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"Fiscal Forecast Manipulations and Electoral Results: Evidence from Portuguese Municipalities"

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Universidade do Minho
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Fiscal Forecast Manipulations and Electoral Results: Evidence from Portuguese Municipalities

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Abstract

This paper aims to evaluate the impact of budget forecast manipulations on election results using a sample that covers all 308 Portuguese municipalities over the period running from 1998 to 2017. The results reveal that incumbent mayors overestimate revenues and expenditures. Overstating the budget more on the revenue side, they end up with a deficit. We check whether this opportunistic behavior is electorally beneficial. The results provide little or no evidence that election-year manipulations of revenue forecasts affect the vote shares of the parties of the incumbent mayors. On the other hand, the opportunistic management of total and capital expenditure forecasts pays off, which is consistent with previous results for Portugal indicating that increased total and, mainly, capital expenditures lead to higher vote shares.

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1   Introduction

The literature on the political economy of fiscal forecasting shows that governments tend to overestimate revenues for election years. For non-election years the incentives are mixed, depending on the government's motives. Nevertheless, a higher degree of overestimation can be expected when reelection is more uncertain (Bischoff and Gohout, 2010).

Several studies find evidence supporting this hypothesis (Boylan, 2008; Bischoff and Gohout, 2010; Anessi-Pessina and Sicilia, 2015; Boukari and Veiga, 2019). For example, Boylan (2008) finds an important political influence: budgets in the year ending right before an election or starting before an election tend to be based on optimistic forecasts. Likewise, comparing French and Portuguese local governments, Boukari and Veiga (2019) find that budget forecasts are biased (though seem to have been more cautious in French departments than in Portuguese municipalities). They also find that these biases are essentially driven by electoral motivations and institutional differences. However, there is much less evidence about the electoral consequences of budget forecast manipulations.

The purpose of this paper is thus to check whether fiscal forecast manipulation is a winning strategy for a politician. Specifically, we investigate the impact of budget forecast manipulations on the electoral fortunes of Portuguese mayors. To the best of our knowledge, only Benito et al. (2016) tested this hypothesis, using Spanish municipal data.

An important related question is that of the mechanism behind this relationship. There is a multitude of channels by which incumbent governments can enhance their reelection chances through budget forecasting. We here discuss two channels: overestimate revenues or underestimate budget deficits. On one side, oversestimating revenues creates room for maneuver, even in the presence of Budget Balance Rules (Boylan, 2008; Benito et al., 2013). Thus, the government can plan higher expenditures in election year. As more spending might have real economic consequences, such as lower unemployment rates or larger transfer payments, this can increase the reelection chances, in particular if voters are fiscal liberals.

On the other side, the government can underestimate the budget deficit in order to show its competence. Incumbents can underestimate forecasts in order to downplay overall spending increases and demonstrate that they are responsible managers of the public purse (Rodgers and Joyce, 1996). In addition, pessimistic revenue forecasts may provide a cushion for unexpected expansionary fiscal policies especially if voters are fiscal conservatives.

This paper contributes to the literature by showing the impact of budget forecast manipulations on the vote shares obtained by Portuguese mayors. To this end, we use both the aggregate

and the disaggregated data, with two advantages in comparison with Benito et al. (2016). First, we can evaluate the overall impact of budget manipulation. Second, the disaggregated data helps to identify the driving component of the overall impact.

To anticipate our main results, we find that incumbent mayors overestimate revenues and expenditures. With greater overestimations on the revenue side, they end up with budget deficits in election years. The estimation results do not provide a robust indication that election-year opportunistic manipulations of revenue forecasts affect the vote shares of the parties of the incumbent mayors. But, on the other hand, we obtain robust results which support the hypothesis that strategic manipulation of total and capital expenditures is associated with higher vote shares. This is consistent with previous results for Portugal (Veiga and Veiga, 2007b; Aidt et al., 2011), which indicate that higher total, and especially, capital expenditures in election years pay off in terms of increased vote shares for the party of the incumbent mayor.

The paper is structured as follows. The next section presents the background literature. Section 3 describes the institutional environment of Portuguese municipalities and provides details of the sample, variables and empirical analysis. Section 4 shows the effects of budget forecast manipulations on election results. Finally, section 5 concludes.

2   Literature review

This paper relates to the literature on the political economy of fiscal forecasts. Although there is no cohesive theoretical approach for analyzing budget forecasts, we build on a comprehensive literature dating back to the Political Business Cycle theory.

The Political Business Cycle theory, introduced by Nordhaus (1975), formalizes the common perception that politicians use expansionary economic policies in a pre-election period to enhance their chances of re-election. Opportunistic politicians are primarily interested in retaining office. When they face an electorate that prefers high growth and low unemployment, politicians may use expansionary fiscal or monetary polices to create a short term economic boom before and during the election campaign. Naive voters are unable to understand the politician's manipulation of the economy and its adverse future effects. On the contrary, they enjoy the boom and re-elect the politician. This approach faced many critics, notably the lack of empirical support (see Drazen, 2000).

Nordhaus' approach was later refined by a number of scholars to incorporate rational expectations and emphasize the presence of uncertainty regarding the the competence level of policymakers (see Rogoff and Sibert, 1988; Rogoff, 1990). Moreover, the analysis was shifted

from macroeconomic variables to fiscal ones, giving rise to the Political Budget Cycles (PBC). This is because macroeconomic variables are not really subject to direct government control, while taxes or transfers (economic policy instruments) are more easily controlled and manipulated. In fact, if a cycle really exists, it should be found not in the results of economic policy, but in the instruments of economic policy (Dubois, 2016).

Hence, the Political Budget Cycles literature studies the relationships between fiscal variables (public spending, taxes, budget deficits) and the electoral calendar. The basic assumption in this strand of literature is that politicians opportunistically manipulate fiscal policy instruments to achieve electoral goals. Therefore, one can question how this is possible in a rational expectation framework?

