

Lago-Peñas, Ignacio; Lago-Peñas, Santiago

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## Explaining budgetary indiscipline: evidence from spanish municipalities

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# EXPLAINING BUDGETARY INDISCIPLINE: EVIDENCE FROM SPANISH MUNICIPALITIES<sup>1</sup>

**Ignacio Lago-Peñas**

[Center for Advanced Study in the Social Sciences, Juan March Institute, Spain, [ilago@ceacs.march.es](mailto:ilago@ceacs.march.es)]

**Santiago Lago-Peñas<sup>2</sup>**

[Department of Applied Economics, University of Vigo, Spain, [slagop@uvigo.es](mailto:slagop@uvigo.es)]

## **Abstract:**

The quest for political support drives to upward deviations from forecasted public deficits when i) budget procedures are soft, ii) breaking promises involving higher expenditures and lower taxes is costly in political terms, and iii) ex-post control by voters and political opposition is imperfect. This hypothesis is tested using data from Spanish municipalities during the period 1985-1995. Econometric estimates show that single-party majority incumbents are less prone to change forecasted budgets. While their forecasted deficits tend to be higher, they have lower actual deficits, which may be interpreted as the consequence of a higher consistency in the budgetary process. Secondly, upward deviations in deficit tend to rise in election years. While forecasted deficits are not different in election years, actual deficits are. Moreover, elections cause systematic downward deviations in revenues. On the contrary, the ideology of the incumbent is not relevant to explain deviations in deficit.

**Key words:** Budget deficits, local governments, budget procedures, electoral promises.

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<sup>2</sup> Postal address: Facultade de Ciencias Empresariais, Campus Universitario, 32004 Ourense, Spain.

## I. INTRODUCTION

Empirical research on the determinants of public deficits uses to take actual and not initial or forecasted figures as endogenous variable. This choice is usually justified in practical reasons: deviations from initial deficits vary in both cross-section and time-series dimensions, distorting econometric estimates. Deviations are then merely perceived as a noise. But this strategy hides some striking questions. What explains deviations? Why large upward deviations are observed in certain cases but not in others? Moreover, the influence on actual deficits of some political factors as the electoral cycle, political fragmentation, and ideology may be better understood treating deviations in deficits as a separate endogenous variable. As it will be shown, interactions among political promises made by the incumbent, reputation, budget procedures<sup>3</sup>, and political control significantly help to understand the political economy of public deficits.

Relationships to be tested in this paper are based on three main arguments. Firstly, adhering to both promises and forecasted budgets is an investment in reputation for governments, whose benefits depend on the degree of *ex post* control made by voters and political opposition. Conversely, breakings will be costly in the future. Therefore, the higher the control, the higher the incentive for governments to adhere to both promises and forecasted figures. This relationship is rooted in accountability models proposed by Przeworski et al (1999). Secondly, a forecasted budget showing a big deficit is politically costly, because it may be interpreted as a signal of fiscal imprudence and the seed of future fiscal adjustments<sup>4</sup>. Hence consistency of forecasted deficits and promises involving higher spending or lower taxes will tend to be lower when the latter are more generous, which boosts future deviations in the former. Of course, underestimating forecasted deficit does

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<sup>3</sup> As Alesina and Perotti (1999) state, both concepts of “budgetary institutions” and “budget procedures” refer to rules and regulations affecting the elaboration, approval and implementation of budgets. In this paper, attention is concentrated into the last phase, insofar as we are interested in explaining deviations from initially approved budgets.

<sup>4</sup> According to the empirical evidence presented by Alesina et al (1998), fiscal adjustments do not seem to involve cabinet turnover or negative judges in polls. One possible explanation for this result would be the following. Current incumbent is not considered responsible for current levels of deficit and debt, but it is viewed as the result of past governments’ politics or exogenous shocks. Adjustment is itself presented by the incumbent and interpreted by voters as an unpleasant but necessary fiscal promise. Then adhering to fiscal consolidation will not lead to political costs.

not stop the growth of debt, but just postpones fiscal consolidation to future budgets. However, it can be enough to confuse voters regarding the actual state of public finance and the responsibility for future adjustments (Milesi-Ferreti, 1997; Reviglio, 2001). Thirdly, generosity in promises is positively correlated to the need of political support. Coalitions or sporadic backings to minority cabinets involve bargaining and concessions in order to persuade involved political forces. Moreover, promises will also be more generous just before elections to increase incumbent's popularity among voters.

In sum, if i) deviations from initial deficits are possible, ii) breaking promises is costly, and iii) *ex post* control by voters and political opposition is imperfect, a positive relationship between the quest for political support and upward deviations from forecasted deficits will be found.

