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from a natural experiment”**

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# **Term limits at the local government level: Evidence from a natural experiment**

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## **Abstract:**

This paper analyzes the effects of the introduction of term limits at the local government level, using the Portuguese case as a natural experiment. Using a difference-in-differences approach, we find evidence that term limits and incumbency experience matter for fiscal policy choices. Experienced reelection-eligible mayors spend more and are more opportunistic than term-limited and first- or second-term mayors. However, when examining the behavior of different types of term-limited mayors, the results suggest that opportunism may not decrease in municipalities whose term-limited mayors resign before the end of their terms and are replaced by their (eligible) vice-mayors.

**JEL:** D7, H7, K1

**Keywords:** term limits, fiscal policy, local government, Portugal, natural experiment

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## 1. Introduction

The introduction of term limits for public officials is an unusual “natural experiment” in electoral system change that provides a unique testing ground to study the incentive effects of elections on economic policy choices. By reducing rents from holding office, term limits may increase politicians’ incentives to act on behalf of general welfare and not pander to public opinion (Smart and Sturm, 2013). However, they may also reduce reputation-building efforts and the accumulation of experience by incumbent politicians, while diminishing the power of elections to scrutinize competent policymakers (Besley and Case, 1995; Alt *et al.*, 2011; Bonfiglioli and Gancia, 2013). The controversy regarding the impacts of term limits and the focus of most of the existing analyses on the US reality render special importance to the study of the effects of term limits in other countries with different institutional, economic and social settings.

This paper assesses the effects of term limits on the management of local fiscal policy, using as a natural experiment the recent introduction of term limits at the municipal level in Portugal. According to a law approved in 2005, mayors cannot serve for more than three consecutive terms in the same municipality. Despite the fact that 52% of the Portuguese mayors were prevented from running for reelection when the limit became binding in the 2013 local elections, the impact of this institutional change is clearly under-researched. The scarcity of natural experiments such as these and the fact that, in the published literature for countries other than the US, only Brazil and Italy have been studied at the local level renders additional relevance to the analysis of the Portuguese case.

The empirical analysis applies a difference-in-differences (DD) framework to study the effects of the exogenous imposition of term limits (through a law approved in the national parliament) on fiscal policy choices at the local level. This natural experiment, in which the treatment group is comprised of municipalities with term-limited (lame duck) mayors, while

those with reelection-eligible mayors are in the control group, is initially used to check whether being a term-limited mayor influences fiscal policy choices or not. Then, extended DD models, which control for different types of term-limited mayors and for experience, allow for the analysis of heterogeneity in electoral incentives and of accountability effects of elections, by comparing the behavior of reelection-eligible and term-limited mayors who have served for three or more consecutive terms. Finally, another extension of the DD model is used to test the existence of political budget cycles and the hypotheses that term-limited mayors are less opportunistic than reelection-eligible mayors are, and that all lame ducks are not equally opportunistic. We use a comprehensive dataset comprising all 308 Portuguese municipalities over four 4-year terms (from 1998 to 2013). The dataset includes the full public accounts of municipalities and detailed information describing mayors and socio-economic and demographic characteristics of municipalities.

The paper is structured as follows. Section 2 presents a review of the literature on term limits. Section 3 describes the Portuguese local governments' institutional setting and the data used in the empirical analysis. The difference-in-differences econometric models are presented in Section 4, the econometric results are described in Section 5, and Section 6 concludes the paper.

## **2. Literature review**

A fundamental question in political economy is whether the possibility of reelection affects policy choices. By making officials accountable, elections induce them to act in the public interest, reducing moral-hazard (Barro, 1973). If incumbents care about reelection prospects, they are keen to develop a reputation that enhances their reelection chances. Additionally, elections allow the electorate to remove from office politicians who do not behave according to the general interest (Ferejohn, 1986), therefore creating an adverse-selection correction effect. However, when there is asymmetric information between incumbents and voters, the

desire to win elections may lead politicians to adopt populist measures to win votes (Rogoff, 1990; Harrington, 1993). Furthermore, lobbyist capture may increase with additional terms in office (Fund, 1990; Ehrenhalt, 1991).

The rise in public debt levels and the sovereign debt crisis faced by several countries increased interest in studying the advantages and disadvantages of democracy and the effects of constitutional design on public finance. Maskin and Tirole (2004) propose a model to analyze when decision powers should be given directly to voters, delegated to elected representatives, or to non-elected officials. Regarding the optimal term length, they conclude that it should balance the costs of replacing officials with voters' risk aversion to officials adopting policies because they are popular. Bonfiglioli and Gancia (2013) develop a rational model of electoral accountability to study the determinants of political myopia. Despite the political myopia resulting from reelection concerns, they find that ruling out the possibility of reelection reduces politicians' effort and removes the possibility of retaining the best performing officials. They conclude that holding elections is better than having a one-term limit, unless rents from office are very large and differences in ability are low. Similarly, Smart and Sturm (2013) developed a political agency model to show that, despite the accountability effect of elections, term limits can be in the interest of the electorate. By reducing the value of office, term limits induce incumbents to implement policies that are closer to voters' preferences, enabling them to reelect higher quality agents.

Empirical studies analyzing the effects of term limits are relatively scarce, and most of them focus on American states. For US state governors, most studies found systematic differences in state fiscal policies depending on whether governors are subject to a binding term limitation or allowed to stand for reelection. Taxes and expenditures tend to be higher, while income growth tends to be lower, in states imposing term limits, because lame ducks care less about building political reputation (Besley and Case, 1995, 2003; Alt *et al.*, 2011).

Furthermore, accountability and competence effects of elections on governors' performance are different: Economic growth is higher and taxes, spending and borrowing costs are lower under reelection-eligible incumbents than under lame ducks (accountability effect), and under reelected incumbents than under first-term incumbents (competence effect), all else equal. The two effects are of similar magnitude, and in the case of two-term limits, they can cancel each other out (Alt *et al.*, 2011). Empirical results for the effects of term limits in US state legislatures on spending are mixed (Bails and Tieslau, 2000; Erler, 2007; Reed *et al.*, 1998).<sup>1</sup> However, term limits seem to negatively impact on states' fiscal deficits (Cummins, 2012) and bond ratings (Lewis, 2012). Recently, doubts were raised on the research design of previous studies, because they did not take into account that the variables which predict the introduction of term limits in a given state may also influence budgetary decisions. When using the synthetic case control method to account for heterogeneity in the probability of treatment, there is little evidence that term limits on legislators affect state spending (Keele *et al.*, 2013).

Also for the US states, several studies investigated whether term limits reduce electoral manipulations of fiscal variables and pork-barrel policies. For general expenditure, gubernatorial term limits do not appear to significantly affect the magnitude of the political business cycles (Rose, 2006). This finding suggests that governors care for their reputation, probably because they intend to run for higher offices or want to help their party's candidate. However, for environmental policy, when the electorate is pro-environment, lame ducks seem to spend less on the environment than reelection-eligible incumbents (List and Sturm, 2006). Finally, there is evidence that legislators bring less pork provision (fiscal transfers) to

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<sup>1</sup> Bails and Tieslau (2000) find that states with term limits have lower spending than states without them, Erler (2007) argues the reverse, and Reed *et al.* (1998) conclude that there are no effects.

their districts if they cannot run for another term (Bernhardt et al., 2004; Aidt and Shvets, 2012).

Studies focusing on term limits at the local government level are scarce. To the best of our knowledge, only the Brazilian, Italian and Portuguese cases have been studied. For Brazilian municipalities, the empirical evidence suggests that mayors that can run for another term are less corrupt than those that cannot (Ferraz and Finan, 2011), but adopt more opportunistic policies (Klein and Sakurai, 2015). In Italian municipalities, term-limited mayors set lower property tax rates than reelection-eligible incumbents during the term, but a higher rate before the elections (Padovano and Petrarca, 2014). For Portugal, preliminary research suggests that mayors who cannot stand for another term in office choose lower current expenditures and property tax rates relative to reelection-eligible incumbents (Lopes da Fonseca, 2016).<sup>2</sup>

In sum, the introduction of term limits provides a unique opportunity to analyze the effects of elections on fiscal policy choices. We believe that our research on the Portuguese natural experiment can move forward the literature on the topic in several ways. First, the effects of term limits have been studied mainly at the state level for the US. Other countries' experiences with term limits, especially at the local/municipal level, are clearly under-researched and may provide useful insights for countries with similar institutional systems. While in the US, states decide on the adoption of term limits, and term-limit laws vary from state to state,<sup>3</sup> in Portugal the institutional reform was approved by the national parliament (exogenously imposed), and the same law applies to all local governments, rendering the estimation of the term-limit treatment effect less problematic. Second, unlike most previous

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<sup>2</sup> By focusing on just four fiscal policy variables (related only to current expenditures and revenues), and not accounting for the experience of mayors and heterogeneity among term-limited mayors, this working paper's analysis is considerably narrower in scope than ours.

<sup>3</sup> States adopt limits of varying lengths and limits can be consecutive or lifetime.



research, we take into account the effects of incumbents' experience on fiscal policy choices. Third, we have built an extensive dataset on local public finances that goes beyond major aggregates, and includes the socio-economic characteristics of municipalities, and detailed information on mayors, therefore allowing for a thorough study of the effects of term limits on municipal fiscal variables. Finally, we are able to disentangle various types of term-limited mayors (resigning mayors, candidates to other offices, true lame ducks) which provides an opportunity to enrich our knowledge on the underlying causes of eventual behavioral changes during the last term.

