Public Choice (2007) 131:45–64
DOI 10.1007/s11127-006-9104-2

ORIGINAL ARTICLE

Political business cycles at the municipal level

Linda Gonçalves Veiga · Francisco José Veiga

Received: 9 June 2004 / Accepted: 25 September 2006

Abstract The present article tests predictions of rational political business cycle models using a large and previously unexplored data set of Portuguese municipalities. This data allows for a clean test of these predictions due to the high level of detail on expenditure items, an exogenous fixed election schedule, and homogeneity of Portuguese local governments with respect to policy instruments and institutions. Estimation results clearly reveal the opportunistic behaviour of local governments. In pre-electoral periods, they increase total expenditures and change their composition favouring items that are highly visible to the electorate. This behaviour is consistent with an effort to signal competence and increase chances of re-election.

Keywords Political business cycles · Public finance · Local governments · Elections · Portugal

JEL Classifications H72, D72, D78

1 Introduction

This article reports on tests of rational political business cycles (PBC) models on a new, extensive and very detailed data set covering all Portuguese mainland municipalities, for the period 1979–2001. With a panel of observations for budget balances, taxes and expenditures items, it is possible to examine the fiscal choices of local governments during the political cycle. Thus, we can check whether incumbent politicians reduce taxes, increase municipal spending and/or manipulate the composition of expenditures in pre-election periods in an effort to signal competence, leading to political business cycles of the Rogoff and Sibert (1988) and Rogoff (1990) types. Using this data, we can also investigate if expenditure choices are affected by the timing of national elections and if the opportunistic cycle in

L. G. Veiga · F. J. Veiga
Núcleo de Investigação em Políticas Económicas, Universidade do Minho, P-4710-057 Braga, Portugal
e-mails: linda@eeg.uminho.pt; fjveiga@eeg.uminho.pt

spending is influenced by the mayor's ideology, the support she enjoys at the municipal assembly, and by her decision to run for another term in office.

Use of data for Portuguese municipalities[1] is motivated by the fact that they constitute an excellent laboratory to test for the existence of rational political business cycles. First, data on public expenditures are very detailed, allowing for tests of rational PBCs for particular expenditure categories. Second, the institutional structure of local governments and the policy instruments available are the same for all localities, making this panel preferable to one composed of several countries or states with different institutions and policy instruments. Third, election dates are fixed and defined exogenously from the perspective of the local authorities, and all municipalities have elections on the same day. Finally, the econometric results obtained with this large dataset (a maximum of 278 cross-sections and 23 years of observations) are more robust than those attainable with panels of countries and/or states.

Our empirical results provide clear evidence of rational opportunistic behaviour by mayors (*Presidentes de Câmara*), expressed in their desire to signal greater competence shortly before elections through a reduction of taxes and an increase in expenditure items highly visible to the electorate, such as investment expenditures on overpasses, streets and complementary works, and on rural roads. There is also evidence of strategic manipulation of the composition of expenditures, as more is spent in election years on items that are highly visible to electorate, while expenditures remain the same or decrease for those that are less visible. Econometric tests also demonstrate that the extent of the opportunistic cycle in expenditures does not depend on whether the mayor's party has a majority of deputies in the municipal assembly or town council, or on whether the incumbent runs for another term in office. But, the cycle's magnitude seems to be influenced by ideological affiliation, namely left-wing oriented mayors tend to behave more opportunistically than right-wing ones.

The article is organized as follows. The next section briefly reviews the literature on political business cycles. Section 3 presents a short digression on Portuguese municipalities and describes the dataset. The empirical strategy used to investigate the impact of elections on municipal budgets and expenditures is explained in Section 4 and the results obtained are presented in Section 5. Finally, conclusions are reported in Section 6.

2 Political business cycles and local authorities

The theory of political business cycles (PBC) originated with Nordhaus (1975), who proposed a model in which incumbent politicians would manipulate the economy to gain electoral advantage. The model presumed that expansionary monetary and fiscal policies would produce a pre-election boom, lowering the unemployment rate, and that myopic voters would respond by supporting the incumbent party with a favorable vote. Given the formulation of the model's expectational Phillips curve, inflationary consequences of the pre-election expansion were largely delayed until after the election, when policy would switch to a more contractionary stance. The Nordhaus model generated much interest and research, but ultimately was a victim of the rational expectations revolution. Nordhaus assumed that voters' expectations were formed adaptatively; i.e., they were based on what voters had recently observed. Pre-election stimulus created "favorable" conditions only because the public had failed to anticipate the stimulus and its ultimate consequences. In essence, voters were repeatedly tricked in successive electoral cycles.

[1] Since there are no states or administrative regions in mainland Portugal, the municipalities are the highest ranking authorities below the national government.

In the years following Nordhaus' contribution, the assumption of adaptative expectations has become regarded as untenable in economic theory; the idea that voters would be tricked in the same fashion in repeated elections seems especially improbable. Instead, the assumption of rational expectations, which rules out systematic expectational errors, has become the norm. The political business cycle model did not die, but was rehabilitated in a rational expectations environment. Rogoff and Sibert (1988) developed an explanation for the PBC in which asymmetric information replaced voter myopia in explaining electoral cycles in macroeconomic policy variables, such as taxes, government spending, deficits and money growth. In their model, voters have rational expectations, but are unsure of the "competence" of politicians (here competence refers to an ability to produce a given level of government services with less revenue). Their model can produce an equilibrium in which incumbent politicians increase government spending in pre-election periods in an effort to signal competence, resulting in a political business cycle in spending. In this model, high and low competence incumbents differ in willingness to spend, because spending produces different post-election deficit consequences for the two types (and both types have some aversion to deficits). Neither competence nor post-election deficits are observed prior to elections, but spending is, and it provides a signal of competence-type to voters. Later, Rogoff (1990) developed a similar model where the incumbent strategically manipulates the composition of expenditures in pre-electoral years, by favouring items that are more visible to the electorate.[2] These models were a welcome contribution for researchers with an empirical interest in political business cycles. Although their implications for cycles in outcomes (as opposed to policies) were ambiguous, the possibility existed, and the necessity for the adaptative expectations assumption was obviated.[3]

Most empirical research on political business cycles has made use of national-level data on elections, policies, and economic outcomes. For research based on the Nordhaus model, this was a natural consequence of the development of the theory. The model posited that voters looked at macroeconomic conditions, specifically unemployment and inflation, and that politicians controlled them. Naturally, macroeconomic variables were the object of empirical studies of the PBC as well. With the arrival of the Rogoff-Sibert reconstruction, empirical research did not fundamentally change its direction. The existence of the Rogoff and Sibert (1988) model provided justification for continued interest in the political business cycle, but its major effect has been to tidy up theoretical underpinnings to change the way in which political business cycle studies were empirically implemented.