Interactions among these mechanisms are tested using data from Spanish municipalities over the period 1985-1995. Several reasons justify our choice. Firstly, Spanish municipalities enjoyed a high freedom to get into debt. Secondly, budget procedures were soft, and significant deviations from initial budgets were possible from a legal standpoint. Thirdly, available empirical studies reveal that *ex post* control on budgets is also soft.

The paper is organized in five sections, this one included. Section two briefly reviews research on budget deficits and the relevant empirical evidence on this topic. Empirical analysis is developed in the next two sections. In section three, the choice of sample is justified and variables and data are presented. Econometric estimates are discussed in section four. Section five concludes.

## II. THEORETICAL ARGUMENTS

Promises of boosting spending programs, cutting tax rates and rising tax deductions increase popularity and political support to incumbents, provided that voters and other political parties are not simultaneously informed about the way of financing them. In such a case, looking at forecasted budgets is the only way to know if promises are consistent from a financial standpoint. In particular, big forecasted deficits may involve distrust on the capacity of the incumbent to manage public affairs and expectations of unpopular future fiscal adjustments. Therefore, governments may be tempted to make many popular “fiscal promises” while hiding financial difficulties of achieving them<sup>5</sup>.

Obviously, voters and political parties are not interested in just listening to promises and regarding forecasted budgets. Implementation of the former and execution of the latter are relevant for reputation of governments. In this sense, several questions must be taken into account in order to understand the step from promises and forecasted deficits to performance and actual deficits.

Firstly, elections in democracies do not only serve to hold governments responsible for the results of their past actions (Fiorina, 1981; Kramer, 1971), but also to select policies or policy-bearing politicians. As Manin, Przeworski and Stokes (1999) explain, if incumbents anticipate that voters will not only pay attention to their past policies, but also to their new promises, they must be concerned about being believed. Adhering to promises would then be an investment in reputation.

Secondly, while hard budget procedures in the implementation phase drive to inconsistency between promises and budget figures to just affect the meeting of the former, soft budget procedures in the implementation phase will likely drive to a mixed solution of deviations in deficit and failures to keep promises.

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<sup>5</sup> Milesi-Ferreti (1997) makes a similar argument. When talking about promises in general, literature refers to benefits but also to costs of meeting them (Ferejohn, 1986). For instance, constructing a highway promised to drivers may involve political costs if its ecological impact mobilize ecologist groups. The case of fiscal promises seems simpler. The cost of adhering one fiscal promise may be better proxied by its impact on the budget.

Thirdly, the probability of deviations from promises and initial deficit falls when the degree of *ex post* control made by voters and political opposition rises. In particular, a deficient control would incentive inflated previsions of revenues, by exaggerating the growth of tax bases or the efficiency of tax administration, and underestimated expenditures. In other words, incumbents would not incur in avoidable political costs when discussing and passing initial budgets if barely controlled departures from them are possible (González-Páramo, 2001).

Last but not least, politicians may provide excuses or justifications when they deviate from their promises and budget forecasts (McGraw, 1990). Exogenous and unforeseen contingencies can be claimed to justify that incumbents could not adhere to them. Among these mitigating circumstances are often included the politics of a previous administration, economic shocks or vetos by other political forces (Barreiro, 1999; Alesina and Perotti, 1999).

In sum, politicians face a strategic dilemma: a lower level of promises and a higher performance or a higher level of promises and a lower performance. The first strategy involves more popularity and political support *ex ante*, but also the risk of a worse reputation *ex post*, provided that excuses were not completely convincingly. The second one is less popular *ex ante* but yields a better reputation *ex post*. Focusing on deviations from initial deficits, what could explain differences among governments and across time? Six mechanisms are suggested:

1. Forecasted deficits result from predictions of both revenues and expenditures. According to Feenberg et al (1989), an efficient use of available information when predictions are made should drive, at least, to correct answers on average<sup>6</sup>. Of course, predictions may be deliberately over- or underestimated. In fact, this is the hypothesis to be tested in this paper. But deviations may be also motivated by involuntarily errors

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<sup>6</sup> While Feenberg et al (1989) refers just to revenues, their reasoning may be generalized to both sides of budgets. They make a distinction between “strong rationality” and “weak rationality” in forecasts. In the first case, predictions rightly incorporate all relevant information available at the time they are made. In the second, information is not fully utilized, but an efficient forecaster would get the correct answer on average.

in predictions. With a null expected value (there would be both positive and negative errors), the standard deviation of errors in predictions may depend on factors such as technical capacities of officials. The higher the technical capacity the lower the standard deviation of errors. Assuming that technical capacity and jurisdiction size are positively correlated, variability in prediction errors will be negative correlated with the latter.

