The Choice Governors Make:
Political Institutions and Economic Performance at the Sub-National Level in Brazil

Lee Alston, University of Colorado
Marcus Melo, Federal University of Pernambuco
Bernardo Mueller, University of Brasilia
Carlos Pereira, Michigan State University and School of Economics of Sao Paulo – FGV

Preliminary Version

Introduction

The main objective of the research is to contribute to our understanding of policy-making at the state level in the Brazilian federation. The focus of the research is on the determinants of the perceived wide variation in policy outcomes across the Brazilian states. Why are some states better capable to promote economic development while others stagnate? Why some states exhibit good capacity for policy coordination and adaptability whereas other states are characterized by policy inertia and predatory politics? Why some state governments are able to provide public goods such as a professionalized bureaucracy and adequate health and education services but other state governments tend to specialize in the provision of private goods such as public sector jobs and targeted transfers to specific clienteles? Why corruption is more prevalent in some states than in others? Why some states are more efficient in the provision of goods and service than others?

This study describes the general policymaking process within which the state level policymaking processes are couched. Special focus will be placed in exploring the variability in institutions and histories among states and the way these map into the diversity of outcomes, so as to be able to better understand the determinants of the policymaking processes and their impacts at the state level. Broadly speaking, the Brazilian states exhibit great similarity with respect to their macro level institutional features which are established on state constitutions. These features include the following. Politicians, both at the legislative and executive branches, are elected every four years with the same electoral rules, proportional representation and open lists to the former and plurality with a runoff to the latter; legislators have no term-limit; Governors are allowed to run for re-election just once and are very powerful, equipped with several institutional tools to govern; the decision-making process within state legislatures is very centralized with a extremely weak and unprofessional committee system; in fact, legislative bodies are mostly reactive to executive dominance; the state courts are formally independent and sometimes work as an important constraint to the executive's preferences; every state possesses accountability institutions to deal specifically with the propriety of government expenditures (*Tribunais de Contas*).

Even with those great similarities in terms of their institutional endowments, the Brazilian twenty-seven sub-national unities are very distinct with regard to their economic and political outcomes. It is possible, on the one hand, to find states with a great level of social and economic development, and on the other, states that are extremely poor. *If the macro state institutional endowments do not present enough variation to explaining these different outcomes, what are the other institutional and political aspects that can account for these differences?*

Existing institutional theories predict greater policy rigidity (deadlock) in a policy space characterized by multiple veto players with significant ideological polarization or differences in players's preferences.[1] It is assumed that the probability of policy change is reduced by the higher transaction costs and the existence of a smaller potential win-set to beat the *status quo*. Besides taking into account the number of veto points and the level of disagreement of their preferences, this comparative study intends to investigate the institutional conditions under which gains from trade can be extracted by the political players. In other words, we investigate the extent to which the players have the ability to develop inter-temporal political transactions. Our contention is that in order to understand the cost of policy change, it is necessary to examine at the sub-national level the institutions that may exist (or not) of realizing political transactions. Where institutions have arisen to enable such transactions, the cost of policy change will be lower (controlling for preferences). Where transaction costs are large and there are few means of circumventing or mitigating them, policy change will be lacking or limited. These costs are high when the number of veto players is large and there are no efficient commitment mechanisms for cooperation.

This investigation adopts a transaction cost approach to understand the political actors' incentives to form and sustain inter temporal credible agreements. We focus on the resources available to facilitate political exchanges, the value of such currencies and the expected gains from the trade among Brazilian sub-national states. We claim that more capacity to build and coordinate majority coalitions and longer term horizons for politicians – with repeated interactions – have a decisive impact in lowering transaction costs and enabling political cooperation. Conversely, poor coalition management and restrictions on the types of currencies available decrease the value of accepted currencies and creates disincentives for political cooperation. We argue that the interaction of institutional features define the relative price of policy chance in each particular institutional environment.

This paper recognizes that other economic aspects such as the stock of investment, level of economic integration with other state unities and with the international market, foreign investment, etc., play an important role on economic and political outcome. However, we would like to stress that other micro institutional aspects related to the state politics and policymaking play a key role in explaining different economic and political performance at the sub-national level in Brazil. We operationalized variables such as political competition, electoral volatility, durability of the elite group in power, coalition management dimensions (size, heterogeneity and proportionality[2]), budgetary allocation, level of professionalization and institutionalization of the state bureaucracy, among others. We claim that these variables have a decisive impact on the capacity of politicians to develop and sustain cooperation over time.

The time horizon of governors was also tested. Governors with short political horizons – as opposed to hegemonic governors that control a state for several terms - will have few incentives to provide public goods and promote economic development. Hegemonic governors, in turn, will have incentives to promote economic development because they feel they will benefit privately from an expanding pool of resources in his state.

Historical and Political Contexts:

---

[1] See Haggard, S. & MCcubbins, M. (2001), *Presidents, parliaments, and policy.* Cambridge/New York, Cambridge University Press. Tsebelis, G. (2002), *Veto players: how political institutions work*. Nova York, Russel Sage Foundation/Princeton University Press

[2] See the discussion of Mesquita, B. B.; Smith, A.; Silverson, A. & Morrow, J. (2003), *The logic of political survival*, Cambridge, MIT Press.

With the return to democracy in the 1980s the states have expanded their roles in the Brazilian federation. However, over the last two decades the states have lost political clout as well as economic importance as a result of a number of developments which we will summarize in this section. However the states still play key economic and policy-making roles in the Brazilian federation. They get some 27% of public revenue and collect directly about a quarter of total revenue – in fact, one of the few countries in the world where this happen. Social spending by the states is also very significant: it represents about a quarter of total spending. The states have jurisdiction over key issue areas such as public safety and play an important role in local economic development. The states are in charge of very large administrative machines, which account for a significant share of formal employment. Their performances affect directly the lives of ordinary citizens in several ways. Many services are in charge of the states, including vocational training, secondary education and secondary and tertiary health care. In addition, states are in charge of infrastructure programs in various areas including sanitation, roads and ports. Understanding policy-making at the state level is therefore a very important.

Several factors explain the decline of the state's political and fiscal influence. Governors had played the role of key power brokers during the transition to democracy. They acted as the guarantors of the new political order. Because they were elected directly in 1982, they enjoyed great legitimacy and thus could play this important role. In the 1990s Presidents reasserted their political importance not only because they were directly elected but also because there was a significant expansion of Presidents in all spheres of activity. This took place notwithstanding the sectoral decentralization in health care and education. The heyday of states' power was during the 1980s, particularly during the works of the Constituent Assembly of 1987-1988.

The Constitution mandated the expansion of the share of sub-national units in total revenue through new revenue-sharing rules and by granting new tax powers to the states. The fiscal implications of the Constitution were felt in the early 1990s, and the subsequent evolution of intergovernmental relations under Cardoso and Lula reflects the Federal government's reaction against this "exogenous shock". Since 1995 the balance between the center and the sub-national interests has changed dramatically.

Fiscal crisis and recentralization of the game

Since then there occurred a reversal of these decentralizing trends. Starting as early as 1993, Presidents introduced mechanism that reduced the fiscal autonomy of the states. These included several mechanisms for withholding constitutionally mandated transfers to the states (ex. FSE FEF, DRU). In addition, a new set of rules were imposed to curb the state's fiscal autonomy. These included new strict rules for sub-national borrowing and ceilings for sub-national spending Central government's increasing control of sub-national fiscal behavior culminated in the promulgation of the Fiscal Responsibility Law in 2000.

Thus the vision of a 'predatory federalism' (Abrucio 1998) – a weak federal executive that is unable to overcome the pressures from the periphery of the political system – describes the pattern of relations between the central governments and the states until the mid-1990s, but it at odds with the picture of federalism under Cardoso (particularly Cardoso's second term of office) and Lula. There occurred an important transformation in the Brazilian federal structure, which was essentially a reaction against the fiscal shock produced by the Constitution of 1988. Brazilian Presidents have had since the mid-1990s a strong incentive to stabilize the economy and to pursue sound fiscal policies (Alston et al 2006). This was the result of two factors. The first is that the electorate became strongly inflation averse following the devastating effects of hyperinflation in everyday life in the 1980s and early 1990s.

The second factor is that citizens were not prepared to give electoral support to governments favoring unorthodox fiscal practices because of the failed heterodox experiments during the Sarney and Collor administrations – Planos Cruzado and Collor, respectively. Presidents had to reconcile their fiscal preferences with policies that would have impacts in their political survival. These included policy issues for which they would be blamed in case of for failure. In addition to inflation, Presidents would be blamed for rising unemployment rates and for bad performance in increasingly salient issues such as poverty levels. Melo (forthcoming) refers to this as a process of 'federalization of credit claiming' for social citizenship improvements. Cardoso's and Lula's ability to reconcile these two imperatives explains part of their success.

The states' agenda in the mid-1990s were dominated by the issue of fiscal stabilization. To some extent this was an external agenda – the federal one – that was imposed onto the states. The ability of state executive's to pass this agenda varied across the states. Several factors which will be extensively discussed in the case studies influenced the governor's ability to pass this agenda. These factors include the size of the governor's majority, the level of institutionalization of a state and the level of contestability in the local electoral arena. In this study fiscal stability represents a public good and thus is key dependent variable.

Institutions, players and powers:

This session intends to analyze the key political institutions, players and their powers at the sub-national level in Brazil. We draw extensively on pre-existing literature on "Positive Political Theory." Most of the extant literature on effects of political institutions on policy outcomes, however, tends to focus on a single institutional dimension, and explores its impact on some policy outcome. Rather than looking at each actor or political institution in isolation we look at the relevant interaction of the institutions aiming at characterizing their role in the Policymaking process across Brazilian states. By doing so, we incorporate a broader range of players and embed them in models of strategic interactions. We see the constraints posed by other institutions as the foundational issue of players' behavior. This "new separation of power approach" (De Figueiredo, Jabobi, and Weingast 2006) allows us to study interlinked phenomena occurring in multiple institutions. Thus, although we consider the executive branch as the key player in the policymaking process at the sub-national level in Brazil we do not see those Brazilian powerful governors as largely unconstrained. Our approach takes into account the effect of the executive's need to pay strategic attention, for instance, to authority and preferences of legislative, judicial, regulatory agencies, public prosecutors, accounting organizations, etc. That is, in order to enhance their preferences governors have to anticipate as much as possible other payers' reactions.