Importantly, the Rogoff-Sibert model is distinguished by the assumption that voters evaluate efficiency in public production. At the local government level, efficient production of public services like fire protection, education, and public safety is a principal activity; it follows that the Rogoff-Sibert model should apply at local governmental levels. It is probably more difficult to argue that voters try to assess "efficiency" in production of national defense, foreign affairs, income redistribution, or legal institutions, which are important concerns of national governments. Thus, the Rogoff-Sibert model is not only applicable to the behavior of local governments; it may be most applicable at that level.[4] In fact, already at the beginning of the 1990's Rogoff highlighted the advantages of research on state or local governments:

[2] See Drazen and Eslava (2005) for a model of opportunistic change in the composition of expenditures, without election year increases in deficits.

[3] Other important early contributions to the rational opportunistic business cycles literature were Cukierman and Meltzer (1986), Rogoff (1990) and Person and Tabellini (1990).

[4] The Nordhaus model is not completely irrelevant for local governments. Local government expenditures can have effects on local unemployment, for example, especially if labor is immobile. However, much of the

> "The equilibrium political budget cycle theory suggests that it would be more promising to focus empirical research on testing for electoral cycles in taxes, transfers, and government consumption spending. For these variables, one can also look at data for state and local elections, instead of concentrating solely on the small number of observations available for national elections" (Rogoff, 1990: 33–34).

One of the first studies that followed Rogoff's suggestion was Blais and Nadeau (1992), which tested the existence of political fiscal cycles in ten Canadian provinces, from 1951 to 1984. Results suggested the existence of a short electoral cycle, only in the year before the election, and mainly visible on social services and road expenditures. According to these authors, there are no substantial differences in the magnitude of local governments' opportunistic behaviour that can be attributable to ideology, the duration of terms, or tenure in office.

In the same year, but using data from local governments in Israel, Rosenberg (1992) presented a model where the value of public expenditures over a term in office is influenced by the re-election motive and also by the personal financial situation of the incumbent if he loses the election.[5] Tests implemented on development expenditures of ten Israeli towns, using annual data from 1964 to 1982, confirmed his hypothesis.

Some other studies have been published about countries including the U.S., Germany, and Sweden.[6] However, the Portuguese reality is under-researched both at the national and sub-national levels.[7] Since Portugal is a recent democracy, the problem of an insufficient number of observations to perform aggregated analysis is stronger than in most countries. We have, therefore, decided to investigate the behaviour of local governments using Portuguese Municipalities as our laboratory.

3 Portuguese municipalities: Brief characterization and sources of statistical data

This section presents some background information on institutional and public finance rules in Portuguese municipalities. Democracy was re-established in Portugal in April 25, 1974 after 48 years of dictatorship.[8] Portuguese municipalities were formally established in the 1976 Constitution and the first municipal elections took place in December 1976. The panel of data we use comprises all mainland municipalities (currently 278), from 1979 to 2001, covering six electoral periods.

Portuguese local governments are responsible for improving the well-being of the population that live in their territories. They promote social and economic development, territory

employment impact of local expenditures will occur outside the bounds of the municipality which initiates the spending.

[5] In this case, public expenditure manipulation has in mind an increase in employment opportunities in the private sector, or even a direct transfer of income trough the allocation of contracts to firms in the private sector. According to the model, incumbents that decide not to run again for office increase public expenditures before the elections more than those that try to be re-elected.

[6] For an extended and updated revision of the empirical literature about the U.S. see Besley and Case (2003). For studies about Germany see Seitz (2000) and Galli and Rossi (2002). For Sweden see Petterson-Lidbom (2001).

[7] Regarding local governments, see Baleiras and Costa (2004), and Veiga (2002).

[8] The number of observations for studies intended to analyze the behavior of Portuguese central governments is small. Since the end of the dictatorship there have been only 10 legislative elections in Portugal. Research on local governments provides many more degrees of freedom.

organization, and supply local public goods (water and sewage, energy, transportation, housing, healthcare, education, culture, sports, defense of the environment and protection of the civilian population).[9]

The representative branches of municipalities' government are the Town Council and the Municipal Assembly.[10] The members of the Town Council are elected directly by voters registered in the municipality, who vote for party or independent lists. Votes are then transformed into mandates using the Hondt method, and the mayor is the first candidate from the list that receives the most votes. Part of the Municipal Assembly is elected directly by voters while the remaining members are the presidents of the councils of the *freguesias* that belong to the municipality.[11]

The Municipal Assembly is the deliberative branch while the Town Council has the executive power. The former approves the general framework for local policies, while the latter is responsible for its elaboration and implementation. Each year, the Town Council submits a plan and a report of activities, a budget, and final accounts for approval by the Municipal Assembly. Although the latter has the power to reject those documents, it is not allowed to introduce amendments to them.

The mayor is the president of the Town Council and has a prominent role in the executive. First, he assigns tasks to each member of the council. Second, the mayor has managerial autonomy (regarding the Town Council) in some of his responsibilities, such as management of human resources, authorization of contracts, licences, etc. Third, he defines priorities and chooses which projects to pursue, and their dates of implementation, in accordance to the plan of activities. In sum, the mayor is a principal decision-maker in the allocation of resources and the distribution of investment in the municipality.

The Portuguese municipal sector provides a good example of the information asymmetry between policymakers and voters that provides the scenario for the Rogoff-Sibert (1988) and Rogoff (1990) models of rational opportunistic business cycles. Current local taxes and the results of some investments made in the municipality are observed almost immediately by voters. However, municipal accounts, revealing the deficit and details of the composition of expenditures, are released with a lag[12] and are unknown to most citizens. Even the local media does not pay much attention to the municipal accounts and, for a rational voter, collecting such information is not worthwhile, given the significant costs of gathering and processing it, and given that an individual vote is unlikely to be pivotal in an election. As we have noted in our discussion of theory, in such a setting mayors have an incentive to signal competence by strategically manipulating local taxes and/or the level and composition of expenditures.

Since the Rogoff-Sibert model focuses on policies, rather than outcomes, the notion of productivity in the public sector stresses the administrative abilities of the policymaker. Thus, in a situation in which taxes are fixed, or decreasing, higher levels of spending would be seen

[9] Law 159/99 defines the areas of intervention of Portuguese local governments.

[10] Law 169/99 establishes the competencies and the legal framework of municipalities' branches.

[11] *Freguesias* are subdivisions of municipalities. They are the lowest administrative unit in Portugal. The president of the *Freguesia's* council is elected directly by voters living in the area. He is the first candidate of the most voted list. The total number of seats in the Municipal Assembly must be at least three times that of the Town Council.