The answer resides in the fact that, although, voters are rational, there are information asymetries between them and the government, and this allows the emergence of political cycles. In these models, signaling or mozal hazard are the driving forces behind the PBC (Rogoff, 1990; Shi and Svensson, 2006)[1]. For example, Shi and Svensson (2006) show in their moral hazard model that politicians may behave opportunistically even if most voters know the government's policy, but some voters are uninformed. The larger the number of voters that fail (ex ante) to identify election-motivated fiscal policy manipulations, the more the incumbent profits from boosting expenditures before an election.

Political Budget Cycles take many forms. Instead of increasing public spending, deficit or debt, the incumbent can reduce taxes immmediately prior to elections. Another practice consists in manipulating budget projections to enhance reelection chances (Chatagny and Soguel, 2012; Bischoff and Gohout, 2010). Brück and Stephan (2006) name this as 'Political Forecast Cycle', and they argue that governments will attempt to introduce more popular measures immediately before an election, whereas less popular measures will be implemented immediately after an election. For example, a government may increase spending prior to an election and hide the emerging budget deficit from the electorate until polls close, so exploiting temporary information asymmetries.

Chatagny and Soguel (2012) argue that incumbents create buffers by underestimating tax revenue in order to put pressure on expenditure, and subsequently create a revenue windfall, thereby reducing the deficit. Furthermore, they suggest, without testing it explicitly, that the creation of a precautionary buffer may be subsequently used to increase expenditure in an election year.

In line with competence showing, Jochimsen and Lehmann (2017) argue that the overes-

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[1]see de Haan and Klomp (2013) for a review.

timation of future tax revenues can be viewed as a way of disguising an explicit deficit. In fact, overestimating tax revenues opens up two main strategies for the incumbent government. First, it might plan larger expenditures or lower taxes, keeping estimated deficits constant. Or, second, it might keep planned expenditures and tax rates constant and reduce the estimated deficit.

Several studies find evidence giving support to the 'Political Forecast Cycle' hypothesis (Boylan, 2008; Bischoff and Gohout, 2010; Anessi-Pessina and Sicilia, 2015; Boukari and Veiga, 2019). For example, Boylan (2008) finds an important political influence: budgets in the year ending right before an election or starting before an election tend to be based on optimistic forecasts. Likewise, comparing French and Portuguese local governments, Boukari and Veiga (2019) find that budget forecasts are biased (though seem to have been more cautious in French departments than in Portuguese municipalities). They also find that these biases are essentially driven by electoral motivations and institutional differences. However, there is much less evidence about the electoral consequences of budget forecast manipulations.

Bischoff and Gohout (2010) hold that governments can increase their re-election probability by forecasting higher expenditures in the election years. They argue that the government's ability to increase expenditures or avoid cuts in the election years is greater if it has under-estimated taxes in the preceding years. They add that biased forecasts allow governments to increase expenditures in election years, especially if there is no legal punishment or a durable popularity decline when forecasts turn out not to be tenable.

Benito et al. (2016) provide evidence that politicians create buffers by underestimating tax revenue, thereby reducing (increasing) fiscal deficits (surpluses) in the preceding years, to increase expenditure in the pre-election and election years. Their estimates reveal that tax revenue underestimation two years before elections influences the mayor's party reelection prospects positively.

Besides the opportunistic approach, there are models based on the idea that partisan politics matters (Hibbs, 1977). According to Hibbs (1977), politicians use the economy to carry out their ideological objectives. It is commonly assumed that left-wing parties favor public spending increases while right-wing parties aim at budget reductions. Therefore, the government political ideology may also impact budget manipulation (Benito et al., 2016).

Other scholars build on the weak government hypothesis and presume that the level of political fragmentation may also influence the manipulation of budget forecasts (Goeminne et al., 2008; Jochimsen and Lehmann, 2017). Goeminne et al. (2008) suggest that government fragmentation leads to more optimistic revenue forecasts. Jochimsen and Lehmann (2017) find

strong support for partisan politics. Left-wing governments seem to produce more optimistic or less pessimistic tax revenue forecasts than right-wing ones do.

Coalition governments face higher deficits than majority or no-coalition governments because the former, weakened by internal conflicts, are influenced by interest groups. This leads to spending increases (Roubini and Sachs, 1989). Furthermore, unlike single-party governments, coalition parties must make more promises, the toll for temporary or permanent backings. In other words, single-party and majority governments can afford to be unpopular if necessary and still hope to win elections later (Brück and Stephan, 2006). Therefore, promises and forecasts would be more consistent in single-party or majority governments, representing minor deviations in the budget.

Empirics show mixed results regarding the impact of the weak governement hypothesis on budget forecasts. Goeminne et al. (2008) show that two-party governments are more optimistic in their revenue projections than single-party governments. However, governments with at least three parties are less optimistic than single- party or two-party governments. Contrary to the theoretical prediction based on the "common pool" problem, Jochimsen and Lehmann (2017) find that more fragmented governments and parliaments tend to produce more pessimistic or less optimistic tax revenue forecasts. One reason might be that at least one of the incumbents will stay in office and will be part of the next government.

3 Empirical setting

3.1 Legal and Institutional framework

This section presents the legal and institutional environment within which Portuguese municipalities operate. Portugal is a unitary and centralized country with three levels of governement: the central government, regional governments in the autonomous regions of Azores and Madeira, and 308 municipalities (278 in the mainland, 19 in Azores and 11 in Madeira). All municipalities, regardless of location, share the same institutional structure and are governed by the same laws and financial regime. With this common regime, the municipalities are financially autonomous and can, without authorization from a higher-ranked authority, define their own budgets, collect the revenues they are entitled to by law and allocate expenditures.

The central government has delegated a number of competencies to the municipalities, namely the promotion of local economic development and territorial organization, as well as the provision of several public goods related to water and sewage, energy, transportation, housing,

healthcare, education, culture, sports, environmental protection and public order.

