EXPLAINING BUDGETARY INDISCIPLINE: EVIDENCE FROM SPANISH MUNICIPALITIES (*)

Authors: Ignacio Lago-Peñas (a)
Pompeu Frabra University
Santiago Lago-Peñas (b)
University of Vigo
P. T. N.° 21/04

(*) This paper has been funded by the Instituto de Estudios Fiscales (www.eif.es). Research assistance by Víctor Montes is acknowledged. A preliminary version was presented at the 44th ERSA Congress (Porto, 2004).

(a) Pompeu Fabra University. Spain. Email: ignacio.lago@upf.edu.

(b) Postal address: Facultade de Ciencias Empresariais. Campus Universitario. 32004 Ourense. Spain. Email: slagop@uvigo.es.

N.B.: Las opiniones expresadas en este trabajo son de la exclusiva responsabilidad de los autores, pudiendo no coincidir con las del Instituto de Estudios Fiscales.

INDEX

I. INTRODUCTION

II. THEORETICAL ARGUMENTS

III. SAMPLE AND DATA

IV. ECONOMETRIC ESTIMATES

V. CONCLUSIONES

REFERENCES
ABSTRACT

The search for political support leads ultimately to upward deviations from forecasted public deficits when i) budget procedures are soft, ii) breaking promises made on higher expenditures and the lowering of taxes is costly in political terms, and iii) ex-post control by voters and political opposition is imperfect. This hypothesis is tested using a data set from Spanish municipalities during the period 1985-1995. Econometric estimates demonstrate 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 incumbent’s ideology is not relevant when explaining deviations in deficit.

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

JEL Classification: H74.
I. INTRODUCTION

Empirical research on the determinants of public deficits takes actual and not initial or forecasted figures as the endogenous variable. This choice is normally justified for practical reasons: deviations from initial deficits vary in both cross-section and time-series dimensions, distorting econometric estimates. Deviations are then merely perceived as noise. But this strategy conceals some striking questions. What can explain deviations? Why large upward deviations are observed in certain cases but not in others? Moreover, the influence on actual deficits of some political factors such as the electoral cycle, political fragmentation, and ideology may be better understood by treating deviations in deficits as a separate endogenous variable. As will be shown, interactions between the political promises made by the incumbent, budget procedures\(^1\), reputation, 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 a reputation investment for governments, whose benefits depend positively on the degree of ex post control done by voters and the political opposition. Conversely, promises breaking will be costly in the future. Therefore, the tighter 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\(^2\). Hence consistency between forecasted deficits and promises involving higher spending or lower taxes will tend to be challenged when the latter are more generous, which boosts future deviations in the former. Of course, underestimating forecasted deficit does 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 with the need of political support. Coalitions or sporadic backings to minority cabinets involve

\(^1\) As Alesina and Perotti (1999) state, both concepts of “budgetary institutions” and “budget procedures” refer to rules and regulations affecting the preparation, approval and implementation of budgets. In this paper, attention is concentrated on the last phase, insofar as we are interested in explaining deviations from initially approved budgets.

\(^2\) According to empirical evidence presented by Alesina et al (1998), fiscal adjustments do not seem to involve cabinet turnover or negative judgements in polls. One possible explanation for this result would be the following: The current incumbent is not considered responsible for current levels of deficit and debt, but 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 cost.
bargaining and concessions in order to persuade the 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 fiscal 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.

Interaction between these mechanisms is tested using data from Spanish municipalities over the period 1985-1995. The choice of this sample is justified for several reasons. Firstly, Spanish municipalities enjoyed a great freedom for getting 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 non-severe.

This paper is organized into 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

Fiscal promises of boosting spending programmes, cutting tax rates and incrementing tax deductions increases popularity and political support to incumbents. If, as usual, voters and other political parties are not simultaneously informed of the way of financing them, looking at forecasted budgets is the only way of knowing if promises are consistent from a financial standpoint. In particular, large forecasted deficits may fuel 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 the financial difficulties of achieving them\(^3\).

Obviously, voters and political parties are not interested in just listening to fiscal promises and regarding forecasted deficits. Both implementation of the former and actual deficits are relevant in maintaining the reputation of cabinets. In this sense, several questions must be asked in order to understand the step from promises and forecasted deficits to performance and actual deficits.

\(^3\) Milesi-Ferreti (1997) makes a similar argument. When talking about promises in general, previous work 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 mobilizes ecology 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.
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. If incumbents anticipate voters will not only pay attention to their past policies, but also to their new promises, they must be also concerned about being seen as credible (Manin, Przeworski and Stokes, 1999). Adhering to promises would then be an investment in reputation.

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

Thirdly, the probability of deviations from fiscal promises and initial deficit lessens 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 planning and passing initial budgets if uncontrolled 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 forecasted deficits (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). All these relationships are synthesized in figure 1.

**Figure 1**

**FISCAL PROMISES AND UPWARD DEVIATIONS IN DEFICITS**

```
<table>
<thead>
<tr>
<th>POPULARITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>GENEROUS FISCAL PROMISES</td>
</tr>
<tr>
<td>LOW FORECASTED DEFICIT</td>
</tr>
<tr>
<td>SOFT BUDGET PROCEDURES</td>
</tr>
<tr>
<td>BAD PERFORMANCE</td>
</tr>
<tr>
<td>BAD REPUTATION</td>
</tr>
<tr>
<td>UPWARD DEVIATIONS</td>
</tr>
<tr>
<td>IN FORECASTED DEFICITS</td>
</tr>
<tr>
<td>NO CREDIBLE EXCUSES</td>
</tr>
<tr>
<td>TIGHTER EX POST CONTROL</td>
</tr>
</tbody>
</table>
```
In sum, politicians face a dilemma. They may choose less upward deviations in forecasted deficits and the breaking of promises at the price of less generosity in fiscal promises. Or they may choose more generosity in the latter at the price of more upward deviation in deficits and the breaking of promises. The first strategy involves more popularity and political support \( \text{ex ante} \), but also the risk of a worse reputation \( \text{ex post} \), provided that performance was controlled and excuses were not completely convincingly. The second one is less popular \( \text{ex ante} \) but yields a better reputation \( \text{ex post} \).

Focusing on deviations in deficits, what is there to explain differences among governments and across the breadth of time? Six mechanisms are suggested:

1. 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\(^4\). In this sense, there are a number of papers demonstrating a negative correlation between flexibility in budget execution and 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 the United States, the most effective limitation to deficit arises in those states with budget rules requiring an \( \text{ex post} \) balancing with no carry-forward provisions. Balanced-budget rules applied on \( \text{ex ante} \) figures are therefore clearly less stringent owing to the possibility of deviations (Inman, 1996; Boothe and Reid, 1998).