2. Flexibility during execution of the budget is a key factor. The higher the flexibility (no cash limits, possibility of transfers between chapters and changes in budget law during execution, carryover of unused funds to the next year) the lower the probability of deviation<sup>7</sup>. In this sense, there is a number of papers showing a negative relationship between the flexibility in budget execution and the size of actual deficits in European countries (Von Hagen and Harden, 1994; De Haan et al, 1999; Hallerberg and Von Hagen, 1999; González-Páramo, 2001). Moreover, using data from United States, the most effective limitation to deficit arises in those states with budget rules requiring an *ex post* balancing with no carry-forward provisions. Balanced-budget rules applied on *ex ante* figures are therefore clearly less stringent due to the possibility of deviations (Inman, 1996; Boothe and Reid, 1998).
3. Thirdly, fragmentation of the political process may affect policy outcomes. The more players cooperating, the more the logrolling agreements, since individual parties will each veto spending cuts or tax increases that would impinge on their constituencies. And this would be so for both coalition cabinets and minority cabinets. Bargaining would be within cabinets in the first case, and with parliament in the second one. Empirical evidence about the effects of fragmentation on deficit is not conclusive. In a seminal paper, Roubini and Sachs (1989) defined an index of power dispersion with four categories and progressively higher scores: one-party majority incumbent, small coalition, large coalition, and minority government. With national data from OECD countries, they found that the variable was significant in deficit regressions, showing that fragmentation was positively correlated with deficit. While this result was

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<sup>7</sup> Procedures directly aimed at bypass fiscal constraints by reducing recorded expenditures or increasing receipts artificially are set aside in what follows. Reviglio (2001) analyzes this kind of strategies in the Italian case.

confirmed by Grilli et al (1991), Edin and Ohlsson (1991) found that the correlation was basically due to minority governments and not coalitions. Moreover, De Haan and Sturm (1994) rejected that minority governments involve higher deficits. Since then, several papers have tried to define and utilize different measures of political fragmentation with no conclusive results. For instance, while Volkerink and De Haan (2000) showed that the number of parties in the cabinet is correlated positively with higher deficits, Feld and Kirchgässner (1999) found no correlation for a sample of Swiss municipalities and using public debt per taxpayer as explained variable. And it was the same in the case of Kontopoulos and Perotti (1999), using data on deficits from OECD countries. On the contrary, they found that “executive fragmentation”, proxied by the number of spending ministers, is highly significant. Things become more complex if elements of direct democracy come into play, as shown by Feld and Kischgässner (1999). In those jurisdictions where voters participate in the budgetary process by means of referenda on budget deficits, the level of debt tends to be lower. According to authors, it is a consequence of a reduction in the problem of a “fiscal commons”<sup>8</sup>, and it shows that voters care more about fiscal discipline than politicians. What should be then the expected effect of political fragmentation on deviations in initial deficit? With respect to one-party majority cabinets, both minority cabinets and the main party in coalition cabinets must make more promises as the price to pay for temporary or permanent backings. Therefore, promises and forecasted deficit would be more consistent in the case of the former, which involves lower budgetary deviations. Direct democracy would influence on deviations only if it involves more consistency between promises and forecasted deficits.

4. According to the literature on political business cycles, incumbents may have incentives to behave differently in election years. As remarked by Blais and Nadeau (1992), political-induced cycles are consistent with rational forward-looking behavior under different provisos: asymmetric information between voters and the incumbent, rational ignorance among voters or uncertainty over the outcome of a ballot. Moreover, Baleiras

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<sup>8</sup> “The problem of a fiscal commons consists in the fact that each of the  $n$  agents uses the whole stock of resources and not one- $n$ th of it as a basis for consumption or spending decisions” (Feld and Kirchgässner, 1999).



and Da Silva (2003) show that political business cycles may be explained using an equilibrium perfect-foresight model, which totally dispenses with any form of irrationality on the part of voters, but is focused on the incumbent's concern with her own welfare in cases of victory and defeat. Seminal paper by Nordhaus (1975) on political business cycle and most of empirical works with national data concentrate in government actions to manipulate macroeconomic outcomes such as unemployment, inflation, and economic growth (Frey, 1997). On the contrary, Blais and Nadeu (1992) focused on electoral cycles in government budgets. They argue that it is easier to manipulate budgets than macroeconomic performance. In our paper attention is paid to deviations from forecasted figures due to electoral cycles. The hypothesis to be tested is that promises and forecasted deficit would be more consistent in non-election years, which involves lower upward deviations in deficits.

5. Ideology could also make a difference for deviations in forecasted deficits. While there exists a number of empirical works showing that left wing cabinets are more prone to high spending and taxes, evidence on the relationship between ideology and the size of actual deficit is not conclusive (Hahm et al, 1995; Tavares, 2004; Castells et al, 2004). However, Mulas (2003) finds that left wing incumbents are more reluctant to cut public investment and employment, which may be relevant for the aim of this paper. If changing tax legislation during the fiscal year were difficult, an unforeseen expansive shock on one expenditure function would have asymmetric effects on deficit deviations. For left wing cabinets, the shock would be translated less into expenditure cuts in other functions and more into an upward deviation in deficit. Deviation to be compensated in next budget years if uncorrelation between ideology and deficit size wants to be held. On the other hand, voters might judge right wing and left wing governments differently. According to empirical evidence provided by Lowry et al (1998: 759): "Republican gubernatorial candidates lose votes if their party is responsible for unanticipated increases in the size of the state budget; Democrats do not and indeed they may be rewarded for small increases".