Concerning the institutional structure, Portuguese municipalities have two representative branches : the Town Council (*Câmara Municipal*), which holds the executive power, and the Municipal Assembly, the deliberative branch. The latter approves the general framework for local policies and the municipal budgets and accounts, while the Town Council is responsible for their elaboration and implementation. In the last quarter of each year, the Town Council submits a plan of activities and a budget 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 members of both chambers are elected by the registered voters of each municipality for a four-year term (Boukari and Veiga, 2019).[2]

While all members of the Town Council are elected directly by voters, half plus one of the members of the Municipal Assembly are elected directly, and the others are the presidents of the parishes that belong to the municipality.[3] The leader of the most voted list for the Town Council becomes the mayor. All the councilors are elected for four years. Besides presiding the Town Council and choosing which executive competencies are delegated to other elected members,[4] the mayor has ample autonomy regarding human resource management, authorization of contracts, and allocation of financial resources. Additionally, the mayor's party generally holds a majority of deputies in both the Town Council and Municipal Assembly, making the budgets proposed by the mayor's team easy to approve. Although mayors have ample autonomy regarding the allocation of resources, most municipalities have limited ability to raise own revenues and are, therefore, dependent on transfers from the central government.[5]

Until the 2005 municipal elections, mayors could run for another term without any legal limit on the number of previous terms in office. Hence, some have held office since the very first elections in December 1976. These prolonged time in office generated some discussions that ultimately led, in 2005, to the imposition of a three-term limit to every municipal office holder (Castro and Martins, 2013).

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[2]The elections for both chambers, and those for the parish assemblies, are concurrent and take place in all municipalities at the same time. Voters cast their votes in party or independent closed lists, and votes are transformed into mandates using the Hondt method.

[3]The parish president is the leader of the most voted list for the Parish Assembly.

[4]Usually, only the Town Council's members (*vereadores*) that belong to the mayor's party receive delegated executive competencies.

[5]Portuguese municipalities can obtain loans, but medium to long term debt (over one year) can only be used to fund investment expenditures. The current limit on municipal gross debt corresponds to 1.5 times the average current revenues of the last three years.

3.2 Data

To investigate the impact of budget forecast manipulations on electoral outcomes, we use a panel data set including all 308 Portuguese municipalities over the period 1998-2017. During the period of this study, five municipal elections (2001, 2005, 2009, 2013, and 2017) occured in Portugal, generally in October.

Data on municipal finances was gathered from the Directorate General of Local Governments (DGAL). Political variables come from the Ministry of Internal Affairs. The source of economic and demographic variables is the National Institute of Statistics (INE).

The dataset compiled is clearly suitable for the purpose of this paper. First, all Portuguese municipalities operate under the same institutional framework. Second, the local governments decide autonomously on the projected fiscal resources and expenses they use in the budgetary process. In addition, some authors suggest that local governements are the suitable level to test PBC theories. Rogoff and Sibert (1988) argue that voters evaluate incumbent's abilities through the efficiency achieved in the provision of public goods. Based upon this argument, Veiga and Veiga (2007a) suggest that sub-national governments have more capacity to influence voters, because their powers impact directly on citizens' quality of life (education, security, waste collection, etc.), rather than national duties such as national defence, exterior relationships or judicial administration.

Like Boukari and Veiga (2019), we measure the forecast manipulation by the *Percent Forecast Error (PFE)* indicator:

$$PFE_{x,t} = \frac{(A_{x,t} - F_{x,t}) * 100}{A_{x,t}} \tag{1}$$

where x is the analyzed budget segment (revenues, expenditures or a part of them), and PFE is the Percent Forecast Error. A refers to actual or real figures in the budget. F stands for the forecasted value, i.e. the original budget.

This indicator gives information about the direction and the extent of the bias. On the revenue side, a positive PFE corresponds to an under-estimate or conservative forecast and a negative PFE to an optimistic forecast. The opposite stands on the expense side. Moreover, an under-estimation of revenues ($PFE > 0$) represents a favorable variance and an overestimation means an unfavorable variance in the annual report (Mayper et al., 1991).

In this paper, we consider the main components of the municipal budget (Total effective revenue, i.e. revenue excluding loans and total expenditure) and their main sub-components. On the revenue side, we consider current and capital revenue, and also emphasize direct taxes (which are part of current revenue). Municipal current revenues include taxes, fees and penal-

ties, property income, current transfers from the central government or the European Union, sales of good and services, and other current revenues. Capital revenues include the sale of investment goods (e.g., real estate), capital transfers, financial assets and liabilities, and other capital revenues. Direct taxes are part of current revenues, and their main components are property taxes, taxes on the sale of property, a surcharge on corporate income taxes, and vehicle taxes.

On the expenditure side, two components are taken into account: current expenditure and capital expenditure. Current expenditures include wages, purchases of goods and assets, interest payments, transfer payments, subsidies, and other current expenditures. Capital expenditures include investments (by far, the most important component), capital transfer payments, expenditures with financial assets and liabilities, and other capital expenditures.

The descriptive statistics for election years and mayors running for reelection are provided in Table A.1 in the Appendix. Concerning the PFE, we note that there is overestimation of both revenues and expenditures. For example, the average PFE for total revenue (excluding loans) is -54.52% and for total expenditure it is -48.87%. Overall, there is evidence of optimistic revenue and pessimistic expenditure forecasts. Altogether, the calculations show that, on average, the forecasts of total revenue and of the other budget components exceed actual outcomes.

Regarding control variables, roughly 55% of the incumbent mayors are reelected. In 4 out of 5 cases, incumbent mayors have a majority in both the Town Council and the Municipal Assembly. On average, mayors in our sample have been in office for at least two terms and 42% of them are from the same party as the central government.

