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Essays on Political Budget and Legislative Cycles

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Chapter 1 is submitted to *Public Finance Review*.

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Résumé

Constituée de quatre chapitres, cette thèse s'intéresse aux cycles politiques dans les annonces et les réalisations budgétaires ainsi que dans la production législative. Ainsi, le premier chapitre analyse les déterminants et les conséquences électorales d'une variation des dépenses communales en France et teste la présence d'effets non-linéaires entre cette variation et la marge électorale. Les résultats montrent que l'opportunisme paie électoralement et cet opportunisme augmente avec le degré de concurrence électorale. Le chapitre 2 compare la nature et les déterminants des biais dans les annonces budgétaires des départements français et des communes portugaises. Nous montrons que ces biais sont principalement liés au calendrier électoral et aux facteurs institutionnels comme l'autonomie financière. Dans le troisième chapitre, le concept de biais d'optimisme et son impact sur l'ampleur du cycle politique est analysé théoriquement et empiriquement. Le résultat montre un effet négatif de l'optimisme stratégique mesuré par l'erreur de prévision budgétaire sur la part des dépenses d'investissement. Enfin, le chapitre 4 étudie l'impact de la production législative et réglementaire sur la popularité du Président et du Premier Ministre français au cours de la période 1990-2010. Les résultats montrent que la popularité de l'exécutif est en partie liée à la production de lois et décrets; ce qui pousse l'exécutif à légiférer frénétiquement tout en adoptant un agenda stratégique. Les résultats confirment également l'hypothèse selon laquelle les électeurs tiennent les décideurs politiques pour responsables de la situation économique.

Abstract

This thesis consists of four essays on instances and electoral/popularity consequences of alternative political cycles. The first essay investigates the existence of a two-way relationship between municipal election results and the size of fiscal policy manipulation, searching for the presence of non-linearities. The results indicate that opportunism pays off and is non monotonically related to the win margin. The second essay analyzes the nature and determinants of budget forecast errors using a comparative approach. For instance, it provides a unique comparison between French and Portuguese local governments. The results show that budget forecast errors are driven by electoral motivations and by institutional characteristics. The third essay analyzes the impact of optimism bias on the budget composition. The results indicate thatstrategic optimism proxied by the revenue forecast errors is detrimental to long term structural investments. Finally, the fourth essay analyzes the relations between the legislative production and the gains of popularity for the President and the Prime Minister in France. The findings indicate that the Executive's popularity depends on legislative activism, creating reasons to legislate frantically, but also that the Executive has strong incentives to strategically set the legislative agenda, possibly timing landmark laws during honeymoon periods, and more specific laws in the last months of their term, depending on the tone of the campaign. Our results also confirm the traditional view, according to which incumbents are always bestowed with favorable ratings when the economic situation is good.

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General Introduction

'The single most important fact about politicians is that they are elected. The second is that they usually seek reelection.' Tufte, Political Control of the Economy.

Motivation

A long line of research in Political Economy analyzes how elections influence fiscal policies and outcomes. That is the literature on Political Budget Cycles (PBCs). It should be distinguished from the political business cycle albeit the two terms are used interchangeably (see, e.g., Mueller 2003; Dubois 2016; Aaskoven and Lassen 2017, for reviews of these literatures). Political business cycles and political budget cycles are distinguished by their objects, as the former typically concerns macroeconomic variables such as inflation and GDP growth, while the latter concerns public finance variables such as public deficits, spending, and taxation, which governments enjoy more direct control over (Aaskoven and Lassen, 2017). Moreover, the combination of the PBC literature and the economic theory of legislation (Tollison, 1988) had given rise to the literature on Legislative Political Cycles (LPCs).

In this thesis, we are interested in the PBCs and LPCs. We will refer to both as political cycles. The basic premise in the two strands of literature is that politicians manipulate fiscal policy or legislation in order to increase their prospects of reelection.