### **3. Research laboratory and data**

Portugal is a unitary state,<sup>4</sup> with 308 municipalities (278 of which are in the mainland), all subject to the same legal and institutional framework. Municipalities have a deliberative branch (the Municipal Assembly) and an executive branch (the Town Council). More than half of the Municipal Assembly's members are elected directly by voters, and the remaining members are the presidents of the councils of the *freguesias* that belong to the municipality (who are also elected directly by voters). The mayor is the president of the Town Council and has a prominent role in the executive branch. Besides the mayor, the Town Council includes between four to sixteen additional members depending on the number of voters registered in the municipality. All of its members are elected directly by voters, who vote on party or independent closed lists. Mandates are assigned according to the d'Hondt method, and the first candidate of the list receiving most votes becomes the mayor. Elections for the Municipal Assembly and the Town Council were always held on the same day, and

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<sup>4</sup> Administrative regions were established only in the archipelagos of Azores and Madeira. Local governments include the municipal and parish levels, with each municipality including several parishes (*freguesias*). The latter have a very limited number of functions and resources, and detailed fiscal data at the parish level are not available.

took place in December until 2001, and subsequently in October. The first elections after the reestablishment of democracy in 1974 were held in December 1976. Terms were three years long until 1985, when they were extended to four years.

Until the 2013 local elections, there were no limits on the number of consecutive terms a mayor could serve. In 2013, the average number of terms in office was 2.94, and two municipalities (Braga and Vila Nova de Poiares) had the same mayor from 1976 to 2013 (for 10 consecutive terms). A law approved in 2005 (Law n.º 46/2005) imposed a three-term limit for mayors. This law became binding in the 2013 elections, forbidding 160 mayors from running for reelection in the same municipality. Of these, 82 belonged to the center-right Social Democratic Party (PPD-PSD) or a coalition of PPD-PSD with the Popular Party, 59 to the Socialist Party, 13 to the Communist Party, one to the Left Block, and five were independent. Of the 148 reelection-eligible mayors, 87 were in their first term, and 61 were in the second. Figure 1 presents a map of Portugal, where the municipalities of the term-limited mayors are shaded in red. It can be observed that they were distributed all over the country, with no clear regional pattern.

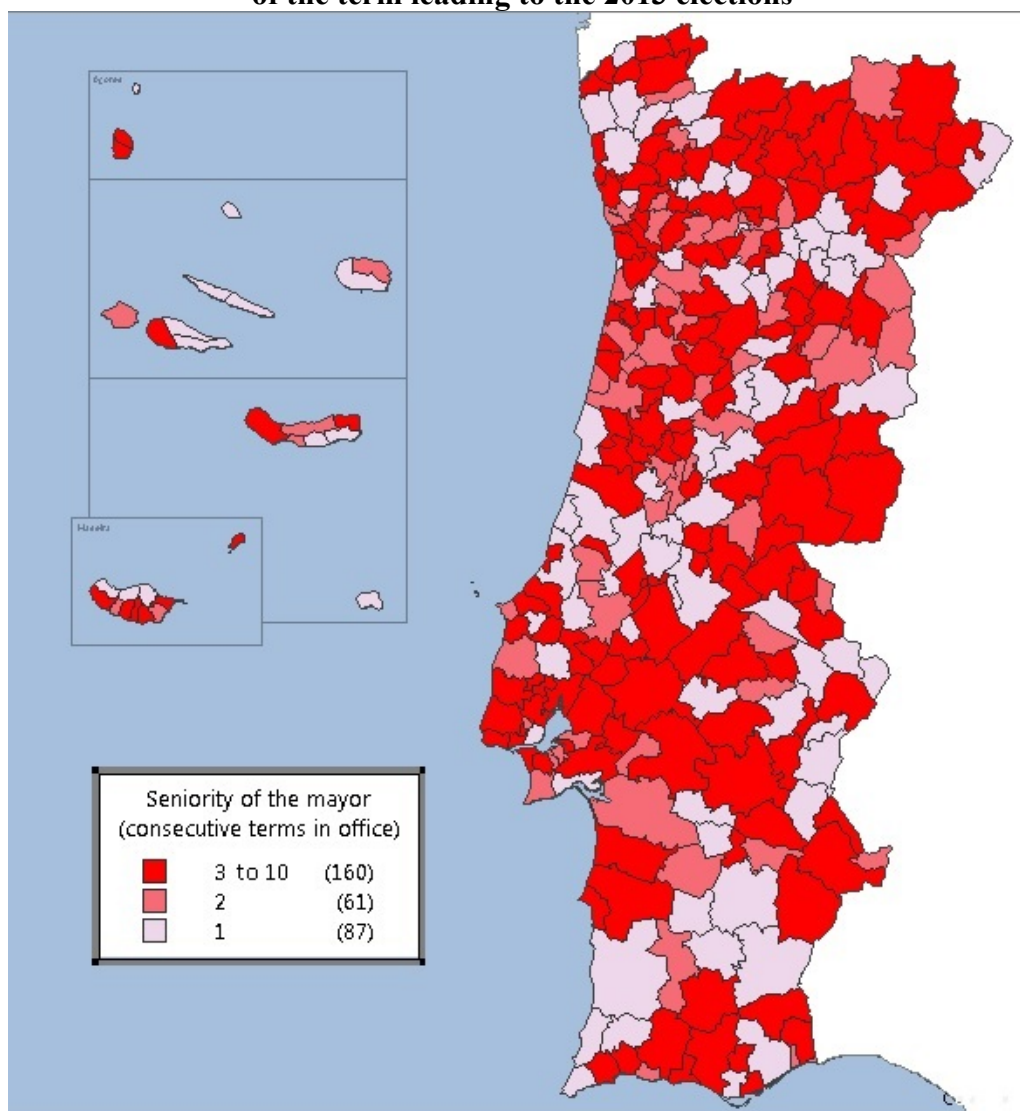
Although many term-limited mayors remained in office until the ends of their terms and did not run for further offices in 2013 (the 61 henceforth referred to as true lame ducks), more than half behaved differently. Twenty-one mayors resigned before the end of their terms, being replaced by their vice-mayors, most of whom ran for mayor in the next elections.<sup>5</sup> Seventy-five mayors, including seven of the resigning mayors, ran for president

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<sup>5</sup> By resigning, a mayor does not regain eligibility for election, but gives some incumbency advantage to the vice-mayor who seeks election. We do not treat as resigning four mayors who stepped down just four months or less before the elections, as they practically concluded their terms and did not give their vice-mayors enough time to introduce changes in local fiscal policy or to benefit from incumbency advantage. Seven resigning mayors who also ran for other offices are treated simply as resigning mayors, so that there is no overlap between the three types of term-limited mayors considered in the empirical analysis.

of the Municipal Assembly. Finally, ten term-limited mayors ran for mayor in a different municipality, six of whom were elected.

**Figure 1: Terms in office of Portuguese mayors at the beginning of the term leading to the 2013 elections**



**Source:** Portuguese Ministry of Internal Affairs.

Given that 52% of all mayors could not run for reelection in the 2013 elections, this legislative reform led to a significant turnover of mayors, and may have had a strong impact on local fiscal policy choices. To study the effects of this exogenous institutional change, a large and detailed panel dataset was built, composed of annual data on fiscal, economic, political and socio-economic variables for all 308 Portuguese municipalities, from 1998 to 2013. Data on local finances were collected from the General Directorate of Local

Authorities (DGAL)'s annual publication *Municipal Finances (Finanças Municipais)* and from DGAL's website ([www.portalautarquico.pt](http://www.portalautarquico.pt)). Political data was obtained from the National Elections Commission, economic and demographic data from the National Statistics Institute (INE), and socio-economic indicators from the *Pordata* database and the Marktest's *Sales Index* database. Data on mayors' characteristics and terms in office was provided by the Ministry of Internal Affairs. Descriptive statistics are presented in Table A.1 in the Appendix.

#### **4. Econometric models**

Panel data models are estimated for the 308 Portuguese municipalities, covering the period from 1998 to 2013. This time period covers the four municipal terms ending in the elections of 2001, 2005, 2009, and 2013. Given that the law restricting the number of consecutive terms in office entered into force in the beginning of 2006, the sample period includes two terms before and two terms after that event. But, since the term limits became binding in the 2013 elections, only the last 4-year term in our sample has term-limited mayors who cannot run for reelection.

##### *4.1 Baseline and extended difference-in-differences models*

The effects of the introduction of binding term limits to Portuguese mayors are assessed in a difference-in-differences (DD) framework, over the entire sample period of 1998 to 2013. Since 160 mayors were lame ducks in their 2010-2013 terms, while the other 148 were reelection-eligible, we can consider the municipalities of the term-limited mayors as the treatment group, and those of the reelection-eligible ones as the control group.<sup>6</sup>

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<sup>6</sup> Contrary to what happened in US states, each Portuguese municipality could not decide when to introduce term limits, as they were exogenously imposed to all municipalities at the same time, despite the fact that mayors in general were against them. Therefore, the use of propensity score matching techniques to identify

This DD framework requires that treated and control municipalities exhibit similar trends before term limits became binding (in the pre-treatment period). Figure 2 shows the paths of the averages of the main fiscal variables in municipalities with term-limited (treated) and reelection-eligible (control) mayors, until 2009. The “common trends hypothesis,” central to the DD framework, seems to be valid for total and current expenditures and revenues, as the lines for the two groups of municipalities exhibit similar behavior. The means of the budget balance seem to follow a common trend after 2002. But, regarding capital expenditures and revenues, it is not so clear that treated and control municipalities behaved in the same manner.

