the past nor the current level of budget surplus affects significantly the probability of obtaining a waiver, even though their sign is negative thus confirming the assumption that a higher budget surplus reduces the probability of soft budget constraint. Lagged values of total states' expenditures reduce significantly the probability of obtaining a waiver in the current year, but this evidence is not confirmed when the effect of each category of spending is controlled for separately, the sign is still negative but not significantly different from zero.

Political economy variables affect the probability of SBC. The number of state representatives in the Federal Congress affects positively, though not significantly, the probability of SBC, while the political affiliation of both the governor and the state representatives affect negatively, and significantly, in the case of the latter variable, this probability. The governor election year variable is not significant in almost any of the specifications while the time trend has a negative and significant effect.

The empirical evidence presented above confirms most of the initial assumptions. High-income states seem more likely to obtain waiver, thus supporting the *"too big to fail"* assumption. Evidence about political economy variables confirms that the more represented states within the Federal Congress have a higher probability of obtaining a SBC. The political affiliation of state representatives and the political affiliation of the governor negatively affect the probability of a soft budget constraint to occur, thus contradicting the initial assumption. Two interpretations are available for this apparent counterintuitive evidence. First of all, the process of authorising waivers is under the Federal Senate jurisdiction and proximity to the President does not seem to play a relevant role in this process; the second, and perhaps more convincing argument, can be inferred from a comparison between this evidence and the findings about the determinants of intergovernmental transfers presented in the previous section. Among the political variables the party affiliation of state representatives has the best performance in explaining both total transfers (table 3) and the probability of soft

budget constraints (table 4). It is in fact significant at the 1% level in both equation (1) and equation (2b).

Moreover, the three political variables seem to affect the two variables of interest in opposite directions, i.e. the two political affiliation variables affect positively the amount of total transfers and negatively the conditional probability of softening budget constraint, while the number of state representatives at the Federal Congress negatively affect the amount of total transfers and positively the probability of obtaining a softening of the budget constraint. This inverse relationship reveals the dynamic underlying the states' financing mechanisms: the states that are politically closer to the President have at their disposal a higher amount of resources in the form of intergovernmental transfers than those that are not and also have a lower probability to rollover the debt or to resort to borrowing outside the numerical ceilings. This also helps to explain why the number of state's representatives in the Federal Congress positively affects the probability of soft budget constraint: the Federal Senate is the organ responsible for granting these waivers. Hence, the negative effect of the political affiliation variables is explained by the fact that higher intergovernmental transfers reduce the need of additional resources and then the probability of waivers; this is also confirmed by the negative and significant coefficient on the lagged value of total transfers. All these considerations lead to the conclusion that borrowing above the limits or refinancing debt is a residual way to finance public spending with respect to intergovernmental transfers, and it plays a larger role especially for those states that are not politically close to the President. However it is worth to control whether the probability of waivers is in some way affected by the current level of public spending. To this purpose an alternative specification of the above model is tested where the current level of states' spending enters the equation both linearly and in squared terms.

Table 4a presents the results.

Table 4a. The Determinants of soft budget constraints (continued)

	(8)	(9)	(10)	(11)
<i>Log real total expenditures</i>	1.524			
	(1.22)			
<i>Log real total exp squared</i>	0.508			
	(1.06)			
<i>Log real personnel expenditures</i>		2.870		
		(1.61)		
<i>Log real personnel exp squared</i>		0.827		
		(2.20)**		
<i>Log real net current expenditures</i>				
			(1.24)	
<i>Log real net current exp squared</i>			0.358	
			(1.06)	
<i>Log real net capital expenditures</i>				1.930
				(1.45)
<i>Log real net capital exp squared</i>				0.341
				(1.68)*
<i>Log of real per capita GSP</i>	2.246	4.232	2.513	2.813
	(1.86)*	(3.11)***	(3.12)***	(3.60)***
<i>Political affiliation</i>	-0.758	-0.759	-0.788	-0.878
	(1.80)*	(1.76)*	(1.83)*	(2.12)**
<i>State representatives political affiliation</i>	-0.091	-0.098	2.322	-0.089
	(2.42)**	(2.55)**	(2.28)**	(2.33)**
<i>Number of state representatives</i>	0.048	0.017	0.083	0.090
	(0.35)	(0.13)	(0.65)	(0.71)
<i>Governors election year</i>	0.953	1.111	0.915	1.093
	(2.55)**	(3.07)***	(2.50)**	(2.85)***
<i>Time trend</i>	-0.219	-0.193	-0.257	-0.229
	(3.62)***	(3.27)***	(3.69)***	(3.95)***
<i>Observations</i>	288	288	288	287

The above results show that only personnel expenditures have a positive non linear impact on the probability of waivers, a similar effect is at work also for the capital spending item but its significance is somewhat low. This indicates that only for very high levels, personnel expenditures affect positively the probability of waivers. The other variables maintain their sign but the coefficients on the governor election year and the governor's political affiliation variables now become significantly different from zero.

4. The effect of soft budget constraint expectations on states' fiscal behaviour

In this section the impact of expectations of soft budget constraints on each of the three categories of states' expenditures is estimated using a dynamic panel data model with one lag of the dependent variable in the right hand side of the estimating equation. The adoption of a dynamic framework allows controlling for persistence in government spending given that certain increases are hard to reverse. This is particularly true in the Brazilian case where the national legislation on public wages is very rigid thus making civil servants' salaries very downward sticky. However, the fiscal adjustment programs recently undertaken at the state level contain measures aimed at reducing payrolls below 60% of current expenditures¹.

On a theoretical ground the dynamic specification has been justified by the hypothesis of forward-looking decision makers maximising an intertemporal utility function (Dahlberg and Lindstrom, 1998) or by the assumption of sluggishness in the expenditure equation.

Holtz-Heakin, Newey and Rosen (1989) used a dynamic model to examine the intertemporal linkages between local governments' expenditures and revenues for a sample of US municipal governments and found that there are important linkages between expenditures, taxes and grants and that past revenues help predict current expenditures, but past expenditures do not alter the future path of revenues. Dahlberg and Johansson (2000) performed a similar analysis on a sample of Swedish municipalities; they found that the expenditure equation follows a dynamic process of one year while no dynamics were found for the revenues and grant equations.

The main hypothesis tested in this section is whether SBC expectations, either in the form of authorisation to borrow above the limits for investment financing purposes or in the form of debt-rollover stimulate state capital expenditures more than other spending items.