2. Budget deviations should be negatively correlated with the degree of \( \text{ex post} \) political control on the 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 favoured 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\(^5\). Moreover, and given that

\(^4\) 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.

\(^5\) This statement may change when the possibility of referenda on fiscal affairs is taken into account. If referenda increases the accountability of policy decisions, as suggested by Feld and Kirchsgassner (1999), and referendas are easier to implement in small jurisdictions, correlation between size and accountability would be actually negative.
the glare of media publicity is more often directed at bigger jurisdictions, the opposite may be argued. Therefore the sign of the relationship is undetermined.

3. 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, correct answers on average. 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 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 the 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.

4. 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. Empirical evidence on 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 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 the idea 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

---

6 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.
with higher deficits, Feld and Kirchgässner (1999) found no correlation for a sample of Swiss municipalities and using public debt per taxpayer as the 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 the authors, it is a consequence of a reduction in the problem of a “fiscal commons” 7, 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. Deviations would be influenced by direct democracy only if it involves more consistency between promises and forecasted deficits.

5. 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 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 for his own welfare in cases of victory and defeat. Seminal paper by Nordhaus (1975) on the political business cycle and most of empirical works with national data concentrate on government actions to manipulate macroeconomic outcomes such as unemployment, inflation, and economic growth (Frey, 1997). On the contrary, Blais and Nadeau (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

---

7 “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-nth of it as a basis for consumption or spending decisions” (Feld and Kirchgässner, 1999).
that promises and forecasted deficit would be more consistent in non-
election years, involving lower upward deviations in deficits.

6. Ideology could also make a difference for deviations in forecasted deficits. While there exists a number of empirical works showing that leftist 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 leftist incumbents are more reluctant to cut public investment and employment, which may be relevant to 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 leftist 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 proximate budget years if uncorrelation between ideology and deficit size wants to be held. On the other hand, voters might judge rightist and leftist 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”.

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 18. Spain was the European country with the lowest total score (A_{tot}), which means the softest budgetary institutions. In particular, flexibility in execution of budget (A5) is very high and 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 last place.

The real use of potential flexibility by Spanish governments has been highly significant. The case study carried out by Barea (1998) regarding expenditures made by the central government during the period 1983-1995 reveals significant

---

8 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).
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). Regional and local governments were subject to similar budgetary rules and deviations were also significant (Valiño, 1999; De Pablos and Valiño, 2000).

Table 1

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


Both forecasted and actual deficits were possible for local governments during the eighties and nineties in Spain. 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. 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).

Regarding the ex post control on local budgets, both forecasted and actual budgets must be discussed and passed by the council, and voters may directly ex-
press 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 being passed by the council. 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 out during budget year. Secondly, around 25% of municipalities on average did not send 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 5,000 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 in building 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 actual budgets is guaranteed. Panel data is unbalanced due to the lack of information on both initial and actual budgets in a number of cases and votes of censures. According to data gathered by Márquez (2004), 53 observations have been be dropped due to changes of incumbents during the term of office. Data Source of financial data is the Galician regional government (Xunta de Galicia). Data source of political data is the Ministerio del Interior (www.mir.es). Variables used in empirical work are defined in table 2. 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. Table 3 synthesizes the distribution of the endogenous variable DEVD and table 4 reports descriptive statistics of regressors.

12 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.
13 Galicia is one of the Spanish regions where legislation compels municipalities to send actual budgets to regional government and the regional audit office since 1985.
### Table 2

**DEFINITION OF VARIABLES AND DATA SOURCES**

<table>
<thead>
<tr>
<th>Name</th>
<th>Definition</th>
<th>Data source</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA</td>
<td>Actual non-financial expenditures</td>
<td>Xunta de Galicia (<a href="http://www.xunta.es">www.xunta.es</a>)</td>
</tr>
<tr>
<td>EF</td>
<td>Forecasted non-financial expenditures</td>
<td>Xunta de Galicia</td>
</tr>
<tr>
<td>RA</td>
<td>Actual non-financial revenues</td>
<td>Xunta de Galicia</td>
</tr>
<tr>
<td>RF</td>
<td>Forecasted non-financial revenues</td>
<td>Xunta de Galicia</td>
</tr>
<tr>
<td>DA</td>
<td>$E_A - R_A$</td>
<td>Xunta de Galicia</td>
</tr>
<tr>
<td>DF</td>
<td>$E_F - R_F$</td>
<td>Xunta de Galicia</td>
</tr>
<tr>
<td>DEVD</td>
<td>$\frac{D_A - D_F}{E_F} \cdot 100$</td>
<td>Xunta de Galicia</td>
</tr>
<tr>
<td>DEVE</td>
<td>$\frac{E_A - E_F}{E_F} \cdot 100$</td>
<td>Xunta de Galicia</td>
</tr>
<tr>
<td>DEVR</td>
<td>$\frac{R_A - R_F}{E_F} \cdot 100$</td>
<td>Xunta de Galicia</td>
</tr>
<tr>
<td>MI</td>
<td>It values 0 in the case of one-party majority incumbents and 1 otherwise</td>
<td>Ministerio del Interior (<a href="http://www.elecciones.mir.es">www.elecciones.mir.es</a>)</td>
</tr>
<tr>
<td>P</td>
<td>Population expressed in thousands of inhabitants</td>
<td>INE (<a href="http://www.ine.es">www.ine.es</a>)</td>
</tr>
<tr>
<td>CY</td>
<td>It values 1 in elections years (1987, 1991, and 1995) and 0 otherwise (*)</td>
<td>—</td>
</tr>
<tr>
<td>LEFT</td>
<td>It values 1 for leftist cabinets and 0 otherwise</td>
<td>Ministerio del Interior</td>
</tr>
<tr>
<td>ST</td>
<td>$N-N_{(<em>)}$ where $N$ is the number of seats of the main incumbent party and $N_{(</em>)}$ is the threshold for absolute majority</td>
<td>Ministerio del Interior</td>
</tr>
</tbody>
</table>

(*) According to 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 3

**DISTRIBUTION OF DEVD**

<table>
<thead>
<tr>
<th>Deviation in deficit</th>
<th>Number of observations</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEVD &lt; -50%</td>
<td>23</td>
<td>0.8%</td>
</tr>
<tr>
<td>-50% &lt; DEVD ≤ -25%</td>
<td>144</td>
<td>4.8%</td>
</tr>
</tbody>
</table>

(Keep.)
(Continuation.)