6. Budget deviations should be negatively correlated with the degree of *ex post* political control on incumbent's performance. In this sense, several factors should be taken into account. The role played by the political opposition denouncing the break of promises and budget deviations is obviously important. And this task will be favored by budgetary rules requiring detailed parliamentary control on deviations and actual budgets. Jurisdiction sizes could also be relevant for political control. Although classical literature on fiscal federalism traces a positive relationship between decentralization and accountability, Boadway (2000) points out that empirical evidence does not clearly show that lower levels of government were more accountable to their electorates<sup>9</sup>. Moreover, and given that the glare of media publicity is more often directed at bigger jurisdictions, the opposite could be argued. Therefore the sign of this relationship is undetermined.

### III. SAMPLE AND DATA

De Haan et al (1999) show a number of indicators on budgetary institutions for all UE-12 countries at the beginning of the 1990s. Some of them are reproduced in table 1<sup>10</sup>. Spain was the European country with the lowest total score ( $A_{tot}$ ), which means the softest budgetary institutions, and one of the lowest regarding flexibility in execution of budget (A4). Moreover, the autonomy of Spanish subcentral governments in terms of planning and balanced-budget requirements (A5) is one of the highest. The sum of A5 and A6 drives Spain to the last place.

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<sup>9</sup> This statement might change when the possibility of referenda on fiscal affairs is taking into account. If referenda increase the accountability of policy decisions, as suggested by Feld and Kirchsgassner (1999), and referenda are easier to implement in small jurisdictions, correlation between size and accountability would be actually negative.

<sup>10</sup> Items are defined in the following way. A5 refers to presence of cash limits, transfers between chapters, changes in budget law during execution, and carryover of unused funds to the next year. A6 is the score on two items: whether subcentral governments face some kind of balanced-budget requirement, and the degree of planning autonomy of subcentral authorities. The higher the autonomy the lower the score in A6.  $A_{tot}$  is the sum of variables A1 to A6, where A1 to A4 refers to other aspects of the budgetary process (position of minister of finance, transparency of the budget, and so on).

The real use of potential flexibility by Spanish governments has been highly significant. The case study carried on by Barea (1998) on expenditures made by the central government during the period 1983-1995 reveals significant deviations from initial budgets. According to estimates by González-Páramo (2001), departures from forecasted expenditures were on average +12.3% (1985-1989), +8.5% (1990-1995), and +6.4% (1996-2000)<sup>11</sup>. Regional and local governments were subject to similar budgetary rules and deviations were also significant (Valiño, 1999; De Pablos and Valiño, 2000).

Table 1: Aspects of Budgetary Institutions at the Beginning of the 1990s

Indicator	A5	A6	A5+A6	A <sub>tot</sub>
Belgium	1.80	1.33	3.13	7.18
Denmark	2.60	2.67	5.27	15.08
France	3.13	3.33	6.46	20.23
Germany	2.82	2.00	4.82	15.26
Greece	2.90	2.67	5.57	9.88
Ireland	3.00	0.00	3.00	8.35
Italy	0.25	1.33	1.58	7.03
Luxemburg	2.67	0.67	3.34	13.06
Netherlands	0.33	2.00	2.33	14.38
Portugal	2.67	0.00	2.67	8.38
<b>Spain</b>	<b>1.53</b>	<b>0.00</b>	<b>1.53</b>	<b>6.33</b>
United Kingdom	2.93	2.66	5.59	17.24

Source: De Haan et al (1999)

Both forecasted and actual deficits were possible for local governments during the eighties and nineties in Spain<sup>12</sup>. With no access to issue money, the instrument to finance unbalances is borrowing. As pointed out by Monasterio and Suárez-Pandiello (2002), limiting indebtedness involves then limiting the size of the possible deficit<sup>13</sup>. Besides, the strategy of keeping spending and deficit off budget has been also implemented as in the rest of fiscal tiers. As a consequence, off-budgeting debt of local governments has grown steadily. From 2.9% of total in 1985, to 9.0% in 1995, and 9.4% in 1998 (Monasterio and Suárez-Pandiello, 2002).

<sup>11</sup> In terms of Spanish GDP: 2.5%, 1.9%, and 1.4%, respectively.

<sup>12</sup> Things have significantly change since 2002, with a much more stringent regulation on public deficit, affecting to all fiscal tiers. See González-Páramo (2001).