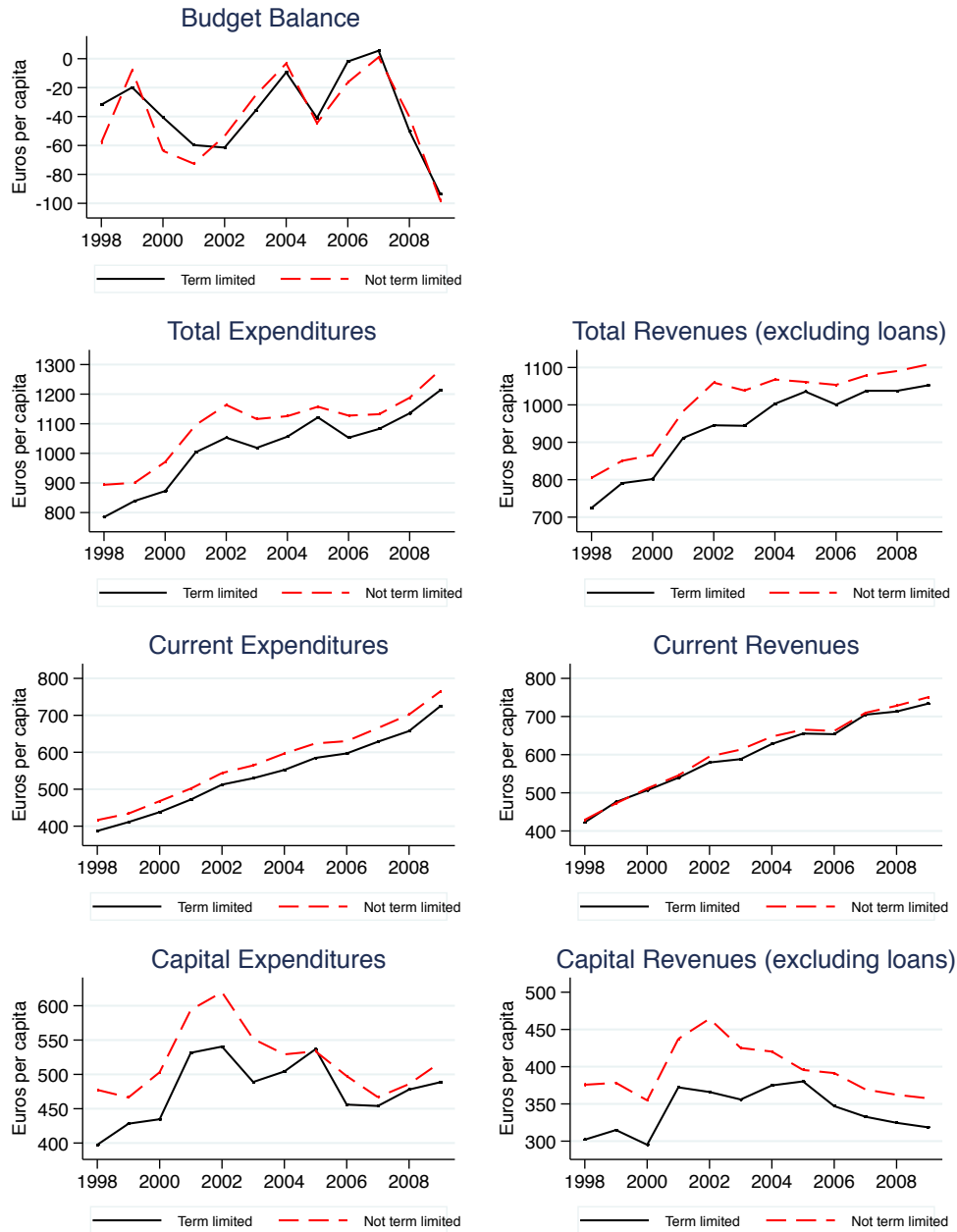
Additional tests of the validity of the DD framework consisted on checking, for each fiscal variable, if treated municipalities behaved differently from the control ones in any year of the pre-treatment period, or if they followed a different linear trend. This does not seem to have happened to any of the seven fiscal variables considered above (see Figures A.1 and A.2 in the Appendix), which provides further support for the validity of our DD framework. The lack of statistical significance of the annual dummies for the treated municipalities in the period 2006-2009 also suggests that the management of local finances by the mayors that would be term-limited in 2010-2013 did not significantly change immediately after the approval of the law imposing term limits (due to eventual anticipation effects).<sup>7</sup>

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municipalities with similar propensity to adopt term limits is unnecessary in this case. Thus, we believe that a regression based DD framework is appropriate to study the effects of the introduction of binding term limits to Portuguese mayors.

<sup>7</sup> The approval of the law in August 2005 could also have affected early retirements during the term leading to the 2005 and 2009 elections. That is, the fact that some mayors knew that they would be term-limited soon could have led them to retire before the law became binding, which could bias the results of the “experiment.” This does not seem to have happened. First, the percentages of mayors running for reelection in 2005 and 2009 were the second and third highest ever (83.1% and 85.06%, respectively), only slightly behind that of 2001 (85.9%). Second, only nine (six) of the mayors elected in 2001 (2005) resigned before the 2005 (2009) elections, which are lower numbers of resignations than in the term leading to the 2001 elections, in which 13 mayors resigned.

**Figure 2: Trends in the main fiscal variables (1998-2009)**



Note: Each line represents the average for each group of municipalities.  
Source: Own calculations using data from DGAL.

Although most of the above-mentioned checks provide support for the “common trends hypothesis,” the differences in the means of capital expenditures and revenues shown in Figure 2 may cast doubts on its applicability to some fiscal variables. Thus, we opt to be extra cautious by controlling for municipal specific trends. According to Angrist and Pischke

(2009: 238-241), this allows treatment and control municipalities to follow different trends in a limited but potentially relevant way.

The baseline DD model, used to test the hypothesis that, on average, term-limited mayors behave differently from reelection-eligible ones, can be summarized as follows:

$$\ln(f_{it}) = \alpha + \delta TL_{it} + X'_{it}\gamma + \mu_i + \lambda_t + \theta_{i.t} + \varepsilon_{it} \quad (1)$$

$$i = 1, \dots, 308 \quad t = 1998, \dots, 2013$$

where  $f_{it}$  is a fiscal variable in municipality  $i$  in year  $t$ ,  $TL_{it}$  is a dummy variable that equals 1 between 2010 and 2013 for the municipalities that have term-limited mayors (with 3 or more consecutive terms in office), and equals zero otherwise. The parameter  $\delta$  measures the treatment effect,  $X_{it}$  is a vector of control variables,  $\mu_i$  are the specific effects of municipality  $i$ ,  $\lambda_t$  are time effects (year dummies),  $\theta_{i.t}$  are municipal specific time trends, and  $\varepsilon_{it}$  is the error term. Vector  $X$  includes a set of control variables that may affect local finances:<sup>8</sup>

- *Left-wing mayor* and *Independent mayor*: these dummy variables control for possible ideological effects on local fiscal variables.
- *Majority*: dummy variable that takes the value of one when the mayor's party has, simultaneously, majorities in the Town Council and in the Municipal Assembly.
- *Unemployment rate (deviation from HP trend)*: this variable controls for the cyclical component of a municipality's economic performance.

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<sup>8</sup> An initial version of vector  $X$  also included population density, the percentages of the population below 15 years old and above 65 years old, and a dummy variable for mayors who hold a university degree. But, Variance of Inflated Factors (VIF) tests indicate that demographic variables create problems of multicollinearity. Since the sample period is relatively short, there is little variation in demographic variables, which results in collinearity with the municipal fixed effects. Additionally, due to lack of information on the academic degrees of several mayors, the dummy for mayors with a university degree has many missing values, and its inclusion in the model leads to the exclusion of 14 municipalities. Although the inclusion of these control variables does not significantly affect the main results (available from the authors upon request), we prefer to exclude them.

- A set of four variables characterizing mayors: age, a dummy variable for female mayors, a dummy for mayors who live in the municipality, and a dummy for mayors who were born in the municipality.

An extended DD model takes the experience effect resulting from holding office into account. As demonstrated by Padró i Miquel and Snyder (2006), legislative effectiveness in the US rises sharply with tenure, at least for the first few terms, even when other characteristics of the legislators are controlled for. They also found that greater effectiveness results from learning-by-doing, and has a positive effect on legislators' electoral success and on their probability of moving to higher office. Inspired by these findings, when studying the effects of US gubernatorial term limits, Alt *et al.* (2011) highlighted that it is necessary to disentangle accountability effects from competence effects. They suggest that differences in performance by reelection-eligible and term-limited incumbents, holding tenure in office constant, identify accountability effects. Competence effects are identified by differences in performance by incumbents with different terms in office, holding term-limit status constant. To distinguish these two types of effects, we include a new dummy variable for less experienced reelection-eligible mayors, *Term1or2*, which takes the value of one for first- and second-term mayors, and equals zero otherwise. The model then becomes:

$$\ln(f_{it}) = \alpha + \delta TL_{it} + \varphi Term1or2_{it} + \mathbf{X}'_{it}\boldsymbol{\gamma} + \mu_i + \lambda_t + \theta_i \cdot t + \varepsilon_{it} \quad (2)$$

$$i = 1, \dots, 308 \quad t = 1998, \dots, 2013$$

Following Padró i Miquel and Snyder (2006), less experienced mayors are expected to be less efficient (competent). Since the base category in the regression (the omitted dummy) is that for reelection-eligible mayors who have served three or more consecutive terms in office, a statistically significant coefficient for the dummy variable *TL* would be consistent with accountability effects of elections, that is, with term-limited mayors behaving differently from equally experienced reelection-eligible mayors.