<table>
<thead>
<tr>
<th>Deviation in deficit</th>
<th>Number of observations</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>-25% &lt; DEVD ≤ -10%</td>
<td>526</td>
<td>17.6%</td>
</tr>
<tr>
<td>-10% &lt; DEVD ≤ -5%</td>
<td>409</td>
<td>13.7%</td>
</tr>
<tr>
<td>-5% &lt; DEVD &lt; 0%</td>
<td>568</td>
<td>19.0%</td>
</tr>
<tr>
<td>DEVD = 0%</td>
<td>5</td>
<td>0.2%</td>
</tr>
<tr>
<td>0% &lt; DEVD ≤ 5%</td>
<td>535</td>
<td>17.9%</td>
</tr>
<tr>
<td>5% &lt; DEVD ≤ 10%</td>
<td>309</td>
<td>10.3%</td>
</tr>
<tr>
<td>10% &lt; DEVD ≤ 25%</td>
<td>337</td>
<td>11.3%</td>
</tr>
<tr>
<td>25% &lt; DEVD ≤ 50%</td>
<td>95</td>
<td>3.2%</td>
</tr>
<tr>
<td>DEVD &gt; 50%</td>
<td>35</td>
<td>1.2%</td>
</tr>
<tr>
<td><strong>TOTAL OBSERVATIONS</strong></td>
<td><strong>2986</strong></td>
<td><strong>100.0%</strong></td>
</tr>
<tr>
<td><strong>TOTAL DEVD &lt; 0%</strong></td>
<td><strong>1670</strong></td>
<td><strong>55.9%</strong></td>
</tr>
<tr>
<td><strong>TOTAL DEVD &gt; 0%</strong></td>
<td><strong>1311</strong></td>
<td><strong>43.9%</strong></td>
</tr>
<tr>
<td><strong>MEAN DEVD</strong></td>
<td><strong>-1.22%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Table 4

**DESCRIPTIVE STATISTICS OF REGRESSORS**

<table>
<thead>
<tr>
<th>Regressor</th>
<th>Mean</th>
<th>Standard deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI</td>
<td>0.32</td>
<td>DUMMY (0/1)</td>
</tr>
<tr>
<td>CY</td>
<td>0.25</td>
<td>DUMMY (0/1)</td>
</tr>
<tr>
<td>LEFT</td>
<td>0.23</td>
<td>DUMMY (0/1)</td>
</tr>
<tr>
<td>MI*ST</td>
<td>-0.73</td>
<td>1.34</td>
</tr>
<tr>
<td>P</td>
<td>9.55</td>
<td>24.75</td>
</tr>
</tbody>
</table>

**IV. ECONOMETRIC ESTIMATES**

The basic econometric specification is the following:

\[ \text{DEVD}_{it} = \beta_{0i} + \beta_1 \cdot M_{it} + \beta_2 \cdot C_{it} + \beta_3 \cdot \text{LEFT}_{it} + \beta_4 \cdot \text{ST}_{it} + \epsilon_{it} \]  \[1\]

Total effects of explicative variables on \textit{DEVD} may be decomposed twofoldly, by using as endogenous variable actual and forecasted deficits or, alternatively, deviations in expenditures and revenues. All of them are weighted by initial expenditures and expressed in percentage:
Estimates of [1] are displayed in table 5. A Wald test on the need of individual effects was carried on. The hypothesis of homogeneity of intercepts has to be rejected (p-value = 0.000).

Multicollinearity and serial autocorrelation are not a problem. Multiple correlations among regressors in row 1 are relatively low. On the other hand, assuming a common AR(1) process with the same \( \rho_i \) and using OLS residuals \( (e) \), the following consistent estimator for panel data was estimated:

\[
\hat{\rho} = \frac{\sum_{i=1}^{n} \sum_{t=2}^{T} e_{it} \cdot e_{i(t-1)}}{\sum_{i=1}^{n} \sum_{t=2}^{T} e_{it}^2} = -0.15.
\]

The hypothesis of common autocorrelation coefficients was verified by using a 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 heteroscedasticity and cross-section heteroscedasticity, respectively (p-value = 0.00 in both cases). Moreover, two additional tests were carried on: the Breusch and Pagan’s test of cross-section dependence\(^{14}\), and the simple alternative proposed by Pesaran (2004) for panels with a large cross section dimension\(^{15}\). Both revealed the presence of contemporaneous correlations (p-value = 0.00). It was not removed when time fixed effects were included into regressions.

The variance estimator proposed by White (1980) deals with ordinary not panel heteroskedasticity, and it does not account for contemporaneous cross-section correlations. On the other hand, 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). As a practical solution, those authors suggest retaining OLS parameter estimates (still consistent), replacing standard e-
rors by panel-corrected standard errors (PCSE). The new covariance matrix is the following, where covariances \( \sigma_{ij} \) are calculated by using OLS residuals\(^{16}\):

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

[2]

<table>
<thead>
<tr>
<th>Table 5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ECONOMETRIC ESTIMATES OF EQUATION [1]</strong></td>
</tr>
<tr>
<td>Dependent variable</td>
</tr>
<tr>
<td>MI</td>
</tr>
<tr>
<td>CY</td>
</tr>
<tr>
<td>LEFT</td>
</tr>
<tr>
<td>MI*ST</td>
</tr>
<tr>
<td>D1986</td>
</tr>
<tr>
<td>D1988</td>
</tr>
<tr>
<td>D1989</td>
</tr>
<tr>
<td>D1990</td>
</tr>
<tr>
<td>D1992</td>
</tr>
<tr>
<td>D1993</td>
</tr>
<tr>
<td>D1994</td>
</tr>
<tr>
<td>R²</td>
</tr>
<tr>
<td>Sample Size</td>
</tr>
</tbody>
</table>

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]. R² is the coefficient of determination.

(*) Using subsample defined by the condition MI = 1.

---

\(^{16}\) In the case of no common time periods between panels, \( \sigma_{ij} \) is assumed to be 0.
With the aim of checking the robustness of results, several possibilities have been explored. In rows 1, 2, and 4 to 7 of table 6 estimates of table 5 are replicated excluding observations involving deviations in deficit over 50% in absolute value. The aim of this change is testing the sensibility of results to extreme values. The sample size is reduced by 2%. Moreover, using a much more stringent criteria, observations involving deviations in deficit over 10% in absolute value are excluded in row 3, which means a cut of 39% in the sample size. Secondly, time fixed-effects are included in row 2 of tables 5 and 6 to deal with exogenous common shocks affecting revenues or expenditures\(^ {17}\). In order to avoid perfect multicollinearity, four dummies were dropped (D1985, and those corresponding to elections years: D1997, D1991, and D1995).

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

1. Deviations in deficit are higher in the case of minority and fragmented incumbents. This result is supported by all estimates.