<sup>13</sup> Monasterio and Suárez-Pandiello (2002) and Vallés et al (2003) analyze regulation of local borrowing in Spain.

Regarding to the *ex post* control on local budgets, both forecasted and actual budgets must be discussed and passed by the council, and voters may directly express reservations through legal channels. With some exceptions established by law, deviations on initial budgets during the budget year should also be previously passed by the council. Additionally, actual budgets must be sent to the Spanish public audit office (“*Tribunal de Cuentas*”) after passed by the council<sup>14</sup>. However, some clues show that the *ex post* control of budgets is clearly imperfect.

According to the analysis by De Pablos and Valiño (2000) over the period 1986-1992, Spanish local governments made extensive use of gimmicks to escape from controls on budget modifications carried on during budget year. Secondly, around 25% of municipalities on average did not sent actual budgets to be audited. Thirdly, there were lags of several years (more than five, sometimes) between the end of a budget year and the publication of corresponding public audit reports. Fourthly, failures to comply with legislation are significantly higher in small municipalities (under 5000 inhabitants), seemingly because of deficient human and material resources. Lastly, those characteristics apply for municipalities in all Spanish regions.

In sum, Spanish municipalities met the conditions identified in the introduction and therefore they are suitable to test relationships pointed out in section two.

The sample used in econometric estimates corresponds to all Galician municipalities observed from 1985 to 1995. While heterogeneity concerning budget procedures or control practices is clearly reduced when attention is paid to just one country, using information from just one region should be justified. Firstly, available information at the local level is not homogeneous between regions. Difficulties to build a wide and accurate database significantly increase when municipalities from several regions want to be taken into account. Secondly, homogeneity between municipalities in terms of legal requirements on

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<sup>14</sup> In some Spanish regions, local governments must send actual budgets to corresponding regional government and regional audit office. In all cases, fiscal year starts on 1 January.

actual budgets is guaranteed<sup>15</sup>. Panel data is unbalanced due to the lack of information on both initial and actual budgets in a number of cases (Table 2). Data Source is the Galician regional government (*Xunta de Galicia*). Variables used in empirical work are defined in table 3. All endogenous variables are weighted by forecasted non-financial expenditures and expressed in percentage. Using non-financial forecasted revenues instead of expenditures did not change econometric results. Finally, table 4 synthesizes the distribution of the endogenous variable *DEV*D and table 5 reports descriptive statistics of regressors.

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<sup>15</sup> Galicia is one of the Spanish regions where legislation compels municipalities to send actual budgets to regional government and regional audit office since 1985.

Table 2: Sample description

NUMBER OF OBSERVATIONS	NUMBER OF MUNICIPALITIES	% OF MUNICIPALITIES
1	3	1.0%
3	5	1.6%
5	3	1.0%
6	6	1.9%
7	10	3.2%
8	20	6.4%
9	41	13.1%
10	104	33.2%
11	121	38.7%
	313	100.0%

Table 3: Definition of variables and data sources

NAME	DEFINITION	DATA SOURCE
$E_A$	Actual non-financial expenditures	Xunta de Galicia ( <a href="http://www.xunta.es">www.xunta.es</a> )
$E_F$	Forecasted non-financial expenditures	Xunta de Galicia
$R_A$	Actual non-financial revenues	Xunta de Galicia
$R_F$	Forecasted non-financial revenues	Xunta de Galicia
$D_A = E_A - R_A$	Actual deficit	Xunta de Galicia
$D_F = E_F - R_F$	Forecasted deficit	Xunta de Galicia
DEVD	$\frac{(D_A - D_F)}{E_F} \cdot 100$	Xunta de Galicia
DEVE	$\frac{(E_A - E_F)}{E_F} \cdot 100$	Xunta de Galicia
DEVR	$\frac{(R_A - R_F)}{E_F} \cdot 100$	Xunta de Galicia
MA	It values 1 in the case of one-party majority incumbents and 0 otherwise	Ministerio del Interior ( <a href="http://www.elecciones.mir.es">www.elecciones.mir.es</a> )
P	Population expressed in thousands of inhabitants	INE ( <a href="http://www.ine.es">www.ine.es</a> )
CY	It values 1 in electoral years (1987, 1991, and 1995) and 0 otherwise*	---
LEFT	It values 1 for left wing cabinets and 0 otherwise	Ministerio del Interior
ST	$N - N^*$ where N is the number of seats of the main incumbent party and $N^*$ is the threshold for absolute majority	Ministerio del Interior

\*According to the Spanish electoral law, local elections are held on the last Sunday of May. Budget year starts on 1 January. Incumbents must present forecasted budgets to the council before 15 October.