[12] All municipal elections took place in December and, according to the local finance law, the annual municipal accounts must be discussed by the municipal assembly before the end of April of the year after which they refer to.

by voters as a sign for greater competency.[13] Furthermore, as municipal output/performance indicators are practically non-existent in Portugal, taxes and spending are the best indicators we can find for competency.

There are no variations in budgeting rules and institutions among Portuguese mainland municipalities, although the law regulating local public finances changed during the period considered.[14] Municipalities are financially autonomous. They have their own employees and assets, and they define the local budget and the plan of activities, without a requirement of authorization from a higher-ranked authority. As part of the general government sector, local authorities are, however, subject to several control mechanisms by central government agencies. These limit their access to revenues as well as their expenditure choices.

Political business cycles are more likely to occur on expenditure items whose timing of implementation is controlled by the mayor and which are visible to the electorate. Current expenditure decisions are subject to considerable rigidity. Items such as salaries do not have enough flexibility to be changed before elections, since they are regulated by rigid labour contracts, both in terms of duration and wage rates. Therefore, we concentrate our analysis on capital expenditures and, among these, on investment expenditures.

Capital expenditures in Portuguese municipalities include investment expenditures implemented by the municipality and capital transfers to the counties (*freguesias*). Investment expenditures are divided in seven categories, some with subcomponents: (1) acquisition of land, (2) housing, (3) other buildings, (4) miscellaneous construction, (5) transportation material, (6) machinery equipment, and (7) other investments. "Other buildings" include: (3.1) sports, recreational and schooling infrastructures; (3.2) social equipment; and (3.3) other. The "Miscellaneous construction" category is composed of the following items: (4.1) overpasses, streets and complementary work; (4.2) sewage; (4.3) water treatment and distribution; (4.4) rural roads; (4.5) infrastructures for solid waste treatment; and (4.6) other.

Data on municipalities' local accounts and populations were obtained from the local authority's *(Direcção Geral das Autarquias Locais*) annual publication called *Finanças Municipais* (Municipal Finances). This report exists from 1979 to 1983 and from 1986 to 2001.[15] For the two missing years data was obtained directly from the municipalities' official accounts and are incomplete: we have 182 observations for 1984 and 189 for 1985. Data on the area of municipalities was acquired from the Marktest's *Sales Index* dataset, consumer price indexes were taken from the OECD's *Main Economic Indicators*, the percentages of the population under 15 and over 65 years old were obtained in the 1970, 1981, 1991 and 2001 *Census* and in the *Anuário Estatístico Regional* (Regional Statistical Yearbook) of the Portuguese Institute of Statistics (INE).

Political data, namely election dates and municipal electoral results, were obtained from the National Electoral Commission (*Comissão Nacional de Eleições*) and from the Technical Staff for Matters Concerning the Electoral Process (*Secretariado Tecnico dos Assuntos para o Processo Eleitoral*) of the Internal Affairs Ministry. It is worth noting that election dates are defined exogenously from the perspective of the local authorities and that there is no legal restriction to the number of terms a mayor can stand for re-election. Since the re-establishment

[13] The municipal accounts are only known by voters with a considerable lag. Thus, before the elections, they do not know that the increase in expenditures, or the reduction in taxes, will lead to the accumulation of debt. Furthermore, even after the elections it is quite complicated to find out the exact level of debt for a given municipality.

[14] Law 1/79, Decree-Law 98/84, Law 1/87 and, currently, Law 42/98.

[15] This publication is released with a three year lag.

of Democracy in 1974, there were local elections in 1976, 1979, 1982, 1985, 1989, 1993, 1997 and 2001, always in December.

4 Model specification

This article tries to determine the impact of political factors in the finances of Portuguese mainland municipalities, namely by testing for the existence of rational political business cycles in budget balances, taxes and several types of municipal expenditures.

The first empirical model to be implemented uses the budget balance (*per capita*, at 1995 prices) as the dependent variable.[16] Then, in order to check whether municipalities decrease taxes in election years, a second model is estimated for total municipal taxes (*per capita*, at 1995 prices). Since mayors have little control over other sources of municipal revenues, it is possible that expenditures are more subject to political manipulation than budget balances. Thus, a model that has real *per capita* total expenditures, *TotExp*, as the dependent variable was estimated. But, since current expenditures are strongly conditioned by salaries, it is likely that the evidence for political business cycles is greater for capital expenditures, *CapExp*, and, among these, for investment expenditures, *InvExp* (both expressed in real terms, *per capita*). Thus, equations for these types of expenditures were also estimated.

The following explanatory variables are used in the five models referred to above (i.e., one model for each dependent variable listed):

- Lagged values of the dependent variable, in order to take the autoregressive component of the time series into account;
- $TotTransf_{it}$, is the total of real *per capita* transfers that the municipality *i* receives during the year *t*. Given their weight of roughly 70% in the municipalities' revenues, it is anticipated that transfers have a strong positive effect on total expenditures, *TotExp*.
- $CapTransf_{it}$, the real *per capita* capital transfers that municipality *i* receives during year *t*, are used instead of $TotTransf_{it}$ in the equations for capital expenditures *(CapExp)* and investment expenditures *(InvExp)*.[17] Transfers also reflect, and allow us to control for, the macroeconomic performance of the country. We anticipate that greater transfers allow for greater expenditures;[18]
- $CurrentTransf_{it}$, the real *per capita* current transfers that municipality *i* receives during year *t*, are used in the equation for total municipal taxes *(Taxes)*. A negative estimated coefficient is expected, as higher current transfers could allow for a reduction in taxes, without decreasing total current revenues;
- $ElectionYear_{it}$ is a dummy variable that takes the value of 1 in municipal election years and zero in non-election years. With this variable we test the hypothesis that municipal budget deficits and expenditures are higher, and taxes are lower, in election years. Thus, negative

[16] For each municipality, the budget balance was divided by the consumer price index for the base year (1995) and, then, by its population. The budget balance, based on public accounting, is calculated according to the methodology of the General Direction of the Budget *(Direcção Geral do Orçamento)* of the Ministry of Finance, which excludes the transactions in financial assets and liabilities from the totals of revenues and expenditures.

[17] Capital transfers account, on average, for 71.5% of capital expenditures. Descriptive statistics are shown in Table 1.

[18] Since transfers of European Union structural funds are associated with projects that involve municipal co-funding, transfers are partially endogenous relative to expenditures. Thus, total and capital transfers were treated as endogenous in the empirical analysis.