2. Deviations are higher in elections years. While CY is only marginally significant in rows 1 and 3 of table 5, it is highly significant when extreme values are set aside and time fixed effects are included (row 2 of table 5 and rows 1 to 3 of table 6). Moreover, being 1985 the reference year, all significant time dummies in row 2 –except D1988 in table 5– present negative coefficients.

3. Incumbent's ideology (LEFT) is not relevant to explain deviations in deficit. Corresponding p-values are very high in all estimates of tables 5 and 6.

4. Distances with respect to majority thresholds are not statistically significant. To test this hypothesis, interaction MI*ST is used. To avoid multicollinearity between MI and the interaction, in row 3 of table 5 the former is excluded and observations meeting the condition MI = 0 are set aside\(^ {18}\). The corresponding coefficient is scarcely significant (p-value = 0.768).

5. Population has been excluded from estimates because it varies very little over time and 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 on this relationship, in row 1 of table 5 individual fixed effects were replaced by variable P. Its coefficient was negative and significant at 5% level\(^ {19}\). 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 was negatively correlated to the size of OLS residuals from

\(^{17}\) For this purpose a set of dummy variables are defined: D19XX values 1 in 19XX and 0 otherwise.

\(^ {18}\) Regressing one variable on the other yields a $R^2$ around 0.8.

\(^ {19}\) 10% in the case of row 1 in table 6.
row 1 of table 5 expressed in absolute values, which would explain the existence of cross-section heteroscedasticity.

### Table 6
**ECONOMETRIC ESTIMATES OF EQUATION [1]. LIMITED SAMPLES**

<table>
<thead>
<tr>
<th>Explained variable</th>
<th>DEVD</th>
<th>DEVD</th>
<th>DEVD (*)</th>
<th>$\frac{DA}{EF}$ · 100</th>
<th>$\frac{DF}{EF}$ · 100</th>
<th>DEVE</th>
<th>DEVR</th>
</tr>
</thead>
<tbody>
<tr>
<td>MI</td>
<td>1.83</td>
<td>1.58</td>
<td>1.16</td>
<td>1.35</td>
<td>-0.48</td>
<td>-0.70</td>
<td>-2.53</td>
</tr>
<tr>
<td></td>
<td>[0.034]</td>
<td>[0.033]</td>
<td>[0.000]</td>
<td>[0.145]</td>
<td>[0.300]</td>
<td>[0.576]</td>
<td>[0.017]</td>
</tr>
<tr>
<td>CY</td>
<td>3.99</td>
<td>1.56</td>
<td>1.66</td>
<td>3.71</td>
<td>-0.28</td>
<td>1.04</td>
<td>-2.95</td>
</tr>
<tr>
<td></td>
<td>[0.065]</td>
<td>[0.007]</td>
<td>[0.000]</td>
<td>[0.076]</td>
<td>[0.672]</td>
<td>[0.560]</td>
<td>[0.191]</td>
</tr>
<tr>
<td>LEFT</td>
<td>0.20</td>
<td>0.55</td>
<td>-0.63</td>
<td>-0.21</td>
<td>0.01</td>
<td>5.60</td>
<td>5.40</td>
</tr>
<tr>
<td></td>
<td>[0.839]</td>
<td>[0.600]</td>
<td>[0.299]</td>
<td>[0.805]</td>
<td>[0.990]</td>
<td>[0.000]</td>
<td>[0.000]</td>
</tr>
<tr>
<td>D1986</td>
<td>-0.99</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.105]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1988</td>
<td>0.14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.657]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1989</td>
<td>-1.36</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.050]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1990</td>
<td>-7.18</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1992</td>
<td>-9.75</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.000]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1993</td>
<td>-0.32</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.562]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>D1994</td>
<td>0.61</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>[0.327]</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.138</td>
<td>0.191</td>
<td>0.197</td>
<td>0.146</td>
<td>0.240</td>
<td>0.362</td>
<td>0.389</td>
</tr>
<tr>
<td>Sample Size</td>
<td>2928</td>
<td>2928</td>
<td>1826</td>
<td>2928</td>
<td>2928</td>
<td>2928</td>
<td>2928</td>
</tr>
</tbody>
</table>

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]. $R^2$ is the coefficient of determination. Estimates exclude observations involving deviations in deficit over 50% in absolute value.

(*) Excluding observations involving deviations in deficit over 10% in absolute value.

Estimates shown in rows 4 to 7 in tables 5 and 6 try to cast additional light on the mechanisms explaining deviations. The endogenous variable is replaced by actual and forecasted deficit (rows 4 and 5), and deviations in expenditures and revenues (rows 6 and 7). Results show that:

1. Lower deviations in deficit in the case of single-party majority incumbents 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 incumbents, which might be interpreted as a signal of more prudence in revenue forecasts.

2. The electoral cycle does not affect forecasted deficit or deviations in expenditures. On the contrary, it increases 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. On the contrary, leftist incumbents are more prone to upward deviations in both expenditures and revenues. This fact may be interpreted as a more active role of leftist incumbents in the budget implementation phase.

In sum, upward deviations in deficits are higher in the case of single-party majority cabinets, elections years, and smaller municipalities. Moreover, variability of deviations—downward and upward—is negatively correlated to population size. On the contrary, the effect of ideology and the fragmentation of ruling coalitions on deviations in deficit is scarcely relevant according to our estimates.

V. CONCLUSIONS

Flexibility in execution of public budgets is a necessary condition for deviations in forecasted deficits. But as an explanation it is not sufficient. 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 lower in the case of single-party majority incumbents and higher in elections years, and smaller municipalities. Moreover, variability of deviations—both negative and positive—is negatively correlated to population size. This result might be explained by the technical capacity of officials assuming it rises with jurisdiction size. On the contrary, the effect of ideology and the fragmentation of ruling coalitions on deviations in deficit is scarcely relevant according to our estimates.

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 a budget would then be a way to reduce systematic upward deviations. But it might be not enough, due to the imagination shown by many governments finding out gimmicks to escape from controls...
Instituto de Estudios Fiscales

on budget modifications. While there is empirical evidence supporting that direct democracy reduces observed actual deficits, some of the results shown in our paper suggest that reinforcing *ex post* control on budgets may be another way towards fiscal consolidation.
REFERENCES


NORMAS DE PUBLICACIÓN DE PAPELES DE TRABAJO DEL INSTITUTO DE ESTUDIOS FISCALES

Esta colección de Papeles de Trabajo tiene como objetivo ofrecer un vehículo de expresión a todas aquellas personas interesadas en los temas de Economía Pública. Las normas para la presentación y selección de originales son las siguientes:

1. Todos los originales que se presenten estarán sometidos a evaluación y podrán ser directamente aceptados para su publicación, aceptados sujetos a revisión, o rechazados.