The basic specification of the econometric model is as follows:

$$E_{it} = \alpha E_{it-1} + \beta w_{it}^* + \gamma y_{it} + \delta Grants_{it} + \theta Gelecy_{it} + t + \eta_i + \varepsilon_{it} \quad (3)$$

¹ An example of this kind of measures is the "Programa de Desligamento Voluntario" that was part of the *Program of States Fiscal Adjustment and Restructuring* approved in 1995 by the National Monetary Council. for further details see chapter two.

and

$$w_{it}^* = \Pr \left(sbc_{it} = 1 \mid \sum_{j=1}^{t-1} sbc_{ij}, data \right) \quad (3a)$$

E_{it} denotes state expenditures in the form of either personnel expenditures, net other current expenditures or net capital expenditures depending on which dependent variable is adopted. In each case, variables are expressed as log of real per capita values; w_{it}^* represents expectations of state i to obtain a softening of the budget constraint in year t . As mentioned in section 2 these expectations are not observed but are assumed to be a function of the past realisations of the SBC binary variable and of a set of exogenous explanatory variables including: the lagged log of real budget surplus; the log of real per capita value added net of public spending; the governor political affiliation; the number of state representatives at the Federal Congress; the political affiliation of state representatives; and the governors' election year; hence the predicted probability of SBC to occur as estimated according to equation (3a) is used as a proxy for states' expectations²; y_{it} is log of real per capita GSP; $Grants_{it}$ is the log of real per capita total transfers from the Federal Government; $Gelecy$ is a dummy that takes value 1 in years of gubernatorial elections and 0 otherwise; t is a time trend controlling for common shocks that affect all the states in the same way; η_i is the unobserved state specific heterogeneity such as geographical location, demographic characteristics or other unobservable characteristics that are likely to affect spending behaviour such as cultural specificities; $\alpha, \beta, \gamma, \delta$ are parameters to be estimated and ε_{it} is a white noise error term.

Under the assumption of persistent or hardly reversible public spending $\alpha > 0$ is expected, regardless of the public spending variable on the left-hand side; when the dependent variable is both personnel and current expenditure $\beta > 0$ is expected under the assumption that SBC expectations stimulate capital spending, while $\beta < 0$ is expected for current expenditures under the assumption that borrowing is used only for

²Equation 3a) is nothing but the conditional probability of the SBC to occur. Hence SBC expectations are generated as the predicted probability obtained from a fixed effect conditional logistic regression on equation 3a). Results are displayed in appendix 4.

investment financing purposes. $\gamma > 0$ is expected in all specifications because a higher per capita income is supposed to lead to a larger tax base thus allowing the financing of a larger volume of public spending. $\delta > 0$ is expected in all specifications, since Brazilian states enjoy a fair wide autonomy about the use of transfers and only a share of them is granted for special purposes. $\theta > 0$ is expected under the assumption that public spending follows a political cycle, so that public spending raises during election years when governors seek re-election or support candidates belonging to their own political party.

4.1 Estimation Method

Estimation of equation (3) by fixed effect poses some problems related to three sources of endogeneity that are likely to make inconsistent the coefficient estimates. Inclusion of the lagged dependent variable in the right hand side of the equation makes the Within Groups estimates inconsistent because the time demeaned term $(E_{it-1} - \bar{E}_i)$ is negatively correlated with the time demeaned error term $(\varepsilon_{it} - \bar{\varepsilon}_i)$ thus leading to downward biased estimates of the parameters of interest (Hsiao, 2003). Secondly, total transfers are likely to be endogenous since a share of them is voluntary hence, they are not regulated by law but based on negotiations between the President and the state governments. Since these transfers can be used to finance expenditures in areas such as regional development, agriculture, education, health and their amount is defined by the President, it is plausible to assume that unobserved shocks that affect the level of public spending also influence the amount these transfers. Thirdly, state GSP is obviously endogenous with respect to government spending.

Dealing with these sources of endogeneity makes the estimation of the above-mentioned model quite complex; as a result, the estimation method will address each of them gradually. First, endogeneity of central government transfers and state GSP will be addressed by resorting to the instrumental variable procedure. The log of the real GDP of the United States is used as an instrument for States GSP as changes in the US GDP are likely to affect Brazilian States' income because of the economic linkages that exist between the U.S. and the Brazilian economy. In what concern intergovernmental transfers the political variables are used as instruments together with the interest rate on

Brazilian debt over the sample period. While the use of the political economy variables as instruments is justified by the previous discussion on the determinants of intergovernmental transfers, the choice of the interest rate on sovereign debt is intended to capture how growing interest rates might reduce the amount of federal resources available for redistribution by increasing the amount of debt service the Federal Government has to face.

Secondly, inconsistency of the estimates due to the presence of the lagged dependent variable will be taken into account.

This gradual approach is justified by the fact that the main focus of the analysis is to compare the relative effects of SBC expectations on each category of spending, other things being equal; therefore the estimated coefficients can presumably be compared even though they are inconsistent in small sample. Since the bias is negative when the true coefficient is positive (Hsiao 2003), the main shortcoming of this procedure is that the relative effects of SBC are likely to be underestimated³.

4.2 Instrumental Variable Estimator

This section presents the fixed effect estimates of the following model:

$$E_{it} = \alpha E_{it-1} + \beta \hat{w}_{it} + \gamma y_{it} + \delta grants_{it} + \theta Gelecy_{it} + t + v_i + u_{it} \quad (4)$$

Equation (4) is the structural equation where \hat{w}_{it} is the predicted probability of soft budget constraints that proxies states' expectations of soft budget constraints to occur, and $Grants_{it}$ are intergovernmental transfers; y_{it} is the log of real per capita GSP; u_{it} is the error term and v_i is the state specific heterogeneity.

The table below shows the instrumental variable fixed effects estimates of equation (4) for all the three of the dependent variable.

³ As a matter of fact, there could be another problem in the estimation of the above model, which is related to the inclusion of Generated Regressors in equation (3). As many authors have pointed out, (Oxley McAleer 1993, 1997; Hoffman 1987; Wooldridge 2002) a fixed effect estimator of a structural equation including a generated regressor (i.e. the predicted probability of a waiver) is likely to underestimate the standard errors and test statistics as it ignores the sampling variation introduced by generated regressor. The empirical literature, however, does not offer a clear-cut answer to this question and for many author this has not been a cause of concern, see Oxley and McAleer (1993).

Table 5. Instrumental Variable fixed effect estimates of three categories of state spending

	<i>Capital expenditures</i>	<i>Personnel expenditures</i>	<i>Other Net current expenditures</i>
<i>Lagged dependent variable</i>	0.216	0.240	0.351
	(4.25)***	(4.28)***	(6.22)***
<i>Log total transfers</i>	-0.074	0.032	-0.039
	(1.39)	(1.26)	(1.54)
<i>Log real per capita GSP</i>	0.019	1.592	0.077
	(0.06)	(9.22)***	(0.42)
<i>Soft Budget constraint expectations</i>	-0.988	0.096	-0.022
	(2.36)**	(0.49)	(0.10)
<i>Governor election year</i>	0.649	-0.085	0.302
	(6.50)***	(1.65)*	(5.62)***
<i>t</i>	0.007	-0.014	0.039
	(0.51)	(2.88)***	(6.04)***
<i>Constant</i>	-2.807	-13.427	-2.466
	(1.20)	(9.73)***	(1.72)*
<i>Observations</i>	378	380	380
<i>Number of nc</i>	27	27	27
<i>F test that all u_i</i>	F(26,345) = 5.48 Prob > F = 0.0000	F(26,347) = 4.83 Prob > F = 0.0000	F(26,347) = 4.92 Prob > F = 0.0000
<i>Hausman Test</i>	chi2(6) = 89.45 Prob>chi2 = 0.0000	chi2(6) = 121.94 Prob>chi2 = 0.0000	chi2(6) = 109.10 Prob>chi2 = 0.0000
<i>Test of overidentifying restrictions</i>	P-value = .4723	P-value = .4995	P-value = .552

Absolute value of t statistics in parentheses significant at 10%; ** significant at 5%; *** significant at 1%

The Sargan test confirms the validity of the variables used as instruments, while both the Hausman tests and the F-test provide evidence in favour of a fixed effect specification.

