Political business cycles in local employment: Evidence from Portugal

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Abstract

Using employment data for Portuguese municipalities, we find strong evidence of political business cycles. Employment increases shortly before elections mainly in municipalities where the mayor's party has a majority of deputies in the municipal assembly and where she is running for reelection.
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1. Introduction

In this paper we test for the existence of political business cycles in employment in Portuguese municipalities. We use an unexplored dataset covering all mainland municipalities from 1985 to 2000. Our results provide strong evidence of employment increases before elections, particularly in municipalities where the mayor's party has a majority in the municipal assembly and where she is running for reelection. Employment increases are notably higher in construction and public works and in

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community, social and personal services. We argue that these employment variations are a consequence of increases in local public expenditures that were documented by Veiga and Veiga (2004).

2. Political business cycles in local employment

Although the literature on political business cycles is already extensive,[1] most studies focus on the behavior of central governments. However, Rogoff and Sibert (1988), Rogoff (1990) and Harrington (1993) have developed political business cycle models that are applicable to local as well as national governments. These models predict that incumbent politicians may increase spending prior to elections to signal greater "competence." This occurs when voters are rationally, but imperfectly, informed. In contrast, Nordhaus's (1975) well-known model of the political business cycle assumes that voters are myopically responsive to national economic conditions. Testing for the presence of local political business cycles may therefore help to distinguish the applicability of models that would have similar empirical implications at a national level.

In this paper, we use as our laboratory all the Portuguese mainland municipalities. In a previous paper, Veiga and Veiga (2004) provided strong evidence of opportunistic cycles in municipalities' expenditures, particularly in investment items highly visible to the electorate, such as those included in spending categories for *Other Buildings* and *Miscellaneous Constructions* (especially in *Overpasses, streets and complementary works*, *Rural roads*, and *Others*). Pre-election increases in these expenditures are consistent with an effort by mayors to signal greater competence. Building on these results, we now test for the existence of political business cycles in municipal employment.

The dependent variable in our analysis is the change in the number of employees working in the firms in the municipality (ΔEmployment). We are able to disaggregate this variable according to the Portuguese Standard Industrial Classification (CAE) system. Changes in national employment (ΔNational Employment) are used to control for the impact of the macroeconomic situation of the country. The set of political variables used consists of the following dummy variables:

– *Election year* (*year before election*): takes the value of 1 in election years (in the year before elections), and of zero otherwise;
– *Right*: equals one for municipalities run by right-wing mayors, and zero otherwise;
– *Majority* (*minority*): equals one for municipalities where the mayor's party has a majority (minority) in the Municipal Assembly, and zero otherwise;
– *Incumbent*: takes the value of 1 when the mayor is running for another term in office, and zero otherwise.

Three additional variables are included in all models as controls:

– *%Pop<15*: percentage of the population under 15 years old;
– *%Pop>65*: percentage of the population over 65 years old;
– *PopDens*: population density.

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[1] For surveys of this literature see Alesina et al. (1997) and Drazen (2000).

Table 1
Political business cycles in employment

ΔEmployment	1	2	3	4	5
ΔEmployment (−1)	−.131 (−5.49)**	−.133 (−5.58)**	−.130 (−5.49)**	−.131 (−5.58)**	−.131 (−5.50)**
ΔNational Employment	.245 (4.74)**	.320 (5.19)**	.243 (4.73)**	.237 (4.49)**	.245 (4.74)**
Election Year	2.543 (4.16)**	3.477 (5.14)**			
Year Before Election		1.961 (2.94)**			
Right	2.010 (3.58)**	1.930 (3.38)**	1.661 (2.75)**	2.173 (3.73)**	2.006(3.59)**
Election Year*Right			3.497 (3.59)**		
Election Year*Left			1.808 (2.26)*		
Majority				.917 (1.49)	
Election Year*Majority				3.610 (3.63)**	
Election Year*Minority				1.326 (1.64)	
Election Year*Incumbent					2.952 (4.28)**
Election Year*Not Incumbent					.986 (.69)
# Observations	3847	3847	3847	3847	3847
# Municipalities	275	275	275	275	275
Sargan test (*p*-value)	.308	.294	.322	.314	.298

Sources: IMF(IFS), INE, MTSS and STAPE.

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 Stata 8.2.

The coefficients and *t*-statistics for the control variables *%Pop<15*, *%Pop>65*, and *PopDens* (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%.

Sargan is a test for the validity of the over-identifying restrictions for the GMM estimators, asymptotically χ^2. *P*-value is reported. The hypothesis of no second-order serial correlation in the first-differenced residuals is never rejected.

Data on the total number of employees in municipal firms, and according to the Portuguese Standard Industrial Classification system, from 1985 to 2000, was obtained from the *Quadros de Pessoal* database, of the Portuguese Ministry of Labour and Social Solidarity (MTSS).[2] Data on national employment comes from the IMF's *International Financial Statistics*. Political data, namely election dates and municipal electoral results were obtained from the Technical Staff for Matters Concerning the Electoral Process (STAPE). Finally, data on the three control variables was obtained from the Portuguese Institute of Statistics (INE).

It is worth noting that election dates are defined exogenously from the perspective of the local authorities and that, during our sample period, there were no legal restrictions on the number of terms a mayor could serve. In the period subsequent to the re-establishment of Democracy in Portugal in 1974, municipal elections have been held in December of 1976, 1979, 1982, 1985, 1989, 1993, 1997, 2001, and in October 2005.

The empirical model can be summarized as follows:

$$y_{it} = \alpha y_{i,t-1} + X'_{i,t}\beta + v_i + \varepsilon_{it} \qquad i = 1,..,N \quad t = 1,..,T_i \tag{1}$$

where y_{it} is the dependent variable (ΔEmployment), X'_{it} is a vector of explanatory variables (described above), β is a vector of parameters to be estimated, v_i is the individual effect of municipality i, and ε_{it} is

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[2] The *Quadros de Pessoal* are a yearly mandatory employment survey that covers virtually all firms employing paid labor in Portugal.