Table 4: Distribution of DEVD

DEVIATION IN DEFICIT	NUMBER OF OBSERVATIONS	%
DEVD < -50%	24	0.8%
-50% < DEVD ≤ -25%	147	4.8%
-25% < DEVD ≤ -10%	536	17.6%
-10% < DEVD ≤ -5%	418	13.8%
-5% < DEVD < 0%	582	19.2%
DEVD = 0%	5	0.2%
0% < DEVD ≤ 5%	545	17.9%
5% < DEVD ≤ 10%	310	10.2%
10% < DEVD ≤ 25%	341	11.2%
25% < DEVD ≤ 50%	96	3.2%
DEVD > 50%	35	1.2%
<b>TOTAL OBSERVATIONS</b>	<b>3039</b>	<b>100.0%</b>
<b>TOTAL DEVD &lt; 0%</b>	<b>1707</b>	<b>56.2%</b>
<b>TOTAL DEVD &gt; 0%</b>	<b>1327</b>	<b>43.7%</b>
<b>MEAN DEVD</b>	<b>-1.3 %</b>	

Table 5: Descriptive statistics of regressors

REGRESSOR	MEAN	STANDARD DEVIATION
MA	0.68	DUMMY (0/1)
CY	0.26	DUMMY (0/1)
LEFT	0.23	DUMMY (0/1)
MA*ST	1.1	1.4
(1-MA)*ST	-0.7	1.4
P	9.6	24.6

#### IV. ECONOMETRIC ESTIMATES

The basic econometric specification is the following:

$$DEVD_{it} = \beta_{0i} + \beta_1 \cdot MA_{it} + \beta_2 \cdot CY_t + \beta_3 \cdot LEFT_{it} + \varepsilon_{it} \quad [1]$$

Total effects of explicative variables on *DEVD* may be twofold decomposed, by using as endogenous variable actual and forecasted deficits or, alternately, deviations in expenditures and revenues. All of them are weighted by initial expenditures and expressed in percentage:

$$DEVD = \left( \frac{D_A}{E_F} \cdot 100 \right) - \left( \frac{D_F}{E_F} \cdot 100 \right) = \left( \frac{(E_A - E_F)}{E_F} \cdot 100 \right) - \left( \frac{(R_A - R_F)}{E_F} \cdot 100 \right) = DEVE - DEVR$$

Estimates of [1] are reported in table 6. A Wald test on the need of individual effects was carried on. The hypothesis of homogeneity of intercepts should be clearly rejected (p-value=0.000). Moreover, the Hausman test for random versus fixed effects showed that the latter were a better choice (p-value=0.009).

Multicollinearity and serial autocorrelation are not problematic. Multiple correlations among regressors are relatively low. Assuming a common AR(1) process with the same  $\rho_i$  and using OLS residuals ( $e_i$ ), the following consistent estimator for panel data

was estimated:  $\hat{\rho} = \frac{\sum_{i=1}^n \sum_{t=2}^t e_{it} \cdot e_{it-1}}{\sum_{i=1}^n \sum_{t=2}^t e_{it}^2} = -0.11$ . The hypothesis of common autocorrelation

coefficients was verified by using an appropriated Wald test. Clearly, stationarity of residuals may not be rejected.

On the contrary, the White test and the Brown-Forsythe test of equal variances in each subgroup of OLS residuals detected general heterocedasticity and cross-section heterocedasticity, respectively (p-value=0.00 in both cases). Moreover, the carrying out of a



LM test revealed the presence of contemporaneous correlations<sup>16</sup>, which were not removed by including time fixed effects into regressions.

The variance estimator proposed by White (1980) is robust to heteroscedasticity within each cross-section, but does not account for contemporaneous cross-section correlations. And there are a number of pitfalls associated with the application of SUR weighted least squares (sometimes referred to as the Parks estimator) with a small number of time periods as in this case (Beck et al, 1993; Beck and Katz, 1995; Beck, 2001). For that reason, these authors propose to retain OLS parameter estimates, replacing the OLS standard errors with panel-corrected standard errors (PCSE). The new covariance matrix is the following, where covariances  $\sigma_{ij}$  are calculated by using OLS residuals:

$$Var(\hat{\beta}) = \left( \sum_{i=1}^n X_i' X_i \right)^{-1} \left( \sum_{i=1}^n \sum_{j=1}^n \sigma_{ij} X_i' X_j \right) \left( \sum_{i=1}^n X_i' X_i \right)^{-1} \quad [2]$$

Tables 6 and 7 report p-values corresponding to robust t-statistics.