Table 1 Descriptive statistics

Variables	No. obs.	Average	Standard deviation	Minimum	Maximum
Budget, taxes and expenditure items					
Budget balance	6145	−13.14	63.07	−1644.66	1695.37
Taxes	6134	42.82	56.21	0.00	590.74
Total expenditures	6145	356.35	222.49	11.42	2304.04
Capital expenditures	6145	187.07	131.40	5.10	1439.09
Investment expenditures	6068	164.71	119.17	5.03	1439.09
Acquisition of land	5706	4.93	9.97	0.00	204.50
Housing	5789	9.52	23.33	0.00	503.68
Other buildings	4775	28.72	33.38	0.00	466.13
Sports, recreational and schooling facilities	5776	10.01	19.01	0.00	316.69
Social equipment	5775	1.81	7.59	0.00	208.26
Other	4746	15.51	24.02	0.00	306.05
Miscellaneous constructions	4775	109.45	97.51	0.00	1586.74
Overpasses, streets and complementary works	5765	23.37	31.02	0.00	420.11
Sewage	4754	12.20	19.84	0.00	344.66
Water treatment and distribution	4752	14.68	24.54	0.00	500.20
Rural roads	5773	30.70	46.31	0.00	762.46
Infrastructures for solid waste treatment	4746	1.07	10.05	0.00	493.35
Other	4478	21.37	38.25	0.00	618.61
Transportation material	4727	5.03	6.59	0.00	78.03
Machinery and equipment	5792	9.95	10.91	0.00	186.32
Other investments	5514	4.41	14.83	−1.06	264.33

(Continued on next page)

Table 1 *(Continued)*

Variables	No. obs.	Average	Standard deviation	Minimum	Maximum
Transfers					
Total transfers	6142	241.81	169.61	0.00	1890.47
Capital transfers	6132	133.70	102.60	0.00	1193.80
Current transfers	6128	108.57	76.35	0.02	696.67
Political variables					
Election Year	6334	0.30	0.46	0.00	1.00
YearBeforeElection	6335	0.26	0.43	0.00	1.00
Right	6320	0.47	0.49	0.00	1.00
Election Year*Right	6335	0.14	0.35	0.00	1.00
Election Year*Left	6335	0.15	0.36	0.00	1.00
Majority	6323	0.59	0.49	0.00	1.00
Election Year*Majority	6335	0.17	0.38	0.00	1.00
Election Year*Minority	6335	0.12	0.33	0.00	1.00
Election Year*Recand	6237	0.23	0.42	0.00	1.00
Election Year*NoRecand	6335	0.07	0.26	0.00	1.00
Year Leg Election	6334	0.34	0.47	0.00	1.00
Control variables					
Coastline	6394	0.50	0.50	0.00	1.00
Population category (PopCat)	6394	3.08	0.74	0.00	4.00
Population density (PopDens)	6334	2.83	8.99	0.06	112.83
Percentage of the population under 15 years old (%Pop<15)	6326	19.46	4.62	7.74	36.61
Percentage of the population over 65 years old (%Pop>65)	6326	17.12	5.68	5.30	42.15

Sources: DGAL, OECD, STAPE, INE and municipal official accounts
Note: The budget balance, the expenditures and the transfers are always expressed in euros *per capita* (at 1995 prices)

estimated coefficients are expected for *ElectionYear* in the equations for the *BudgetBalance* and *Taxes*, and positive signs are expected in the equations for *TotExp, CapExp* and *InvExp*;

- $Right_{it}$ is a dummy variable that takes the value of 1 when the mayor *(Presidente de Câmara)* of municipality i belongs to a right-wing party (PPD/PSD – Social Democratic Party or CDS/PP – People's Party) and zero when she belongs to a left-wing party (PS – Socialist Party, PCP/CDU – Portuguese Communist Party or PRD – Democratic Renewal Party). With this variable we test for the existence of ideological cycles (see Hibbs, 1977) in the budget balances, taxes and expenditures of Portuguese mainland municipalities;
- Since real *per capita* municipal expenditures and taxes may be affected by variables such as the age structure of the population, population density, geographical location, population, etc., the following control variables were included in all estimations:[19]

  – *%Pop*<15 – Percentage of the population under 15 years old;
  – *%Pop*>65 – Percentage of the population over 65 years old;
  – *PopDens* – Population density;
  – *Coastline* – Dummy variable that takes the value of 1 for municipalities that belong to districts (*Distritos*) along the coastline (the richest and most developed ones), and zero for those that belong to districts located in the interior of mainland Portugal;
  – *PopCat* – Population category: 1 – Lisbon and Porto; 2 – other municipalities, with population over 40000; 3 – municipalities with population between 10000 and 40000; 4 – remaining municipalities.[20]

The empirical model can be summarized as follows:

$$y_{it} = \sum_{j=1}^{p} \alpha_j y_{i,t-j} + \mathbf{X}'_{i,t}\beta + \nu_i + \varepsilon_{it} \quad i = 1, \ldots, N \quad t = 1, \ldots, T_i \tag{1}$$

where y_{it} is the dependent variable and p is its number of lags included in the model, $\mathbf{X}'_{it}$ is a vector of explanatory variables, β is a vector of parameters to be estimated, ν_i is the individual effect of municipality i, and ε_{it} is the error term.

Given the presence of individual effects ν_i, the model referred to above can be estimated assuming those effects as fixed or random. But, the lagged value of the dependent variable would be correlated with the error term, ε_{it}, even if the latter is not serially correlated. This implies that OLS estimates will be inconsistent when there is a clear dominance of cross sections over time periods in the sample.[21] This is the case in our panel, in which the number of municipalities ($N = 278$) is about 12 times larger than the number of years available ($T = 23$).

Arellano and Bond (1991) developed a Generalized Method of Moments (GMM) estimator that solves the problems noted above. First differencing (1) removes the individual effects (ν_i) and produces an equation that is estimable by instrumental variables:

$$\Delta y_{it} = \Delta \sum_{j=1}^{p} \alpha_j y_{i,t-j} + \Delta \mathbf{X}'_{i,t}\beta + \Delta\varepsilon_{it}, \quad i = 1, \ldots, N \quad t = 1, \ldots, T_i \tag{2}$$

[19] Although it would be desirable to also include a variable capturing the municipalities' private income *per capita*, this data is not available for the whole period (available data starts in 1995).

[20] These population categories are used in the legislation to determine the mayors' salaries.

[21] See Arellano and Bond (1991) and Baltagi (2001).

The valid instruments are: levels of the dependent variable, lagged two or more periods ($y_{i1}, \ldots, y_{it-2}$); levels of the endogenous variables, lagged two or more periods ($x_{i1}, \ldots, x_{it-2}$); levels of the pre-determined variables, lagged one or more periods ($x_{i1}, \ldots, x_{it-1}$); and the levels of the exogenous variables, current or lagged ($x_{i1}, \ldots, x_{it}$) or, simply, the first differences of the exogenous variables (Δx_{it}).