3.3   Method

The empirical analysis is carried out in two steps. First, we run the mean difference test over several groups (election vs. nonelection years, year before election vs. other years, run for reelection vs. lame-ducks, reelected vs. non-reelected mayors). In the second step, we test the following hypothesis: election-year forecast manipulations increase vote shares for incumbent mayors.

Notice that the vote shares obtained have consequences on the ability to govern. Concretely, they determine if the government is single party or a coalition and, in the case of the latter, the relative strength of the mayor's party in the government coalition. Even when the incumbent's party does not win the elections, the vote share obtained determines its ability to be part of

the ruling coalition or to constrain the actions of the winner. Thus, we analyze the effect of budget manipulations on the vote share of the party of the incumbent mayor.

With the main variables of interest being the election-year percentage forecast error, we estimate the following model (equation 2):

$$Votes_{it} = \beta_0 + \beta_1 PFE_{it} + X'_{it}\Gamma + \beta_{10} Wm_{it-1} + \zeta_i + \psi_{it} \tag{2}$$

where $Votes_{it}$ is the vote share obtained by the party of the incumbent mayor. X_{it} is a vector of control variables (*Left, Majority, Terms in Office, Unemp, Rgdpg, Budget Stress (Bs)* and *Dens*).

Left is a dummy variable that equals 1 when the mayor belongs to a left-wing party and 0 otherwise. This variable captures the partisan effect. According to Hibbs (1977), politicians use the economy to carry out their ideological objectives. We have no prior on the sign of the variable *Left*.

Majority takes the value 1 if the mayor's party holds a majority of deputies in both the Town Council and in the Municipal Assembly, and equals zero otherwise. With this variable, we test the impact of the government's political strength. As having majority eases passing bills, we expect a positive sign of the coefficient of this variable.

Terms in Office is the number of mandates the mayor of municipality i has been in office. We expect that this variable reduces the vote share of the incumbent's party because popularity tends to erode with time in office.

Although debate continues as to the underlying mechanism driving economic voting, there is a general consensus that economic evaluations play an important role in the vote calculus (Lewis-Beck and Stegmaier, 2008). Therefore, some additional economic variables are also added as controls, namely the unemployment rate *(Unemp)*, regional GDP growth *(Rgdpg)*, *Budget Stress (Bs)* and population density *(Dens)*.

In addition, we add the win margin in the previous election. This variable picks up unobserved factors such as the mayor's personal characteristics, as well as party affiliations of voters. We expect persistence in voter preferences (and thus in voting behavior) and predict that its coefficient is positive.

The full linear panel data model can be written as:

$$\begin{aligned} Votes_{it} = \beta_0 + \beta_1 PFE_{it} + \beta_2 Left_{it} + \beta_3 Majority_{it} + \beta_4 TiO_{it} + \beta_5 Govparty_{it} \\ + \beta_6 Unemp_{it-1} + \beta_7 Rgdpgr_{it-1} + \beta_8 Bs_{it-1} + \beta_9 Dens_{it} + \beta_{10} Wm_{it-1} + \zeta_i + \psi_{it} \end{aligned} \tag{3}$$

where ζ_i are municipal fixed effects and ψ_{it} is the error term. β_0 to β_{10} are parameters to be estimated.

Since we wish to check if budget manipulations pay off at the polls, the regressions are ran only for election years and mayors running for reelection. We restrict the sample to mayors running for reelection because they are the ones who are most interested in winning the elections. Thus, their budget formulations need to be influenced by electoral considerations.

Given the fact that the set of cross-sectional units (municipalities) is not randomly selected, a fixed effects model is preferred. Thus, we first run our regressions using the fixed effects estimator, clustering standard errors at the municipality level. But, since some of our explanatory variables might be endogenous, our coefficient estimates might be biased. We take this possibility into account by running IV-regressions.

4 Empirical Results

4.1 Difference of means tests

The results reported in Table 1 indicate that all revenue and expenditure items are overestimated, as the mean PFEs are always negative. When comparing election to non-election years, the difference of means is statistically significant, with a positive sign, for capital revenues, indicating that these tend to be especially overestimated in election years, which is consistent with the results of Boukari and Veiga (2019), indicating opportunistic management of revenue forecasts. As for expenditure items, the overestimation is significantly smaller in election years. A reduced overestimation is consistent with a greater execution rate, that is, with increased spending in election years. Thus, the difference of means tests also indicate opportunistc behavior regarding expenditure forecasts.

Table 1: Difference of means test over Election years

	Non-election-years	Election-years	Difference
PFE-Effective Revenue	-53.89	-54.16	0.27
PFE_Current Revenue	-13.36	-12.36	-1.00
PFE-Capital Revenue	-181.79	-207.42	25.63***
PFE-Direct taxes	-6.62	-4.73	-1.89
PFE-Total Expenditure	-53.69	-48.81	-4.89***
PFE-Current Expenditure	-16.18	-13.43	-2.75***
PFE-Capital Expenditure	-112.21	-104.40	-7.81**
Observations	4303	1519	

In Table 2, we compare the year before election to the first two years of the same electoral

cycle (the election year is excluded). Since none of the difference of means is statistically significant, mayors seem to forecast revenues and expenditures similarly in the first three years of the electoral cycle. That is, as shown in Table 1 the opportunistic forecast manipulation seems to happen only in the election year.

Table 2: Difference of means - Year before Election vs. First 2 Years

	First two years	Year before Election	Difference
PFE-Effective Revenue	-54.37	-53.00	-1.37
PFE_Current Revenue	-13.32	-13.44	0.12
PFE-Capital Revenue	-184.92	-176.01	-8.91
PFE-Direct taxes	-6.91	-6.07	-0.85
PFE-Total Expenditure	-53.64	-53.79	0.15
PFE-Current Expenditure	-15.82	-16.88	1.06
PFE-Capital Expenditure	-111.98	-112.66	0.68
Observations	2792	1511	

When comparing municipalities of mayors who run for reelection with those of lame-duck mayors in Table 3, we note that the overestimation of expenditures (over the entire term) tends to be smaller for mayors who run for reelection. Although this appears consistent with greater spending by those mayors, they seem to undertake a smaller overestimation of revenues, which would not be consistent with opportunistic behavior. In Table 4 we restrict the sample to election years, to check if running or not for reelection makes a difference in terms of opportunistic forecasting. There is some indication that it may matter, as total effective revenues and receipts from direct taxes tend to be more overestimated by mayors who run for reelection. All in all, this section indicates that Portuguese mayors manage budget forecasts opportunistically, as shown by Boukari and Veiga (2019).