In order to be able to offer a comprehensive analysis of players' interactions in such institutional environment we intend to address the following questions: Which are the key actors that participate in it? What powers and roles do these actors have? What preferences, incentives and capabilities do these actors bring to the table? What are the characteristics of the arenas in which they interact? How frequent are these interactions? What is the nature of the transactions they engage in? What are the available tradable currencies? Although we recognize that several of the above mentioned institutions interact with the executive at the same time in the policymaking process, for practical reasons will address these questions as if governors would play sub-games with each of those veto players.

The key variables for the present study are the level of institutionalization and the level contestability in a state. By the former we mean essentially the robustness of checks and balances. High institutionalized political environments are typically states that have effective regulatory institutions, autonomous and independent courts of accounts, state assemblies with professional staff and active commissions, a functional bureaucracy, a proactive *Ministerio Publico* as well as other oversight and deliberative institutions such as councils. By contestability we mean political competition. Low or non-contestable environments are characterized by the control wielded by state elite. Typically elite does not alternate in power with contra elites and exercises some or a great deal of control over the media and over candidate selection at the state level.

Table 1 shows the possible combination from these variables and the likely outcomes. In the upper right cell, low contestability co-exists with low institutionalization. Because contestability is low, and political elites dominate the political space, the political elites may have long policy horizons. However, in these circumstances there are incentives for entrepreneurialism in the state and for the creation of a professionalized bureaucracy and fiscal austerity. Governors are encouraged to engage in initiatives that produce results in the long run. However because of low level of institutionalization there would also be incentives for elites to engage in private goods provision and to appropriate public resources for private use.

In the upper left cell, there is a combination of high contestability and low institutionalization. In this case there are strong incentives for the provision of private goods and corruption because elites have a short time horizon. Low level of institutionalization provides the ideal setting for predatory practices, particularly if the level of contestability is high. We expect low incentives for the supply of public goods and consequently poor developmental outcomes.

The bottom left cells represent cases of high institutionalization. High levels of institutionalization create incentives for the supply of public goods, but its interaction with levels of contestability may produce divergent outcomes. Low contestability may create incentives for clientelism, which is mitigated by strong checks on the executive. In turn, high levels of contestability may create policy volatility in case there is strong adversarial political tradition in the state. This is the case when good projects are discontinued because of preference polarization or predatory practices adopted by the elites to differentiate themselves from their adversaries.

[Table 1 about here]

Theoretical Framework and Empirical Tests

The central idea in this report is that political institutions are important determinants of the policies implemented in states. This chapter proposes a model of the policymaking process of the Brazilian states and then tests the implications of the model with state-level data for the period 1999 to 2006. The focus of the tests is on the role that the interaction among political competition and institutionalization has on the characteristics of the policies that emerge in the states. The basic idea is that political competition has important effects on the choices made by governors and other political actors by determining how long they expect to be in power, what they can do while in power and at what costs. However, the impact of political competition on the characteristics of the policies varies with the level of institutionalization of the policy making game in each state, that is, the 'rule of law.' In principal political competition and institutionalization can be either complements or substitutes, that is, they can reinforce each other or work in opposite directions. The econometric tests will show in which cases these variables are complements and substitutes in the state policymaking processes.

The model presented here adapts that of Denzau and Munger (1986), which was developed to analyze congressmen in the US, to fit the circumstances of state governors in Brazil. The main differences are: (i) congressmen are legislators while governors are executive and thus have a more direct effect on which policies are adopted, (ii) we allow for the motive of using office not only to maximize votes, but also to obtain personal wealth, and (iii) the focus is not so much on who gets represented, unorganized constituency or interest groups, but rather on what determines the governor's choice between pursuing public goods, private goods for specific groups or personal wealth.[3]

The governor of a state maximizes votes and money. Votes include both votes for the governor's own reelection as well as votes for a successor, given the existence of term limits in Brazil. Money is desired both for its own sake and in order to purchase votes through electoral campaigns. The governor's choice variables are E_u and E_R which are the amount of effort the governor and his staff allocate towards producing, respectively, public goods, P_u, such as public safety, health, education, etc., and private goods, P_r, that is goods that benefit specific small closed groups.[4] There is a limited amount of effort available to the governor, $\overline{E}$, so that $E_u + E_r = \overline{E}$. In addition the governor chooses how much of the resources received from private groups are allocated to pursue reelection (or making a successor) and how much is pocketed for personal gain. Let α be a variable that measures the share of total resource received by the governor from private groups and through corruption (e.g. over invoicing) that are used for electoral purposes, where $0 \leq \alpha \leq 1$.

The governor thus chooses E_u, E_r, and α so as to solve the following problem:

$$\max_{E_u, E_r, \alpha} U[V(P_u(E_u), P_r(E_r), \alpha R(P_r(E_r)), (1-\alpha)R(P_r(E_r))]$$

$$\text{subject to} \qquad (1)$$

$$E_u + E_r = \overline{E} \text{ and } 0 \leq \alpha \leq 1.$$

The objective function shows that the governor's utility is affected by both votes $V(\cdot)$ and by the share of resources that are pocketed $(1-\alpha)R(P_r(E_r))$. Votes are influenced by the public goods provided by the governor P_u and through the private goods provided to the interest groups P_r. In addition votes can obtained through electoral propaganda which is purchased using the resources R provided by the private groups. A fraction α of the resources is used for electoral purposes and remaining $(1-\alpha)$ is appropriated by the governor.

The first order conditions that solve this problem are:[5]

---

[3] The focus on public goods, private goods and personal wealth has been adopted by other studies in the literature. For example, the 'Selectorate Theory' of Mesquista et al. (2003) '… emphasizes the circumstances under which leaders realize personal gain, promote public benefits and create special benefits for their political allies. The degree to which they choose to emphasize one form of benefit over another is shown to depend on the selection institutions under which they operate.'

[4] In order to simplify the presentation only one private group is included. This can easily be generalized to allow for *n* groups as in Denzau and Munger (1986).

[5] Let superscripts denote derivatives.

$$\frac{\partial U}{\partial E_u} = U^V V^{P_u} P_u^{E_u} - \lambda = 0 \qquad (2)$$

$$\frac{\partial U}{\partial E_r} = U^V [V^{P_r} P_r^{Er} + V^R \alpha R^{P_r} P_r^{Er}] + U^R (1-\alpha) R^{P_r} P^{E_r} - \lambda = 0 \qquad (3)$$

$$\frac{\partial U}{\partial \alpha} = U^V V^R R(P_r(E_r)) - U^R R(P_r(E_r)) \Rightarrow U^V V^R = U^R \qquad (4)$$

Where λ is the Lagrange multiplier on the restriction $E_u + E_r = \overline{E}$.

Equations (2) and (3) together yield the following condition:

$$U^V V^{P_u} P_u^{E_u} = U^V V^{P_r} P_r^{E_r} + U^V V^R \alpha R^{P_r} P_r^{E_r} + U^R (1-\alpha) R^{P_r} P^{E_r} = \lambda \qquad (5)$$

This condition states that the marginal unit of effort will always be placed in that activity (public or private good) which yields the greatest electoral return to the governor, given α. The term on the left measures the gain from the marginal unit of effort on the public good, which comes through votes. The middle term measures the gain from the marginal unit of effort on the private good. This comes in three ways: (i) through the marginal votes generated by those policies (first part of this term); (ii) through the marginal votes purchased with resources obtained in exchange for effort for private goods; and (iii) through the marginal resources that the governor pockets due to the additional effort for private goods. In equilibrium the gain in utility to the politician from the marginal unit of effort must be same for private and public goods and is equal to λ.

Similarly, condition (4) states that the decision whether to use resources for electoral or for personal purposes is taken so that the marginal real (R$) goes to that purpose which generates most utility. Thus in equilibrium, the utility from the marginal real is the same whether it goes to finance the governor's campaign or his bank account.

The equilibrium values of the dependent variables E_u, E_r, and α depend on a series of parameters that affect the various functions in (2-5). These parameters capture the characteristics of each individual state's institutions, special circumstances and idiosyncrasies. Below, comparative static exercises will be presented that show how a change in each of these parameters affects each of the dependent variables. First, however, it is useful to consider each of the functions in the governor's maximization problem and spell out what are the kinds of things that the parameters in that function may capture. This list of parameters and their link to the characteristics of public policies that emerge in a state (public goods, private goods, corruption) will serve as a guide for the individual case studies. That is, these case studies will characterize their state's institutions, circumstances and other idiosyncrasies by presenting a picture of that state's political institutions and policymaking game that includes issues such as those listed below.