More moment conditions are available if we assume that the explanatory variables (x_{it}) are uncorrelated with the individual effects (v_i). In this case, the first lags of these variables (x_{it-1}) can be used as instruments in the levels equation. The estimation then combines the set of moment conditions available for the first-differenced equations with the additional moment conditions implied for the levels equations.

If the level of an explanatory variable x_{it} is correlated with the individual effects v_i but its first-differences (Δx_{it}) are not, lagged values of the first-differences (Δx_{it-1}) can be used as instruments in the equation in levels (Arellano and Bover, 1995). Lagged differences of the dependent variable ($\Delta y_{i,t-1}$) may also be valid instruments for the levels equations. Blundell and Bond (1998) show that this extended GMM estimator is preferable to that of Arellano and Bond (1991) when the dependent variable and/or the independent variables are persistent.[22]

5 Empirical results

The estimation results of the models described in the previous section using the method system-GMM for linear dynamic panel data models are shown in Table 2. It presents the two-step results, using robust standard errors corrected for finite samples.[23] T-statistics are presented between parentheses and the degree of statistical significance is signalled with asterisks. The results of $m1$, $m2$ and Sargan tests are reported at the foot of the table, as well as the number of observations and municipalities.[24]

In all equations, the instruments used for the lagged dependent variable and the endogenous variable (total or capital transfers) were the following: levels lagged 2 to 7 periods were used in the equation in first differences,[25] and once lagged first differences were used in the equation in levels. The exogenous variables were used as their own instruments.

The first lag of the dependent variable is always statistically significant, and it was necessary to include a second lag in the investment expenditures equation.[26] As anticipated, the greater the transfers received by a municipality in a given year, the greater are its expenditures:

[22] Since there is some persistence of expenditures and transfers, it is appropriate to estimate this system-GMM. Furthermore, difference Sargan tests indicate that, for our data, the system-GMM is preferable to the GMM that only includes the first-differenced equations.

[23] Although it is more common to present the one-step results because the two-step standard errors are generally biased downwards, that problem does not apply to our case, since the econometric software *PcGive 10.2* uses the finite-sample correction suggested by Windmeijer (2000). Thus, we present the two-step results, as these have the advantage of being consistent in the presence of heteroskedasticity.

[24] When taking lags and first-differences, the observations for three municipalities created in 1997 (Odivelas, Trofa and Vizela) are dropped, leading to a panel of 275 municipalities and 21 years of observations.

[25] Smaller numbers of lagged levels in the equations in first differences generally lead to the rejection of the validity of the overidentifying restrictions (p-values of the Sargan test below 0.1). All equations were also estimated including all available instruments, and results were essentially the same (they are available upon request). Although there is a gain in efficiency when all available instruments are used, there is a loss of power, since we get weak instruments in the long lags.

[26] The choice of the number of lags to include was based on their statistical significance and on the need to avoid second order autocorrelation of the residuals. Although the second lag of *InvExp* is not statistically significant, there is second order autocorrelation of the residuals when it is excluded.

Table 2 Political business cycles in local finances

	Budget balance	Taxes	Total expenditures	Capital expenditures	Investment expenditures
BudgetBalance (−1)	.125 (3.44)**				
TotalTaxes (−1)		.904 (22.7)**			
TotExp (−1)			.236 (4.21)**		
CapExp (−1)				.236 (7.30)**	
InvExp (−1)					.311 (8.82)**
InvExp (−2)					−.027 (−1.25)
TotTransf			1.013 (16.2)**		
CapTransf				.908 (15.7)**	.832 (20.9)**
CurrentTransf		.00005 (.006)		.908 (15.7)**	.832 (20.9)**
ElectionYear	−15.113 (−7.44)**	−4.524 (−5.75)**	14.371 (7.22)**	13.988 (6.98)**	13.460 (8.06)**
Right	−.867 (−.49)	−.646 (−.79)	−8.690 (−1.87)	7.095 (2.40)*	3.391 (1.36)
%Pop< 15	.198 (.80)	−1.072 (−3.64)**	−5.839 (−7.51)**	−.602 (−1.30)	1.071 (2.65)**
%Pop > 65	−.421 (−1.49)	−.263 (−2.11)**	−2.773 (−3.16)**	−.289 (−.45)	−.516 (−.96)
PopDens	−.069 (−.91)	.099 (1.40)	.813 (1.40)	.282 (1.14)	.472 (1.61)
Coastline	.971 (.63)	4.700 (3.90)**	32.217 (5.03)**	14.552 (4.02)**	9.492 (2.98)**
PopCat	−.596 (−.32)	−2.279 (−2.87)**	−20.755 (−4.61)**	−4.389 (−1.33)	−2.021 (−.65)
*m*1	−3.353**	−5.518**	−5.537**	−5.752**	−6.084**
*m*2	−.844	−.437	−.365	−.243	−.532
Sargan (*p*-value)	.331	.293	.358	.339	.378
No. Observations	5756	5736	5753	5744	5220
No. Municipalities	275	275	275	275	275

Sources: DGAL, STAPE, OECD and INE

Notes: – Estimations of system-GMM linear models for panel data (which combine the equations in first-differences with the equations in levels), using the econometric software *PcGive 10.2*

– two-step results using robust standard errors corrected for finite samples

– T-statistics are between parentheses. Significance level for which the null hypothesis is rejected: **, 1%, and *, 5%

– *m*1 and *m*2 are tests for first-order and second-order serial correlation in the first-differenced residuals, asymptotically distributed as N(0,1) under the null of no serial correlation

– Sargan is a test for the validity of the over-identifying restrictions for the GMM estimators, asymptotically χ^2. *P*-value is reported

the estimated coefficients associated with *TotTransf* and *CapTransf* have positive signs in the last three equations.

There is strong evidence of rational opportunistic cycles for the five dependent variables considered in Table 2, as *ElectionYear* is always statistically significant and with the expected signs. Thus, in municipal election years there are greater budget deficits, lower municipal taxes and higher total, capital and investment expenditures than in the other years of the electoral cycle.[27] Results indicate that, for all else equal, the budget balance decreases by 15.11 euros, taxes decrease by 4.52 euros, total expenditures increase by 14.37 euros, capital expenditures increase by 13.98 euros, and investment expenditures increase by 13.46 euros in the election year (all values are in *per capita* amounts, at 1995 prices). The relative changes, compared to the sample means, are decreases of 115% in the budget balance and of 10.5% in taxes, and increases of 4% in total expenditures, 7.5% in capital expenditures, and 8.2% in investment expenditures. Regarding ideological effects, capital expenditures are greater for right-wing oriented mayors, and there is no evidence of these effects in the remaining items.