Table 2
Political businees cycles in employment by economic activity

	CEA 1 Agriculture, Sylviculture, Hunting and Fisheries	CEA 2 Extractive Industries	CEA 3 Transforming Industries	CEA 4 Electricity, Gas and Water	CEA 5 Construction and Public Works	CEA 6 Commerce, Restaurants and Hotels	CEA 7 Transportation, Storage and Communications	CEA 8 Banks, Insurances, Real Estate, and Services to Firms	CEA 9 Community, Social, and Personal Services
Dep. Var. (-1)	$-.063$ $(-4.06)**$	$-.035$ $(-4.61)**$	$-.120$ $(-6.99)**$	$-.049$ $(-3.57)**$	$-.067$ $(-3.70)**$	$-.166$ $(-7.35)**$	$-.176$ $(-2.94)**$	$-.146$ $(-5.26)**$	$-.066$ $(-4.19)**$
ΔNational Employment	1.004 (2.78)**	.591 (0.98)	.122 (.70)	.934 (3.00)**	1.243 (4.56)**	.001 (.02)	.875 (4.00)**	.352 (2.52)*	1.504 (5.32)**
Election Year	6.559 (1.08)	19.569 (2.19)*	1.190 (.74)	10.094 (2.26)*	11.283 (4.48)**	.818 (1.00)	-4.489 $(-.97)$	8.742 (9.00)**	15.155 (5.24)**
Year Before Election					7.023 (2.06)*				10.638 (2.10)*
Right	-7.958 (-1.41)	-10.666 (-0.90)	1.110 (.97)	-9.746 (-1.25)	4.114 (1.86)*	1.791 (2.63)**	1.572 (.61)	.994 (1.37)	-2.935 $(-.83)$
# Observations	3690	2399	3844	3571	3782	3690	3844	3838	3828
# Municipalities	274	226	275	274	275	274	275	275	275
Sargan test (p-value)	.238	.835	.478	.165	.342	.238	.221	.194	.072

Sources: IMF(IFS), INE, MTSS and STAPE.

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 Stata 8.2. Two-step results using robust standard errors corrected for finite samples.

The dependent variable is the percentage change in municipal employment for the classification of economic activity indicated in the respective column.

The coefficients and t-statistics for the control variables $\%Pop{<}15$, $\%Pop{>}65$, and $PopDens$ (included in all estimations) are not shown in order to economize space. T-statistics are between parentheses. Significance level for which the null hypothesis is rejected: **, 1% and *, 5%.

Sargan is a test for the validity of the over-identifying restrictions for the GMM estimators, asymptotically χ^2. P-value is reported. The hypothesis of no second-order serial correlation in the first-differenced residuals is never rejected.

the error term. Given the presence of individual effects, v_i, the model 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. According to Arellano and Bond (1991), this implies inconsistent estimates of the model, when, as in our sample, there is a clear dominance of cross sections (275 municipalities) over time periods (16 years). These authors developed a Generalized Method of Moments (GMM) estimator that solves the problems noted above. First differencing (1) removes the individual effects (v_i) and produces an equation that is estimable by instrumental variables. In this paper, we use the extended version of the GMM estimator proposed by Blundell and Bond (1998).[3]

Table 1 shows the results of estimations for changes in total municipal employment. In the first two columns, we can see that employment increases during electoral years (and the year before), relative to the remaining years of the electoral cycle, and that right-wing mayors increase local employment more than left-wing ones. Then, we tested for differences in opportunistic behavior according to ideology (column 3), the level of support the mayor enjoys at the Municipal Assembly (column 4), and the mayor's decision to run or not for another term in office (column 5). Results indicate that pre-election increases in local employment occur only when the mayor is running for reelection and when the mayor's party has a majority of deputies in the Municipal Assembly. In these circumstances mayors have both stronger incentives and greater power to manipulate spending. These effects are stronger in municipalities led by right-wing mayors.

When we perform the tests in employment series disaggregated by sector of activity (see Table 2), we find that employment increases in electoral years are stronger, and more significant, in *Construction and Public Works* and *Community, Social and Personal Services*. This result is not surprising if we take into account Veiga and Veiga's (2004) finding of strong evidence of opportunistic cycles in Portuguese municipalities' investment expenditures in *Other Buildings*, *Miscellaneous Constructions* and *Other Investments*.[4]

3. Conclusion

Using an unexplored dataset describing employment in all mainland Portuguese municipalities over a period of 16 years, we provide strong evidence of political business cycles in local employment.[5] Although mayors do not control a large fraction of local employment directly, they affect it indirectly through municipal expenditures that generate jobs in local firms. By improving local economic conditions shortly before elections, mayors may signal their competence to the electorate and improve their chances of reelection, consistent with the rational political business cycle models introduced by Rogoff and Sibert (1988).

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[3] Difference Sargan tests indicate that, for our data, this system-GMM estimator, which combines the first-differenced equations with the equation in levels, is preferable to that of Arellano and Bond (1991), which only includes the first-differenced equations. In all estimations, the instruments used for the lagged dependent variable were the following: levels lagged 2 and 3 periods were used in the equations in first differences, and once lagged first differences were used in the equation in levels. Since the remaining explanatory variables are exogenous, they were used as their own instruments.

[4] On these series there are increases in the election year, relative to the sample mean, of 14.9%, 10.4% and 21.7%, respectively.

[5] It is worth noting that results are basically the same when we use employment levels (employment as a percentage of municipal population) instead of changes in employment. These results are available from the authors upon request.

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