Functions:

i) Productivity of effort in producing public goods: $P_r^{Eu}(\cdot,\pi)$

where π is a parameter that makes this effort more or less productive. Examples of π are the governor's level of control of the state assembly, the quality of the bureaucracy and the level of political competition. A governor that faces a hostile state assembly, for example, may have a hard time passing legislation to provide more and better public goods. That is, she has low productivity of effort in producing public good. She will have to dedicate more effort to get the same amount of public good than an identical governor with a higher productivity of effort, such as a unified government.

ii) Productivity of effort in producing private good: $P_r^{E_r}(\cdot,\omega)$

where ω is a parameter that makes this effort more or less productive. Examples of ω are the governor's level of control of the state assembly, the independence of the bureaucracy, the independence of the state auditor office (TCE), ownership of media by the politicians and the level of political competition. Suppose ω is a compliant TCE. This governor will have a higher productivity of effort in providing private goods than a governor similar in everything but a hostile TCE.

iii) The electoral response to public goods: $V^{P_u}(\cdot,\ \sigma)$

where σ is a parameter that increases or decreases this electoral response, such as voter education, income, control of the media, etc. In a state where voters are very aware of the quality of public goods and correctly perceives the governor as responsible for the state of affairs (captured by a high σ), then an increase in the provision of public goods yields more votes than state similar in everything except for voters that are less aware (low σ).

iv) The electoral response to private goods: $V^{\Pr}(\cdot,\ \xi)$

where ξ is a parameter that increases or decreases this electoral response, such as TCE independence, voter education, income, income distribution, control of the media, etc. The governor has an incentive to provide private goods to interest groups. However, the policies that transmit those private goods are perceived by the voters and affect the way they vote. Generally we would expect that policies that provide private goods reduce the votes received by the governor, though that need not necessarily be the case. In any case the governor will take into account the voters' preferences regarding the policies aimed at private groups. This is how even unorganized groups are represented in policy (Denzau and Munger, 1986). The parameter ξ is anything that affects the voters' perception of the benefits provided by the governor to private groups. A culture of '*rouba mas faz*', for example, would imply a low ξ and mitigate the negative impact of private good provision on votes received by the governor.

v) The marginal utility of votes to the governor: $U^V(\cdot,\psi)$

where ψ is a parameter that increases or decreases the governor's marginal utility of votes, such as the existence of term limits, whether the governor is in the first or second term, the level of political competition. ψ can be, for example a measure of the governor's expected performance in the next election. A governor who has a strong lead in the polls and expects to win the next election easily (high ψ) will attach a smaller value to marginal votes, that is, lower U^V.

vi) The productivity of private policies in generating resources: $R^{P_r}(\cdot,\theta)$

where θ is a parameter that increases or decreases the contributions received by the governor in response for a marginal increase in the private good, the level of concentration of power among interest groups, elite hegemony, state income. If there is a high level of competition among private group to influence the governor (high θ), then the resources received in exchange for a given policy will be higher (higher R^{P_r}).

vii) The voters sensitivity to electoral campaigns: $V^R(\cdot,\ \tau)$

where τ is a parameter that measures how influential political campaigns are in the state (i.e. Denzau and Munger's (1986) continuum between rationally ignorant to 'civics class' voters). In states with more highly educated voters (higher τ) the same amount of resources used in the electoral campaign yield less votes (lower V^R).

viii) The marginal utility of money in the pocket rather in the campaign to the governor $U^M(\cdot,\ \beta)$

where β is a parameter that increases or decreases the utility of the marginal dollar to the governor, such as being a lame duck, existence of reelection, etc. If there is a high probability of being prosecuted even after leaving office (higher β) , then the utility of money (U^M) will be lower.

Ideally we would like to do comparative statistics to determine how a change in each of these parameters affects each of the dependent variables E_u, E_r, and α, that is, to determine the signs of the following derivatives (where · represents each of the parameters).

$$\frac{\partial E_u}{\partial \cdot} =, \leq or \geq 0$$

$$\frac{\partial E_r}{\partial \cdot} =, \leq or \geq 0$$

$$\frac{\partial \alpha}{\partial \cdot} =, \leq or \geq 0$$

However, the expressions that emerge from this exercise are unwieldy, do not yield an unambiguous sign and are not amiable to useful interpretations about the channels that push in either direction. The research strategy is thus for the case studies for individual states and the data collection for all states to use the model as a guide for which characteristics of the state's institutions to look for as well as which relationships to try to understand. The ultimate question is what determines the governor's choice between public goods, private goods and corruption. The model suggests focusing on the relationships i – viii described above (e.g. the governor's productivity of effort in producing public and private goods, the utility of votes to the incumbent, the productivity of private policies in generating votes, etc.) In doing so consider how each of the state's characteristics (called parameters above) affect those relationships. This will provide a characterization of each individual state's policy making processes that is interesting in itself and can also be compared with other states to draw conclusion of the general process.[6]

Quantitative Measure of Institutionalization

<u>Dependent Variables</u>

The model presented above shows how the decision of governors between providing public goods, private goods and personal benefits is determined by a series of parameters related to political institutions as well as economic and social characteristics of the states. The discussion of the model showed the channels through which the parameters exerted their effect

[6] An obvious limitation of the model is that it does not explicitly consider the temporal aspects of a governor's choice, which are important given the temporal nature of politicians' time in office. In extensions to this project the model can be expanded to cover two periods with political institutions affecting the probability of remaining in office.

and gave concrete examples of the things these parameters represent. In this section we will test for the relationship between those parameters and governors` choices. The strategy is to estimate reduced form equations using panel data for all 27 Brazilian states for the two legislature of 1999-2002 and 2003 to 2006.[7] The first challenge in pursing this strategy is to obtain measures of the dependent variables. The most obvious way to capture the provision of public good, such as education, sanitation, health care, would be to use data on expenditures in these areas, which is readily available. However, these expenditures are often constrained by legislation, such as the Fiscal Responsibility Law, and might not really provide much information on the governor's choices. Instead we use an index of expenditure efficiency in the states developed by Ferreira Júnior (2006), which covers the period of 1995 to 2004. The index is a ratio of the part of total expenditure that is effectively spent in the final public good that is being provided (including debt) divided by the administrative and other intermediary costs involved in producing those services. States with a higher value of this index provide more public goods at a lower cost. This index partly captures the notion of private goods, as a low value of the index might reflect larger chunks of the state budget going to groups such as civil servants and construction companies rather than to the final service itself. We will test the determinants of both the variation of the index over a governor's term in office as well as the average level of the index in each term.[8] The rationale behind using this variable to capture the notion of the governors' choice to provide public versus private good is that improving the index, that is the 'efficiency' of public expenditure is a difficult task for a governor, and one that will typically have upfront costs and benefits that are realized only in the long term. A governor will or will not be willing to incur in such costs depending on the level and type of political competition that he/she faces as well as on the level of institutionalization of the state. Governors that foresee longer expected periods in office will be more inclined to seek improvements in expenditure 'efficiency.' Similarly, governors in states that are more highly institutionalized and have more checks and balances (independent judiciary, public prosecutors, audit office, free press, vigilant society, etc.) may have less ability to refrain from investments in improving expenditure 'efficiency.' A second variable that will be used to capture public/private good provision is the expenditure by state governments on programs of voluntary exoneration. These are programs where civil servants, who have stability on the job guaranteed by law, voluntarily accept exoneration in exchange for a negotiated compensation. These types of programs were disseminated across Brazil in the 1990s as a means to reduce overstaffed public bureaucracies and weighed heavily on federal and state budgets. The use of this variable is justified because these programs have investment-like qualities, where the government pays the quitting civil servant an upfront compensation and receives only long term benefits as its salary and pension bill diminishes over time.

The second dependent variable that emerges from the model presents an even larger challenge to quantify, as data on corruption and illicit activity by politicians are generally not available. In order to provide a measure that proxy for the amount of personal benefit the governors and other politicians achieve from office, we use data from the Superior Electoral Tribunal that requires all candidates to political office to publicly declare their wealth. First we use data exclusively on state deputies and then a broader sample including politicians from other types of offices. The data is not without problems as a politician can always lie or underreport his/her holdings and also because there is not data for all politicians as some fail to report and

[7] Earlier periods were not included due to the lack of data for several variables for those periods.

[8] Unfortunately the variable is only available for the first two years of the 2003-2006 term, so it may not be capturing the full change that would occur across that period.

other do not run for office at the end of their term so that they do not need to report their wealth again. Clearly this provides the potential for there to be a selection bias. Note, however, that our observations are at state level and not at individual level. We take the average wealth variation for all state deputies. Thus the final variable used does not contain a selection bias. It may not be a good proxy if the number of deputies sampled to create each state's observation is not representative, however there will be no selection bias as related to econometric estimation. In any case, we mitigate this problem by using the number of deputies that was used to create each state observation as a weight in the OLS regression and as a regressor in the panel regressions. Table 2 summarizes the dependent variables we use and provides the sources.

[Table 2 about here]

Explanatory Variables

As explanatory variables we need measures of the various different parameters that emerged from the model and were discussed above. Most of these variables capture different aspects of the level of political competition and fragmentation in each state. We use both number of effective parties as well as indices of electoral competition in the state assemblies. Another measure is the number of parties in the governor's coalition, which affects the executive's ability to pass his agenda through the legislature. Ideally we would like to have measures of whether each governor faced divided or unified government; however such data is not available for most states, especially as it can change across the same legislative term, according to the evolution of the political cycle. In compensation we do have the margin of victory of the current governor in the previous election (in the first round) which provides a measure of power and expectation of remaining in power. In the same vein we created a variable by multiplying a dummy for those governors that would go on to win a new term in the next election and the margin by which they would win. This variable selects for those governors that had good expectations or remaining in power thus allowing us to test predictions concerning how a longer horizon affects policy choices. Another important variable that is tested is the amount of patronage received by the state's representatives in the House. The literature on Executive-Legislative relations at the federal level has shown that individual and collective amendments to the budget by the congressmen are approved or blocked by the President in reaction to the level of support provided by the legislators (Alston and Mueller, 2006; Pereira and Mueller, 2006). Being able to bring home these amendments is key for the electoral survival of the representatives and, since many of the amendments involve public works contracts, they potentially create opportunities for corruption that involve state and municipal level politicians such as governors, mayors and deputies (Samuels, 2002) .