Table 3: Difference of means test over Run for reelection

	Not Run for reelection	Run for reelection	Difference
PFE-Effective Revenue	-55.64	-53.45	-2.19
PFE_Current Revenue	-15.43	-12.38	-3.05***
PFE-Capital Revenue	-202.79	-184.27	-18.52**
PFE-Direct taxes	-9.68	-5.04	-4.63**
PFE-Total Expenditure	-54.51	-51.74	-2.77*
PFE-Current Expenditure	-18.14	-14.63	-3.51***
PFE-Capital Expenditure	-117.00	-108.10	-8.91***
Observations	1325	4488	

Table 4: Difference of means test over Run for reelection (election years only)

	Not Run for reelection	Run for reelection	Difference
PFE-Effective Revenue	-49.78	-55.21	5.44*
PFE_Current Revenue	-12.29	-12.31	0.02
PFE-Capital Revenue	-223.84	-203.11	-20.73
PFE-Direct taxes	-1.81	-5.31	3.50*
PFE-Total Expenditure	-46.45	-49.32	2.86
PFE-Current Expenditure	-14.62	-13.07	-1.55
PFE-Capital Expenditure	-100.80	-105.23	4.42
Observations	312	1204	

4.2 Do budget forecast manipulations pay off?

The fixed effects estimation results of the model of Equation 3 are presented in Table 5. The main variable of interest is the budget forecast bias of the election year. The first three columns deal of municipal revenue forecast errors. In column (1), we consider only the PFE of Total Effective revenue. Then, current and capital revenues are considered in column (2), and column (3) replaces current revenues with direct taxes (which are part of them). Columns (4) and (5) deal with municipal expenditures, with the PFE of Total Expenditures being considered in column (4), and those of current and capital expenditures in column (5). Finally, in column (6), we include the PFEs for Total Effective Revenues and for Total Expenditures. As indicated above, the sample is restricted to election years and to the mayors who ran for reelection.

The results in Table 5 indicate that revenue forecast manipulation has little or no effects on the vote shares of the party of the incumbent mayor. The PFE of Effective revenue is only marginally statistically significant in column (1), but not in column (6), and the PFEs of revenue components (current, capital, and direct taxes) are never statistically significant. The positive coefficient in column (1) indicates that higher PFEs (underestimations) of Effective revenues lead to higher vote shares. Conversely, opportunistic overestimations ($PFE < 0$) of revenues would lead to lower vote shares. Overall, since there is only a marginally statistically significant coefficient in column (1) and insignificance in the other estimations, it is safer to conclude that there is no robust empirical evidence that election-year revenue forecast manipulations affect vote shares.

Regarding the results for PFEs in expenditures, the PFE of Total Expenditures is statistically significant in columns (4) and (6), and that of capital expenditures is statistically significant in column (5). The positive signs of the estimated coefficients indicate that underestimations ($PFE > 0$) of total and capital expenditures are associated with higher vote shares for the party of the incumbent mayor. Thus, optimistic, and opportunistic, manipulations of

capital expenditures seem to pay off at the polls.

Table 5: Impact of forecast errors on the vote shares of incumbents (Fixed Effect estimation)

Dependent variable	Vote shares of the party of the incumbent mayor					
	Municipal Revenues			Expenditures		Rev. & Exp.
	(1)	(2)	(3)	(4)	(5)	(6)
PFE Effective revenue	0.015*					-0.002
	(0.008)					(0.012)
PFE Current revenue		0.007				
		(0.017)				
PFE Capital revenue		-0.000	-0.000			
		(0.002)	(0.002)			
PFE Direct taxes			0.006			
			(0.009)			
PFE Total expenditure				0.025***		0.027**
				(0.008)		(0.012)
PFE Current expenditure					0.004	
					(0.020)	
PFE Capital expenditure					0.010***	
					(0.004)	
Left wing	2.424**	2.520**	2.524**	2.297*	2.178*	2.404*
	(1.216)	(1.214)	(1.215)	(1.240)	(1.256)	(1.248)
Majority	0.127	0.057	0.099	0.032	0.044	-0.020
	(1.069)	(1.067)	(1.075)	(1.062)	(1.060)	(1.059)
Terms in office	-0.903***	-0.953***	-0.955***	-1.034***	-1.039***	-1.035***
	(0.277)	(0.278)	(0.275)	(0.274)	(0.273)	(0.278)
Government party	-2.056**	-2.021**	-2.003**	-2.316**	-2.217**	-2.270**
	(0.937)	(0.942)	(0.940)	(0.926)	(0.933)	(0.927)
Unemployment rate	-0.255	-0.217	-0.222	-0.404**	-0.364**	-0.364**
	(0.180)	(0.179)	(0.180)	(0.177)	(0.174)	(0.179)
Regional GDP growth	0.027	0.037	0.040	0.004	0.004	0.009
	(0.080)	(0.081)	(0.080)	(0.079)	(0.078)	(0.080)
Budget stress	-0.027	-0.015	-0.015	-0.021	-0.019	-0.022
	(0.033)	(0.034)	(0.034)	(0.033)	(0.033)	(0.033)
Population density	-2.094	-3.925	-3.763	-0.301	-1.197	0.600
	(5.042)	(4.984)	(4.999)	(5.110)	(5.041)	(5.048)
Win Margin in the previous election	0.323***	0.323***	0.323***	0.323***	0.320***	0.314***
	(0.057)	(0.057)	(0.057)	(0.060)	(0.060)	(0.060)
Observations	1176	1177	1177	1155	1155	1153
Adjusted-R2	0.0673	0.0631	0.0633	0.0763	0.0764	0.0707

Notes: Fixed effects regressions with standard errors clustered by municipality and robust to heteroskedasticity in parentheses. Significance levels: * $p < .1$, ** $p < .05$, *** $p < .01$.