The results shown in the above table confirm persistency of all the categories of expenditures over time.

Turning to SBC expectations, while evidence on other current expenditures is in line with the initial expectations, the empirical evidence about the two remaining categories of expenditures is somewhat surprising. The empirical findings show that an increase by 1% in the probability of obtaining a loosening of the budget constraint has a positive effect over personnel expenditures, while the effect on capital expenditures is negative and significantly different from zero. This contradicts the initial assumptions that states

are expected to borrow only to finance capital expenditures and point to different rationale underlying state borrowing. In particular it seems that, the higher the expectation that a softening of the budget constraint will occur, the higher the level of personnel expenditures. This leads to the conclusion that the legislation on sub national borrowing creates perverse incentives for the states' fiscal behaviour by stimulating fiscal profligacy in personnel expenditures, while reducing capital expenditures.

Empirical evidence about the State GSP point to a pro-cyclical fiscal policy from the part of the states, so that government spending increases in periods of fiscal expansion and decreases during periods of recession.

Evidence about total transfers is quite puzzling since across all specifications but the personnel expenditures, they seem to affect negatively, though not significantly, the amount of government spending. This apparently counterintuitive result can be ascribed to the fact that these estimates are likely to be inconsistent since even though we have tried to mitigate this problem by instrumenting both transfers and State GSP, there is still some degree of inconsistency related to the inclusion of the lagged dependent variable among the regressors.

The governor's election year variable confirms expectations about the electoral cycle hypothesis expect in what concern personnel expenditures. The coefficient on this variable is positive and significantly different from zero in both the capital and other current expenditures specifications. The negative and slightly significant coefficient on personnel expenditures is perhaps due to the ban imposed to the states on personnel expenditures increases in the 180 days preceding governors' elections.

The time trend affects positively and it is significantly different from zero in other net current expenditures specifications, while it is positive but not significantly different from zero in the capital expenditures specification.. On the personnel expenditures side this negative and significant sign can be explained by the adoption of fiscal adjustment measures aimed at reducing personnel expenditures below the 60% of States current revenues.

The next section turns to the second source of endogeneity of equation (3), mentioned above that concerns the inclusion of the lagged dependent variable among the explanatory variables.

4.3 System Generalised Method of Moments Estimator

Inclusion of the lagged dependent variable into the right hand side of equation (3) leads to inconsistency of the parameter estimates. In econometric analysis the first differenced generalised method of moments (GMM) estimator (also known as the Arellano-Bond estimator) has been widely used since it provides efficient and consistent estimates of the parameters of interest. However, as documented by Blundell, Bond and Windmeijer (2000), the lagged values of the dependent variable can be poor instruments for the first differenced equation in two important cases: when the autoregressive coefficient α tends towards unity and when the variance of the individual heterogeneity η_i increases relative to the variance of the error term ε_{it} ⁴. Moreover, as observed by Windmeijer (2000), Monte Carlo studies have shown that the estimated asymptotic standard errors of the efficient two-step GMM estimator can be severely downward biased in small sample⁵. An augmented version of the standard first differenced GMM estimator, known as system GMM estimator, has been suggested by Arellano and Bover (1995) which improves over the above mentioned shortcomings: i) by exploiting additional moment conditions, the SYS GMM estimator improves the efficiency of the estimates and ii) it produces corrected standard errors that lead to more accurate inference.

Given the basic autoregressive lag distributed model:

$$y_{i,t} = \alpha y_{i,t-1} + \eta_i + v_{it} \quad \text{for } i = 1, 2, \dots, N \text{ and } t = 1, 2, \dots, T \quad (5)$$

the standard first differenced GMM estimator is based on the following orthogonality conditions which are linear in the parameter α :

$$E(y_{i,t-s} \Delta u_{it}) = 0, \quad \text{for } t = 3, \dots, T \text{ and } 2 \leq s \leq t-1 \quad (5.1)$$

⁴ For further details on this issue see Blundell Bond and Windmeijer (2000) p. 9.

⁵ While the one-step GMM estimator uses weight matrices that are independent of the estimated parameters, the efficient two-step GMM estimator weights the moment conditions by a consistent estimate of their covariance matrix. This weight matrix is constructed using consistent estimate of the parameters in the model. Windmeijer (2000) shows that the introduction of these estimated parameters in the weight matrix introduces extra variation which in turn accounts for much of the difference between the finite sample and the asymptotic variance of the two steps GMM estimator. This difference can be estimated resulting in finite sample corrected estimates of the variance in the two step estimates of the system GMM estimator.

where y_{it-s} are the lagged values of the dependent variable that can be used as instrument in the system of first differenced equations⁶.

The System GMM estimator exploits two additional sets of moment conditions. First, as suggested by Ahn and Schmidt (1995) there are $T-3$ non-linear moment conditions that can be written as⁷:

$$E(u_{it} \Delta u_{i,t-1}) = 0, \quad \text{for } t = 4, 5, \dots, T \quad (5.2)$$

Secondly, if the initial condition has a mean stationary process, then:

$$E(\eta_i \Delta y_{i2}) = 0 \quad \text{for } i = 1, \dots, N \quad (5.3)$$

holds and this guarantees that the following additional moment conditions are valid:

$$E(u_{it} \Delta y_{i,t-1}) = 0 \quad \text{for } t = 3, 4, \dots, T \quad (5.4)$$

This last condition ensures that the lagged first differences of the dependent variable can be used as instruments in the system of level equations.

Therefore, estimation by the SYS GMM estimator is based on a system of $T-2$ equations in first differences and $T-2$ equations in levels, corresponding to periods: 3, 4, ..T. The set of $m_s = 0.5(T+1)(T-2)$ moment conditions is given by (5.1) and (5.4) :

or:

$$E(Z_{si}' q_i) = 0 \quad (5.5)$$

where:

$$q_i = \begin{bmatrix} \Delta u_i \\ -u_i \end{bmatrix}$$

$$Z_{si} = \begin{bmatrix} Z_{di} & 0 \\ 0 & Z_{li}^p \end{bmatrix}$$

⁶ The above moment restriction holds if an additional set of assumptions about the error component of the model are satisfied. These are: zero expected value of both the individual heterogeneity and the disturbance term; no correlation between the disturbance and the unobserved heterogeneity; no serial correlation in the disturbance term; zero correlation between the initial condition y_{i1} and the disturbance. Further moment restrictions imply a mean stationary process for y_{i1} :

$$y_{i1} = \eta_i / (1 - \alpha) + \varepsilon_{i1} \quad \text{for } i = 1, \dots, N$$

⁷ These conditions hold also under the assumptions of the standard GMM estimator and relate to the absence of serial correlation in the disturbance term and do not require homoskedasticity.