It is worth noting that lower taxes and the results of greater expenditures are observed by the electorate prior to elections, while budget deficits, and the accumulation of debt they imply, are not. Thus, according to Rogoff and Sibert (1988) and Rogoff (1990), mayors can take advantage of the asymmetry of information regarding local finances to signal greater competence. Our results show that this is accomplished by reducing taxes and increasing expenditures in an election year relative to the other years of the electoral cycle. This combination gives voters the impression that the mayor is competent, as he/she is able to provide greater output[28] and charge lower taxes at the same time. The budget deficits that result from this opportunistic behaviour lead to an accumulation of debt that is only observed by voters some time after the elections.

Some control variables help explain the differences among municipalities in the behaviour of budget balances, taxes and expenditures: municipalities where the percentage of the population under 15 years old is greater have lower taxes and total expenditures, and higher investment expenditures; a greater percentage of the population over 65 years old is associated with lower taxes and total expenditures; budget balances, taxes and expenditures do not seem to be affected by the population density; municipalities in districts along the coastline have greater taxes and expenditures *per capita*, but do not show different budget balances from the municipalities in the interior; municipalities with smaller population have lower taxes and total *per capita* expenditures, but do not exhibit statistically significant differences from the most populous ones regarding the other items.

In the estimations whose results are shown in Table 3, we tested whether the magnitude of the opportunistic cycle in investment expenditures depends on the mayor's ideology, the support she enjoys in the municipal assembly, or on running for another term in office.[29] Although these do not directly affect the degree of asymmetry of information that exists in the Portuguese municipal sector, they could change the mayors' incentives or make it easier

[27] A model for current expenditures was also estimated. Results confirmed our hypothesis that they were not subject to opportunistic manipulation, given their greater inertia. Nevertheless, we found evidence that left-wing oriented mayors spend more in current expenditures than right-wing ones. These results are available from the authors upon request.

[28] We are assuming that increased expenditures lead to greater output. Although it is possible to spend more funds without providing more services to the municipality, that waste of public money would not be in the best interest of mayors, who wish to appear competent in order to be re-elected.

[29] The five control variables were included in all estimations, but their coefficients and t-statistics are not shown in order to economize space. Furthermore, the objective of this study is to test for the existence of political business cycles, which does not require a detailed analysis of results regarding the control variables.

for him to follow opportunistic policies. First, it is possible that ideology is related to the degree of opportunism. Second, a mayor that is supported by a majority of the deputies of the municipal assembly can more easily obtain the approval of a budget that will lead to a deficit in an election year. Third, the incentive to take advantage of the asymmetry of information may be affected by whether or not the incumbent is running for re-election.

In column 1, the variable *ElectionYear* was interacted with dummy variables representing the mayor' ideology: *Right* and *Left* (=1-*Right*). Results suggest that all mayors behave opportunistically, but left-wing oriented ones increase their expenditures in the election year by a higher amount than right-wing ones: the estimated coefficient associated with *ElectionYear* Left* is more than twice that of *ElectionYear* Right*.[30]

In column 2, we checked whether expenditures and the magnitude of the opportunistic cycle would be different when the mayor had the support of a majority of deputies in the municipal assembly. The dummy variable *Majority* was included in the model, and it takes the value of 1 when the mayor's party has a majority of deputies in the municipal assembly, and zero otherwise. Additionally, the variable *ElectionYear* was interacted with the variables *Majority* and *Minority* (=1-*Majority*). Results indicate that a majority does not significantly affect total investment expenditures or mayors' opportunistic behaviour.[31]

Rosenberg's (1992) hypothesis that incumbents that do not run for another term in office generate a greater opportunistic cycle than those that do is tested in column 3. *Election Year* was interacted with the dummy variables *Recand*, which equals 1 when the mayor runs for another term and zero when she does not, and $NoRecand(= 1 - Recand)$. Since a $Wald$ test does not reject the equality of the estimated coefficients, our results do not confirm the hypothesis and empirical results obtained by Rosenberg (1992) for Israel nor the more conventional hypothesis that a "lame duck" has little incentive to produce a political business cycle.

Considering that some investments may take several months to be concluded, one should expect incumbents to start increasing investment expenditures in the year before elections, in order to signal greater competency to the electorate. We tested that hypothesis by adding to the model of the last column of Table 2 the dummy variable *YearBeforeElection*, which equals 1 in the year before municipal elections and zero in the remaining years. As expected, this variable is statistically significant and has a smaller estimated coefficient than *ElectionYear*[32] (see column 4 of Table 3). The model of column 5 adds the dummy variable *YearLegElection*, which equals 1 in a year of national legislative elections and zero in the other years. Here, we tested the hypothesis that mayors increase expenditures in years of legislative elections in order to contribute to a better result of their parties at the national level. Obtained results support this hypothesis.

As happened in Table 2, there is practically no evidence of ideological effects in investment expenditures: the variable *Right* is statistically significant in the estimation of column 1 but is not significant in the remaining estimations.

According to Rogoff (1990), opportunistic politicians can also signal competence by strategically managing the composition of expenditures, increasing spending on items highly visible to the electorate and decreasing spending on those items that are not so visible. In order to test this hypothesis in the Portuguese case, the next step of the empirical analy-

[30] A Wald test clearly rejects the equality of estimated coefficients.

[31] *Majority* is not statistically significant, and a Wald test does not reject the equality of the coefficients associated with *Election Year* Majority* and *Election Year*Minority.* Results regarding the magnitude of the opportunistic cycle are similar when testing for the effects of a majority in the Town Council.

[32] A Wald test rejects the equality of estimated coefficients.

Table 3 Political business cycles in investment expenditures

InvExp	1	2	3	4	5
InvExp (−1)	.312 (8.83)**	.309 (8.79)**	.331 (8.15)**	.318 (8.94)**	.323 (8.78)**
InvExp (−2)	−.027 (−1.23)	−.028 (−1.32)	−.027 (−1.09)	−.016 (−.70)	−.021 (−.93)
CapTransf	.831 (20.9)**	.833 (21.2)**	.822 (19.8)**	.813 (19.6)**	.811 (19.3)**
Right	6.743 (2.57)**	3.676 (1.45)	3.561 (1.40)	3.208 (1.27)	3.290 (1.30)
ElectionYear*Right	7.993 (4.35)**				
ElectionYear*Left	18.727 (7.37)**				
Majority		3.865 (1.82)			
ElectionYear*Majority		14.027 (5.85)**			
ElectionYear*Minority		12.682 (6.38)**			
ElectionYear*Recand			15.043 (7.22)**		
ElectionYear*NoRecand			10.866 (2.91)**		
ElectionYear				18.363 (10.3)**	20.210 (10.4)**
YearBeforeElection				11.328 (8.37)**	13.701 (7.75)**
YearLegElection					3.922 (2.32)*
$m1$	−6.097**	−6.088**	−5.988**	−6.100**	−6.081**
$m2$	−.527	−.535	−.560	−.546	−.465
Sargan (p-value)	.337	.389	.320	.390	.342
No. Observations	5220	5220	5182	5220	5220
No. Municipalities	275	275	275	275	275