But, distortions in fiscal policy or legislation for purely electoral reasons may have significant economic costs on the one hand and different electoral consequences on the other hand. First, because the welfare effects of public spending should not depend on the timing of elections, the fact that spending rises around election time is an explicit

indication of a potential divergence between political incentives and social welfare maximization (Hanusch and Keefer, 2014). Second, while the literature explicitly or implicitly rests on the assumption that fiscal expansion before elections is popular among voters, the empirical evidence is both scarce and mixed (Brender and Drazen, 2008; Klomp and de Haan, 2013). Therefore, understanding the conditions under which PBCs are more likely to occur and revisiting their electoral consequences remain of great interest. It is important to know whether opportunistic politicians are successful (see, e.g., Veiga and Veiga (2007b)). This could inform about the conservative or liberal behavior of voters and their electoral control over politicians.

One limitation of many tests of political cycles is the insufficient frequency and too high aggregation of data. In this thesis, we take advantage of a unique dataset of monthly legislative outcomes to shed light on the legislation channel of political cycles.

Objectives and contributions

The first goal of this thesis is to examine the sources and the electoral consequences of political budget cycles at municipal level in France using an integrated approach. The first essay presented in chapter 1 tackles the issue of reverse causality between political cycles and election results. We investigate the presence of a two-way relationship between the size of political cycle and the win margin of victory of incumbent mayors. We contribute to the literature on the rational test of political budget cycle by adding empirical evidence to the integrated approach developed by Aidt et al. (2011). Controlling for the impact of mayors' tenure in office, we test also the presence of non-linear effects. We take also into account the interactions between municipalities and intercommunalities.

Beyond the examination presented in chapter 1, this thesis aims also at analyzing two alternative ways of generating PBCs. The two ways concern the Electoral Forecast Cycle (EFC) and the Legislative Political Cycle (LPC). Specifically, we analyze the quality and determinants of budget forecast errors at local level using a comparative approach (chapter 2). Empirical studies in the literature on fiscal forecasting evidenced that governments use "creative accounting" in order to facilitate meeting the ceiling on the budget deficit

(Frankel and Schreger, 2013; Benito et al., 2013; Reischmann, 2016). Moreover, politicians can use fiscal forecasting to set voters' expectations (Heinemann, 2006; Benito et al., 2016). This makes the electoral forecast cycle an alternative to the PBC. Beside the comparative approach adopted in this thesis, we also analyze for the first time how tax autonomy influences the EFC.

A new generation of political agency models acknowledges the idiosyncratic characteristics of politicians. From a social science perspective, this literature suggests that factors related to individuals' status such as occupation, income, and education help explain differences in policy preferences and decision behavior (Hayo and Neumeier, 2014; Jochimsen and Thomasius, 2014; Brender and Drazen, 2013). Further, existing studies on PBC rely on a model of human behavior that behavioral economics increasingly calls into question.

Although these papers give insight into how personal characteristics impact fiscal policy, they let aside the formation of politicians' beliefs, something surprising as noted by Minozzi (2013). In fact, the literature on PBC is embedded in the rational expectations framework. However, recent examples underscore the importance of how expectation setting affects decision-making (Brunnermeier and Parker, 2005; Gollier and Muermann, 2010). We refer to a growing literature on behavioral economics to suggest that politicians are likely to exhibit cognitive biases that impact both their electoral fortune and the size of PBCs. More specifically, we focus on optimism bias found to be at the root of many phenomena.

Taking advantage of the results in chapter 2, we propose and test empirically a model showing the impact of optimism bias on the size of PBC. We test the impact of both strategic and intrinsic optimism. The third essay is thus a contribution to the Behavioral Political Economy (See Schnellenbach and Schubert (2015) for a review). Behavioral Political Economy tries to improve classical models with perfectly rational agents by considering cognitive and emotional biases.

The last contribution of the thesis brings together the literature on popularity functions (Paldam, 2008) and the literature on Political Legislative Cycles (Lagona and Padovano, 2008; Padovano and Gavoille, 2017). Indeed, public opinion is important in substantive

terms, but also capable of rapid change. Thus, the ability to anticipate its collective impact on presidential approval is not a trivial matter (Choi et al., 2016).