Z_{di} is the matrix of the instruments used in estimation of the system of first differenced equations i.e. the lagged level of the dependent variable, Z_{li}^p is the matrix of instruments used in estimation of the system of level equations i.e. the lagged first differences of the dependent variable.

The system GMM is then a combination of the GMM differenced estimator and a GMM levels estimator, the estimated coefficient is of the form:

$$\hat{\alpha}_s = \left(q_{-1}' Z_s (Z_s' Z_s)^{-1} Z_s' q_{-1} \right)^{-1} q_{-1}' Z_s (Z_s' Z_s)^{-1} Z_s' q$$

When the model contains additional regressors, as it is the case in this analysis, it takes the following form:

$$y_{i,t} = \alpha y_{i,t-1} + \beta x_{it} + \eta_i + v_{it} \quad \text{for } i = 1, 2, \dots, N \text{ and } t = 1, 2, \dots, T \quad (6)$$

where x_{it} represents the matrix of additional regressors. The presence of x_{it} provides additional moment conditions that can be used to efficiently estimate the parameters α and β . The specific number of additional moment conditions, however, depends on the assumptions about the correlation between x_{it} and the composite error term. For the specific model considered in this chapter the assumption is made that the x_{it} are correlated with the unobserved heterogeneity η_i . Moreover, total transfers are assumed to be endogenously determined, while the remaining variables are assumed to be exogenous.

The additional moment conditions for the first differenced model are:

- the exogenous variables provide $T(T-2)$ additional moment conditions:

$$E(x_{is} \Delta u_{it}) = 0 \quad \text{for } t = 3, \dots, T \text{ and } 1 \leq s \leq t-1 \quad (6.1)$$

- the endogenous variables provide the following $0.5(T-1)(T-2)$ moment conditions:

$$E(x_{is}^{end} \Delta u_{it}) = 0 \quad \text{for } t = 3, \dots, T \text{ and } 2 \leq s \leq t-1 \quad (6.2)$$

For the level equations the additional moment conditions are⁸:

- for the predetermined variables:

⁸ In this case as well the moment restrictions are valid provided that: Δx_{it} and Δy_{it} are uncorrelated with η_i . This hold if the initial conditions of both x and y are means stationary processes. *

$$E(u_{it} \Delta x_{it}) = 0 \quad \text{for } t = 2, \dots, T \quad (6.3)$$

-for the endogenous variables:

$$E(u_{it} \Delta x_{it-1}^{end}) = 0 \quad \text{for } t = 3, \dots, T \quad (6.4)$$

To sum up, the set of exclusion restrictions on which the system GMM estimation of the model in equation (3) is based are given by (5.1), (6.1), (6.2) and (5.4), (6.3), (6.4), thus providing a potentially huge number of instrumental variables for the estimation of the parameters of interest.

The following table shows the two-step system GMM estimates of the model contained in equation (3) using only a subset of the instrumental variables potentially available. Unlike the estimated coefficients in table 2 these parameters estimates are consistent because endogeneity of the lagged dependent variable is taken into account. Moreover, this procedure also produces standard errors of the two-step procedure corrected for small sample bias. The last rows show the p-values of the Hansen test on the validity of the instruments and the tests on the serial correlation among the residuals in the first differenced equation.

Table 6. Two-step robust system GMM estimates with instrumental variables lagged two and three periods

	<i>Capital Expenditures</i>	<i>Personnel Expenditures</i>	<i>Other Net Current Expenditures</i>
<i>Lagged dependent Variable</i>	0.378	0.485	0.497
	(2.77)**	(7.90)***	(4.18)***
<i>Log real per capita GSP</i>	0.479	0.615	0.366
	(3.95)***	(6.68)***	(4.03)***
<i>Soft Budget constraint expectations</i>	-1.201	0.267	0.267
	(2.12)**	(0.88)	(0.63)
<i>Log total transfers</i>	-0.011	0.064	0.003
	(0.58)	(4.86)***	(0.24)
<i>Governor election year</i>	0.507	0.050	0.171
	(4.41)***	(1.17)	(2.93)***
<i>t</i>	-0.014	0.001	0.016
	(1.66)	(0.27)	(2.26)**
<i>Constant</i>	-5.356	-5.609	-4.005
	(5.21)***	(6.80)***	(4.15)***
<i>Observations</i>	378	380	380
<i>Number of nc</i>	27	27	27
<i>Hansen test of overid. restrictions</i>	Prob > chi2 = 1.000	Prob > chi2 = 1.000	Prob > chi2 = 1.000
<i>Test for AR(1) in first differences:</i>	Pr > z = 0.002	Pr > z = 0.000	Pr > z = 0.003
<i>Test for AR(2) in first differences:</i>	Pr > z = 0.487	Pr > z = 0.861	Pr > z = 0.935

Absolute value of t statistics in parentheses

*significant at 10%; ** significant at 5%; *** significant at 1%

The above findings confirm that the results of the instrumental variable fixed effect estimator are quite robust. First, persistence is confirmed in all categories of expenditures. Secondly, the estimated coefficients on the probability of soft budget constraints confirm the previous findings. A 1% raise in the probability of obtaining a softening of the budget constraints has a negative and still significant effect on capital expenditures, and its magnitude (i.e. absolute value) is higher than that found in the previous estimates. The impact on net current expenditures is now positive but still insignificant; while the effect on personnel expenditures is still positive and not significant but the coefficient magnitude is now larger. This evidence strengthens the above conclusions about the perverse incentives that the mere presence of an escape clause in the federal legislation on sub national borrowing can have into the states fiscal

behaviour. They seem to resort to the waiver procedure as a means to circumvent limits on borrowing and to divert funds to the financing of current spending instead of using them for the financing of capital expenditures; moreover, the practice of debt rollover by postponing debt repayment might encourage irresponsible fiscal behaviour (i.e. they do not have an incentive to save money to repay their debt). These incentives are strengthened by the lack of both ex post controls on the use of borrowed funds and monitoring on states' fiscal conduct after debt renegotiation has been authorised.

The coefficient on real per capita GSP is positive and significantly different from zero in all the three specifications, thus confirming the pro-cyclical stance of fiscal policy in the Brazilian States.

The coefficient on total transfers is now positive in both the personnel expenditures and other net current expenditures specification though significantly different from zero only in the former case. It is still negative and not significant in the capital expenditures specification; this evidence could point to a bias, at the state level, in the allocation of transfers towards personnel expenditures to the detriment of other categories of spending.

The time trend, representing common shocks to all the states, has a positive effect on other current expenditure and personnel expenditure⁹, but it is significantly different from zero only in the former variable, while it is not in the latter where the coefficient is very small in magnitude almost approaching zero. It remains negative but not significantly different from zero in the capital expenditures specifications. The governor's election year variable has a positive effect on all the categories of spending, thus confirming the hypothesis of a political cycle in state expenditures.