In a similar manner we have data on electoral campaign expenditures, which the candidates have to declare to the Superior Electoral Courts after the election.[9] The total spend in campaigns is summed for the state and divided by the GDP. The idea is that this variable measures certain aspects of political competition as the more that is invested should reflect a tighter race. The final explanatory variables are education and GDP per capita. The first is suggested in the model as parameter in the functions that measure the electoral response to public and private goods. The other, controls for a series of other variable that are related to the stage of development of the state and its level of income. The description of the explanatory

[9] This is also a problematic variable as many do not declare, especially the losers, and there is always the potential for underreporting.

variables and their sources are summarized in table 3. Descriptive statistics of all endogenous and explanatory variables are shown in table 4.

[Table 3 and 4 about here]

Measuring Checks and Balances

Whereas there are several obvious and readily available variables for measuring political competition, it is not so easy to get a measure of institutionalization, a concept which is not even straightforward to define. It refers in part to the notion of 'rule of law' which captures 'the extent to which agents has confidence in and abide by the rules of a society (Kaufman, Kray and Mastruzzi, 2003). But it involves also the existence of institutions that generate low political transaction costs that facilitate providing create credible commitments realizing political and economic exchanges. It involves as well as a set of checks and balances that provide constraints against opportunistic behavior and towards cooperation and public regardedness. In the remainder of this report we refer to this quality of 'institutionalization' simply as checks & balances, given that the term institutionalization is confusing in that political competition variables also measure factors related to institutions.

In order to create an index of checks & balances, we collected state-level data on seven variables that reflect the extent to which the more-or-less abstract factors just described are present in a state's institutional matrix. The focus is on the existence, effectiveness and independence of several types of agencies and organizations that have important roles in the checks and balances at different levels of government. These variables are described in table 5, along with their sources. Because these variables all have different units, making comparison difficult, and also as a way to deal with outliers, we used the sum of the rank of all seven variables in each state and then normalized the final index to range from zero to one.[10] Table 6 provides the values of the ranks of each state in each variable.[11]

[Table 5 and 6 about here]

The final Checks & Balances index is shown in table 7 in order of highest to lowest. Overall the results are intuitive and fit reasonably well with common preconceived notions of which states have better institution. The bottom states are all state which our prior belief expected to find at the end of the list and Rio Grande do Sul at the top also seems to fit. As is inevitable there are always some surprises, such as Pernambuco in 3rd and Minas Gerais in 20th. Any supposed abnormality might be a result of poor data, poor design or of incorrect expectations. In any case, overall the index seems reasonable and will be used in the econometric tests both to estimate its direct effect on the dependent variables as well as its effect on the way political competition affects the dependent variables.

[Table 7 about here]

---

[10] This method reduces the impact of extreme scores in any of the seven variables for a given state. Suppose one state has a very high score for one variable and average scores on all other six. It is possible that the impact of the extreme observation will be such as to make the state's final score rank high on the list, even though it is only strong in one of the variables. Using ranks mitigates this effect.

[11] As with the creation of any index there are several different ways of proceeding, from the choice of input variables to the statistical treatment used to aggregate those variables into a single index. An alternative, also not immune to criticism, would be to realize a survey with experts in the literature of policymaking in Brazilian states, asking each to rank the states according to their perception of their level of institutionalization. This would be useful to compare with our results and may be done as an extension of this study.

Estimation Results

The purpose of the estimation is to analyze how political and institutional environments affect the characteristics of the policies that emerge in the states. The dependent variables measure features related to the policy choices of the governors and the explanatory variables measure features related to political competition and checks & balances, both of which shape the incentives and restrictions that the governors face when making those choices. The estimations are thus reduced forms that capture the net effect of the parameters of the model on the dependent variables, without the pretension to estimate a structural model that would include the relationship among the dependent variables. Wherever data was available we used a panel of the twenty-seven Brazilian states across two periods that cover two sets of four-year political terms, which is the basic time frame for governors. In these cases the estimation was done using random effects as some of the explanatory variables did not vary across the two periods or were not available for both periods. In some of the estimations data was not available for a panel and a simple cross-section was estimated by OLS.

Table 8 presents the results where the dependent variable captures the decision of the governor to seek his/her own benefit as opposed to that of the public as a whole or of private groups. We refrain from calling this a corruption equation as corruption may also be a means to provide private and even public benefit. Because seeking personal benefit is typically illicit there is no data available that measures this behavior directly. As a proxy we use the increase in personal wealth as declared by politicians to the Supreme Electoral Court before and after the four years in power. The estimation in column 1 uses data only on state deputies and column2 uses data for a large set of politicians, including federal deputies, senators and mayors. Ideally we would have liked to try an estimation only with governors in the dependent variable, but there were many missing observation as several governors could not or did not chose to run for office after their gubernatorial term and thus did not have to declare their wealth. Our assumption in using state deputies and other politicians is that there is a high positive correlation between the increase in wealth of the governor and other politicians in any given state.[12]

[Table 8 about here]

Because the sample is relatively small, and also because of potential multicollinearity among the explanatory variables, we chose specifications where most variables that had low levels of statistical significance were removed. In this section we discuss the results of these regressions and in the following section we extend the results to consider the interaction between political competition and institutionalization, which will shed more light on how to interpret the effect of political competition on the dependent variables.

Before examining the individual estimated coefficients, it is useful to look at the estimations as a whole to see what lesson is learnt. The main point to note is that political variables are able to explain a large part of the variation of the dependent variable. The R^2 and adjusted R^2s are surprisingly high for cross-sections and panels with only two periods and few observations, especially if one considers the nature of the dependent variables, which capture the

[12] As we discussed above there are other problems with the data. The first is that politicians may have an incentive to lie about their wealth, most probably to underreport. The second is that there is only data for a subset of all deputies and other politicians. As noted above, this does not lead to a selection bias as the values for all politicians for which there is data are aggregated and the level of observation is the state. This means that the proxy might not be a good approximation of what we are trying to measure, but there is no selection bias in the econometric sense for the estimation. Note also that to mitigate the problem the a variable measuring the number of politicians whose data went into constructing the dependent variable in each state is added as a regressor in the panel estimations and as a weight in the OLS.

variation of wealth over time rather than the level of wealth. Our original set of variables included not only political, but also several other social and economic variables such as poverty, Human Development Indices, geographic variables, wealth concentration, violence, natural resources, exports, etc. The estimations, for this and the other dependent variables (table 8) systematically showed a predominant effect of political variables over others, though we chose to keep GDP and education in several estimations even when not significant. This provides empirical support to the approach in this report that focuses on political and institutional determinants of policies.

Column (1) shows that the Checks & Balances index is positive and significant, indicating that those states with stronger rule of law (as measured by the quality of the judiciary, public prosecutors, audit offices, public defenders, media, regulatory agencies and the judicial watchdog) have lower levels of wealth increases for their state deputies. This result indicates that the institutional structure of the state is able to mitigate the use of power by politicians to pursue their own wealth. Ideally we would like to make this claim for the specific case of the state Governors, but due to the lack of data on their wealth variation, we can only presume that the same effect holds for them.[13]

The effect of electoral competition within the state assembly has negative and statistically significant (1%) effect on the wealth variation of the deputies. This index measures the relative number of candidates per seat, indicating a virtuous effect of political competition in keeping corruption in check. Similarly, the greater the number of parties in the governor's coalition, the lower the increase in state deputy wealth will be (significant at 5%). In principle it is not clear what we would expect of this variable. Having to attract and manage a more fragmented coalition might require that the governor concede more benefits to the deputies of the coalition. On the other hand, if the governor has a supermajority, then having more parties in the coalition might allow the governor to play off one party against the other and thus have to concede fewer benefits. Here again the case studies presented later in this report may offer some insight into the interpretation of this result.

The higher the number of effective parties for which the state has representatives in the National Congress, the greater will be the increase in wealth of the state deputies over the legislature, statistically significant at 1%. This is a case where more political competition or fragmentation leads to more personal benefit to politicians within the state. Our model does not inform what is the relationship between federal and state deputies; only that there appears to be a robust connection reflected in the data. In order to understand this result it would be necessary to analyze the relationship between the local politicians (state deputies and mayors) and the states' federal representatives. The key to understand this relationship is probably in the bringing of pork by the federal legislators to local specific areas in the state, which is crucial for strengthening popularity and reelection chances. This process is also an important source of corruption as the implementation of the projects involved allow for over-invoicing and kick-backs. One way to interpret our result is that in states where there are more parties bringing in the pork, state deputies are getting a larger share.

For those governors that would go on to win the next election, the higher their margin of future victory, the greater the wealth variation of the deputies. This variable was constructed to capture the effect of governors that had reason to feel safe in office. The positive and significant (10%) estimated coefficient shows that those governors with longer-term horizons allowed

[13] Note that this specification tests only for a direct effect of the Checks & Balances variable. Below we will test whether it has an indirect effect through its interaction with the political competition variables.

greater increase in personal wealth. This result is contrary to the notion of an end game giving incentives for opportunistic behavior. It may be that the explanation for this result is that governors that will be in power for a longer period are more powerful and better able to resist investigation and prosecution as they have privileges and immunities while in office, which leads them to more, rather than less, opportunistic behavior.[14] The regression also has a dummy for states where the Governor was a 'lame duck', due to term limits. This variable was positive but not significant.

The level of education was positive but not statistically different from zero. This variable is highly correlated with GDP per capita and other social and economic variables. In general these variables were not found to be as successful as the political and institutional variables. Finally, the variable which controls for the size of the sample of deputies in the dependent variable was negative but not statistically significant.