An additional extension of the DD model accounts for eventual heterogeneous electoral incentives of term-limited mayors, due to the differences in behavior regarding the 2013 municipal elections described in Section 3. Twenty-one mayors resigned before the end of their terms, eventually due to low motivation or popularity, and handed over the leadership to someone they trusted (their vice-mayors) as a way of increasing their party's likelihood of success at the upcoming election. Mayors who ran for further political office may also have behaved differently from true lame ducks, as they were aware that their actions would have reputational consequences, and hence determine the likelihood of winning subsequent elections. In order to account for the effects of these differences in behavior among mayors,<sup>9</sup> we start by creating a categorical variable (*ResOther*) which takes the value of one for mayors who resigned before the end of their terms, equals two and for those who completed their terms and then ran for other political offices, and equals zero otherwise. Then, we interact the dummy variable for term-limited mayors (*TL*) with dummy variables for resigning mayors (*ResOther=1*) and for those who ran for other offices (*ResOther=2*). The full extended DD model is then:

$$\begin{aligned}
 \ln(f_{it}) = & \alpha + \delta TL_{it} + \varphi_1(ResOther = 1)_{it} + \varphi_2(TL_{it} * (ResOther = 1)_{it}) + \\
 & \varphi_3(ResOther = 2)_{it} + \varphi_4(TL_{it} * (ResOther = 2)_{it}) + \\
 & \varphi_5 Term1or2_{it} + \mathbf{X}'_{it} \boldsymbol{\gamma} + \mu_i + \lambda_t + \theta_i \cdot t + \varepsilon_{it} \quad (3)
 \end{aligned}$$

$$i = 1, \dots, 308 \quad t = 1998, \dots, 2013$$

The extended model of equation (3) allows us to measure the effects of binding term limits for the three types of term-limited mayors. In the case of true lame ducks, *ResOther* equals zero, and the effect of term limits is given by  $\delta$ . Statistical significance of  $\varphi_2$  or  $\varphi_4$  would indicate that the effects of term limits for the respective type of mayors are different from those for true lame ducks. One problem with the estimation of equation (3) is that the

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<sup>9</sup> Besley and Case (1995) analysed similar situations for US governors.

dummies based on *ResOther* may be affected by the existence binding term limits. In fact, the numbers of resigning mayors and of those running for other offices were considerably higher in the term leading to the 2013 elections than in the previous terms, and most of those mayors were term-limited. Thus, it seems clear that binding term limits influenced those decisions, which implies that the dummies based on *ResOther* are endogenous and that the estimation of equation (3) by OLS or fixed effects would lead to biased coefficients. To overcome this problem, we estimated by, Maximum Likelihood, a simultaneous equation model which combines a multinomial probit for *ResOther* with a linear regression for the fiscal dependent variable.<sup>10</sup> In the multinomial probit model for *ResOther* we include as independent variables the explanatory variables of equation (3),<sup>11</sup> plus two additional variables (instruments) which are expected to influence a mayor's decision to resign or to run for another office, but are not affected by *TL*: the share of votes received by the mayor's party in the previous elections; and, the number of terms in office of the incumbent mayor.

The results of our models that assess heterogeneous effects of term limits among mayors should be interpreted with caution. The causal interpretation of the interaction effects is problematic, and regression analysis with non-experimental data is likely to produce biased estimates that overstate the effects (Bullock et al., 2010). This may happen because control variables are affected by the treatment or due to the omission of unobserved variables that affect interaction variables. Despite our efforts to avoid endogeneity and omitted variable

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<sup>10</sup> According to Roodman (2011), the estimation of a model which uses the information about the limited nature of the earlier stage dependent variable is more efficient than a 2SLS estimation, which would treat it as if it were continuous and unbounded. Roodman's (2011) *cmp* command for Stata is used in our estimations.

<sup>11</sup> Including municipal fixed effects and municipal specific trends, leads to a very high number of variables, which frequently implies that convergence is not achieved. In order to achieve convergence in the ML estimations, we replaced the 307 municipal specific trends with 25 regional specific trends. As indicated in the robustness tests section, doing the same in the models of equations 1, 2 or 4 does not significantly change the results.

bias problems, we acknowledge that, given the use of non-experimental data, some bias may still exist. In fact, even double-blind randomized controlled trials may provide biased estimates of the efficacy of treatment if there are interactions between treatment and behavior (Chassang et al. 2015).<sup>12</sup>

#### 4.2 Difference-in-differences model for political budget cycles

Modified versions of the DD models of equations (2) and (3) are used to test the hypothesis that term limits affect the magnitude of political budget cycles (Rogoff, 1990). Based on the evidence of opportunistic manipulation of local public finances in Portugal (Aidt, Veiga and Veiga 2011; Veiga and Veiga, 2007a), we check if the degree of opportunism decreases when term limits are binding. More concretely, we start by testing the hypothesis that mayors who have served three or more consecutive terms in office are less opportunistic when they are term-limited than when they are reelection-eligible. For that purpose, we add to equation (2) an election-year dummy, and its interaction with the dummy variables for terms in office. The estimated model is now summarized as:

$$\begin{aligned} \ln(f_{it}) = & \alpha + \delta TL_{it} + \beta_1 ELY_{it} + \beta_2 (ELY_{it} * TL_{it}) + \beta_3 Term1or2_{it} + \\ & \beta_4 (ELY_{it} * Term1or2_{it}) + \mathbf{X}'_{it} \boldsymbol{\gamma} + \mu_i + \omega_t + \theta_i \cdot t + \varepsilon_{it} \end{aligned} \quad (4)$$

$$i = 1, \dots, 308 \quad t = 1998, \dots, 2013$$

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<sup>12</sup> The methods proposed by Chassang et al. (2015) to identify interaction effects are not applicable to our data, as we cannot randomize the probability of a mayor being term-limited. But, by accounting, in the multinomial probit estimations, for the effects of term limits on the probability that a mayor resigns or runs for other public offices, we take into account the effects of term limits on the behavior of mayors. Assessing treatment effects may also be complicated when outcomes depend on unobserved effort decisions taken by agents, as it can even compromise the external validity of randomized controlled trials (Chassang et al. 2012).

where  $ELY_{it}$  is a dummy variable that takes the value of 1 in municipal election years (2001, 2005, 2009 and 2013), and equals zero otherwise,  $\omega_t$  are time effects (mandate dummies),<sup>13</sup> and the remaining variables and parameters are as defined above.

The category left out of equation (4) is that of reelection-eligible mayors who have served three or more consecutive terms in office. Thus, a statistically significant  $\beta_2$ , would indicate that term limits matter for the degree of opportunism. The hypothesis that term-limited mayors are less opportunistic than reelection-eligible ones would be consistent with  $\beta_2 < 0$  for municipal expenditures, and  $\beta_2 > 0$  for municipal revenues (except for loans and transfers). It is worth noting that a model which did not include  $Term1or2_{it}$  and  $(ELY_{it} * Term1or2_{it})$  would simply compare term-limited mayors with all reelection-eligible mayors, without controlling for the latter's experience. Thus,  $\beta_2$  would reflect, not only the effect of term limits on opportunism, but also differences in opportunism related to experience.

An extended version of the model of equation (4), which includes interactions with the dummy variables for resigning mayors ( $ResOther=1$ ) and for mayors who run for other offices ( $ResOther=2$ ) allows us to analyze the degree of opportunism in municipalities ran by true lame ducks, by term-limited mayors who resigned before the end of their terms, or ran for further political offices. In the second case, we expect greater opportunism than for the true lame duck mayors because resigning mayors were replaced by their vice-mayors, who then ran for mayor. The need to signal competence in the short period before the elections may have led to considerable electoral manipulations of fiscal variables. In the last case, the effect might be smaller. Although mayors who ran for further office may still have reputational concerns, they are either running for a substantially less visible and powerful

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<sup>13</sup> Since the election year dummy would be collinear with the year dummies, 4-year mandate dummies (for each election cycle) are included instead of the year dummies.

office (president of the municipal assembly) or for mayor in another municipality, where voters have limited information on their previous behavior.

## 5. Empirical results

This section presents the results of panel data fixed effects and simultaneous equations estimations, with standard errors clustered by municipality (in order to account for serial correlation), performed on panels comprising all Portuguese municipalities. We use a difference-in-differences approach to assess accountability and experience effects, and to check if term limits affect the opportunistic manipulation of local finances in election years.

### *5.1 Baseline and extended difference-in-differences models*

The first step of the empirical analysis uses a difference-in-differences framework (see equation 1) to test for the presence of accountability effects of elections, that is, to test the hypothesis that term-limited mayors behave differently from reelection-eligible ones. In order to economize on space, we only report in Table 1 the results for the dummy variables related to terms in office. Regarding the fiscal variables, we start by showing the results for the main aggregates: the budget balance,<sup>14</sup> total expenditures, and total revenues excluding loans. The results shown in column 1 do not indicate significant differences in average budget balances between term-limited and reelection-eligible mayors, as the dummy variable *TL* is not statistically significant. However, the results of columns 3 and 5 reveal that term-limited mayors have, on average, 6.6% lower total expenditures and 4.1% lower total revenues excluding loans than reelection-eligible mayors. Lower expenditures would please fiscal conservative voters (Peltzman, 1992), but studies focusing on local elections in Portugal find that opportunistic increases in expenditures pay off at elections (Veiga and Veiga, 2007b;

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<sup>14</sup> Since local finance data is reported on a cash basis, total revenues equal total expenditures. The budget balance is then obtained by excluding the transactions in financial assets and liabilities from the totals of revenues and expenditures.