The Hansen test for over-identifying restrictions does not reject the null that the instruments are valid in all the three specifications.

Finally, the tests on autocorrelation in the first differenced residuals do not accept the null that they are correlated of order 1 while they do not reject the null that they are correlated of order two.

⁹ Once again the change in the sign of this coefficient from negative to positive, with respect to the estimates presented in table 5, can be ascribed to the inconsistency affecting previous estimates and that the SYS GMM estimator is supposed to correct.

Concluding remarks

The econometric estimates presented in Chapter three and the institutional analysis of Chapter two are quite informative about the impact that the set of incentives laid down by the federal system, has on the fiscal behaviour of the Brazilian States.

The empirical analysis has provided a somewhat surprising result according to which expectations of soft budget constraints affect positively, though not significantly, personnel expenditures while their impact is negative and significantly different from zero on capital expenditures. This evidence is robust to both the instrumental variable fixed effect estimator and the system GMM estimator.

These findings contradict the initial assumptions according to which expectations of a larger pool of available (borrowed) funds should stimulate capital spending, and permit to draw some conclusions about the impact of sub national borrowing rules on the States' fiscal behaviour.

In line with the argument put forward in Wyplosz (2002), the mere presence of an escape clause undermines central government efforts to adopt a tight stance in the regulation of sub national borrowing and weakens the credibility of central government no-bailout promises. This occurs because the escape clause represents, *a priori*, for each state, the possibility to benefit from a temporary suspension of the formal ceilings on borrowing, thus strengthening their beliefs that, should the state finances get into trouble, the central government will eventually rescue them. Moreover, in the case of the Brazilian States this belief seems to work in the direction of increasing current expenditures and reducing capital spending thus weakening the fiscal position of the state and undermining its growth potential.

The institutional design of the Brazilian federalism is assuredly the key element that, over the sample period, contributed the most to strengthening these expectations,

creating perverse incentives for sub national fiscal behaviour. The overwhelming influence that states' governors and state-based interest groups have on both the Senate and the Chamber of Deputies was the main cause of the central government's inability to effectively gain control over sub national borrowing. The electoral system as well contributed to the weakening of the central government authority: the weakness of national party organisations and the incentive the open-list proportional system created for elected representatives to meet local demands to the detriment of nation-wide issues, are another example of the destabilising effects of the institutional design on intergovernmental relations.

The impact of state-based interest is pervasive. In this respect the comparison of the empirical evidence on the determinants of intergovernmental transfers and the probability of soft budget constraints (i.e. table 3, 4 and 4a in Chapter three), highlighted two facts. First of all, the political economy variables played a crucial role in affecting both the amount of transfers and the probability of soft budget constraints; secondly, they do so exactly in the opposite direction since political variables related to proximity to the President (i.e. the political affiliation of the state governors and the political affiliation of the state representatives) affect positively the amount of redistribution and negatively the probability of soft budget constraints, while the number of state representatives reduces the amount of intergovernmental transfers and increases the probability of soft budget constraint.

This evidence points to a situation in which intergovernmental transfers finance a large share of state spending, especially in those states that are very close to the president's legislative coalition; the positive and significant coefficients attached to both the personnel expenditures and the real per capita income variables indicate that intergovernmental transfers in Brazil respond very flexibly to the spending needs of State governments, especially the largest ones. Hence, the probability for these states to fall short of resources is very low.

The institutional analysis of Chapter two and the comparative perspective adopted in the last section thereof, proved useful to put the Brazilian rules of fiscal discipline in perspective and permitted to uncover some weaknesses that otherwise it wouldn't be possible to detect. The main shortcomings of the Brazilian rules seem to lie on: the legal basis of the rules; the system of enforcement and the penalties inflicted in case of non-

compliance. In these respects, Brazilian rules fail to meet the basic requirement identified in Inman (1996) as the core elements of strong Balanced Budget Rules.

As already seen, the regulation on sub national borrowing in Brazil is not constitutionally grounded, but the Federal Senate Resolutions represent its legal base; as a result the rules can be easily amended and state-based interests have a large influence over these amendments. In what concerns enforcement things are not better; though in principle the Central Bank is responsible for oversight and enforcement, too often this organ was prone to accommodate the central government decision to bailout sub national governments. Finally, the Senate's regulations are ambiguous with respect to the sanctions to be inflicted to non-compliant entities as, according to most of the resolutions, the Central Bank is responsible for sanctioning non compliance on the basis of the law regulating the monetary and banking institutions. However, for the best of our knowledge, it has not been possible to clearly identify the precise penalties a non-compliant entity was likely to incur in.

The Fiscal Responsibility Law is encouraging in this respect since it represents a clear attempt to discourage local governments' expectations about soft budget constraints and central government bailouts through the introduction of the Fiscal Responsibility Crime which clearly defines the penalties to be inflicted in case of non compliance. The FRL also aims to change local government incentives by making voluntary transfers conditional upon a virtuous fiscal performance. Additional provisions contained in this law and worth to be mentioned refer to: the obligation it introduces for local governments to operate a mid-term review of their fiscal targets, and the obligation to forecast the impact that changes in taxes and expenditures are likely to have on the budget balance.

In Brazil, however, much has to be done yet in the quest for hard budget constraint. Different-policy-suggestions can be drawn from the empirical findings presented in this work but all point in the direction of restructuring the institutional setting underlying intergovernmental fiscal relations. Although the escape clause contained in the federal legislation on borrowing seems to have created perverse incentives in the states' fiscal behaviour, removing this clause is not a panacea for irresponsible fiscal behaviour.

As widely documented in the analysis of Chapter two, even in absence of an escape clause the States would find other ways to circumvent the formal limitations, the case of

the *precatorios judiciais* is meaningful in this respect. As a result, provided that some degree of flexibility is desirable in every fiscal arrangement, the reform efforts should try to depoliticize as much as possible the system of redistribution as well the regulation of sub national borrowing and the enforcement of the rules themselves. A system of intergovernmental transfers, which is really redistributive in purpose and where the "voluntary" component depends on the degree of fiscal responsibility of local governments would be desirable. A politically independent fiscal authority should regulate sub national borrowing, in order to break the vicious circle triggered by the Federal Senate regulation.

An interesting line for future research would be a theoretical modelling of the impact that soft budget constraints expectations have on the fiscal behaviour of local governments. To the best of our knowledge no similar works exist about fiscal policy, but some interesting insights could be drawn from the literature on exchange rate escape clauses. Obstfeld (1997) proposes a theoretical model of policy rules with escape clauses applied to the case of fixed exchange rate system that allow member countries to realign their exchange rate in periods of stress. He finds that while well designed escape clauses can rise societies' welfare, limited credibility makes difficult the implementation of such rules. A possible solution to mitigate the lack of credibility is to impose political costs on policymakers who realign their exchange rates.

APPENDICES

Appendix 1

Central Bank Resolutions

Resolution 991/1984

This resolution authorises the financial institutions to roll over 90% of the principal of credit operations, which are due by 31/12/84, and 90% of those maturing in 1985. New loans to the public sector are forbidden except those with resources from both the BNH¹⁰, and the Agency for the financing of industrial activity.