With the aim of checking the robustness of results, several possibilities have been explored. Firstly, different subsamples were used. In rows 1, 2, and 4 to 9 of table 7 estimates of table 6 are replicated excluding observations from municipalities with more of 50% of missing values<sup>17</sup>, and deviations in deficit over 50% in absolute value. The aim of this change is to test the sensibility of results to extreme values. The sample size is reduced by 3%. Moreover, using a much more stringent criteria, in row 3 observations from municipalities with more than 50% of missing values and deviations in deficit over 10% in absolute value are excluded in row 3, involving a cut of 40% in the sample size. Secondly, time fixed effects are included in row 2 of tables 6 and 7<sup>18</sup>. To avoid perfect multicollinearity, four dummies were dropped (D1985, and those corresponding to electoral years: D1987, D1991, and D1995).

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<sup>16</sup>  $\lambda_{LM} = T \sum_{i=2}^n \sum_{j=1}^{i-1} r_{ij}^2$  where  $r_{ij}^2$  are squared correlations among FGLS residuals See Greene (1997). Because

the panel is unbalanced, the number of individual observations ( $T$ ) is proxied by the average. Serial correlation holds when using a balanced panel of municipalities with full information.

<sup>17</sup> Estimating covariances  $\sigma_{ij}$  was especially problematic in those cases.

Results shown in rows 1 to 5 in table 6 and 7 may be synthesized as follows:

1. Deviations in deficit are lower in the case of one-party majority governments (*MA*). This result is supported by all estimates. On the contrary, distances with respect to majority thresholds are not statistically significant. In the row 3 of table 6 variable *MA* is dropped and interactions *MA\*ST* and *(1-MA)\*ST* are simultaneously included. While the former is not significant, the coefficient of the latter is negative and marginally significant (p-value=0.17). Taking into account that  $(1 - MA) * ST \leq 0$ , it would mean that the lower the political support enjoyed by no single-party majority incumbents the higher the probability of deviation in deficit. In order to avoid multicollinearity between both interactive terms<sup>19</sup>, in rows 4 and 5 of table 6 they are incorporated alternately. Results hold. However, this conclusion is challenged by results shown in row 5 of table 7. Once extreme values are withdrawn, p-value rise dramatically (p-value=0.50).
2. Deviations in deficit are higher in electoral years. While *CY* is only marginally significant in rows 1 to five of table 6, it is significant at usual levels when extreme values are set aside (rows 1 to 5 of table 7). Being 1985 the reference year, all significant time dummies –except D1988 in table 6– have negative coefficients.
3. Ideology (*LEFT*) is not relevant to explain deviations in deficit. Corresponding p-values are very high in both tables.
4. Population has been excluded from estimates because it varies very little over time and it is then highly correlated with individual fixed effects. Hence its influence on the explained variable was estimated very imprecisely. In order to cast any light about this relationship, in row 1 of table 6 individual fixed effects were replaced by variable *P*. Its coefficient was negative and significant at 5% level<sup>20</sup>. Moreover, estimated fixed effects were regressed on population averages over time. Again, the corresponding coefficient was negative, although only marginally significant. On the other hand, population size

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<sup>18</sup> For this purpose a set of dummy variables are defined: D19XX values 1 in 19XX and 0 otherwise.

<sup>19</sup> Regressing one interactive term on the other yields a  $R^2$  over 0.60.

<sup>20</sup> 10% in the case of row 1 in table 7.

was negatively correlated to the size of OLS residuals from row 1 of table 6 expressed in absolute values, which would explain the existence of cross-section heterocedasticity.

Estimates shown in rows 6 to 9 in tables 6 and 7 try to cast additional light on the mechanisms explaining deviations. Endogenous variable is replaced by actual and forecasted deficit (rows 6 and 7), and deviations in expenditures and revenues (rows 8 and 9). Results show that:

1. Lower deviations in deficit in the case of single-party majority governments are explained by the combination of higher forecasted deficits and lower actual deficits. On the other hand, upward deviations in forecasted revenues are higher in the case of single-party majority governments, which might be interpreted as signal of more prudence in revenue forecasts.
2. Electoral cycle does not affect forecasted deficit or deviations in expenditures. On the contrary, it rises actual deficits and boosts downward deviations in revenues.
3. Ideology does not seem to be related to the size of both forecasted and actual deficit. However, left wing incumbents are more prone to upward deviations in both expenditures and revenues. It might be interpreted as a more active role of left wing incumbents in the budget implementation phase.

In sum, upward deviations in deficits are higher in the case of single-party majority governments, electoral years, and smaller municipalities. Moreover, variability of deviations –negative and positive- is negatively correlated to population size. On the contrary, the effect of ideology on deviations in deficit is scarcely relevant according to our estimates. And passing the threshold of absolute majority in the case of one single party seems much more relevant than the fragmentation of ruling coalitions or the strength of majorities.