When we use as dependent variable the increase in wealth of a full set of politicians (available only for the 1999-2002 period) we find that the Checks & Balances index remains positive and significant and that electoral competition in the State Assembly continues to have a dampening effect on the increase of state deputy wealth. We no longer find an effect of competition in the National Congress, but the variable that measures the amount of pork brought home by federal deputies is positive and significant (5%). In states that receive more pork (relative to their GDP) there is a greater increase in the wealth of all politicians. Overall the results for this dependent variable are similar to those of the larger sample, though they are somewhat weaker.[15]

Table 9 shows the results of the regressions for the variables that measure expenditure efficiency. The basic idea is that improving expenditures has the characteristics of a public good in the sense that it benefits the population at large, as well as having investment-like qualities in that such efforts typically have upfront costs and deferred benefits. A governor will only expend resources in pursuing such objectives if there are incentives for doing so. The rationale for the regressions, stemming from our theoretical model, is that the incentives and restrictions for pursing effort in this direction have as key determinants political competition and checks and balances.

[Table 9 about here]

In column 1 the dependent variable is the improvement in expenditure efficiency during the political term. Because some states may have already started off at a higher level of expenditure efficiency, thus having less room for improvement, we use the initial level of expenditure efficiency as a regressor, that is, its value in 1998 for the first term and for 2002 for the second term. The estimated coefficient for this variable is negative but not quite statistically significant.[16] Another control variable in this specification was the gini coefficient, which entered also a squared term to allow for a non-linear relationship. It was found that states with more concentrated wealth had lower levels of expenditure efficiency, though the effect gets smaller as concentration increases.

---

[14] A similar result was found by Melo, Figueiredo and Pereira (2006) using audit report data, in what they called the "corruption-enhancing role of reelection incentives".

[15] In columns (4) and (5) the variable that measures the number of politicians in the dependent variable is used as a weight rather than a regressor.

[16] For the second period we only had expenditure data for 2003 and 2004. The addition of 2005 and 2006 should strengthen the results as many effects may come into play towards the end of the term.

The index of checks & balances was found to have a positive and significant effect, which indicates that states that have better rule of law and constraining institutions tended to improve the quality of their expenditure over time. Although the regression does not provide information on the mechanisms behind this relationship, it suggests that in states where the judiciary, public prosecutors, audit office, public defenders and the press function better and are more independent from the executive, policy outcomes tend to have better characteristics.

In this specification we used indices of electoral competition in the state assembly (including a squared term) and in the House of Representatives in the National Congress. As was the case in the regressions in table 6, these variables had opposing effects. Electoral competition in the state assembly increases the growth in expenditure efficiency whereas competition for the House decreases it. It is noteworthy also that the direction of the effect is analogous to that in the previous regression (although the signs are switched since wealth variation is a negative variable while expenditure efficiency is a positive one). The robustness of these results for dependent variables of so different nature provides confidence in our argument.

Other political variables that were found to be significant were the number of effective parties and a dummy for 'lame duck' governors. The number of effective parties was found to have a negative impact on the variation in expenditure efficiency, perhaps due to the greater difficulty in passing legislation. Similarly, 'lame duck' governors tended to have lower levels of expenditure efficiency variation than did those who had a shot at a second term.

Column 2 has the dependent variable the level of expenditure efficiency (average over the four years of the term) rather than variation. Results are basically similar to those in column 1. The checks & balances index is positive and significant and the results for the effect of electoral competition in the state assemblies and in the House show the local variable positively related to expenditure efficiency and the national variable negatively related. Political competition variables measuring the number of parties in the governors' coalition and the margin of victory in the previous gubernatorial election were added to these regressions. They did not prove statistically significant at standard levels but nevertheless warrant a look at their relationship with the level of expenditure efficiency.[17] The greater the fragmentation of the governor's coalition in the assembly, the greater the quality of public spending will be. This leads to a virtuous effect of political competition. In the same manner, the negative sign in the margin of victory variable suggests that governors that feel safer in office feel less need to invest in improving expenditure efficiency. This is not an obvious conclusion as it could just as well be the case that governors with a longer horizon would have more incentive to pursue virtuous policies as they would benefit more from those policies themselves. The model and the regressions do not provide the means to sort out in more detail the effect of political competition. In the next section, however, we will investigate this issue in greater detail by analyzing the interaction between political competition and institutionalization.

Finally, in column 3 we use as dependent variable the percentage of total spending that states dedicated to voluntary exoneration programs, which we argued above have investment-like qualities due to the slow maturation of their benefits to the state's accounts. Because the data was only available in aggregate form (average over the 2001-2004 period) this equation was estimated by OLS. Once again the checks & balances index was found to be positive and significant. States with better checks & balances and rule of law were thus much more likely to pursue voluntary exoneration programs.

---

[17] In some specifications these variable did turn out to have significant estimated coefficients.

The electoral competition index for the state assembly was again found to be positive and significant at 1%, indicating virtuous consequences to political competition at the local level. On the other hand it was found that states with higher concentration of assembly seats in the hands of the two largest parties also had higher incidence of voluntary exoneration program, perhaps due to the greater ease at passing legislation. It was also found that states that receive greater shares of individual and collective amendments (divided by GDP) were more likely to dedicate resources to those programs. The statistical significance of this variable was very strong and accounts for a large share of the high R^2 for this regression. The reason for the strong relationship between these apparently disparate variables remains to be clarified. Finally, states with higher levels of education were found to be more likely to have voluntary exoneration programs, indicating governor's more inclined to pursue public goods.

The Interaction of Political Competition and Institutionalization

The regressions in the previous section provide empirical content to the model of the state policymaking process presented earlier. That model predicted that political and institutional variables are key determinants of the characteristics of the policymaking process and the regressions provided evidence of the sign and magnitude of those relationships. Although the regression results are strong and robust, the evidence presented is not easy to interpret. It was found that political competition has virtuous effects in some cases, restricting wealth increase of politicians and increasing expenditure efficiency, but perverse effects in others. In addition, the checks & balance variable was significant in all of the regressions. In what follows we investigate the possible interaction between political competition and checks & balances. This is based on the framework presented in chapter 2 that postulated that the characteristics of public policies are affected by where the policymaking environment stands in relation to the two dimensions political competition and checks & balances. This raises the possibility that the effect of checks & balances works indirectly by affecting the way political competition impacts policy choices. In principle both of these dimensions can be either complements or substitutes. Sorting out which is the case is important for us to understand our previous results.

The strategy that we will pursue in order to address these issues is to run the regressions again adding an interaction term between each political competition variable and the checks & balances index. The interaction term allows the impact of one the variables on the dependent variable to vary as the other interacted variable changes. That is, we can quantify and draw inferences from the varying effect of political competition on policy characteristics as the level of checks & balances changes. This will allow us to determine, for example, whether the effect of political competition on politicians' wealth variation gets more or less restrictive as we move form states with lower to higher levels of checks & balances. If we find that the effect of political competition gets stronger in more institutionalized states, then we can conclude that political competition and checks & balances are complements. If the effect of political competition gets smaller or even becomes statistically equal to zero, then we can conclude that both of these dimensions are substitutes.

The use of interaction terms has become standard in the social science literature as they capture the fact, often encountered in real life applications, that the impact of one variable on another can depend on a third variable. However, the way in which interactive terms should be constructed and especially the way the results should be interpreted is not as simple as it might seem on the surface. Brambor, Clark and Golder (2006) have surveyed the top three political science journals from 1998 to 2002 and found that only 10% of the articles that use interactive terms do so correctly and interpret the results appropriately. Common errors are to use only the interactive term leaving out one or both of the separate variables and to use the standard errors directly from statistical package outputs for inferences, which leave out important terms from the formulas of those standard errors. These authors suggest a graphical method, which we will adopt below, that displays all the information from the interaction of the variables, including the information need for inference purposes.[18]

We will start the analysis with the interactions of political competition and checks & balances in the Wealth Variation (of state deputies) regressions in table 6. Each of the political competition variables was interacted with the institutionalization index in a separate regression, with all the other regressors maintained, and the effect is shown in the separate graphs below. The graphs show not only the effect of political competition on the dependent variable and how it varies over time, but also other important information for the interpretation of the results. The 95% confidence interval is shown throughout the range (see graph 1 for example). If this interval contains the value zero for the effect of competition on the dependent variable, then we infer that there is no statistical effect for that value of checks & balances. The graph helps the visualization of the range for which the estimated coefficients are statistically different from zero by bounding that range with the long-dash two-dot vertical (red) lines. The results are shown for the range of checks & balances from 0.1 to 0.9, which is approximately the range found in the data.

[Graph 1 about here]

Graph 1, which show the interaction of the number of parties in the governor's coalition in the state assembly with institutionalization, regarding the wealth variation dependent variable, can thus be interpreted in the following manner: (i) the effect of the number of parties in the coalition on wealth variation is negative; (ii) this effect is only statistically significant for levels of checks & balances between 0.1 and 0.6, which includes 20 states in our sample (see table 7); (iii) as checks & balances increase, the impact of the number of parties in the coalition on wealth variation gets weaker, so that is a case where political competition and institutionalization are substitutes.

Graph 2 shows the effect of the interaction of the effective number of parties in the House of Representatives (National Congress) with checks & balances. The impact of this measure of political competition on wealth variation is positive. More competition implies greater opportunistic behavior by the state deputies and other politicians. This relationship is significant for states with checks & balances index greater than 0.48 (17 states). As checks & balances grow the impact of the number of effective parties becomes stronger. This fits with case II in graph 4 and is a result counter to our expectations. As we shall see this unexpected result emerges only when the political competition variable is related to the House of Representatives, posing a puzzle as to what it is about this area of a state's political environment that has checks & balances increase a perverse effect (corruption) rather than reduce it as we would expect.

[Graph 2 about here]

Graph 3 shows that the effect of electoral competition in the state assembly on wealth variation is negative for states in the range of checks & balances below between 0.58 (18 states). As checks & balances increase, the virtuous effect of competition gets smaller, which fits case IV where competition and checks & balances are substitutes.

[Graph 3 about here]

---

[18] The computer code for creating these graphs in Stata 8.0 is available at http://homepages.nyu.edu/~mrg217/interaction.html.