Aidt, Veiga and Veiga, 2011). Thus, lower expenditure by term-limited mayors may result from the fact that they are not worried with reelection. By spending less, they need less revenue, which may help explain the negative coefficient for the latter.

**Table 1 –Difference-in-Differences Models for Accountability and Experience**

VARIABLES	Budget Balance		Total Expenditures		Total Revenues (excluding loans)	
	(1)	(2)	(3)	(4)	(5)	(6)
TL	16.893 (0.816)	6.037 (0.279)	-0.066*** (-2.929)	-0.057** (-2.405)	-0.041** (-2.258)	-0.042** (-2.238)
Term1or2		-19.174** (-2.161)		0.016 (1.443)		-0.002 (-0.194)
# Observations	4,746	4,746	4,748	4,748	4,748	4,748
R-squared	0.135	0.136	0.479	0.479	0.591	0.591

**Notes:** All regressions include municipal and year fixed effects, municipal-specific time trends, and the full set of control variables. The budget balance is measured in real euros (of 2015) per capita and the remaining fiscal variables are measured in logs of real euros per capita. Due to missing values on mayors' characteristics for 1 municipality, the estimations cover 307 (of 308) municipalities. Robust t-statistics, clustered by municipality in parentheses. Significance level: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

The baseline DD models (columns 1, 3 and 5) compare local fiscal policies in municipalities run by term-limited and reelection-eligible mayors, regardless of the experience of the latter. Thus, the differences discussed above may combine accountability effects of term limits (reelection-eligible mayors are more accountable to voters than lame ducks), with experience effects (lame ducks have more experience than first- or second-term reelection-eligible mayors). In line with Alt et al. (2011), we disentangle experience and accountability effects by including in the DD model a dummy variable for municipalities with first- or second-term mayors (*Term1or2*). The category left out is now just that of municipalities with reelection-eligible mayors, who were in their third term or higher. Thus, the coefficient for term-limited mayors (*TL*) indicates the accountability effects, while the one for *Term1or2* reflects experience effects. The empirical results of these extended DD models for accountability and experience are shown in columns 2, 4, and 6 of Table 1. The results regarding the behavior of term-limited mayors remain essentially the same. The

novelty is that there is evidence of lower average budget balances (or of higher deficits) in municipalities run by less experienced mayors.<sup>15</sup>

The results for the components of municipal expenditures and revenues for which statistically significant results were obtained are included in Table 2. Term limits do not influence expenditures with employees, but municipalities run by less experienced mayors seem to have slightly higher (1.3%) average expenditures (Column 1). This result may reflect the need to hire new personnel to implement the policies designed by the recently elected town council team combined with rigid labor market laws that make it very difficult to fire public employees in Portugal. The lower average expenditures of municipalities run by term-limited mayors (found in Table 1) are mainly explained by lower capital expenditures, of which investment is the main component. As will be shown later (in Table 5), the relative lower level of investment by mayors who are stepping down occurs mainly in the election year, due to opportunistic measures adopted by reelection-eligible mayors but not by lame ducks.

**Table 2 –Difference-in-Differences Models for Accountability and Experience:  
Components of Expenditures and Revenues**

<b>VARIABLES</b>	<b>Compensation of Employees (1)</b>	<b>Total capital expenditures (2)</b>	<b>Own revenues (3)</b>	<b>Capital Grants (non-formula) (4)</b>
TL	0.008 (0.487)	-0.118** (-2.466)	-0.052* (-1.871)	-0.222* (-1.747)
Term1or2	0.013* (1.864)	0.015 (0.686)	-0.024 (-1.648)	0.038 (0.654)
# Observations	4,748	4,748	4,748	4,730
R-squared	0.848	0.349	0.626	0.258

**Notes:** All regressions include municipal and year fixed effects, municipal-specific time trends, and the full set of control variables. The fiscal variables are measured in logs of real euros (of 2015) per capita. Due to missing values on mayors' characteristics for 1 municipality, the estimations cover 307 (of 308) municipalities. Robust t-statistics, clustered by municipality in parentheses. Significance level: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

<sup>15</sup> Including two separate dummies for first- and second-term mayors leads to a similar conclusion.

The lower total average revenues of term-limited mayors (see Table 1) seem to result from lower own revenues and non-formula capital transfers, which is also consistent with lower capital expenditures. Apparently, lame ducks may make a smaller effort to negotiate with the central government capital grants beyond those that result from fiscal sharing and are formula determined.

The results for the extended DD model that accounts for heterogeneous incentives among term-limited mayors are presented in Table 3.<sup>16</sup> In order to facilitate the interpretation of the coefficients for the interactions, the estimated marginal effects of term limits for resigning mayors and for those that ran for other offices are reported in the last two rows. Again, there are no significant effects of term limits on average budget balances, regardless of the type of term-limited mayor we consider. Regarding expenditures, true lame ducks exhibit lower total and current expenditures than experienced reelection-eligible mayors. The reduction in total expenditures seems to be greater for those that resign before the end of their terms, as the interaction of (*ResOther=1*) with *TL* is statistically significant and the marginal effect is larger than for true lame ducks. Term-limited mayors who run for other offices or in different municipalities (*ResOther=2*) seem to behave like experienced reelection-eligible mayors (the reference category), as their marginal effects are never statistically significant.

On what concerns revenues, the municipalities of true lame ducks and of those who run for other offices seem to behave like those of experienced reelection-eligible mayors, while municipalities with resigning term-limited mayors reduce total and fiscal revenues. Finally, less experienced reelection-eligible mayors register lower budget balances,

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<sup>16</sup> To economize space the results of the multinomial probit estimations are not reported here. They are available from the authors upon request.



expenditures and revenues than their more experienced and also reelection-eligible colleagues (the reference category).

**Table 3 – Extended DD Models for Accountability and Experience**

<b>VARIABLES</b>	<b>Budget Balance (1)</b>	<b>Total Expenditures (2)</b>	<b>Current Expenditures (3)</b>	<b>Total Rev. (exc. loans) (4)</b>	<b>Fiscal Revenues (5)</b>
TL	2.670 (0.190)	-0.037* (-1.714)	-0.034* (-1.923)	-0.014 (-0.721)	0.007 (0.198)
ResOther=1 (Resign)	-52.086*** (-2.875)	0.061** (2.350)	0.014 (0.941)	0.002 (0.105)	-0.066 (-1.428)
ResOther=2 (Run other office)	-6.386 (-0.363)	-0.007 (-0.312)	0.052*** (2.904)	-0.016 (-0.828)	-0.029 (-0.828)
TL*(ResOther=1)	-5.401 (-0.202)	-0.070* (-1.724)	-0.038 (-1.350)	-0.089*** (-2.623)	-0.174** (-2.529)
TL*(ResOther=2)	-1.874 (-0.080)	0.040 (1.309)	0.016 (0.627)	0.026 (0.943)	0.003 (0.049)
Term1or2	-12.851* (-1.802)	-0.896*** (-3.302)	-0.090*** (-3.043)	-0.049*** (-1.464)	-1.034*** (-3.338)
# Observations	4,748	4,748	4,748	4,748	4,748
<b>Marginal effects of term limits</b>					
ResOther=1 (Resign)	-2.730 (-0.104)	-0.108*** (-2.676)	-0.073*** (-2.636)	-0.103*** (-3.127)	-0.167** (-2.563)
ResOther=2 (Run other office)	0.796 (0.033)	0.003 (0.100)	-0.019 (-0.753)	0.012 (0.468)	0.010 (0.210)

**Notes:** Estimation of a simultaneous model which combines a multinomial probit for *ResOther* with a linear regression for the fiscal dependent variable. Only the results of the latter are reported here. The regressions include municipal and year fixed effects, region-specific time trends, and the full set of control variables. Budget balances are measures in real euros (of 2015) per capita, while the other fiscal variables are in logs of real euros per capita. Due to missing values on mayors' characteristics for 1 municipality, the estimations cover 307 (of 308) municipalities. Robust t-statistics, clustered by municipality in parentheses. Significance level: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

### 5.2 Difference-in-differences models for Political Budget Cycles

In order to check if term limits affect the opportunistic manipulation of local finances in election years, we estimate the extended DD model of equation (4), which interacts an election-year dummy variable with dummy variables for municipalities with term-limited mayors (*TL*) and with less experienced reelection-eligible mayors (*Term1or2*). Table 4 shows the results obtained for the main fiscal aggregates. The estimated marginal effects of the *Election Year* for term-limited and less experienced mayors are reported in the last two rows.