Sources: DGAL, STAPE, OECD and INE

Notes: – Estimations of system-GMM linear models for panel data (which combine the equations in first-differences with the equations in levels), using the econometric software *PcGive 10.2.*

– The coefficients and t-statistics for the five control variables %Pop < 15,%Pop > 65, *PopDens, Coastline* and *PopCat* (included in all estimations) are not shown in order to economize space

– two-step results using robust standard errors corrected for finite samples

– T-statistics are between parentheses. Significance level for which the null hypothesis is rejected: **, 1%, and *, 5%

– $m1$ and $m2$ are tests for first-order and second-order serial correlation in the first-differenced residuals, asymptotically distributed as N(0,1) under the null of no serial correlation

– Sargan is a test for the validity of the over-identifying restrictions for the GMM estimators, asymptotically χ^2. P-value is reported

sis was to estimate the model of column 4 of Table 3 for each of the seven components of investment expenditures (see Table 4). The results show evidence of opportunistic cycles for investments in *Other Buildings, Miscellaneous Construction* and *Other Investments*, for which there are increases in the election year, relative to the sample mean, of 14.9%, 10.4% and 21.7%, respectively. For *Miscellaneous Construction*, the increase in expenditures starts one year before elections. No opportunistic cycles seem to exist in *Acquisition of Land* and *Housing*, and expenditures on *Machinery and Equipment* and *Transportation Material* decrease in election years. Thus, as suggested by Rogoff (1990), there are money transfers from investment components less visible by the electorate to those with greater visibility.

Concerning ideological effects, right-wing oriented incumbents tend to spend, on average, more on *Acquisition of Land* and on *Miscellaneous Construction* (relative increases of 23.3% and 7.8%, respectively), while left-wing ones spend relatively more on *Transportation Material* and *Machinery and Equipment* (relative increases of 11.7% and 13.5%, respectively).

Given the strong evidence of the existence of political business cycles in the components of *Other Buildings* and of *Miscellaneous Construction*,[33] we decided to analyze their subcomponents. In order to economize on space, only the results for the sub-components for which there is evidence of opportunistic cycles are presented in Table 5.[34] In the *Other Buildings* category, this occurs only for the sub-component *Other* (which has a weight of 54%), for which expenditures increase in the election year and, slightly less in the year before (increases of 74.3% and 58.4% relative to the sample mean). In subdivisions of the *Miscellaneous Construction* category, there is clear evidence of opportunistic cycles in *Overpasses, streets and complementary works, Rural roads*, and *Other*, with increases, relative to the sample mean, of 46.9%, 16.8% and 5.6%, respectively. It is worth noting that these three items account for 68.9% of the expenditures in Miscellaneous Constructions. For all of these sub-components, expenditures also increase in the year before elections, although by a smaller amount (relative increases of 24.3%, 7.7% and 4.2%, respectively). There is no evidence of ideological effects for the sub-components of investment expenditures included in Table 5, as the dummy variable *Right* is never statistically significant.

6 Conclusions

Empirical results provide clear evidence of political business cycles. In accordance with the rational opportunistic cycles of Rogoff and Sibert (1988), mayors manipulate economic policy instruments before elections in a manner that could signal greater competence. Municipal taxes decrease in the year (or two years) before elections and budget deficits and expenditures increase.

By using data with a much greater level of expenditure detail than previous studies of political business cycles, we are able to show that this opportunistic behaviour focuses on investment expenditures that are highly visible to the electorate, such as *Other Buildings* (particularly in the sub-component *Other*) and *Miscellaneous Constructions* (specially in *Overpasses, streets and complementary works, Rural roads*, and *Other*), which denotes the

[33] These are the two most important components of investment expenditures, as they jointly account for 83.8% of the total (*Other Buildings* = 17.4% and *Miscellaneous Constructions* = 66.4%).

[34] The results for the other sub-components are available upon request.

Table 4 Political business cycles in investment expenditures components

	Acquisition of Land	Housing	Other buildings	Miscellaneous constructions	Transportation material	Machinery and equipment	Other investments
Dep. Variable (−1)	.138 (1.66)	.412 (9.27)**	.377 (9.97)**	.222 (4.47)**	.104 (2.74)**	.309 (4.5)**	.110 (2.71)**
Dep. Variable (−2)		−.114 (−3.27)**		−.060 (−2.77)**			.046 (2.02)*
Cap Transf	.028 (4.02)**	.030 (2.77)**	.138 (5.58)**	.676 (9.39)**	.001 (.30)	.051 (6.86)**	.021 (3.13)**
ElectionYear	−.003 (−.01)	.186 (.26)	4.292 (4.5)**	11.385 (4.79)**	−.463 (−2.54)*	−.617 (−2.17)*	.962 (3.14)**
YearBeforeElection	.282 (1.03)	.596 (.93)	.512 (.59)	5.362 (2.87)**	.173 (.93)	−.344 (−1.27)	.389 (1.33)
Right	1.149 (3.11)**	.652 (.69)	.186 (.16)	8.568 (2.39)*	−.589 (−2.10)*	−1.347 (−3.70)**	−.246 (−.50)
*m*1	−4.111**	−4.613**	−6.442**	−3.115**	−6.377**	−5.357**	−3.126**
*m*2	−.582	−.102	−1.017	−.045	.182	−.905	−.405
Sargan (*p*-value)	.518	.257	.677	.100	.902	.483	.763
No. Observations	4973	4582	4403	4118	4318	5143	4027
No. Municipalities	275	275	275	275	275	275	275

Sources: DGAL, STAPE, OECD and INE

Notes: – Estimations of system-GMM linear models for panel data (which combine the equations in first-differences with the equation in levels), using the econometric software *PcGive 10.2*

– The coefficients and *t*-statistics for the control variables*%Pop < 15,%Pop > 65, PopDens, Coastline* and *PopCat* (included in all estimations) are not shown in order to economize space

– Two-step results using robust standard errors corrected for finite samples

– *T*-statistics are between parentheses. Significance level for which the null hypothesis is rejected: **, 1%, and *, 5%

– *m*1 and *m*2 are tests for first-order and second-order serial correlation in the first-differenced residuals, asymptotically distributed as N(0,1) under the null of no serial correlation

– Sargan is a test for the validity of the over-identifying restrictions for the GMM estimators, asymptotically χ^2. *P*-value is reported