Resolution 1010/1985

This resolution authorises the financial institutions to roll over 90% of the principal of credit operations which are due by 31/12/84 and 90% of those maturing in 1985. New loans to the public sector are forbidden except:

- loans with resources from the BNH, Agency for financing of industrial activity and the BNDES¹¹
- loans to the BNH, BNDES, CEF, BNB, BNCC, BASA¹²
- AROs to states and Municipalities.

Resolution 1012/1985

This resolution rises to 100% the limit to debt rollover set in R. 1010/1985

Resolution 1135/1986

This resolution blocks at the 30/04/86 level the credit operations granted by state financial institutions¹³ and federal banks to states and municipalities. This provision also encompasses those credit operations that were exempted by virtue of Resolution 1010/1085.

¹⁰ National Housing Bank

¹¹ National Bank of Economic and Social Development

¹² Caixa Economica Federal; Banco do Nordeste do Brazil, Banco Nacional de Credito Cooperativo; Banco da Amazonia respectively.

¹³ Banco do Brazil S.A., Banco do Nordeste do Brazil S.A., Banco Meridional S.A, Banco de Roraima S.A., Banco Nacional de Credito Cooperativo S.A.

Resolution 1211/1986¹⁴

This resolution authorised the rollover 90% of the credit operations due by 02/01/87 (modifies R. 1010/85). New loans to the public sector were forbidden included loans with resources from the BNH, Agency for financing of industrial activity and the BNDES

Resolution 1309/1987

Special credit lines are created in order to induce both commercial and financial and development banks to refinance SNG debt or to grant new loans to both SNGs and any other entities under their control.

Refinancing operations authorised by virtue of this Resolution are not submitted to the restrictions imposed by R 1010/85, 1135/86 and 1187/86.

Resolution 1389/1987

The amount of credit operations mentioned in R 1135/86 is blocked at the level existing by 30/04/86. The resolution also blocks at the 31/07/87 level:

- credit operations granted by state and federal financial institutions to states, state enterprises, etc...with resources of federal organs;
- credit operations granted by the CEF; BNDES and Banco da Amazonas to SNGs and their own enterprises;
- loans from the BNH, Agency for financing of industrial activity and the BNDES and loans to the BNH, BNDES, CEF, BNB, BNCC, BASA¹⁵

Credit operations made by the CEF through the Social Relief Fund as well as those from the BNDES are excluded from the provisions of this resolution.

Resolution 1399/1987

This resolution modifies R. 1010/85 by increasing the number of operations that are excluded from the general cap on credit operations. These new operations are:

- loans granted by the CEF through the Social Relief Fund aimed at the construction or restructuring of hospital facilities
- loans from BNDES for investment within the "Estradas Viciniais" program.

¹⁴ This resolution overrules the provisions contained in R. 1135/86

¹⁵ Under R 1010/85 this was the only category of operations allowed

- refinancing of SNGs debt falling due until 31/12/87 that is part of the Program of financial support to states and municipalities
- any other credit operation granted by the BNDES and CEF and that is given priority by the Ministry of Finance.

Resolution 1469/1987

This resolution blocks at the 31/12/87 level loans, transfers and guarantees given by the financial institutions to the Union, state enterprises, State and Municipal governments as well as entities under the indirect control of the latter. If these limits were respected the financial institutions can rollover up to 100% of the principal of the maturing debt.

For the purpose of computing these limits the following operations, among others, are not computed:

- AROs operations made by SNGs;
- credit operations granted by the CEF and BNDES to SNGs in case of public calamity.

Resolution 1718/1990

Credit operations¹⁶ to the public sector are set equal to the balance existing by 31/12/89 (art. 1). Financial institutions are allowed to rollover at maturity up to 80% of the principal of the operations mentioned by art. 1.

From the above cap the following operations are excluded:

- AROs only if granted against ICMS revenues provided they are do not exceed 50% of the limit set by RSF 94/89;
- credit operations originating from agreements signed with international financial institutions
- loans from CEF aimed at financing investments in social housing, sanitation, urban infrastructure.

Resolution 1789/1991

This resolution authorises the Central Bank of Brazil to issue LBC¹⁷ to be sold to state financial institutions holding states bonds. The purpose of this operation is probably that of providing bailout to the states when state bonds become due.

¹⁶ Loans, bonds, guarantees mainly.

¹⁷ LBC are letras do Banco Central

These are repurchase agreements according to which the CB issues an amount of LBC equal to that of the state bonds held by the state bank. At maturity the CB will repurchase its bonds and will pay the bank the principal and interests.

During the length of the operation (58 days) state banks are prevented from exchanging state bonds; moreover they cannot definitively sell LBCs.

Resolution 2153/1995

This resolution adds a new ceiling on loans to the public sector with resources originating from FGTS for the 1995-1996 years. For those years new loans from FGTS were:

- R\$ 5000 Millions in 1995;
- R\$ 530 Millions in 1996.

Resolution 2217/1995

This resolution authorises financial institutions to grant loans to the States in order to repay AROs operations contracted until 30/11/95. In this case it is the financing institution which settled AROs on behalf of the borrowing entity.

Admission to this program is conditional upon respecting the ceilings set by the Federal Senate.

Resolution 2218/95

This resolution limits the amount of new AROs operations to the amount existing by 30/11/95. The amount of AROs settled by virtue of R. 2217/95 is not included in the above quota for the reference month. New AROs operations are forbidden to states that entered the refinancing agreement by virtue of R-2217 but are non compliant.

Resolution 2236/1996

This resolution authorises financial institutions to lend to the States in order to repay AROs operations contracted until 05/12/95. In this case as well the due amount is directly settled by the financing institution.

Admission to this program is conditional upon respecting the ceilings set by the Federal Senate resolutions. These loans are not included in the quotas set by R. 2008/93

Resolution 2237/1996

The amount of new AROs operations is limited to the amount existing by 30/11/95 plus those contracted from 01/12/95 up to 05/12/95.

The above limit does not include the amount of AROs operations settled by using resources raised in other ways than through AROs as well as those repaid by loans contracted by virtue of R. 2236/96. New AROs operations are forbidden to states that entered the refinancing agreement by virtue of R 2236/96 but are non compliant with payments. However, this is not valid when new AROs are used to repay AROs contracted until 30/11/95. In this case the new ARO has to be repaid within the next 11 months in instalments not lower than 1/30 of the debit balance. The ceiling set by this R can be exceeded up to 25%, without penalty, provided the proceeds of the ARO being contracted are used to repay AROs contracted until 30/11/95 (i.e. those included in the limits defined by art 1).

Resolution 2366/1997

This resolution authorises the CEF to take over the loans granted by the National Financial System to those States that entered the Program of State Fiscal Adjustment¹⁸. The deadline for takeover is 30/06/1997. These loans are out of the quota set for the CEF by R. 2008/93, while they will be deducted from the quota of the financial institutions selling these loans to the CEF. The CEF will take only those loans registered into CADIP. Takeover also includes AROs.