3. La extensión máxima de texto escrito, incluidos apéndices y referencias bibliográficas será de 7000 palabras.

4. Los originales deberán presentarse mecanografiados a doble espacio. En la primera página deberá aparecer el título del trabajo, el nombre del autor(es) y la institución a la que pertenece, así como su dirección postal y electrónica. Además, en la primera página aparecerá también un abstract de no más de 125 palabras, los códigos JEL y las palabras clave.

5. Los epígrafes irán numerados secuencialmente siguiendo la numeración arábiga. Las notas al texto irán numeradas correlativamente y aparecerán al pie de la correspondiente página. Las fórmulas matemáticas se numerarán secuencialmente ajustadas al margen derecho de las mismas. La bibliografía aparecerá al final del trabajo, bajo la inscripción “Referencias” por orden alfabético de autores y, en cada una, ajustándose al siguiente orden: autor(es), año de publicación (distinguendo a, b, c si hay varias correspondientes al mismo autor(es) y año), título del artículo o libro, título de la revista en cursiva, número de la revista y páginas.

6. En caso de que aparezcan tablas y gráficos, éstos podrán incorporarse directamente al texto o, alternativamente, presentarse todos juntos y debidamente numerados al final del trabajo, antes de la bibliografía.

7. En cualquier caso, se deberá adjuntar un disquete con el trabajo en formato word. Siempre que el documento presente tablas y/o gráficos, éstos deberán aparecer en ficheros independientes. Asimismo, en caso de que los gráficos procedan de tablas creadas en excel, estas deberán incorporarse en el disquete debidamente identificadas.

Junto al original del Papel de Trabajo se entregará también un resumen de un máximo de dos folios que contenga las principales implicaciones de política económica que se deriven de la investigación realizada.
PUBLISHING GUIDELINES OF WORKING PAPERS AT THE INSTITUTE FOR FISCAL STUDIES

This serie of Papel de Trabajo (working papers) aims to provide those having an interest in Public Economics with a vehicle to publicize their ideas. The rules governing submission and selection of papers are the following:

1. The manuscripts submitted will all be assessed and may be directly accepted for publication, accepted with subjections for revision or rejected.

2. The papers shall be sent in duplicate to Subdirección General de Estudios Tributarios (The Deputy Direction of Tax Studies), Instituto de Estudios Fiscales (Institute for Fiscal Studies), Avenida del Cardenal Herrera Oria, nº 378, Madrid 28035.

3. The maximum length of the text including appendices and bibliography will be no more than 7000 words.

4. The originals should be double spaced. The first page of the manuscript should contain the following information: (1) the title; (2) the name and the institutional affiliation of the author(s); (3) an abstract of no more than 125 words; (4) JEL codes and keywords; (5) the postal and e-mail address of the corresponding author.

5. Sections will be numbered in sequence with arabic numerals. Footnotes will be numbered correlatively and will appear at the foot of the corresponding page. Mathematical formulae will be numbered on the right margin of the page in sequence. Bibliographical references will appear at the end of the paper under the heading “References” in alphabetical order of authors. Each reference will have to include in this order the following terms of references: author(s), publishing date (with an a, b or c in case there are several references to the same author(s) and year), title of the article or book, name of the journal in italics, number of the issue and pages.

6. If tables and graphs are necessary, they may be included directly in the text or alternatively presented altogether and duly numbered at the end of the paper, before the bibliography.

7. In any case, a floppy disk will be enclosed in Word format. Whenever the document provides tables and/or graphs, they must be contained in separate files. Furthermore, if graphs are drawn from tables within the Excell package, these must be included in the floppy disk and duly identified.

Together with the original copy of the working paper a brief two-page summary highlighting the main policy implications derived from the research is also requested.
ÚLTIMOS PAPELES DE TRABAJO EDITADOS POR EL
INSTITUTO DE ESTUDIOS FISCALES

2000
1/00 Crédito fiscal a la inversión en el impuesto de sociedades y neutralidad impositiva: Más evidencia para un viejo debate.
   Autor: Desiderio Romero Jordán.
   Páginas: 40.

2/00 Estudio del consumo familiar de bienes y servicios públicos a partir de la encuesta de presupuestos familiares.
   Autores: Ernesto Carrillo y Manuel Tamayo.
   Páginas: 40.

3/00 Evidencia empírica de la convergencia real.
   Autores: Lorenzo Escot y Miguel Ángel Galindo.
   Páginas: 58.

Nueva Época

4/00 The effects of human capital depreciation on experience-earnings profiles: Evidence salaried spanish men.
   Autores: M. Arrazola, J. de Hevia, M. Risueño y J. F. Sanz.
   Páginas: 24.

5/00 Las ayudas fiscales a la adquisición de inmuebles residenciales en la nueva Ley del IRPF: Un análisis comparado a través del concepto de coste de uso.
   Autor: José Félix Sanz Sanz.
   Páginas: 44.

6/00 Las medidas fiscales de estímulo del ahorro contenidas en el Real Decreto-Ley 3/2000: análisis de sus efectos a través del tipo marginal efectivo.
   Autores: José Manuel González Páramo y Nuria Badenes Plá.
   Páginas: 28.

7/00 Análisis de las ganancias de bienestar asociadas a los efectos de la Reforma del IRPF sobre la oferta laboral de la familia española.
   Autores: Juan Prieto Rodríguez y Santiago Álvarez García.
   Páginas 32.

8/00 Un marco para la discusión de los efectos de la política impositiva sobre los precios y el stock de vivienda.
   Autor: Miguel Ángel López García.
   Páginas 36.

9/00 Descomposición de los efectos redistributivos de la Reforma del IRPF.
   Autores: Jorge Onrubia Fernández y María del Carmen Rodado Ruiz.
   Páginas 24.

10/00 Aspectos teóricos de la convergencia real, integración y política fiscal.
   Autores: Lorenzo Escot y Miguel Ángel Galindo.
   Páginas 28.
2001

1/01 Notas sobre desagregación temporal de series económicas.
Autor: Enrique M. Quilis.
Páginas 38.

2/01 Estimación y comparación de tasas de rendimiento de la educación en España.
Autores: M. Arrazola, J. de Hevia, M. Risueño y J. F. Sanz.
Páginas 28.

3/01 Doble imposición, “efecto clientela” y aversión al riesgo.
Páginas 34.

4/01 Non-Institutional Federalism in Spain.
Autor: Joan Rosselló Villalonga.
Páginas 32.

Autora: Mabel Amaya Amaya.
Páginas 30.

6/01 Shapley inequality descomposition by factor components.
Autores: Mercedes Sastre y Alain Trannoy.
Páginas 40.