These results are in line with previous findings of Veiga and Veiga (2007b) and Aidt et al. (2011), who show that increased total and capital expenditures in election years lead to greater vote shares for the incumbents. Since municipalities are required to balance their budgets, they overestimate revenues in election years in order to create room for maneuver (Benito et al., 2013; Bischoff and Gohout, 2010), to expand expenditures. As discussed above, there is lttle or

no evidence that the overestimation of revenues is penalized by voters. Therefore, their strategy seems to pay off.

Concerning the results for the control variables, it appears that left-wing incumbents reveive from 2.18 to 2.52 percentage points (p.p.) more of vote shares than their right-wing counterparts or independents. Having a majority in the Town Council and in the Municipal Assembly does not seem to affect vote shares. More terms in office has the expected cost of ruling negative effect, and belonging to the same party as the central government also leads to lower vote shares. An additional term in office reduces the vote shares by about 1 percentage point, while belonging to the government's party makes incumbents lose around 2 p.p. of votes. Regarding the win margin in the previous election, the results indicate that mayors who benefited from greater victory margins also tend to, on average, perform (3 p.p.) better than those who won closer races.

Economic and demographic control variables tend to have non significant impact on the vote shares. This may be due to the fact that mayors have less control over these variables. Castro and Martins (2013) find that local economic conditions matter more than the national or regional economic environment on the reelection chances. In fact, municipal unemployment is the only economic variable that turns out statistically significant, in columns (4) to (6), with the negative sign indicating (as expected) that voters penalize incumbents for higher unemployment.

Robustness checks

So far, we have not accounted for the possibility that some of our explanatory variables are endogenous and that our coefficient estimates might therefore be biased. Evidence presented, for instance, in Boukari and Veiga (2019) suggests that the forecast error might be endogenous to election results. Table 6 thus reports the same set of regressions as before, but we now use a panel IV estimator and instrument the forecast error variables with their own lags.

The IV panel model is specified as a fixed effects model. Using the command *xtivreg2* in Stata, we invoke the cluster and the GMM-option to generate coefficient estimates that are efficient in the presence of arbitrary heteroskedasticity and intra-group correlations. We also report the Hansen-Sargan test on over-identifying restrictions. Finding an insignificant test statistic, as is the case for all our specifications, implies that the Null hypothesis that the instruments used are valid cannot be rejected.

Regarding our variables of interest, the results are consistent to those in Table 5. The main differences are that the PFE of Effective revenue has a higher level of statistical significance

Table 6: Impact of forecast errors on the vote shares of incumbents (IV estimation)

| Dependent variable | Vote shares of the party of the incumbent mayor | | | | | |
| | Municipal Revenues | | | Expenditures | | Rev. & Exp. |
	(1)	(2)	(3)	(4)	(5)	(6)
PFE Effective Revenue	0.0669***					-0.0645
	(0.0159)					(0.0525)
PFE Current revenue		0.107***				
		(0.0385)				
PFE Capital revenue		0.000431	0.00122			
		(0.00301)	(0.00323)			
PFE Direct taxes			0.0603*			
			(0.0348)			
PFE Total expenditure				0.0651***		0.138**
				(0.0179)		(0.0634)
PFE Current expenditure					-0.0139	
					(0.0541)	
PFE Capital expenditure					0.0383**	
					(0.0162)	
Left wing	1.833	2.049*	2.294*	2.561**	0.188	2.535**
	(1.193)	(1.195)	(1.225)	(1.256)	(1.564)	(1.272)
Majority	0.128	-0.241	0.355	-0.573	-1.857	-1.098
	(1.086)	(1.077)	(1.103)	(1.123)	(1.383)	(1.150)
Terms in office	-0.564**	-0.666**	-0.764***	-0.868***	-0.716*	-1.056***
	(0.282)	(0.277)	(0.270)	(0.289)	(0.416)	(0.316)
Government party	-2.017**	-1.901*	-1.731*	-2.566***	-1.692	-2.734***
	(0.955)	(0.970)	(0.947)	(0.983)	(1.264)	(1.006)
Unemployment rate	-0.435**	-0.314*	-0.329*	-0.517***	-0.298	-0.441**
	(0.179)	(0.179)	(0.186)	(0.187)	(0.242)	(0.205)
Regional GDP growth	-0.0311	-0.0325	0.0225	-0.0538	-0.0994	0.00345
	(0.0812)	(0.0831)	(0.0812)	(0.0833)	(0.107)	(0.0889)
Budget stress	-0.0702*	-0.0381	-0.0261	-0.0585	-0.0736	-0.0612
	(0.0383)	(0.0375)	(0.0348)	(0.0376)	(0.0488)	(0.0395)
Population density	3.155	-4.888	-2.693	4.116	5.694	5.289
	(5.136)	(4.959)	(5.329)	(5.431)	(6.992)	(5.461)
Win Margin in the previous election	0.319***	0.320***	0.310***	0.309***	0.322***	0.341***
	(0.0577)	(0.0579)	(0.0567)	(0.0618)	(0.0831)	(0.0670)
Hansen J	2	4	2	5	3	6
Hansen P-value	0.30	0.16	0.38	0.59	0.62	0.53

Notes: Instrumental variables regressions with fixed effects with standard errors clustered by municipality.

Rubust standard errors in parentheses. Significance levels: * $p < .1$, ** $p < .05$, *** $p < .01$.