Graph 4 shows the effect of having expectations of higher probability of reelection on Governor's choices. This variable is different from zero for those governors that were effectively reelected and measures the size of their victory margins, so that higher levels indicated that there the Governor perceived, even before the election, a higher probability of remaining in office. This variable is positively related to wealth variation and it becomes stronger as checks & balances increase. It is thus a case where less competition increases the level of wealth expansion, so the variables are substitutes. It is significant, however, only for a small range of the checks and balances variables.

[Graph 4 about here]

In this section we analyzed the interactions on political competition and checks & balances for the wealth variation of state deputies' regression (Table 8, column 1). The same analysis was done as well for the other regressions in Table 8 and Table 9. The graphs will not be shown for each regression due to space restriction. Nevertheless, the same basic result was found robustly throughout the analysis: political competition tends to reduce self-interested behavior by politicians and promote public goods. Additionally political competition and checks & balances are found to be substitutes in Brazilian states. The exception to this rule is found in cases where the political competition involves the House of Representatives (National Congress). In that case political competition increases self-interested behavior and reduces public goods, with the relationship between political competition and checks & balances being complementary.

Conclusions

This purpose of this chapter was to model and test the determinants of the characteristics of public polices at the state level in Brazil, in particular the decision by governors, who are the central policymakers, to pursue public goods, private goods or their own personal wealth. The main argument is that the key determinants of these decisions are not ideologies, taste or personality, but rather the political institutions that determine the incentives and constraints faced by the governor in the pursuit of their own self-interest. The model in the first section showed the relationship of several parameters that measure those constraints and incentives with the governors' choice of policy characteristics. This provided the implications that were subsequently tested by regressing variables that sought to capture the nature of the choices made by governors in each state against those parameters. This exercise required finding suitable proxies for self-interested behavior by the governor (corruption) and providing private and/or public goods. We tried a variety of different such variables to check for the robustness of our results and extensions of this study should pursue further proxies. The main overall result of these exercises is that political institutions are major determinants of the governors' decisions, a result which should not come as a surprise but for which there is not a wealth of empirical evidence in the literature. The literature has focused mostly on explaining the policies themselves and not their characteristics. Researchers have typically used other policies as determinants of policy characteristics, such as explaining poor fiscal outcomes as being determined by the adoption of a certain type of tax rule or revenue distribution formula, rather than political institutions, which get at the motivation behind adopting a given rule or formula. The regressions showed robust results in the sense that variables measuring the same aspects of political competition lead to consistent results across different dependent variables. Additionally the level of explanation was remarkably high for the kind of regression and the nature of the dependent variable, so that even if it might not be perfectly clear how political institutions affect policy choice it is certainly clear that they have a large impact. Furthermore a robust direct effect of checks & balances on policy choices was found in all regressions, increasing the public regardness and constraining politicians' wealth increase.

In order to further explore those relationships, the last section interacts the political competition variables with a check & balances index that measures the elusive notion of rule of law and low levels of transaction costs in political exchange in each state. We used a methodology that allowed a graphic appreciation of how the impact of political competition on the characteristics of the policies in a state is affected by checks & balances. This allowed us to analyze the relationship of each political competition variable with the checks & balance index and determine whether these different dimensions are substitute or complementary. The results showed that for most political competition variables there is a statistically significant interaction with the checks & balances index (for some subset of the sample). In general these dimensions proved to be substitutes, so that increased levels of checks & balances implied weaker effects of the political competition variables. The exception to this rule were variables involving the state in the National Congress, such as the effective number of parties in the House, electoral competition in the House and pork (which comes through the National Congress in the form of budget amendments by representatives and senators). These variables were found to be affected by checks & balances in a direction contrary to our expectations, so that increased competition led to less efficient public policy and greater wealth increase by politicians. In these cases a complementary relationship was found indicating that greater checks & balances intensified the effect of political competition. This poses the puzzle of what it is about political competition in the House that makes its effects on policies exacerbated by checks & balances?

REFERENCES

Alston, L.J. and B. Mueller. 2006. "Pork for Policy: Executive and Legislative Exchange in Brazil," The Journal of Law Economics and Organization. Vol.22, No.1 Spring.

Alston, L., M. Melo, B. Mueller and C. Pereira. 2005. "Political Institutions, Policymaking Processes and Policy Outcomes in Brazil" Inter-American Development Bank.

Besley, T., T.Persson, and D. Sturm. 2005. "Political Competition and Economic Performance: Theory and Evidence from the United States." London School of Economics, working paper.

Brambor, T., W.R. Clark and M. Golder. 2006. "Understanding Interaction Models: Improving Empirical Analyses," Political Analysis, Vol. 14:63-82.

Correa, P., M.A. Melo, B. Mueller and C. Pereira. 2006. Regulatory Governance in Infrastructure Industries: Assessment and Measurement of Brazilian Regulators. 1St ed. Washington: The World Bank Publications, 2006. v. 1000, 77 p.

Corregedoria Nacional de Justiça. 2006. Relatório Annual das Atividades da Corregedoria Nacional de Justiça – Ano Base 2006. Brasília, pgs: 55.

Denzau, A. T. and M. C. Munger (1986). "Legislators and Interest Groups: how Unorganized Interests get Represented." American Political Science Review 80(1): 89-106.

Ferreira Júnior, S. 2006. As Finanças Públicas nos Estados Brasileiros: Uma Avaliação da Execução Orçamentária no Período de 1995-2004, Tese de doutoramento, Universidade de Viçosa.

IBGE. 2004. Perfil dos Municípios Brasileiros: Gestão Pública. Rio de Janeiro, Pesquisa de Informações Básicas Municipais.

Kaufmann, D., A. Kraay, and M. Mastruzzi. 2003. Governance Matters III: Governance Indicators for 1996–2002. World Bank, World Bank Policy Research Working Paper 3106. Available at: http://www.worldbank.org/wbi/governance/pubs/govmatters2001.htm.

Konishi, L.L. e R.C.P. de Vitto. 2006. II Diagnóstico da Defensoria Pública do Brasil. Brasília: Ministéro da Justiça.

Melo, M.A. and C. Pereira. 2006. "Political and electoral accountability enhances accountability: a comparative analysis of courts of accounts in Brazil." in: International Congress of LASA, 2006, San Juan. LASA Papers.

Melo, M.A., M. Figueiredo and C. Pereira. 2006. "The corruption-enhancing role of reelection incentives: evidence from audit reports in Brazil." In: 10th Conference of the International Society for New Institutional Economics, Boulder. Annals of ISNIE.

Mesquita, B.B De, A. Smith, R. M. Siverson and J.D.Morrow. 2003. The Logic of Political Survival, Cambridge, MASS: MIT Press.

Ministério da Justiça. 2004. Diagnóstico do Poder Judiciário. Brasília: Ministério da Justiça.

Pereira, C. and B. Mueller. 2004. "The Cost of Governing: Strategic Behavior of the President and Legislators in Brazil's Budgetary Process." Comparative Political Studies, Vol.37, No.7, Sept:781-815.

Rodrigues, F. 2006. Políticos do Brasil: Uma Investigação sobre o Patrimônio Declarado e a Ascensão Daqueles que Exercem o Poder, Rio de Janeiro, Editora Publifolha, 424 páginas.

Sadek, M. T. e F.D. Lima. 2006. Diagnóstico Ministério Público dos Estados. Brasília: Ministério da Justiça.

Santos, S. S. e Capparelli. 2005. "Coronelismo, Radiodifusao e Voto: a Nova Face de um Velho Conceito" In: Valerio Brittos; Cesar Bolano. (Org.). Rede Globo: 40 Anos de Poder e Hegemonia. 1 ed. São Paulo: Paulus, v. 1, p. 71-101.

Santos, W.G. (coordenador) Almanaque de Dados Eleitorais (Laboratório de Estudos Experimentais) http://www.ucam.edu.br/leex/ (Accessed in Jan. 2007).

Table 1

Contestability

		High	low
Institutionalization	Low	Predatory political environments (politicians with short policy horizons) Ex. Rondônia	Patrimonialist entrepreneurial politics Ex. Bahia
	High	Governance-enhancing incentives (may produce policy volatility if preferences are polarized) Ex. RS	Governance-enhancing incentives Ex. Minas Gerais

1. Bahia – A low to middle income state which is characterized by traditional politics and a hegemonic regime (i.e. one characterized by lack of political competition), but which has undergone rapid transformation and has been witnessing the erosion of traditional clientelistic politics. A politicized but professionalized bureaucracy was instrumental in bringing about a robust process of economic and social modernization in the mid 1970s and mid 1980s, but this process appears to be exhausted. Modern TCs and regulatory agencies in a context of traditional political relations.
2. Pernambuco – A low to middle income state which is characterized by competitive politics and a declining economy which has been experience a process of economic resurgence. Independent judiciary and Ministerio Publico constrain to a large degree the executive’s powers at the sub-national level.
3. Rio Grande do Sul – A highly competitive state political system in a high income state with dynamic and competitive economic sectors, possessing a moderately professionalized bureaucracy and a highly independent judiciary, regulatory agency and TCE.
4. Roraima – A former territory, the state is the quintessential rentier state captured by local political elites who control the judiciary, the bureaucracy and legislatures.
5. Minas Gerais – A successful traditional state characterized by high professionalism, independent judiciary and low competition politics. Large electorates make the state and its governors key actors in the national political game.
6. Espírito Santo (to be considered) – Very low levels of institutionalization and professsionalism and high levels of elite capture and corruption. The inclusion of Espírito Santo would offer the possibility of exploring the impact of low institutionalization outside the context of low level of economic modernization.