7/01 An empirical analysis of the demand for physician services across the European Union.
Autores: Sergi Jiménez Martín, José M. Labeaga y Maite Martínez-Granado.
Páginas 40.

8/01 Demand, childbirth and the costs of babies: evidence from spanish panel data.
Autores: José M.ª Labeaga, Ian Preston y Juan A. Sanchis-Llopis.
Páginas 56.

9/01 Imposición marginal efectiva sobre el factor trabajo: Breve nota metodológica y com­paración internacional.
Autores: Desiderio Romero Jordán y José Félix Sanz Sanz.
Páginas 40.

10/01 A non-parametric decomposition of redistribution into vertical and horizontal components.
Autores: Irene Perrote, Juan Gabriel Rodríguez y Rafael Salas.
Páginas 28.

11/01 Efectos sobre la renta disponible y el bienestar de la deducción por rentas ganadas en el IRPF.
Autora: Nuria Badenes Plá.
Páginas 28.

12/01 Seguros sanitarios y gasto público en España. Un modelo de microsimulación para las políticas de gastos fiscales en sanidad.
Autor: Ángel López Nicolás.
Páginas 40.

13/01 A complete parametrical class of redistribution and progressivity measures.
Autores: Isabel Rabadán y Rafael Salas.
Páginas 20.

14/01 La medición de la desigualdad económica.
Autor: Rafael Salas.
Páginas 40.
15/01 Crecimiento económico y dinámica de distribución de la renta en las regiones de la UE: un análisis no paramétrico.
Autores: Julián Ramajo Hernández y María del Mar Salinas Jiménez.
Páginas 32.

16/01 La descentralización territorial de las prestaciones asistenciales: efectos sobre la igualdad.
Autores: Luis Ayala Cañón, Rosa Martínez López y Jesus Ruiz-Huerta.
Páginas 48.

17/01 Redistribution and labour supply.
Autores: Jorge Onrubia, Rafael Salas y José Félix Sanz.
Páginas 24.

18/01 Medición de la eficiencia técnica en la economía española: El papel de las infraestructuras productivas.
Autores: M.ª Jesús Delgado Rodríguez e Inmaculada Álvarez Ayuso.
Páginas 32.

19/01 Inversión pública eficiente e impuestos distorsionantes en un contexto de equilibrio general.
Autores: José Manuel González-Páramo y Diego Martínez López.
Páginas 28.

20/01 La incidencia distributiva del gasto público social. Análisis general y tratamiento específico de la incidencia distributiva entre grupos sociales y entre grupos de edad.
Autor: Jorge Calero Martínez.
Páginas 36.

21/01 Crisis cambiarias: Teoría y evidencia.
Autor: Óscar Bajo Rubio.
Páginas 32.

22/01 Distributive impact and evaluation of devolution proposals in Japanese local public finance.
Autores: Kazuyuki Nakamura, Minoru Kunizaki y Masanori Tahira.
Páginas 36.

23/01 El funcionamiento de los sistemas de garantía en el modelo de financiación autonómica.
Autor: Alfonso Utrilla de la Hoz.
Páginas 48.

24/01 Rendimiento de la educación en España: Nueva evidencia de las diferencias entre Hombres y Mujeres.
Autores: M. Arrazola y J. de Hevia.
Páginas 36.

25/01 Fecundidad y beneficios fiscales y sociales por descendientes.
Autora: Anabel Zárate Marco.
Páginas 52.

26/01 Estimación de precios sombra a partir del análisis Input-Output: Aplicación a la economía española.
Autora: Guadalupe Souto Nieves.
Páginas 56.

27/01 Análisis empírico de la depreciación del capital humano para el caso de las Mujeres y los Hombres en España.
Autores: M. Arrazola y J. de Hevia.
Páginas 28.
28/01 Equivalence scales in tax and transfer policies. 
Autores: Luis Ayala, Rosa Martínez y Jesús Ruiz-Huerta. 
Páginas 44.

29/01 Un modelo de crecimiento con restricciones de demanda: el gasto público como amortiguador del desequilibrio externo. 
Páginas 44.

30/01 A bi-stochastic nonparametric estimator. 
Autores: Juan G. Rodríguez y Rafael Salas. 
Páginas 24.

2002

1/02 Las cestas autonómicas. 
Autores: Alejandro Esteller, Jorge Navas y Pilar Sorribas. 
Páginas 72.

2/02 Evolución del endeudamiento autonómico entre 1985 y 1997: la incidencia de los Escenarios de Consolidación Presupuestaria y de los límites de la LOFCA. 
Autores: Julio López Laborda y Jaime Vallés Giménez. 
Páginas 60.

3/02 Optimal Pricing and Grant Policies for Museums. 
Autores: Juan Prieto Rodríguez y Víctor Fernández Blanco. 
Páginas 28.

4/02 El mercado financiero y el racionamiento del endeudamiento autonómico. 
Autores: Nuria Alcalde Fradejas y Jaime Vallés Giménez. 
Páginas 36.

5/02 Experimentos secuenciales en la gestión de los recursos comunes. 
Autores: Lluís Bru, Susana Cabrera, C. Mónica Capra y Rosario Gómez. 
Páginas 32.

6/02 La eficiencia de la universidad medida a través de la función de distancia: Un análisis de las relaciones entre la docencia y la investigación. 
Autores: Alfredo Moreno Sáez y David Trillo del Pozo. 
Páginas 40.

7/02 Movilidad social y desigualdad económica. 
Autores: Juan Prieto-Rodríguez, Rafael Salas y Santiago Álvarez-García. 
Páginas 32.

8/02 Modelos BVAR: Especificación, estimación e inferencia. 
Autor: Enrique M. Quilis. 
Páginas 44.

9/02 Imposición lineal sobre la renta y equivalencia distributiva: Un ejercicio de microsimulación. 
Autores: Juan Manuel Castañer Carrasco y José Félix Sanz Sanz. 
Páginas 44.

10/02 The evolution of income inequality in the European Union during the period 1993-1996. 
Autores: Santiago Álvarez García, Juan Prieto-Rodríguez y Rafael Salas. 
Páginas 36.
11/02 Una descomposición de la redistribución en sus componentes vertical y horizontal: Una aplicación al IRPF.
Autora: Irene Perrote.
Páginas 32.

12/02 Análisis de las políticas públicas de fomento de la innovación tecnológica en las regiones españolas.
Autor: Antonio Fonfría Mesa.
Páginas 40.

13/02 Los efectos de la política fiscal sobre el consumo privado: nueva evidencia para el caso español.
Autores: Agustín García y Julián Ramajo.
Páginas 52.