(column 1), and those for Current expenditures (column 2) and Direct taxes (column 3) are now statistically significant. Although there seems to be a stronger indication that the under-estimation ($PFE > 0$) of revenues leads to higher vote shares, the PFE for Effective revenues is not statistically significant when included alongside the PFE for Total expenditure (column 6). As happened in Table 5, When the PFE for revenues and expenditures are included in the same estimation, only the latter is statistically significant. Since the results for PFEs in

expenditures are practically the same as in Table 5, there is further support for the hypothesis that opportunistic underestimation ($PFE > 0$) of total and capital expenditures pay off (lead to higher vote shares).

The results for the the control variables are very similar to those obtained in Table 5. Again, vote shares are positively related to left-wing incumbents and to larger win margins in the previous elections. More terms in office, party similarity with the national government, and higher unemployment rates are associated with lower vote shares.

As an additional robustness test, we run the estimations of Table 5 excluding the elections which occurred in recession years (2009 and 2013). We do this because the reduction of municipal revenues in election years may reduce the margin of maneuver for the mayor to behave opportunistically. Another reason is that unanticipated recessions (or stronger than expected) may lead to unusually high overestimations of revenues. The results, shown in Table B.2 in the Appendix, are very similar to those of Table 5, except for the fact that no PFE variable is statistically significant in column (6).

Another robustness check consists of restricting the sample to the period until the 2009 elections, that is, before term limits to Portuguese mayors became binding. The results, reported in Table B.3 in the Appendix, are also very similar to those of Table 5. As happened in Table B.2, no PFE variable is statistically significant in column (6).

Overall, our results are robust and the main conclusions of this study remain valid for IV estimations and for restricted samples.

5 Conclusions

There is a growing literature on the political economy of budgeting. While there is a broad empirical evidence for the factors influencing budget forecast errors, few studies have explicitly tested the impact of these errors on either fiscal outcome or election results. Nevertheless, politicians aim for reelection and use all the tools at their disposal in order to increase their reelection chances. Thus, this paper examines the impact of budget forecast errors on election results.

To this end, we analyze initial budget data of all 308 Portuguese municipalities from 1998 to 2017, and bring evidence that incumbent mayors use forecasts to set voters' expectations. Overall, we find that budget forecast manipulations, especially of total and capital expenditures, can be used to increase incumbents' vote shares.

This paper contributes to the literature by shedding light on fiscal forecasting as an electoral

tool for politicians. There are two strategies politicians can follow. First, they can make pessimistic forecasts in order to end up with a surplus or be able to spend more; showing that they are responsible fiscal managers. Second, they can build optimistic forecasts in order to be able to promise more expenditures. In that case, they end up with a deficit and can be punished if voters are fiscal conservatives.

The second strategy is the one followed by Portuguese municipalities, as they generally overstate revenues in order to increase their margin of maneuver to spend more. Our results provide little or no empirical evidence for a penalization of this opportunistic revenue overestimation. On the other hand, there is robust evidence that opportunistic management of expenditure forecasts pays off.

Another contribution of this paper is to look at disaggregated fiscal data. This helps to identify which budget components are more manipulated and moreover influence electoral outcomes. The results indicate that it is mainly the opportunistic manipulation of total and capital expenditures that can be used to increase vote shares of incumbent mayors. This result is robust to a series of robustness checks and is in line with previous findings of Veiga and Veiga (2007b) and Aidt et al. (2011), who show that increased total and capital expenditures in election years lead to greater vote shares for parties of the incumbent Portuguese mayors.

Regarding the effects of other variables, the results show that vote shares are positively related to left-wing incumbents and larger win margins in the previous elections, while more terms in office, party similarity with the national government, and higher unemployment rates are associated with lower vote shares.

Some lessons for improving forecast institutions can be taken from this study. Opportunistic management of budget forecasts is likely to happen when it is easy for local governments to approve their budgets without negotiations with opposition parties, as is the case in the vast majority (about 80%) of Portuguese municipalities. Given the incentives to implement opportunistic policies, in the absence of strict fiscal rules, more political room of maneuver will likely result in more opportunism. This could be counteracted by changing the electoral system in a way that led to a smaller share of majorities (as happens in French departments) or, perhaps more effectively, by tightening fiscal rules. Not allowing commitments for expenditures if the required revenues are not guaranteed, a rule introduced in Portugal during the Economic Adjustment Program funded by the EU and the IMF, is one possibility. Alternatively, one could penalize local governments that clearly overestimate revenues, or set more effective balanced budget rules, coupled with severe restrictions to the accumulation of debt.

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Appendix

A Descriptive Statistics

Table A.1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Share of votes of the incumbent mayor's party	1170	51.69	10.79	1.12	83.12
Reelection	1170	0.55	0.5	0	1
PFE-Effective Revenue	1160	-54.52	47.97	-456.1	25.32
PFE_Current Revenue	1160	-12.47	21.74	-208.46	30.29
PFE-Capital Revenue	1160	-204.3	219.5	-3290.47	61.56
PFE-Direct taxes	1160	-5.22	32.43	-348.01	71.99
PFE-Total Expenditure	1138	-48.87	43.07	-387.56	81.65
PFE-Current Expenditure	1138	-13.2	20.07	-241.57	45.57
PFE-Capital Expenditure	1138	-105.13	99.79	-941.55	93.48
Left wing	1170	0.54	0.5	0	1
Majority	1170	0.8	0.4	0	1
Terms in office	1170	1.99	1.51	0	9
Government party	1170	0.42	0.49	0	1
Unemployment rate	1170	6.54	2.78	.93	17.4
Regional GDP growth	1170	0.92	3.92	-11.27	9.45
Budget stress	1170	1.2	10.33	-51.69	40.26
Population density	1170	4.39	1.45	1.46	8.93
Win Margin in the previous election	1170	51.64	8.63	26.83	83.12

Sources: Directorate General of Local Authorities (DGAL), Ministry of Internal Affairs (MAI), and National Institute of Statistics (INE).