While lawmaking is the matter of the legislative branch, in the semi-presidential systems, the executive is in the driver's seat. However, the literature on popularity functions systematically fails to include the influence of legislative production. In fact, it is impossible to identify a single study in this literature that links the politicians' popularity and legislative outcomes.

We surmise that seeking reelection is somehow popularity-conditional. For instance, the president's public standing affects the all-important "power to persuade" (Choi et al., 2016). As lawmaking is a way to respond to the public opinion during the term, it is interesting to analyze its effects on the government approval.

Structure and Results

To reach its goals, this thesis is built of four essays. Two chapters of this work focus on political budget cycles at local level in France. Additionally and by analogy, a rational test of electoral forecast cycle is run between French departments and Portuguese municipalities using a comparative approach. The last essay is centered on the national government and is devoted to the analysis of the interaction between the legislative outcomes and the French Executive's popularity.

The analysis conducted in chapter 1 uses a large dataset of French municipalities and deliver two main results. First, the pre-electoral manipulation of public spending increases incumbent mayors' reelection chances. Second, our results confirm that a fierce electoral competition increases the incentive to manipulate fiscal policy. For instance, the effects of the win margin on the manipulation of public expenditures are U-shaped. This implies that there is a threshold under which the incentive to behave more opportunistically increases. Thus, the smaller the win margin, the larger the opportunistic distortion. Another non-linear effect is revealed, relating mayors' time in office to their win margin of victory. The results indicate that a "fatigue effect" appears after four terms. View as a proxy of experience, the number of years in office tends to reduce the size of the political

budget cycle.

The second essay presented in chapter 2 builds on the literature that examines government fiscal plans (i.e., projections). This literature can be divided into two main groups, according to the main focus of each paper: (i) the first group includes papers on appropriate procedures for fiscal forecasting, in many cases by means of accuracy comparisons; the second group discusses the properties of the produced forecasts, in terms of (systematic) biases and violation of the rationality hypothesis (Leal et al., 2008).

Following this literature, we examine whether budget forecasts are systematically biased and if these biases are significantly influenced by local government specific characteristics. Three types of government specific characteristics are considered: electoral cycle, tax autonomy and ideology. A number of hypotheses are designed to link these characteristics to budget forecast errors. Then, the hypotheses are tested in a comparative perspective between French departments and Portuguese municipalities.

The results point at biased and inefficient budget forecasts, which seem to have been more cautious in French departments than in Portuguese municipalities. These forecast biases are essentially driven by electoral motivations and by institutional differences across the two countries. In particular, opportunistic forecasting is more prevalent where governments enjoy greater margin of maneuver, and there is evidence of conservatism where financial autonomy is greater. Finally, the results provide support to the partisan hypothesis for expenditure, but not for revenue forecasts.

Chapter 3 is both a theoretical and an empirical contribution to the literature on behavioral political economy. As shown in the previous chapter, politicians can use fiscal forecasting to set voters' expectations. In that case, optimistic forecasts can be seen as strategic optimism.

Electoral uncertainty and social polarization have been shown to make politicians short-sighted (Bonfiglioli and Gancia, 2013) and this leads to inefficient policies. Defining inefficiency as a low ratio of capital to current expenditures, we show theoretically that strategic optimism exacerbates this poor fiscal outcome.

In addition, we propose a strategy to test this result. Hence, we build on the budget

forecast biases to define a proxy serving as indicator of strategic optimism. In fact, overestimation of revenue or underestimation of expenditure as shown in the second essay is sign of optimism bias (see, Benito et al., 2015) even strategic. The econometric analysis using French departments data confirms this prediction.

In the last essay, we investigate the effects of legislative outcomes on the popularity of the French Executive (President and Prime Minister). In a recent paper, Padovano and Gavoille (2017) show the existence of Legislative Political Cycles in France. Instead, we use a different dataset to examine whether lawmaking can be a means to gain popularity.