Resolution 2391/1997

This resolution allows state owned enterprises to issue bonds conditional on CVM¹⁹ approval. If State guarantees or future budget income streams are used as collateral for bonds, the Central Bank must first ascertain that state collateral respects Federal Senate ceilings on public borrowing.

¹⁸ Participation to that program led to the renegotiation of states debt by the federal government.

¹⁹ Commissao de Valores Mobiliaries

Resolution 2443/1997

The amount of AROs is limited to the level existing by 30/06/97. States whose former AROs operations were taken over by the CEF by virtue of R. 2366/97 are prohibited from contracting new AROs .

Resolution 2444/1997

New credit operations to the public sector are limited to the amount existing by 30/09/1997. AROs are excluded from this ceiling. Bonds issued by the federal, state and municipal enterprises to be subscribed by the national financial system are also limited to the amount existing by 30/09/97. Financial institutions are forbidden from lending to entities of the public sector that are not compliant with CADIP.

Credit operations contracted according to L. 9496/97 are included into the limits set by this R. however; as they are repaid the corresponding amount will be deducted from the limits²⁰

Resolution 2461/1997

Credit operations granted by the national financial system to public sector entities are limited to the amount existing by 30/09/97. This limit also encompasses the credit operations originating from the financing agreement signed by virtue of law 7976/89 and 8727/93. AROs are excluded from this limit.

The institutions of the National Financial System cannot invest in equities, bonds and other securities, issued by federal, state and municipal owned enterprises an amount higher than the quantity already existing by 30/09/97.

The following operations are also excluded from the cap:

- those approved by the Central Bank up to 12/11/97;
- those approved by the credit committee of the CEF and using resourced from FGTS;
- those financed with resources from Protech and FGTS to be used for housing and sanitation up to R\$ 800 millions per year.
- those approved by the credit committee of the BNDES up to 14/11/97.
- those granted by the BNDES whose amount is not higher than R\$600 Millions per year.

²⁰ If my interpretation is correct as the loans are repaid the balance of existing loan lowers and so also the global amount of credit operations.

Resolution 2474/1998

It defines norms imposing risk diversification to the institutions of the National Financial System. The amount of resources each institution can grant as a loan or guarantee on behalf of a single borrower entity cannot exceed 25% of its liquid assets. Borrowers include: natural person, legal person, the Union, States, Federal District, Municipalities. The above ceiling does not apply to federal public bonds. Redundant credit operations have to be eliminated by 31/12/2001.

Resolution 2496/1998

This resolution modifies R. 2461/97 and raises the ceiling on loans from Protech and FGTS up to R\$ 1.6 Billions.

Resolution 2521/1998

This resolution modified art 4 of R 2461/97 by excluding from the quota imposed on credit operations to the public sector the same set of operations as those identified in R^o 2461/1997 provided they have been approved by the Central Bank by 08/07/1998. Moreover, it also excludes from the quota transfers granted by federal credit and development agencies and originating from funds borrowed from international organisations.

Finally it adds art 8 according to which federal financial institutions are forbidden from any kind of financial operation with SNGs except those stemming from debt refinancing agreements with the Union or within the PROES programme.

Resolutions 2538/2559 of 1998

They both modify art 5 R 2461/97. The final formulation is contained in R. 2559. While R 2461 capped the purchase of public bonds to the amount existing by 30/09/97, R. 2559 forbids these institutions to subscribe any government obligation issued after 05/06/98 except those authorised by the Central Bank for the purpose of repaying external loans up to 80% of the amount due.

Resolution 2562/1998

This resolution adds to the extra limit operations identified by art. 4 R 2461/97 those credit operation contracted with the development and credit financial institutions aimed at:

-modernization of public administration as well as fiscal and financial management practices;

-consulting services for the privatization of water provision and sewerage services for up to R\$60 million provided fifty-fifty by both the CEF and the BNDES

Resolution 2653/1999

This resolution introduces new quotas to credit operations to the public sector.

The amount of credit operations granted by each financial institution of the National Financial System to the public sector cannot be higher than 45% of its liquid assets (art 1)

National financial institutions can lend to SNGs as well as autarkies and foundations provided the latter respect the following limits (art 2):

- the total amount of credit operations contracted during each year is not higher than 18% of real revenues, while the corresponding ceiling for AROs is 8%;
- annual debt service on outstanding loans cannot exceed 13% of real revenues;
- the total amount of outstanding debt cannot be higher than 1.9 Real Revenues²¹;
- a positive primary deficit in the previous year.

Public enterprises and any other entity under direct or indirect SNGs control are allowed to contract credit operations with the national financial institutions provided the controller respects the limits set by art 2 (art 3).

Non compliance with the above limits has to be corrected by the relevant financial institution according to the procedures defined by the Central Bank.

The global amount of credit operations made according to this R. cannot exceed R\$ 600.000.000.

Resolution 2784/2000

Credit operations that are backed by the National Treasury guarantee or that are under the Treasury's responsibility, are excluded from the limit set in art 1 of R 2653/99. Therefore, national financial institutions are not forced to respect the 45% cap that is usually imposed to other credit operations. The global amount of new credit operations negotiated according to this resolution is raised to R\$ 1 billion.

²¹ This ratio, however, must decrease over time of about 1/10th per year until it equals 1.

Resolution 2800/2000

This resolution specifies the rules according to which the ratio between debt service and real revenues has to be calculated²²

The credit operations contracted between States and the Federal Treasury and originating from the State Fiscal Adjustment Program approved by L 9496/97, will be evaluated according to the rules set within this program provided the corresponding amount respect the global limits imposed on credit operations.

Public enterprises and any other entity under direct or indirect SNGs control are allowed to contract credit operations with the national financial institutions provided the controller respects the limits set by art 2 R. 2653/1999. However, if the controller has refinanced its debt within L 9496/97, compliance with the limits set in art 2 will be evaluated according to the criteria defined within the fiscal adjustment program they have entered.

Resolution 2827/2001

It consolidates the quotas on credit operations to the public sector and adds marginal innovations such:

- the 45% limit is no longer calculated as a share of liquid asset, rather as a share of the "*patrimonio de referencia*"²³;
- the limits the public sector has to observe in order to be eligible for credit operations with the national financial system are the same as before. However, the requirement of a primary surplus is not applicable to municipalities benefiting from credit operations granted by the BNDES within the PMAT²⁴ program;

²² Art 2 R. 2653/99 says that the ratio of debt service and real revenues cannot exceed 13%. R 2800/2000 further specifies that this limit has to be calculated as the average of the ratio between debt service and real revenues over the previous 5 years. The ceiling set y art 2 will be considered as fulfilled provided that this average is not higher than 13% and if higher than 10% these ratios have to be decreasing over time.

²³ The concept of "*patrimonio de referencia*" (PR) is defined in Resolution 2837 of the Central Bank. It defines the PR as the sum of two different tiers. The first one is equal to the liquid assets plus the balance of the creditor accounts minus the balance of the debtor accounts. The second tier includes the revaluation reserve, the contingency reserve, the reserve on gains originating from passed dividends; cumulative privileged equities; redeemable privileged equities; subordinated debt and hybrid instruments of capital and debt.