Table 6: Econometric estimates of equation [1]

Explained variable	DEVD	DEVD	DEVD	DEVD	DEVD	$\frac{D_A}{E_F} \cdot 100$	$\frac{D_F}{E_F} \cdot 100$	DEVE	DEVR
MA	-2.48 [0.028]	-2.03 [0.057]				-1.48 [0.14]	1.00 [0.10]	0.70 [0.57]	3.18 [0.010]
CY	3.12 [0.21]	0.93 [0.15]	3.40 [0.18]	3.35 [0.19]	3.40 [0.18]	3.70 [0.098]	0.58 [0.66]	0.80 [0.68]	-2.32 [0.28]
LEFT	-0.98 [0.45]	-0.48 [0.71]	-0.99 [0.46]	-0.71 [0.57]	-1.00 [0.46]	0.49 [0.66]	1.47 [0.18]	4.40 [0.003]	5.38 [0.000]
MA*ST			0.06 [0.85]	-0.11 [0.70]					
(1-MA)*ST			-0.54 [0.17]		-0.53 [0.16]				
D1986		-1.61 [0.017]							
D1988		2.29 [0.006]							
D1989		0.82 [0.27]							
D1990		-5.61 [0.000]							
D1992		-11.30 [0.000]							
D1993		-0.51 [0.49]							
D1994		-0.62 [0.44]							
R <sup>2</sup>	0.166	0.198	0.142	0.141	0.142	0.131	0.219	0.358	0.361
Sample Size	3039	3039	3039	3039	3039	3039	3039	3039	3039

Notes: Individual fixed effects are included in all cases. Equations are estimated by OLS. Below coefficients appear p-values corresponding to robust t-statistics calculated using equation [2]. R<sup>2</sup> is the coefficient of determination.

Table 7: Econometric estimates of equation [1]. Limited samples

Explained variable	DEVD	DEVD	DEVD*	DEVD	DEVD	$\frac{D_A}{E_F} \cdot 100$	$\frac{D_F}{E_F} \cdot 100$	DEVE	DEVR
MA	-1.86 [0.037]	-1.63 [0.047]	-1.17 [0.002]			-1.33 [0.15]	0.52 [0.29]	0.51 [0.68]	2.37 [0.024]
CY	3.95 [0.069]	1.51 [0.004]	1.61 [0.000]	3.92 [0.073]	3.94 [0.071]	3.70 [0.075]	-0.34 [0.73]	0.93 [0.59]	-3.02 [0.17]
LEFT	-0.04 [0.97]	0.23 [0.82]	-0.67 [0.26]	0.21 [0.83]	0.24 [0.81]	0.03 [0.97]	0.01 [0.92]	5.09 [0.000]	5.13 [0.000]
MA*ST				0.10 [0.72]					
(1-MA)*ST					-0.17 [0.50]				
D1986		-0.97 [0.11]							
D1988		0.14 [0.81]							
D1989		-1.39 [0.023]							
D1990		-7.18 [0.000]							
D1992		-9.87 [0.000]							
D1993		-0.23 [0.66]							
D1994		0.55 [0.32]							
R <sup>2</sup>	0.137	0.189	0.196	0.136	0.136	0.139	0.238	0.358	0.387
Sample Size	2947	2947	1841	2947	2947	2947	2947	2947	2947

Notes: Individual fixed effects are included in all cases. Equations are estimated by OLS. Below coefficients appear p-values corresponding to robust t-statistics calculated using equation [2]. R<sup>2</sup> is the coefficient of determination. Estimates exclude observations from municipalities with more of 50% of missing values and deviations in deficit over 50% in absolute value.

\*Excluding observations from municipalities with more than 50% of missing values and deviations in deficit over 10% in absolute value.

## V. CONCLUSIONS

Flexibility in execution of public budgets is a necessary condition for deviations in forecasted deficits. But it is not a sufficient explanation. In fact, significant differences between governments subject to the same budget procedures may be observed. The main conclusion of this paper is that politics matter when explaining those differences. In particular, we have shown the relevance of the incumbent's political strength and the electoral cycle.

Upward deviations in forecasted deficits are higher in the case of single-party majority governments, electoral years, and smaller municipalities. Moreover, variability of deviations –both negative and positive- is negatively correlated to population size. This result might be explained by technical capacity of officials assuming that it rises with jurisdiction size.

On the other hand, the effect of ideology on deviations in deficit is scarcely relevant according to our estimates. And passing the threshold of absolute majority in the case of one single party seems much more relevant than the fragmentation of ruling coalitions or the strength of majorities.

Therefore, the positive relationship between flexibility in budget procedures and actual budgets found in empirical papers on the determinants of public deficits also depends on political factors. As it has been suggested in those works, restraining flexibility in execution of budget would then be a way to reduce systematic upward deviations. But it may be not enough, due to the imagination shown by many governments finding out gimmicks to escape from controls on budget modifications. While there is empirical evidence supporting that direct democracy reduces observed actual deficits, our paper shows that reinforcing *ex post* control on budgets may be another way towards fiscal consolidation.

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