The fourth chapter extends theoretical arguments regarding the impact of legislative production on reelection to popularity functions and considers how distinct dimensions of legislation may produce different effects. Therefore, the chapter analyzes the relations between the legislative production and the gains of popularity for the President and the Prime Minister in France. The findings indicate that the Executive's popularity depends on legislative activism, creating reasons to legislate frantically, but also that the Executive has strong incentives to strategically set the legislative agenda, possibly timing landmark laws during honeymoon periods. Moreover, if Prime Ministers can benefit actions taken in the last months of their term, this is not true for Presidents. Our results also confirm the traditional view, according to which incumbents are always bestowed with favorable ratings when the economic situation is good.

Our results add a new dimension to the study of presidential approval. Edwards et al. (1995) show that issues vary over time in their salience to the public and in their impact on presidential approval; and the salience of issues to the public directly affects their impact on the public's evaluation of the president.

Chapter 1

Opportunistic Policies and Electoral Outcomes: Are there Non-Linear Effects?

1.1 Context and problematic

Do local governments' spendings follow a different pattern in election years? If yes, do electoral budget cycles impact on the re-election prospects of the incumbent mayor and her political party? Then, what determines the magnitude of cycles?

Answers to the above questions come from two strands of the literature. On the one hand, the literature on vote functions suggests that economic conditions systematically affect election outcomes. On the other hand, the literature on Political Budget Cycles predicts that incumbent governments engage in pre-electoral policy manipulations to influence voters and maximize their re-election prospects. However, the nature of the functional form of the relationship between the government approval and the distortion of fiscal policy is less clear. In fact, the empirical evidence summarized in Hanusch and Magleby (2014) indicates that this relationship is either linear (Frey and Schneider, 1978, Schultz, 1995, Pettersson-Lidblom, 2001, Aidt et al., 2011 and Fiva and Natvik, 2013) or parabolic (Price, 1998, Alt and Rose, 2009 and Efthyvoulou, 2012).

The objective of this chapter is to analyze simultaneously the win margin of victory of incumbent mayors and the magnitude of the political budget cycle (opportunistic distortion, hereafter) at municipal level in France. Two main hypotheses are tested: the existence of a non-linear relationship between the opportunistic distortion and the win margin of victory on the one hand, and between the win margin and the number of years a mayor has been in office on the other hand.

This chapter is close to Aidt et al. (2011), who propose a model articulating the political determinants of the economy and economic determinants of politics. This approach has two advantages. First, it allows one to take into consideration the double causality between government approval and fiscal manipulation and the interdependence between these two variables. Second, it enables one to understand the effect of different explanatory variables on win margin and/or opportunistic distortion separately. However, we depart from Aidt et al. (2011) by considering if nonlinear effects are present in the examined relations.

This chapter is motivated by the factors that make political budget cycles more or less likely to occur and the electoral fortune of incumbents mayors in France. Indeed, despite the attention devoted to the analysis of Political Budget Cycles in France (see, e.g., Binet and Pentecôte, 2004; Foucault and François, 2005), there is no study that examines the joint determination of the win margin of the incumbent and of the fiscal distortion in this country at the local level. Thus, this chapter fills this gap, delivering two contributions. First, it confirms the theoretical predictions of Aidt et al's (2011) model. For instance, the results indicate that mayors who behave more opportunistically tend to increase their reelection chances. That means opportunism pays off.

Second, the results show the existence of non-linear effects of the win margin on the opportunistic distortion. In fact, the relationship between these two variables is U-shaped. This result is different from Aidt et al. (2011) who find a negative and linear impact of the win margin on the opportunistic distortion of fiscal policy for every segment of expenditure. The present result is in line with the explanation provided by Hanusch and Magleby (2014), however. They argue that in less polarized countries (something

which is the case of France), the functional form of the relationship between government approval and the fiscal cycle is parabolic.

Regarding secondary hypotheses tested in the chapter, the results reveal the existence of another non-linear effect with respect to the impact of mayor's years in office. Although the win margin is persistent, traducing some kind of attachment of voters to their mayors or partisanship, it decreases after four terms in office. This result differs from Aidt et al. (2011) who find evidence of a linear negative effect of years in office on win margin. Moreover, voters penalize mayors who belong to the majority in parliament and the accumulation of debt.