**Table 4 – Difference-in-Differences (DD) Models for Political Budget Cycles**

<b>VARIABLES</b>	<b>Budget Balance (1)</b>	<b>Total Expenditures (2)</b>	<b>Total Revenues (excl. loans) (3)</b>	<b>Total Revenues (excl. loans and formula grants) (4)</b>
Election year	-77.702*** (-6.502)	0.099*** (8.315)	0.031*** (3.657)	0.004 (0.220)
TL	1.737 (0.078)	-0.035 (-1.460)	-0.024 (-1.251)	-0.047 (-1.216)
Election year * TL	1.708 (0.073)	-0.105*** (-4.890)	-0.109*** (-8.655)	-0.089*** (-3.769)
Term1or2	-27.069*** (-2.914)	0.029** (2.381)	0.004 (0.358)	0.024 (1.248)
Election year*Term1or2	28.535** (2.206)	-0.038*** (-3.038)	-0.012 (-1.363)	-0.012 (-0.695)
# Observations	4,746	4,748	4,748	4,746
R-squared	0.119	0.445	0.556	0.372
<b>Marginal effects of <i>Election year</i></b>				
Term-limited mayors	-75.994*** (-3.566)	-0.006 (-0.325)	-0.079*** (-7.606)	-0.085*** (-4.473)
First- or second-term mayors	-49.167*** (-4.915)	0.061*** (7.131)	0.019*** (3.002)	-0.008 (-0.590)

**Notes:** All regressions include municipal and term fixed effects, municipal-specific time trends, and the full set of control variables. The budget balance is measured in real euros (of 2015) per capita and the remaining fiscal variables are measured in logs of real euros per capita. Due to missing values on mayors' characteristics for 1 municipality, the estimations cover 307 (of 308) municipalities. Robust t-statistics, clustered by municipality, in parentheses. Significance level: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Consistent with the evidence for PBCs in Portugal found in previous studies (Aidt, Veiga and Veiga, 2011; Veiga and Veiga, 2007a), budget balances are lower (or deficits are higher), and total expenditures are higher, for the reference category of experienced reelection-eligible mayors, in election years than in the remaining years of the electoral cycle.<sup>17</sup> Higher total revenues (excluding loans) in elections years may seem somewhat surprising, but the fact that they increase less than expenditures (3.1 vs. 9.9 percent), is

<sup>17</sup> The budget balance is reduced by 77.70 euros per capita, while expenditures increase by 9.9 percent (note that they are measured in logs), relative to the other years of the electoral cycle.

consistent with the adoption of opportunistic measures that deteriorate the budget balance. It is also worth noting that the rise in revenues results from the tendency of the central government to increase the global amount of grants in election years. That is, as found by Veiga and Pinho (2007) and Veiga and Veiga (2013), grants are managed opportunistically by the central government. In fact, when formula grants are excluded from total revenues (column 4), the election year effect on the latter disappears.

The penultimate row of Table 4 reports the estimated marginal effects of the election year for term-limited mayors.<sup>18</sup> The latter cut budget balances slightly less than experienced reelection-eligible mayors (the reference category), do not increase expenditures, and reduce revenues in election years. As will be shown below, the reduction in revenues is primarily due to a reduction in non-formula (conditional) grants received from the central government, and not to opportunistic behavior of term-limited mayors. The last row of Table 4 shows the marginal effects of the election year for less experienced (first- or second-term) reelection-eligible mayors. These seem to be less opportunistic than their more experienced and also reelection-eligible colleagues, inducing smaller election year reductions in budget balances and increases expenditures. Overall, the results indicate that experienced reelection-eligible mayors are the most opportunistic.

Table 5 reports the results for expenditure and revenue components. Expenditures on employees and on investment significantly increase during election years in the municipalities run by experienced reelection-eligible mayors (the reference category). Although fiscal revenues are reduced in elections years, they are compensated by increases in non-formula (conditional) grants received from the central government in election years. These may result from greater effort or greater political ability and connections of reelection-

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<sup>18</sup> The overall election year effect for term-limited mayors corresponds to the sum of the coefficients for *Election year* and for *Election year\*TL*.

eligible experienced mayors, or from the above-referred opportunistic management of grants by the central government.

**Table 5 – Difference-in-Differences (DD) Models for Political Budget Cycles:  
Components of Expenditures and Revenues**

VARIABLES	Expenditures		Revenues	
	Compensation Employees (1)	Investment (3)	Fiscal (5)	Non-formula Grants (7)
Election year	0.101*** (15.683)	0.145*** (4.306)	-0.071*** (-6.730)	0.096** (2.188)
TL	0.036** (2.302)	-0.020 (-0.252)	-0.018 (-0.650)	-0.070 (-0.764)
Election year * TL	-0.145*** (-15.203)	-0.171*** (-2.628)	0.046*** (2.774)	-0.247*** (-3.783)
Term1or2	0.027*** (3.636)	0.055 (1.481)	-0.032** (-2.050)	0.053 (1.145)
Election year * Term1or2	-0.042*** (-5.822)	-0.066* (-1.942)	0.038*** (3.234)	-0.052 (-1.208)
# Observations	4,748	4,748	4,748	4,736
R-squared	0.781	0.458	0.720	0.234
<b>Marg. effects of Election Year</b>				
Term-limited mayors	-0.043*** (-6.040)	-0.026 (-0.446)	-0.024 (-1.515)	-0.151*** (-2.904)
First- or second-term mayors	0.059*** (13.757)	0.079*** (3.144)	-0.033*** (-3.754)	0.045 (1.256)

**Notes:** All regressions include municipal and term fixed effects, municipal-specific time trends, and the full set of control variables. The fiscal variables are measured in logs of real euros (of 2015) per capita. Due to missing values on mayors' characteristics for 1 municipality, the estimations cover 307 (of 308) municipalities. Robust t-statistics, clustered by municipality, in parentheses. Significance level: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Estimated marginal effects for each category when the other categories are set at zero.

The marginal effects of *Election year* are quite different for the municipalities of term-limited mayors. First, there is a reduction in the compensation of employees. Second, there are no significant election-year effects on investment expenditures and fiscal revenues. Third, there is a reduction in non-formula (conditional) grants from the central government, which helps explain the reduction in total revenues found in Table 3. This may result from lower effort of these mayors, expressed in a smaller number of applications for funding and/or weaker lobbying at the central government. Thus, binding term limits seem to affect

the behavior of mayors, eliminating the strategic manipulation of wages, investment, and fiscal revenues to woo the electorate, and the effort to obtain grants from the central government.

As indicated by the results shown in Table 3, less experienced reelection-eligible mayors seem to be less opportunistic than their more experienced and also reelection-eligible colleagues. Concretely, they increase expenditures and reduce fiscal revenues by smaller amounts in election years. Additionally, they seem to have a smaller capacity to obtain non-formula related grants from the central government.

In order to check for heterogeneous behavior of term-limited mayors in election years, the model of equation (4) was extended by including interactions with the dummy variables for the mayors that resigned before the end of the term (*ResOther=1*) and for those who ran for other political offices (*ResOther=2*). Since the inclusion of several additional interaction terms makes the tables of results quite long and hard to interpret, only the estimated marginal effects of the *Election year* are reported in Table 6.<sup>19</sup> The results suggest that true lame ducks are less opportunistic than equally experienced reelection-eligible mayors (the base category), as they do not increase total expenditures and do not decrease fiscal revenues in election years. The same appears to apply to term-limited mayors who ran for other offices or in different municipalities, as their estimated marginal effects are quite similar to those for true lame ducks. Municipalities with resigning term-limited mayors, who handed over the leadership to the vice-presidents, exhibit greater reductions in fiscal revenues than true lame ducks, do not face an election year reduction in non-formula (conditional) grants from the central government, and rely more on revenues from loans.

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<sup>19</sup> Graphs of the estimated marginal effects of *Election year* are presented in Figure A.3 of the Appendix. The full estimation results are available from the authors upon request.

**Table 6 – Extended DD Models for Political Budget Cycles – Marginal Effects of Election Year**

<b>Marginal effects of <i>Election Year</i></b>	<b>Budget Balance</b>	<b>Total Expenditures</b>	<b>Total Revenues (excluding loans)</b>	<b>Total Revenues (excluding loans &amp; formula grants)</b>	<b>Fiscal Revenues</b>	<b>Revenues from Non-formula Grants</b>	<b>Revenues from Financial Liabilities (loans)</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>	<b>(6)</b>	<b>(7)</b>
Base category (experienced reelection-eligible mayors)	-77.520*** (-6.735)	0.100*** (8.871)	0.032*** (3.934)	0.005 (0.289)	-0.074*** (-7.154)	0.102** (2.574)	0.762*** (8.595)
True lame ducks	-63.053*** (-3.042)	-0.015 (-0.593)	-0.083*** (-5.162)	-0.105*** (-3.442)	-0.030 (-1.278)	-0.207** (-2.281)	0.719*** (2.843)
Resigning lame ducks	-138.730* (-1.923)	0.044 (0.722)	-0.073** (-2.417)	-0.016 (-0.278)	-0.084*** (-2.933)	0.212 (1.334)	1.578*** (3.947)
Lame ducks who ran for other Offices	-68.994** (-2.071)	-0.016 (-0.603)	-0.076*** (-5.544)	-0.075*** (-2.920)	-0.019 (-0.887)	-0.166** (-2.504)	0.743*** (3.119)
Term 1 or 2 mayors	-44.299*** (-4.511)	0.057*** (6.743)	0.019*** (3.009)	-0.010 (-0.695)	-0.031*** (-3.535)	0.016 (0.464)	0.651*** (8.847)
# Observations	4,748	4,748	4,748	4,748	4,748	4,748	4,567

**Notes:** The estimated marginal effects are based on the estimation of a simultaneous equation model which combines a multinomial probit for *Res\_Other* and a linear regression for the fiscal dependent variable. The budget balance is measured in real euros (of 2015) per capita and the remaining fiscal variables are measured in logs of real euros per capita. Significance level: \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Although the estimated coefficients for the budget and total expenditures also suggest greater opportunism, Wald tests do not reject the equality of marginal effects for resigning and true lame ducks for these two fiscal variables. The stronger opportunistic behavior may be due to the need to signal competence by the former vice-mayors who replaced the resigning mayors, as practically all of them ran for mayors in the next elections. Being less known to voters than experienced mayors, and having a shorter period to show what they are capable of, they might have felt the need to behave more opportunistically in order to increase the likelihood of being elected in 2013. Finally, as indicated by the results shown in Tables 3 and 4, less experienced mayors seem to behave less opportunistically than, also reelection-eligible, more experienced ones. That is, they decrease budget balances, increase expenditures, and reduce fiscal revenues by smaller amounts in election years.