Table 2 – Dependent Variables

Num.	Name	Description	Source
1	Expenditure efficiency variation	The increase during the 4 year term of an index of expenditure efficiency that measures the ratio of final expenditures to 'input' or 'means' expenditures (e.g. administrative costs). Data for 1999-2002 and 2003-2004.	Ferreira Júnior, S. (2006).
2	Expenditure efficiency in levels.	Same index of expenditure efficiency as above, but in levels rather than variation over time. Average of the index for each four year period is used. Data for 1999-2002 and 2003-2004.	Ferreira Júnior, S. (2006).
3	Expenditures Voluntary Exoneration Program %	Percent of total expenditures that go to programs of voluntary exoneration. Average for the period of 2001-2004.	Ferreira Júnior, S. (2006) Table 13..
4	Wealth variation state assembly deputies	Percent variation of state assembly deputies' declared wealth. Average for all deputies in the state for which there is information. Data for 1999-2002 and 2003-2006.	Rodrigues (2006) Políticos do Brasil.
5	Wealth variation of a sample of all politicians	Same as above, except that this variable includes politicians from all types of offices in addition to state deputies. Available only for 1999-2002.	Rodrigues (2006) Políticos do Brasil.

Table 3 – Explanatory Variables

Num.	Name	Description	Source
1	Effective # of parties in House Representatives	Measure of political competition in the House of Representatives based on the number and size of parties. Data for 1999-2002 and 2003-2006.	Almanaque de Dados Eleitorais (Laboratório de Estudos Experimentais) http://www.ucam.edu.br/leex/
2	Effective # of parties in the State Assembly	Measure of political competition in the State Assembly based on the number and size of parties. Data 1999-2002 and 2003-2006.	Almanaque de Dados Eleitorais (Laboratório de Estudos Experimentais) http://www.ucam.edu.br/leex/
3	Index of Electoral competition House of Representatives	Measure of political competition in the House of Representatives based on the number of candidates per seat. Data for 1999-2002 and 2003-2006.	Almanaque de Dados Eleitorais (Laboratório de Estudos Experimentais) http://www.ucam.edu.br/leex/
4	Index of Electoral competition State Assembly	Measure of political competition in the State Assembly based on the number of candidates per seat. Data for 1999-2002 and 2003-2006.	Almanaque de Dados Eleitorais (Laboratório de Estudos Experimentais) http://www.ucam.edu.br/leex/
5	N^{o} of parties in Gov.'s coalition.	The number of parties in the governor's party coalition as registered at the Supreme Electoral Court. Data for 1999-2002 and 2003-2006.	Tribunal Superior Eleitoral www.tse.gov.br/internet/index.html
6	Margin of victory in gubernatorial election	Number of votes received by the first place in the gubernatorial election (first round) divided by the number of votes of the second place. Data for 1998 and 2002 elections.	IPEADATA http://www.ipeadata.gov.br/
7	Expected margin for reelected governors	Margin of victory in forthcoming gubernatorial election (see 6) times a dummy equal to 1 when the incumbent won that election. This variable captures the effect of governors who felt secure in office.	Constructed by authors.

8	Media ownership by politicians.	Percent of all TV concessions in the state that are controlled by politicians. 2004.	Santos, S. S. e Capparelli. 2005.
9	Pork	Average value of individual and collective amendments executed across each legislature, divided by state GDP. Averages for 1999-2002 and 2003-2006.	http://www2.camara.gov.br/
10	Campaign expenditure	Sum of the value of campaign expenditures of federal deputies in the state as declared to the Electoral Court, divided by the state GDP. Data for 1999-2002 and 2003-2006.	Tribunal Superior Eleitoral www.tse.gov.br/internet/index.html
11	Substitute auditor at State Audit Office	Dummy equal to one if the State Audit Office has a substitute auditor. Data for 200?.	Melo and Pereira (2006).
12	Number of public prosecutors per 100,000 residents.	Total number of state public prosecutors divided by 100,000 residents. Data for 2003.	Sadek, M. T. e F.D. Lima. 2006. “Diagnóstico Ministério Público dos Estados.”
13	Education	Percent of the population over 15 years of age that is illiterate.	IPEADATA http://www.ipeadata.gov.br/
14	GDP per capita	State Gross Domestic Product divided by total population.	IPEADATA http://www.ipeadata.gov.br/

Table 4 – Descriptive Statistics

Variable	Period	Obs.	Mean	Std. Dev.	Min.	Max.
GDP per capita	1999-2002	27	5.006	2.843	1.605	13.504
GDP per capita	2003-2006	27	5.171	2.696	1.728	12.406
Effective # of parties in the State Assembly	1999-2002	27	6.581	1.771	3.3	10.0
Effective # of parties in the State Assembly	2003-2006	27	8.026	2.034	5.2	12.5
Effective # of parties in the House of Represent.	1999-2002	27	4.656	1.393	2.5	7.4
Effective # of parties in the House of Represent.	2003-2006	27	5.359	1.652	3.2	9.5
Index of Electoral compet. House of Rep.	1999-2002	27	2.189	0.841	0.51	4.44
Index of Electoral compet. House of Rep.	2003-2006	27	3.284	1.085	0.72	5.69
Index of Electoral compet. State Assembly	1999-2002	27	3.909	2.158	1.58	11.92
Index of Electoral compet. State Assembly	2003-2006	27	4.684	2.283	1.82	12.1
Share of seats of top 3 parties State Assemb.	1999-2002	27	0.513	0.098	0.33	0.68
# of parties in Gov.'s coalition.	1999-2002	27	8.111	3.994	1	16
# of parties in Gov.'s coalition.	2003-2006	27	7.259	3.789	1	14
Margin of victory in gubernatorial election	1998	27	1.849	1.161	1.01	5.01
Margin of victory in gubernatorial election	2002	27	1.459	0.363	1.012	2.512
Expenditure efficiency variation	1999-2002	27	0.298	0.702	-0.48	2.83
Expenditure efficiency variation	2003-2004	27	-0.051	0.176	-0.601	0.22
Expenditure efficiency in levels.	1999-2002	27	2.682	1.226	1.37	7.453

Expenditure efficiency in levels.	2003-2004	27	1.997	0.473	1.065	3.15
Expenditures Voluntary Exoneration Program %	2001-2004	27	4.601	13.607	0	71.81
Education	1999-2006	27	14.819	9.640	4.672	34.160
Substitute auditor at State Audit Office	2003	27	0.519	0.509	0	1
Number of public prosecutors per 100k pop.	2006	27	4.809	1.203	3.17	8.79
N^0 state deputies in wealth var. variable	1999-2002	27	16.444	8.803	5	40
N^0 state deputies in wealth var. variable	2003-2006	27	18.363	9.987	7	49
Media ownership by politicians.	2005	27	0.42	0.231	0.08	1
Pork	1999-2002	27	52.630	107.454	1	534
Pork	2003-2004	27	9.704	19.062	0	78
Wealth variation state assembly deputies	1999-2002	27	2.052	1.890	0.29	7.14
Wealth variation state assembly deputies	2003-2006	27	2.602	1.791	0.28	7.78
Wealth variation of a sample of all politicians	1999-2002	27	0.555	0.519	-0.247	1.474
Campaign finance	1999-2002	27	0.099	0.168	0.001	0.705
Campaign finance	2003-2006	27	0.086	0.145	0.001	0.620
Checks & Balances index	1999-2006	27	0.519	0.147	0.175	0.889

Table 5 – Variables used to Create the Institutionalization Index

Num.	Name	Description	Source
1	Regulatory Agencies	Regulatory Governance Index. Measures governance of state and federal reg. agencies in Brazil based on survey data. States with no agency at the time of the studied were set at 0.53 (avg. of other states). Data for 2004/2005.	Correa, Melo, Mueller and Pereira (2006).
2	Judiciary	Index composed of two variables: i) an efficiency index calculated through nonparametric efficiency frontiers; ii) ratio of number of cases tried over cases opened (data for 2003). The simple average of both variables was used.	i) Swengberger, 2006, pg 79 ii) Ministério da Justiça. 2004. Diagnóstico do Poder Judiciário
3	Public Prosecutors	Index composed of three variables: i) Expenditures with public prosecutors per resident (2003); ii) Number of prosecutors per 100,000 residents (2003). iii) Number of staff per 100,000 residents (2003);	Sadek and Lima (2006).
4	Audit Office	An index of the level of activity in each state's Audit Office (TCE).	Melo and Pereira (2006).
5	National Justice Council (CNJ)	Number of procedures initiated in each state by the CNJ (agency that serves as a watchdog over the Judiciary) divided by state GDP (divided by 100,000). Data for 2006.	Corregedoria Nacional de Justiça. 2006
6	Media	Percent of all media concession in each state are not in the hands of politicians. [19]	Santos, S. S. e Capparelli. 2005
7	Public Defenders	Number of hearings per defender.	Ministério da Justiça. 2006. II Diagnóstico Defensoria Pública no Brasil.

[19] In this version of the study we cannot differentiate if the politicians owning the media are in government or in the opposition. We are however collecting data to allow this differentiation to be made, which will provide greater insight into the role of the media and of political competition.