B   Robustness Tests

Table B.2: Impact of forecast errors on the vote shares of incumbents (without the 2009 and 2013 elections)

Dependent variable	Vote shares of the party of the incumbent mayor					
	Municipal Revenues			Expenditures		Rev. & Exp.
	(1)	(2)	(3)	(4)	(5)	(6)
PFE Effective revenue	0.024**					0.011
	(0.010)					(0.022)
PFE Current revenue		0.030				
		(0.029)				
PFE Capital revenue		0.002	0.002			
		(0.003)	(0.003)			
PFE Direct taxes			0.010			
			(0.013)			
PFE Total expenditure				0.029**		0.017
				(0.013)		(0.026)
PFE Current expenditure					-0.009	
					(0.029)	
PFE Capital expenditure					0.017***	
					(0.004)	
Left wing	-4.687	-4.379	-4.276	-4.531	-4.693	-4.473
	(2.978)	(3.012)	(3.010)	(3.055)	(3.079)	(3.024)
Majority	0.026	0.012	0.090	-0.277	-0.371	-0.300
	(1.473)	(1.469)	(1.469)	(1.472)	(1.469)	(1.484)
Terms in office	-0.892**	-0.995**	-1.018***	-1.072***	-1.075***	-1.053**
	(0.398)	(0.388)	(0.389)	(0.409)	(0.402)	(0.412)
Government party	5.318*	5.214*	5.210*	4.890*	4.906*	4.989*
	(2.860)	(2.914)	(2.919)	(2.909)	(2.952)	(2.892)
Unemployment rate	-0.067	0.011	0.026	-0.291	-0.239	-0.246
	(0.273)	(0.270)	(0.269)	(0.273)	(0.266)	(0.276)
Regional GDP growth	-0.028	-0.004	-0.010	-0.048	-0.052	-0.060
	(0.160)	(0.162)	(0.162)	(0.162)	(0.162)	(0.162)
Budget stress	-0.047	-0.026	-0.023	-0.036	-0.039	-0.037
	(0.044)	(0.045)	(0.045)	(0.044)	(0.045)	(0.044)
Population density	3.054	0.510	1.068	5.300	4.911	6.284
	(6.114)	(6.076)	(6.101)	(6.339)	(6.183)	(6.274)
Win Margin in the previous election	0.406***	0.402***	0.398***	0.398***	0.395***	0.382***
	(0.076)	(0.077)	(0.077)	(0.082)	(0.082)	(0.082)
Constant	21.281	31.558	28.937	13.982	15.952	10.317
	(27.733)	(27.734)	(27.787)	(28.733)	(28.138)	(28.507)
Observations	768	769	769	747	747	745
Adjusted-R2	0.1040	0.0984	0.0974	0.1034	0.1125	0.0957

Notes: Fixed effects regressions with standard errors clustered by municipality and robust to heteroskedasticity in parentheses. Significance levels: * $p < .1$, ** $p < .05$, *** $p < .01$.

Table B.3: Impact of forecast errors on the vote shares of incumbents (until the 2009 election)

Dependent variable	Vote shares of the party of the incumbent mayor					
	Municipal Revenues			Expenditures		Rev. & Exp.
	(1)	(2)	(3)	(4)	(5)	(6)
PFE Effective revenue	0.020**					0.006
	(0.010)					(0.018)
PFE Current revenue		0.007				
		(0.026)				
PFE Capital revenue		0.001	0.001			
		(0.003)	(0.002)			
PFE Direct taxes			0.013			
			(0.010)			
PFE Total expenditure				0.027**		0.022
				(0.011)		(0.021)
PFE Current expenditure					-0.006	
					(0.028)	
PFE Capital expenditure					0.011**	
					(0.005)	
Left wing	-4.158	-4.078	-3.936	-3.965	-4.214	-4.007
	(4.123)	(4.153)	(4.163)	(4.125)	(4.125)	(4.123)
Majority	0.787	0.555	0.686	0.718	0.647	0.756
	(1.441)	(1.466)	(1.469)	(1.471)	(1.476)	(1.450)
Terms in office	-1.770***	-1.742***	-1.735***	-1.823***	-1.789***	-1.814***
	(0.441)	(0.451)	(0.439)	(0.444)	(0.447)	(0.444)
Government party	0.454	0.620	0.533	0.357	0.500	0.352
	(3.591)	(3.626)	(3.612)	(3.597)	(3.594)	(3.596)
Unemployment rate	-0.120	-0.148	-0.141	-0.109	-0.042	-0.107
	(0.357)	(0.360)	(0.361)	(0.361)	(0.365)	(0.361)
Regional GDP growth	-0.290**	-0.299**	-0.306**	-0.263**	-0.270**	-0.269**
	(0.120)	(0.121)	(0.121)	(0.118)	(0.120)	(0.119)
Budget stress	-0.052	-0.048	-0.048	-0.057	-0.060	-0.056
	(0.047)	(0.048)	(0.047)	(0.047)	(0.046)	(0.047)
Population density	1.500	0.927	1.271	1.658	0.710	1.694
	(8.041)	(8.352)	(8.324)	(7.981)	(7.970)	(8.001)
Win Margin in the previous election	0.115	0.121	0.117	0.119	0.116	0.118
	(0.092)	(0.092)	(0.092)	(0.092)	(0.092)	(0.092)
Constant	47.092	48.266	46.850	46.371	50.032	46.357
	(36.299)	(37.632)	(37.501)	(36.050)	(36.068)	(36.108)
Observations	754	754	754	754	754	754
Adjusted-R2	0.0800	0.0720	0.0748	0.0822	0.0816	0.0812

Notes: Fixed effects regressions with standard errors clustered by municipality and robust to heteroskedasticity in parentheses. Significance levels: * $p < .1$, ** $p < .05$, *** $p < .01$.

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