14/02 Micro-modelling of retirement behavior in Spain.
Autores: Michele Boldrin, Sergi Jiménez-Martín y Franco Peracchi.
Páginas 96.

15/02 Estado de salud y participación laboral de las personas mayores.
Autores: Juan Prieto Rodríguez, Desiderio Romero Jordán y Santiago Álvarez García.
Páginas 40.

16/02 Technological change, efficiency gains and capital accumulation in labour productivity growth and convergence: an application to the Spanish regions.
Autora: M.ª del Mar Salinas Jiménez.
Páginas 40.

17/02 Déficit público, masa monetaria e inflación. Evidencia empírica en la Unión Europea.
Autor: César Pérez López.
Páginas 40.

18/02 Tax evasion and relative contribution.
Autora: Judith Panadés i Martí.
Páginas 28.

19/02 Fiscal policy and growth revisited: the case of the Spanish regions.
Autores: Óscar Bajo Rubio, Carmen Díaz Roldán y M.ª Dolores Montávez Garcés.
Páginas 28.

20/02 Optimal endowments of public investment: an empirical analysis for the Spanish regions.
Autores: Óscar Bajo Rubio, Carmen Díaz Roldán y M.ª Dolores Montávez Garcés.
Páginas 28.

21/02 Régimen fiscal de la previsión social empresarial. Incentivos existentes y equidad del sistema.
Autor: Félix Domínguez Barrero.
Páginas 52.

22/02 Poverty statics and dynamics: does the accounting period matter?.
Autores: Olga Cantó, Coral del Río y Carlos Gradin.
Páginas 52.

23/02 Public employment and redistribution in Spain.
Autores: José Manuel Marqués Sevillano y Joan Rosselló Villallonga.
Páginas 36.
24/02  La evolución de la pobreza estática y dinámica en España en el periodo 1985-1995.
Autores: Olga Cantó, Coral del Río y Carlos Gradín.
Páginas: 76.

25/02  Estimación de los efectos de un "tratamiento": una aplicación a la Educación superior en España.
Autores: M. Arrazola y J. de Hevia.
Páginas 32.

26/02  Sensibilidad de las estimaciones del rendimiento de la educación a la elección de instrumentos y de forma funcional.
Autores: M. Arrazola y J. de Hevia.
Páginas 40.

27/02  Reforma fiscal verde y doble dividiendo. Una revisión de la evidencia empírica.
Autor: Miguel Enrique Rodríguez Méndez.
Páginas 40.

28/02  Productividad y eficiencia en la gestión pública del transporte de ferrocarriles implicaciones de política económica.
Autor: Marcelino Martínez Cabrera.
Páginas 32.

29/02  Building stronger national movie industries: The case of Spain.
Autores: Víctor Fernández Blanco y Juan Prieto Rodríguez.
Páginas 52.

30/02  Análisis comparativo del gravamen efectivo sobre la renta empresarial entre países y activos en el contexto de la Unión Europea (2001).
Autora: Raquel Paredes Gómez.
Páginas 48.

31/02  Voting over taxes with endogenous altruism.
Autor: Joan Esteban.
Páginas 32.

32/02  Midiendo el coste marginal en bienestar de una reforma impositiva.
Autor: José Manuel González-Páramo.
Páginas 48.

33/02  Redistributive taxation with endogenous sentiments.
Autores: Joan Esteban y Laurence Kranich.
Páginas 40.

34/02  Una nota sobre la compensación de incentivos a la adquisición de vivienda habitual tras la reforma del IRPF de 1998.
Autores: Jorge Onrubia Fernández, Desiderio Romero Jordán y José Félix Sanz Sanz.
Páginas 36.

35/02  Simulación de políticas económicas: los modelos de equilibrio general aplicado.
Autor: Antonio Gómez Gómez-Plana.
Páginas 36.

2003

1/03  Análisis de la distribución de la renta a partir de funciones de cuantiles: robustez y sensibilidad de los resultados frente a escalas de equivalencia.
Autores: Marta Pascual Sáez y José María Sarabia Alegria.
Páginas 52.
2/03 Macroeconomic conditions, institutional factors and demographic structure: What causes welfare caseloads?
Autores: Luis Ayala y César Pérez.
Páginas 44.

3/03 Endeudamiento local y restricciones institucionales. De la ley reguladora de haciendas locales a la estabilidad presupuestaria.
Autores: Jaime Vallés Giménez, Pedro Pascual Arzoz y Fermín Cabasés Hita.
Páginas 56.

4/03 The dual tax as a flat tax with a surtax on labour income.
Autor: José María Durán Cabré.
Páginas 40.

5/03 La estimación de la función de producción educativa en valor añadido mediante redes neuronales: una aplicación para el caso español.
Autor: Daniel Santín González.
Páginas 52.

6/03 Privación relativa, imposición sobre la renta e índice de Gini generalizado.
Autores: Elena Bárcena Martín, Luis Imedio Olmedo y Guillermina Martín Reyes.
Páginas 36.

7/03 Fijación de precios óptimos en el sector público: una aplicación para el servicio municipal de agua.
Autora: M.ª Ángeles García Valiñas.
Páginas 44.

8/03 Tasas de descuento para la evaluación de inversiones públicas: Estimaciones para España.
Autora: Guadalupe Souto Nieves.
Páginas 40.

9/03 Una evaluación del grado de incumplimiento fiscal para las provincias españolas.
Autores: Ángel Alañón Pardo y Miguel Gómez de Antonio.
Páginas 44.

10/03 Extended bi-polarization and inequality measures.
Autores: Juan G. Rodríguez y Rafael Salas.
Páginas 32.

11/03 Fiscal decentralization, macrostability and growth.
Autores: Jorge Martínez-Vázquez y Robert M. McNab.
Páginas 44.

12/03 Valoración de bienes públicos en relación al patrimonio histórico cultural: aplicación comparada de métodos estadísticos de estimación.
Autores: Luis César Herrero Prieto, José Ángel Sanz Lara y Ana María Bedate Centeno.
Páginas 44.

13/03 Growth, convergence and public investment. A bayesian model averaging approach.
Autores: Roberto León-González y Daniel Montolio.
Páginas 44.

14/03 ¿Qué puede esperarse de una reducción de la imposición indirecta que recae sobre el consumo cultural?: Un análisis a partir de las técnicas de microsimulación.
Autores: José Félix Sanz Sanz, Desiderio Romero Jordán y Juan Prieto Rodríguez.
Páginas 40.
15/03 Estimaciones de la tasa de paro de equilibrio de la economía española a partir de la Ley de Okun.  
Autores: Inés P. Murillo y Carlos Usabiaga.  
Páginas 32.