Table 6 – Inputs in the Checks & Balances Index

Num	State	Regulatory Agencies	Judiciary	Public Prosecutors	Audit Office	CNJ	Media	Public Defenders
1	Acre	5	9	1	1	2	15	22
2	Alagoas	19	10	2	5	6	5	16
3	Amapá	6	2	4	22	12	10	12
4	Amazonas	21	8	3	13	13	13	24
5	Bahia	26	7	5	27	11	7	23
6	Ceará	4	18	6	21	9	9	6
7	Distrito Federal	7	23	7	26	3	24	9
8	Espírito Santo	8	12	8	18	16	25	13
9	Goiás	25	13	9	23	8	4	18
10	Maranhão	9	1	10	2	4	3	1
11	Mato Grosso	20	14	13	14	17	17	14
12	Mato Grosso do Sul	24	11	12	10	15	26	27
13	Minas Gerais	10	5	11	8	23	19	4
14	Pará	11	3	14	3	26	16	11
15	Paraíba	2	24	15	17	7	11	7
16	Paraná	13	26	18	7	25	14	19
17	Pernambuco	22	17	16	25	18	23	10
18	Piauí	12	19	17	4	1	8	2
19	Rio de Janeiro	27	15	19	16	19	20	3
20	Rio Grande Norte	1	25	20	11	21	2	26
21	Rio Grande Sul	23	22	23	24	24	27	25
22	Rondônia	14	21	21	6	20	18	5
23	Roraima	15	6	22	12	5	1	17
24	Santa Catarina	16	27	24	9	27	21	20
25	São Paulo	3	4	26	15	22	22	21
26	Sergipe	17	16	25	20	14	12	8
27	Tocantins	18	20	27	19	10	6	15

Table 7 – Checks and Balances Index

Num	State	Index
1	Rio Grande do Sul	0.89
2	Santa Catarina	0.76
3	Pernambuco	0.69
4	Mato Grosso do Sul	0.66
5	Paraná	0.65
6	Rio de Janeiro	0.63
7	Tocantins	0.61
8	São Paulo	0.60
9	Sergipe	0.59
10	Mato Grosso	0.58
11	Bahia	0.56
12	Rio Grande do Norte	0.56
13	Rondônia	0.56
14	Espírito Santo	0.53
15	Goiás	0.53
16	Distrito Federal	0.52
17	Amazonas	0.50
18	Pará	0.44
19	Paraíba	0.44
20	Minas Gerais	0.42
21	Roraima	0.41
22	Ceará	0.39
23	Amapá	0.36
24	Alagoas	0.33
25	Piauí	0.33
26	Acre	0.29
27	Maranhão	0.16
	Mean	**0.52**
	Std. Dev.	**0.16**

Table 8 – Determinants of Politicians Wealth Variation

	(1) State Deputies Wealth Variation	(2) State Deputies Wealth Variation
Checks & Balances index	-3.736* (-1.66)	-1.035** (-2.32)
Electoral competition State Assembly	-0.477*** (-2.81)	-0.095* (-1.70)
# effective parties House of Repres.	0.512*** (2.83)	
Electoral competition House of Represent.		0.135 (0.88)
# Parties in Coalition in State Assembly	-0.143** (-2.31)	
Expected margin for reelected governors	0.440* (1.87)	
Lame duck Governor	0.536 (1.23)	0.249 (1.39)
Pork		0.002** (2.40)
Education	0.634 (1.57)	-0.016 (-1.35)
N^0 state deputies in wealth var. variable	-0.050* (-1.81)	
Constant	1.54 (0.85)	1.164** (2.04)
Method	Panel: Random Eff. 2 periods, 27 states	OLS
Periods	1999-2002 2003-2006	1999-2002
Observations	54	27
R-squared (adjusted)	within: 0.50 between: 0.46 overall: 0.48	0.31 (0.10)

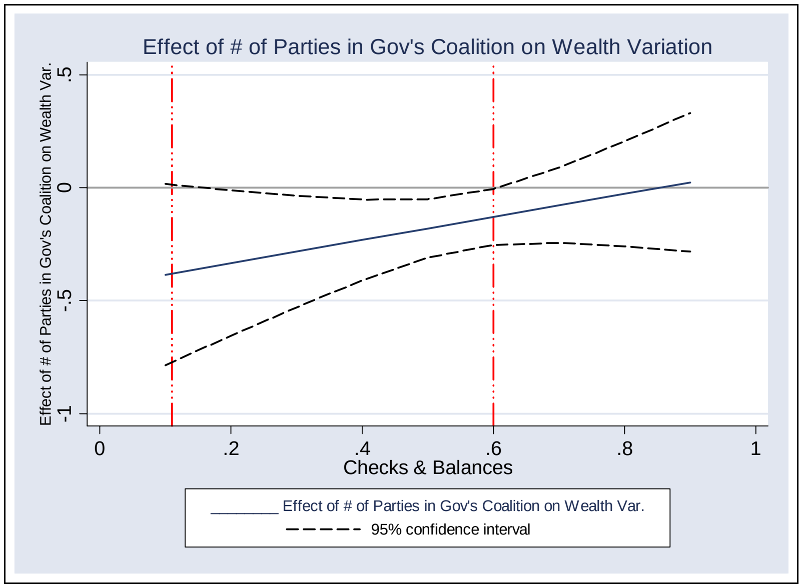
Notes: In parentheses, t-stats. *** indicates significant at 1%, ** at 5%, and * at 10%. OLS has robust std. errors and is weighted with the N^o of deputies in the wealth variable.

Table 9 – Determinants of the Expenditure Efficiency

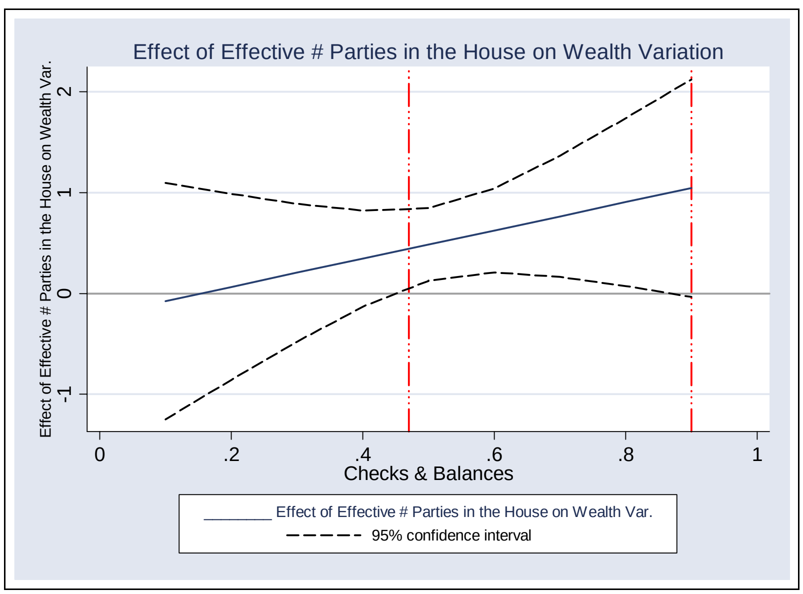
	(1) Expenditure Efficiency Variation	(2) Expenditure Efficiency (level)	(3) Voluntary Exoneration Program
Checks & Balances	1.230**	1.441*	18.728***
	(2.10)	(1.72)	(2.67)
Initial level of Expendit. Efficiency	-0.090		
	(-1.41)		
Electoral competition House of Represent.	-0.158*	-0.389**	
	(-1.70)	(-2.73)	
Electoral competition State Assembly	0.570***	0.240***	3.298***
	(2.99)	(3.55)	(3.54)
Electoral competition State Assembly squ.	-0.044***		
	(-2.88)		
Effective number parties State Assem.	-0.0810**		
	(-2.27)		
Party concentration in State Assembly			16.122*
			(1.91)
Number of Parties in Gov.'s Coalition		0.037	
		(1.21)	
Margin of victory in gubernatorial election		-0.147	0.964
		(1.08)	(1.25)
Lame duck Governor	-0.285**		
	(-1.98)		
Pork (per gdp)			0.077***
			(4.55)
Gini	-151.21***	13.71***	
	(2.53)	(3.47)	
Gini squared	145.07***		
	(2.67)		
Education			0.287**
			(2.32)
Constant	38.44**	-6.167	-34.399***
	(2.36)	(-2.53)	(-3.53)
Regional dummies	Yes	No	No
Method	Panel: Random Eff 2 periods, 27 states	Panel: Random Eff 2 periods, 27 states	OLS 1 period, 27 states
Periods	1999-2002 2003-2004	1999-2002 2003-2004	1999-2002
Observations	54	54	27
R-squared (adjusted)	within: 0.28 between: 0.70 overall: 0.48	within: 0.19 between: 0.59 overall: 0.42	0.90 (0.87)

Notes: In parentheses, t-stats. *** indicates significant at 1%, ** at 5%, and * at 10%. Robust std. errors for OLS.

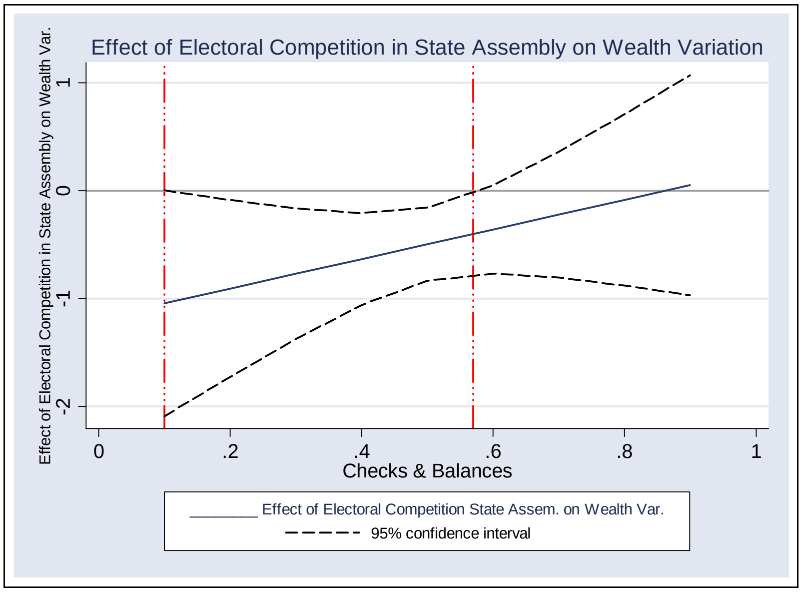
Graph 1 – Number of Parties in the Governor's Coalition x C&B in Wealth Variation Equation



Graph 2 – Interaction of the Effective N° of Parties in the House and C&B



Graph 3 – Interaction of Electoral Competition in the State Assembly and C&B



Graph 4 – Interaction of Expected Governors with Long-Term Horizons and C&B