### *5.3 Robustness tests*

Several tests were conducted to check the robustness of the above-described results.<sup>20</sup> First, we tried alternative versions of the vector of control variables, such as including more demographic variables, more mayors' characteristics, or excluding some or all of the mayors' characteristics. Second, we analyzed if the effects of term limits depend on mayors' ideology. Third, the robustness of the results for the true lame ducks was checked by excluding resigning and candidate lame ducks from the sample. Fourth, we replaced the municipal specific linear time trends with the Hodrick-Prescott trend of the dependent variable in the estimations. Fifth, we used region specific trends instead of municipal specific trends in all estimations. Finally, we removed the 30 municipalities belonging to the archipelagos of Madeira and Azores. The main results and conclusions did not change materially in any of these robustness tests.

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<sup>20</sup> These tests are available from the authors upon request.

## 6. Discussion and conclusion

The study of the effects of the introduction of term limits at the local government level in Portugal reveals that municipalities with term-limited mayors have lower expenditures and revenues than those with reelection-eligible mayors. These results contrast with those of Besley and Case (1995; 2003) and Alt et al. (2011), who found that US states with term-limited governors had greater expenditures and taxes. Several differences between the two countries may explain these contradicting results. First, while American voters seem to be fiscally conservative (Peltzman, 1992), there is evidence that Portuguese voters appreciate increases in expenditures and reward opportunism at the polls (Veiga and Veiga, 2007b; Aidt, Veiga and Veiga, 2011).<sup>21</sup>

Second, since Portugal is a highly centralized country, where local governments strongly depend on transfers from the central government, it is not surprising that Portuguese voters are pleased with increases in expenditures in their municipality. In our sample, own revenues generated by local governments only represent around one third of effective revenues, indicating that citizens are not fully aware of their true costs, or that they perceive that most of the costs are being passed on to others. Third, unlike in the US, Portuguese municipalities cannot file for bankruptcy, meaning that those that faced greater financial distress were bailed out by the central government. Thus, both the soft budget constraint and the common pool problems apply to the Portuguese case. Finally, citizens' engagement in fiscal matters and fiscal policy transparency is lower in Portugal. While in the US, citizens are frequently called upon to express their opinion on fiscal affairs through initiatives such as open government, participatory budgeting, and referenda on important investment decisions, referenda at the

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<sup>21</sup> On this topic, the international empirical evidence at the subnational level is mixed, revealing that it is country-specific. While Brender (2003) found that Israeli voters penalize expansionary fiscal policies by mayors, Akhmedov and Zhuravskaya (2004), Sakurai and Menezes-Filho (2008), and Jones et al. (2012), respectively analyzing the Russian, Brazilian, and Argentinian cases, conclude the opposite.



municipal level never occurred in Portugal, and measures to increase citizens' participation and fiscal policy transparency have only recently been adopted.

Regarding political budget cycles, the empirical evidence indicates that lame ducks manage budget balances and the size and composition of expenditures and revenues in a less opportunistic manner than experienced reelection-eligible mayors. These results are consistent with List and Sturm (2006) and Klein and Sakurai (2015) who found that term limits mitigate political budget cycles, and with Aidt and Shvets (2012) who found that term-limited US state legislators provide less pork to their constituencies. Our empirical evidence is also supportive of Smart and Sturm's (2013: 93) claim that, without term-limits, "the payoffs from future periods in office can make even public-spirited politicians unwilling to take actions today that are in the interest of voters, if doing so reduces their re-election prospects."

As indicated by Besley and Case (1995), term-limited policymakers are not all alike, as some may run for further office, and parties still exist after the election. Thus, political reputation may not end with a binding term limit. Our results suggest that, both over the entire term and in the election year, fiscal policy choices of mayors that ran for president of the Municipal Assembly of their municipality, or for mayor in another municipality, were similar to those of true lame ducks. Thus, they were also less opportunistic than equally experienced reelection-eligible mayors, probably because they ran for a lower office and were already well known by their constituency, or would be evaluated by inhabitants of other municipalities. The highest degree of opportunism among municipalities with term-limited mayors was found in those whose mayors resigned before the end of the term. These municipalities seem to undertake larger election-year reductions in taxes, matched by greater increases in financial liabilities (loans), than those of other types of term-limited mayors. This degree of election year fiscal manipulation, more similar to the behavior of reelection-eligible mayors, may result from the efforts of the vice-mayors who replaced the resigning mayors, most of whom ran for mayor

in 2013. Since they were in charge for a relatively small period and were less known by the electorate, they may have felt the need to signal competence.

Overall, our results are in line with the theoretical model of Smart and Sturm (2013) and suggest that term-limits are in the interest of Portuguese voters, even though elections may have a disciplining effect on politicians and enable voters to retain well-performing incumbents. This institutional change may also have positive effects on the adoption of new management practices, the transparency of fiscal policy, and on lobbyist capture. However, more time is needed to clearly evaluate the net advantages of the introduction of term-limits at the local government level in Portugal.

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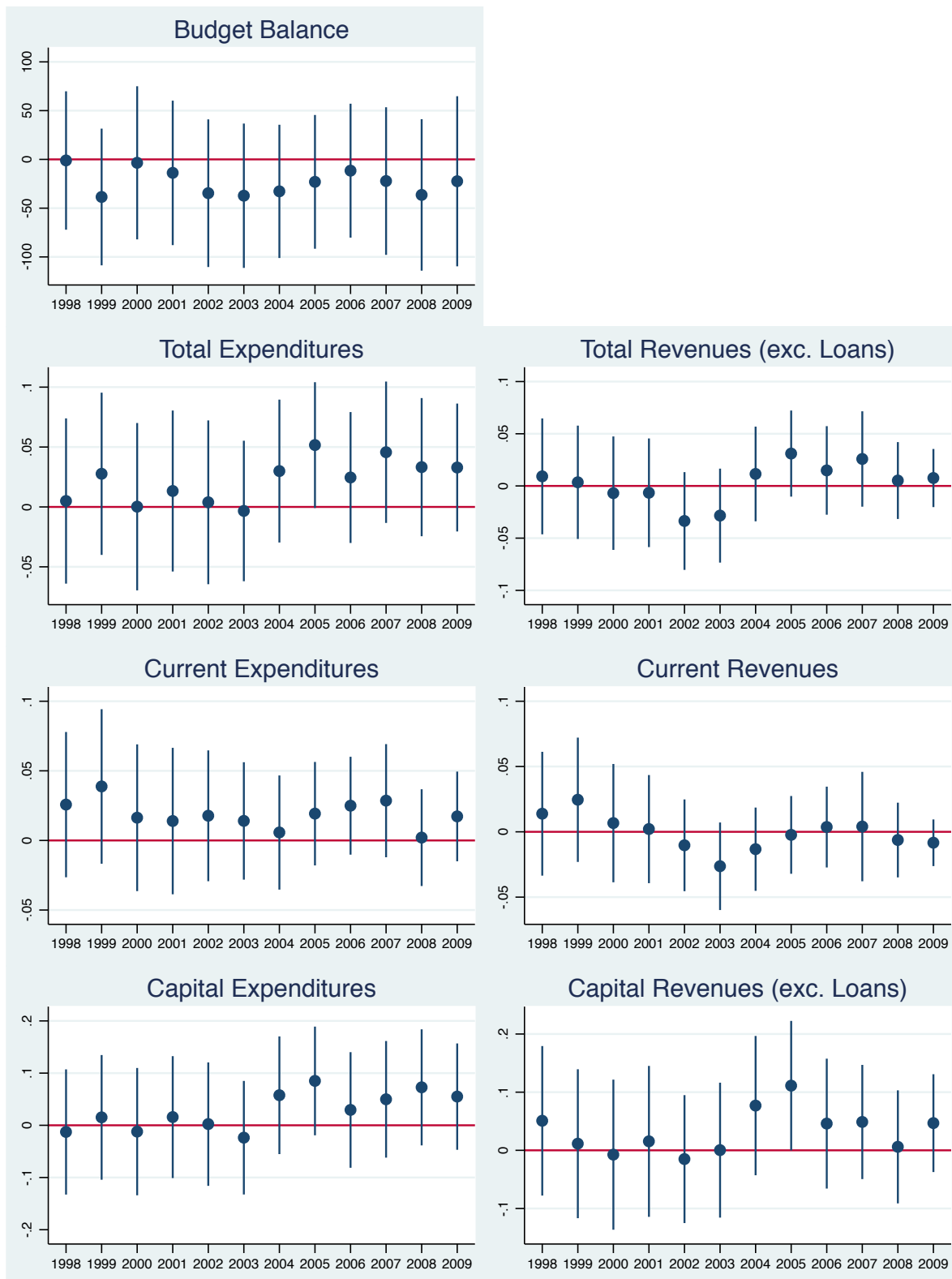
## Appendix:

**Table A.1 – Descriptive Statistics (1998-2013)**

VARIABLES	Obs.	Mean	Std. Dev.	Min.	Max.
<b>Fiscal variables (in real euros per capita, at 2015 prices)</b>					
<i>Budget Balance</i>	4,923	-25.70	160.89	-3955.61	1301.34
<i>Total Expenditures</i>	4,925	1076.16	591.39	173.66	8614.36
Total Current	4,925	593.72	318.01	91.94	2868.39
Comp. Employees	4,925	292.67	179.30	18.78	1888.96
Total Capital	4,925	482.44	355.61	45.54	6656.47
Investment	4,925	333.92	285.03	4.19	6289.28
<i>Total Revenues (exc. Loans)</i>	4,925	994.70	531.46	199.93	8320.12
Total Current	4,925	638.11	295.64	129.27	2734.77
Fiscal Revenues	4,925	159.70	141.80	6.16	1566.25
Total Capital (exc. Loans)	4,925	356.35	301.82	2.07	6536.90
Non-formula Grants	4,925	187.62	196.57	0.00	5404.80
Loans (Financial liabilities)	4,925	83.85	186.44	0.00	7164.29
Own Revenues	4,925	295.99	196.57	38.45	2660.42
<b>Term and election variables</b>					
Number of terms (mayor)	4,916	2.62	1.77	0.00	10.00
TL (term-limited mayor)	4,928	0.13	0.34	0.00	1.00
Resign (Res_Other=1)	4,928	0.04	0.20	0.00	1.00
Run Other Office (Res_Other=2)	4,928	0.09	0.29	0.00	1.00
Term_1_or_2	4,928	0.57	0.49	0.00	1.00
Election year	4,928	0.25	0.43	0.00	1.00
<b>Main control variables</b>					
Left-wing mayor	4,928	0.50	0.50	0.00	1.00
Independent Mayor	4,928	0.01	0.12	0.00	1.00
Majority	4,928	0.78	0.41	0.00	1.00
Unemployment rate - deviation from HP trend (in p.p.)	4,824	0.03	0.71	-7.33	4.24
<b>Mayors' characteristics</b>					
Age	4,887	51.71	8.12	28.00	78.00
Lives in the municipality	4,853	0.92	0.28	0.00	1.00
Born in the municipality	4,887	0.68	0.47	0.00	1.00
Female	4,899	0.06	0.23	0.00	1.00

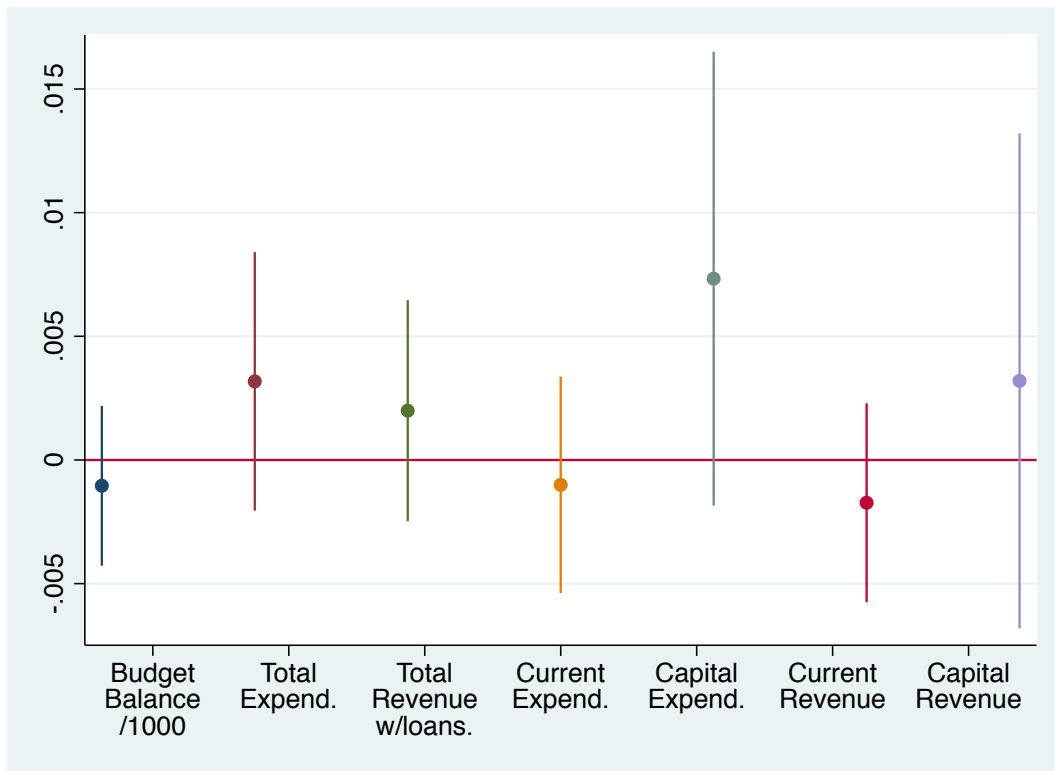
**Sources:** Directorate General for Local Authorities (DGAL), Portugal. National Elections Commission (CNE), National Institute of Statistics (INE), Institute of Employment and Professional Training (IEFP), Ministry of Internal Affairs, *Pordata* - FFMS, and *Sales Index - Markttest*.

**Figure A.1 – Year Dummies for the Treated Group in the Pre-Treatment Period**



**Note:** The graphs show the coefficient estimates and 95% confidence intervals of year dummies for the treated municipalities in the pre-treatment period (1998-2009). The estimated models also include municipality and year fixed effects. The budget balance is in euros per capita, while the other variables are in logs of euros per capita.

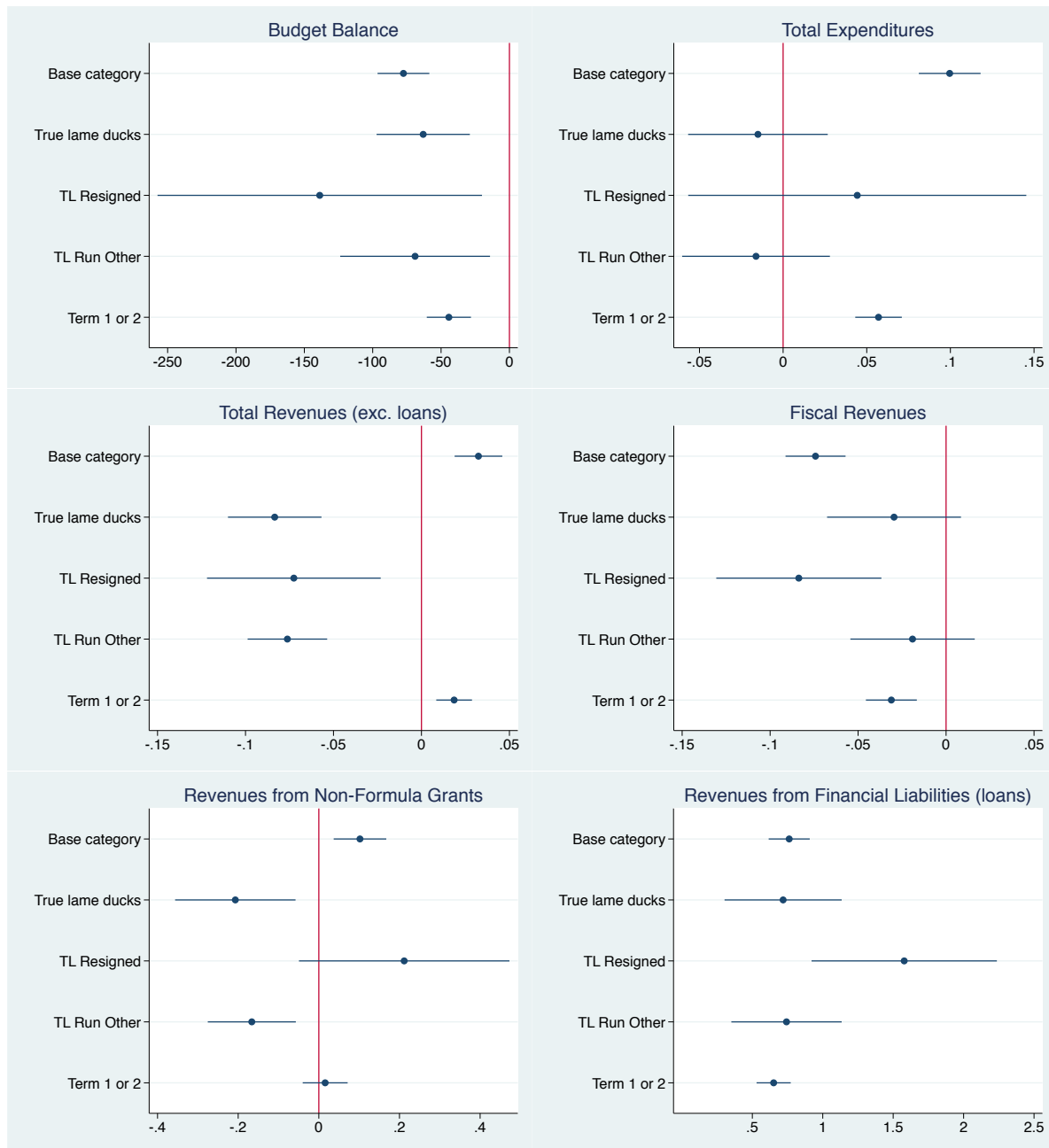
**Figure A.2 – Linear Trend for the Treated Group in the Pre-Treatment Period**



**Note:** This figure shows the coefficient estimates and 95% confidence intervals of linear trends for the treated municipalities in the pre-treatment period (1998-2009), obtained in regressions for each fiscal variable, which included municipality and year fixed effects. Expenditure and revenue variables are in logs of real euros per capita. The budget balance (in real euros per capita) was divided by 1000 in order to fit the same scale (in the vertical axis) as the logs of the other variables.



**Figure A.3 - Extended DD Model for PBCs: Marginal Effects of Election Year**



**Note:** Estimated marginal effects with 90% confidence intervals. The budget balance is measured in real euros (of 2015) per capita and the remaining fiscal variables are measured in logs of real euros per capita.

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