16/03 La previsión social en la empresa, tras la Ley 46/2002, de reforma parcial del impuesto sobre la renta de las personas físicas.  
Autor: Félix Domínguez Barrero.  
Páginas 48.

17/03 The influence of previous labour market experiences on subsequent job tenure.  
Autores: José María Arranz y Carlos García-Serrano.  
Páginas 48.

18/03 Promoting student's effort: standards versus tournaments.  
Autores: Pedro Landeras y J. M. Pérez de Villarreal.  
Páginas 44.

19/03 Non-employment and subsequent wage losses.  
Autores: José María Arranz y Carlos García-Serrano.  
Páginas 52.

20/03 La medida de los ingresos públicos en la Agencia Tributaria. Caja, derechos reconocidos y devengo económico.  
Autores: Rafael Frutos, Francisco Melis, M.ª Jesús Pérez de la Ossa y José Luis Ramos.  
Páginas 80.

21/03 Tratamiento fiscal de la vivienda y exceso de gravamen.  
Autor: Miguel Ángel López García.  
Páginas 44.

22/03 Medición del capital humano y análisis de su rendimiento.  
Autores: María Arrazola y José de Hevia.  
Páginas 36.

23/03 Vivienda, reforma impositiva y coste en bienestar.  
Autor: Miguel Ángel López García.  
Páginas 52.

24/03 Algunos comentarios sobre la medición del capital humano.  
Autores: María Arrazola y José de Hevia.  
Páginas 40.

25/03 Exploring the spanish interbank yield curve.  
Autores: Leandro Navarro y Enrique M. Quilis.  
Páginas 32.

26/03 Redes neuronales y medición de eficiencia: aplicación al servicio de recogida de basuras.  
Autor: Francisco J. Delgado Rivero.  
Páginas 60.

27/03 Equivalencia ricardiana y tipos de interés.  
Autores: Agustín García, Julián Ramajo e Inés Piedraescrita Murillo.  
Páginas 40.

28/03 Instrumentos y objetivos de las políticas de apoyo a las PYME en España.  
Autor: Antonio Fonfría Mesa.  
Páginas 44.
29/03  Análisis de incidencia del gasto público en educación superior: enfoque transversal.
Autora: María Gil Izquierdo.
Páginas 48.

30/03  Rentabilidad social de la inversión pública española en infraestructuras.
Autores: Jaime Alonso-Carrera, María Jesús Freire-Serén y Baltasar Manzano.
Páginas 44.

31/03  Las rentas de capital en Phogue: análisis de su fiabilidad y corrección mediante fusión estadística.
Autor: Fidel Picos Sánchez.
Páginas 44.

32/03  Efecto de los sistemas de rentas mínimas autonómicas sobre la migración interregional.
Autora: María Martínez Torres.
Páginas 44.

33/03  Rentas mínimas autonómicas en España. Su dimensión espacial.
Autora: María Martínez Torres.
Páginas 76.

34/03  Un nuevo examen de las causas del déficit autonómico.
Autor: Santiago Lago Peñas.
Páginas 52.

35/03  Uncertainty and taxpayer compliance.
Autores: Jordi Caballé y Judith Panadés.
Páginas 44.

2004

1/04  Una propuesta para la regulación de precios en el sector del agua: el caso español.
Autores: M.ª Ángeles García Valiñas y Manuel Antonio Muñiz Pérez.
Páginas 40.

2/04  Eficiencia en educación secundaria e inputs no controlables: sensibilidad de los resultados ante modelos alternativos.
Autores: José Manuel Cordero Ferrera, Francisco Pedraja Chaparro y Javier Salinas Jiménez.
Páginas 40.

3/04  Los efectos de la política fiscal sobre el ahorro privado: evidencia para la OCDE.
Autores: Montserrat Ferre Carracedo, Agustín García García y Julián Ramajo Hernández.
Páginas 44.

Autores: José María Arranz y Carlos García-Serrano.
Páginas 80.

Autores: José María Arranz y Carlos García-Serrano.
Páginas 72.

6/04  La ley de Wagner: un análisis sintético.
Autor: Manuel Jaén García.
Páginas 60.
7/04 La vivienda y la reforma fiscal de 1998: un ejercicio de simulación. 
Autor: Miguel Ángel López García. 
Páginas 44.

8/04 Modelo dual de IRPF y equidad: un nuevo enfoque teórico y su aplicación al caso español. 
Autor: Fidel Picos Sánchez. 
Páginas 44.

9/04 Public expenditure dynamics in Spain: a simplified model of its determinants. 
Autores: Manuel Jaén García y Luis Palma Martos. 
Páginas 48.

10/04 Simulación sobre los hogares españoles de la reforma del IRPF de 2003. Efectos sobre la oferta laboral, recaudación, distribución y bienestar. 
Autores: Juan Manuel Castañer Carrasco, Desiderio Romero Jordán y José Félix Sanz Sanz. 
Páginas 56.

11/04 Financiación de las Haciendas regionales españolas y experiencia comparada. 
Autor: David Cantarero Prieto. 
Páginas 52.

12/04 Multidimensional indices of housing deprivation with application to Spain. 
Autores: Luis Ayala y Carolina Navarro. 
Páginas 44.

13/04 Multiple occurrence of welfare recipiency: determinants and policy implications. 
Autores: Luis Ayala y Magdalena Rodríguez. 
Páginas 52.

14/04 Imposición efectiva sobre las rentas laborales en la reforma del impuesto sobre la renta personal (IRPF) de 2003 en España. 
Autoras: María Pazos Morán y Teresa Pérez Barrasa. 
Páginas 40.

15/04 Factores determinantes de la distribución personal de la renta: un estudio empírico a partir del PHOGUE. 
Autores: Marta Pascual y José María Sarabia. 
Páginas 56.

16/04 Política familiar, imposición efectiva e incentivos al trabajo en la reforma de la imposición sobre la renta personal (IRPF) de 2003 en España. 
Autoras: María Pazos Morán y Teresa Pérez Barrasa. 
Páginas 48.

17/04 Efectos del déficit público: evidencia empírica mediante un modelo de panel dinámico para los países de la Unión Europea. 
Autor: César Pérez López. 
Páginas 40.

18/04 Inequality, poverty and mobility: Choosing income or consumption as welfare indicators. 
Autores: Carlos Gradín, Olga Cantó y Coral del Río. 
Páginas 52.

19/04 Tendencias internacionales en la financiación del gasto sanitario. 
Autora: Rosa María Urbanos Garrido. 
Páginas 48.
20/04 El ejercicio de la capacidad normativa de las CCAA en los tributos cedidos: una primera evaluación a través de los tipos impositivos efectivos en el IRPF. Autores: José María Durán y Alejandro Esteller. Páginas 68.