Table 5 Sub-components of investment expenditures for which there is evidence of political business cycles

Component	Other buildings	Miscellaneous constructions		
Sub-component	Other	Overpasses, streets and complementary works	Rural roads	Other
Dep. Variable (−1)	.308 (6.17)**	.299 (3.10)**	.350 (5.74)**	.244 (3.72)**
CapTransf	.064 (3.92)**	.103 (4.21)**	.144 (6.43)**	.277 (4.62)**
ElectionYear	3.669 (5.47)**	4.463 (4.97)**	4.821 (3.61)**	6.161 (4.77)**
YearBeforeElection	2.882 (4.43)**	2.312 (2.97)**	2.204 (2.52)*	4.633 (4.75)**
Right	.242 (.27)	2.099 (1.68)	2.237 (1.12)	−2.071 (−1.36)
$m1$	−4.784**	−4.310**	−5.412**	−4.330**
$m2$	.037	.609	−1.507	−1.925
Sargan Test (p-value)	.147	.404	.330	.395
No. Observations	4366	5103	5116	3962
No. Municipalities	275	275	275	275

Sources: DGAL, STAPE, OECD and INE

Notes: – Estimations of system-GMM linear models for panel data (which combine the equations in first-differences with the equation in levels), using the econometric software *PcGive 10.2*

– The coefficients and t-statistics for the control variables *%Pop < 15,%Pop > 65, PopDens, Coastline* and *PopCat* (included in all estimations) are not shown in order to economize space

– Two-step results using robust standard errors corrected for finite samples

– T-statistics are between parentheses. Significance level for which the null hypothesis is rejected: **, 1% and *, 5%

– $m1$ and $m2$ are tests for first-order and second-order serial correlation in the first-differenced residuals, asymptotically distributed as N(0,1) under the null of no serial correlation

– Sargan is a test for the validity of the over-identifying restrictions for the GMM estimators, asymptotically X^2. P-value is reported

intention to signal greater competence in pre-election periods.[35] Another advantage of using detailed data on local finances is that we can also test for strategic manipulation of the composition of expenditures. Results clearly show that, while there is an election year increase in investment expenditures in the categories refereed to above, less is spent in categories that are not so visible to voters, such as *Transportation Material* and *Machinery and Equipment.* Thus, contrary to Drazen and Eslava (2005) who, using data for Colombia, found evidence of strategic changes in the composition of expenditures, but not of election year increases in deficits and total expenditures, our study shows evidence of both for Portugal.

The magnitude of the cycle does not seem to depend on the support the mayor enjoys in the municipal assembly, nor on the decision to run for another term in office, but left-wing oriented incumbents tend to be more opportunistic than right-wing ones. Our empirical results provide little evidence of ideological cycles. These seem to exist only in capital expenditures and in some components of investment expenditures.

The instability in investment expenditures leads to inefficiencies in the allocation of resources, which are harmful to the national economy. Thus, the imposition of tougher rules on the management of municipal finances, expressed in stronger limits to deficits and accumulation of debt, may be beneficial.

Acknowledgements The authors wish to thank the Portuguese Foundation for Science and Technology (FCT) for funding the project "Voters, policymakers and the economy" under research grant POCTI/2001/ECO/37457 (partially funded by FEDER) and Henry Chappell and Martin Paldam for helpful comments. The article also benefited from the efficient research assistance of César Coelho, Cláudia Ribeiro, Liliana Veiga, and Diana Lima.

References

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, *58*, 277–297.

Arellano, M., & Bover, O. (1995). Another look at the instrumental variable estimation of error-component models. *Journal of Econometrics*, *68*, 29–51.

Baleiras, R.N., & Costa, J.S. (2004). To be in office again: an empirical test of a local political business cycle rationale. *European Journal of Political Economy*, *20*, 655–671.

Baltagi, B.H. (2001). *Econometric analysis of panel data* (2nd ed.). Chichester: John Wiley & Sons.

Besley, T., & Case, A. (2003). Political institutions and policy choices: Evidence from the United States. *Journal of Economic Literature*, *XLI*(1), 7–73.

Blais, A., & Nadeau, R. (1992). The electoral budget cycle. *Public Choice*, *74*, 389–403.

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, *87*, 115–143.

Cukierman, A., & Meltzer, A.H. (1986), A positive theory of discriminatory policy, the costs of democratic government and the benefits of a constitution. *Economic Inquiry*, *24*, 367–388.

DGAL (1979–1983 and 1986–2000). *Finanças Municipais*, Direcção Geral das Autarquias Locais (DGAL), Lisbon.

Drazen, A., & Eslava, M. (2005). Electoral manipulation via expenditure composition: Theory and evidence. *NBER Working Paper W11085*.

Galli, E., & Rossi, S. (2002). Political budget cycles: The case of the Western German Länder. *Public Choice*, *110*, 283–303.

Hibbs, D. (1977). Political parties and macroeconomic policy. *The American Political Science Review*, *7*, 1467–1487.

[35] In future research we wish to analyze whether these increases in deficits and expenditures before elections influence election results. Studies performed at the aggregate level, Veiga and Veiga (2004a,b), allow us to conclude that both unemployment and inflation affect the vote intentions of the Portuguese and the popularity of the main political entities.

Nordhaus, W. (1975). The political business cycle. *Review of Economic Studies*, *42*, 169–190.
Person, T., & Tabellini, G. (1990). *Macroeconomic policy, credibility and politics*. London: Harvood Academic Publishers.
Pettersson-Lidbom, P. (2001). An empirical investigation of the strategic use of debt. *Journal of Political Economy*, *109*(3), 570–583.
Rogoff, K. (1990). Equilibrium political budget cycles. *American Economic Review*, *80*, 21–36.
Rogoff, K., & Sibert, A. (1988). Elections and macroeconomic policy cycles. *Review of Economics Studies*, *55*, 1–16.
Rosenberg, J. (1992). Rationality and the political business cycle: The case of local government. *Public Choice*, *73*, 71–81.
Seitz, H. (2000). Fiscal policy, deficits and politics of subnational governments: The case of the German Laender. *Public Choice*, *102*, 183–218.
Veiga, L.G. (2002). The political economy of local governments' expenditures. *NIPE – Working Paper*, 8/2002.
Veiga, L.G., & Veiga, F. J. (2004a). Popularity functions, partisan effects and support in Parliament. *Economics & Politics*, *16*(1), 101–115.
Veiga, L.G., & Veiga, F. J. (2004b). The determinants of vote intentions in Portugal. *Public Choice*, *118*(3–4), 341–364.
Windmeijer, F. (2000). A finite sample correction for the variance of linear two-step GMM estimators. *Institute of Fiscal Studies Working Paper Series* No W00/19.