²⁴ PMAT is the Programa de Modernização da Administração Tributária i.e. Program for the Modernization of Tax Administration.

-financial institutions are prohibited from lending to public sector entities that are non compliant²⁵ with their obligations toward the same institutions or do not fulfil the obligations imposed by the CADIP.

Resolution 2844/2001

This resolution defines norms imposing risk diversification to the financial institutions. Each institution of the National Financial System cannot lend or grant guarantees for an amount higher than 25% of its patrimonio de referencia to each borrower.

credit operations contracted by virtue of L 9496/97 as well as supplementary credit lines aimed at repaying debt renegotiated according to L. 7614/87 and 7876/89 are excluded from this limit. The 25% limit does not apply to federal public bonds. Overall, the sum of the exposure of each financial institution with all its borrowers cannot be higher than 600% of its patrimonio de referencia.

Resolution 2909/2001

In order to face the energy crisis of 2001, this resolution put out of the quota of R\$ 1 billions defined by art 9 of R 2827/2001 the financing of R\$850 millions to firms of the Eletrobras Group. These funds have to be used for the financing of the Emergency Program for increasing Energy Supply during the 2001-2003 period.

Resolution 2920/2001

This resolution redefines rules on credit supply to public sector entities. The overall amount of such loans is set equal to R\$ 1 billion. Moreover financial institutions must follow the provisions of art 33 FRL as well as R 2682/99. Art 4 of R 2827/2001 is overruled.

²⁵ A public sector entity is non compliant when its debt is 30 days overdue.

Appendix 2
Further Federal Senate Resolutions 1975-2001

Resolution 87/1987

The Federal Treasury creates credit lines to roll over states and municipal debt. This covers:

- debt service on internal debt issued until April 30th;
- debt service on external debt under Federal Treasury guarantee;
- financing current deficit accumulated until 1987;
- financing by state treasuries of debts with state suppliers

Raises for 6 months the ceilings set by R. 62/75

Resolution 96/1993

The Union refinances external credit operations by the States and Municipalities by issuing *Brazil Investment Bonds*

Resolution 70/1995

This resolution authorises states to contract the credit operations necessary to enter the "*Programa de Reestruturação e Ajuste Fiscal dos Estados*". In the year in which these operations are made the ensuing debt service will not be included in the limits set by R. 69/95

Resolution 23/1996

This resolution authorises non-refundable external credit operations by the Union and SNGs. Authorisation for such operations has to be given by the Federal Senate. These operations cannot be outside the limits i.e. they cannot represent waivers to the main R this is because it is stated that the authorisation it contained must be exercised on the basis of art 13 R. 69/95. One of the tenets of this article is that the operation must comply with the limits set by the R.

Resolution 93/1998

This resolution exempts from the limits set in R. 78/98 the credit operations contracted by the states with the Union in order to compensate for the losses the states incurred because of L. 9424/96 as well as those operations made by virtue of L. 9496/97

Resolution 75/1999

This resolution authorises SNGs to contract credit operations with the Union for the anticipation of resources from transfers as in L. 87/1996. In the year in which these operations are made limits set in R. 78/98 do not apply

Resolution 40/2001

This resolution defines clear rules on the targets to be respected by the states in their debt/real revenues ratio. It grants an adjustment period of 15 years. During the Adjustment period states that do not fulfil the requirements set in the Res. will be forbidden to issue new credit operations apart from those foreseen by L 9496/97 within the program of states' fiscal adjustment. Moreover, non-compliance with the timing of adjustment will be punished according to art 31 of FRL

Appendix 3

Numerical Ceilings Revenue Anticipation Loans (AROs)

Table A.1. Numerical Ceilings on AROs

Federal Senate Resolution	Ceilings on AROs	
	Global amount	Monthly disbursement for debt service
62/1975	≤ 25% estimated current revenues	≤ 5% estimated current revenues
94/1989 (R. 62/75 is overruled)	≤ 25% estimated current revenues	≤ 7% estimated current revenues
58/1990	≤ 15% estimated current revenues	≤ 7% estimated current revenues
36/1992	≤ 15% estimated current revenues	≤ 7% estimated current revenues
11/1994	This resolution keeps unchanged the ceilings set in previous resolutions	
69/1995	≤ 12% estimated current revenues	≤ 7% estimated current revenues
78/1998	Debit balance on AROs ≤ 8% estimated current revenues	
43/2001	Debit balance on AROs ≤ 7% total revenues of the current year	

Source: own elaboration on Federal Senate Resolutions information

All the Resolutions summarised in the above table establish that AROs operations cannot be carried over to the next fiscal year but have to be settled within 30 days after the end of the financial year. AROs operations were under the jurisdiction of the Federal Senate, but authorisation was conditional upon the Central Bank certifying that the applicant has fulfilled its social contributions obligations²⁶.

Resolution 94/1989 tightened the regulation on AROs, as it required the AROs contracted in the last year of a Governor's mandate to be entirely settled before the expiration of the mandate.

With Resolution 36/1992, governors were forbidden from contracting new AROs during the last six months of their mandate, and Resolution 78/1998 extended this ban to the

²⁶ These include: payments to PIS (Program of Social Integration), Pasep (Programa de Formação do Patrimônio do Servidor Público) funds, to the National System of Social security and to the FGTS (Fundo de Garantia por Tempo de Serviço)

last year of the governor's mandate. This last resolution also reduced from 30 to 10 days after the end of the financial year the usual deadline for the settlement of AROs.

In the wake of the Fiscal Responsibility Law, Resolution 43/2001 introduced a more severe discipline in what concerns the discipline on AROs. This resolution established that AROs could be contracted only from 10th day after the beginning of the financial year, and has to be settled within December 10th of the same year. Authorisation will not be granted if the operation includes other charges than interest payments. A State will be prohibited from contracting new AROs insofar previous operations of the same nature are not entirely repaid.

The financial institutions authorised to grant AROs to a State or other public sector entities have to be selected through a competitive procedure launched by the Central Bank.

The responsibility to certify states compliance with their social contributions obligations is assigned to the Ministry of Finance.

Novation of AROs operation will be submitted to the procedures regulating the usual process of new AROs authorization.

Appendix 4

Auxiliary regression for SBC expectations: Conditional Logistic Fixed effect estimates²⁷

	SOFT BUDGET CONSTRAINT
Lagged log of Surplus	-4.662
	(0.62)
Political Affiliation	-0.607
	(1.24)
State Representatives political Affiliation	-0.139
	(3.20)***
Number of State Representatives	0.079
	(0.61)
Governor Election year	0.979
	(2.36)**
Time Trend	-0.033
	(0.88)
Observations	255
Number of nc	17

²⁷ This specification of the soft budget constraint expectations does not include the log of State GPS nor the log of total transfers since these two variables are endogenous, hence including the probability estimated on the basis of the latter specification into the structural equation could render the probability as well endogenous.

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