With regard to the determinants of opportunism, the interactions between municipalities and intercommunalities seem not to have an impact. Results show also that municipalities which received more capital transfers from central government are those who behave more opportunistically. Mayors are less opportunistic when the local economy does well (the unemployment decreases or wages increase). Further, in highly indebted municipalities, the incentive to behave opportunistically diminishes.

Before exposing the related literature (section 1.2), we briefly present the institutional context of French municipalities. Municipal governments constitute the lowest level of government in France. They were established formally by a law of 14^{th} December 1789. Their legal context has historically evolved several times, but has remained relatively fixed since 1983.

The political system in French municipalities can be characterized as follows. Elections normally take place every six years [1] and election dates are fixed nationally and are therefore exogenous from the perspective of municipalities. During the period under study (2000-2015), all elections took place in March, and there were no legal restrictions on the number of times a mayor could stand for election.

Note also that there was a 3,500-inhabitant threshold[2] with a different voting system for smaller cities. For the towns with population numbers above the threshold, the poll

[1] Except between 2001 and 2008, the election being postponed to avoid electoral fatigue in 2007, a year in which both the Presidential and Legislative elections were taking place.

[2] Since 2013 the threshold is reduced to 1000 inhabitants.

competition is organized by lists, with two rounds (possibly) taking place. The winning list receives half the seats to be filled in the town council, the other half of the seats being distributed proportionally between all the lists (including the winning list) that have received more than 5% of the votes. If a second round is necessary, all the lists with more than 10% of the votes can compete but the lists with more than 5% of the votes can merge between the two rounds.

The affairs of the municipality are in the joint responsibility of the mayor and the municipal council. The latter elects the mayor within its members. These members are elected directly by citizens who vote for party or independent lists of candidates. In local politics, the mayor heads the municipal council, presides over all council committees and sets the local policy agenda.

Concerning the competencies, French municipalities are responsible for multiple activities. The main local public services under their control include distribution of water, local transportation, elementary education, property maintenance, promotion of culture and science, provision of recreation and sports facilities, local health care, social housing, environmental protection and municipal policing.

Note also that they operate under the same financial regime. Since 2003, French municipalities gained more autonomy in setting local public policy. For instance, they are autonomous in defining their own budgets, and collect the revenues[1] they are entitled by law and allocate expenditures.

However, mayors' discretionary power is not the same according to the budget components. For instance, while current expenditures, such as municipal employee salaries, are non-discretionary and hard to manipulate[2], the mayors can control the level and timing of capital expenditures of which equipment expenditures are the main component.

The chapter is organized as follows. The next section presents the related literature. Section 1.3 introduces data sources and the empirical model. Results are discussed in section 1.4. Finally, section 1.5 concludes.

[1]Municipal resources come from local taxation (property tax and local business tax), loans and transfers from the central government. They can only borrow to fund equipment expenditures (sports facilities, swimming pools, ...).

[2]Nevertheless, mayors have discretionary power over temporary contracts.

1.2 Related literature

This chapter is related to several strands of the literature on political economy. For a complete survey on the background literature, see Dubois (2016). Thus, this section briefly presents some salient points on the popularity-policy nexus, both theoretically and empirically.

1.2.1 Theory

The deeper question in the related literature is why electoral fiscal cycles should help politicians to get re-elected. The early papers sidestepped this issue by assuming that voters had inconsistent or naive expectations. In the classic contribution of Downs (1957), utility-maximizing voters compare the expected costs and benefits of voting for two alternative parties and base these expectations in part on parties' past performance. As a result, voters support parties that performed well in the past in the expectation that they will do well in the future.

This 'intuitive' idea has been given a firmer theoretical footing in the rational expectations framework. Regarding the behavior of voters two basic views are considered. On the one hand, voters like low taxes and high government expenditures and might vote for incumbents who provide them. On the other hand, rational, forward-looking voters are assumed to dislike unsmoothed spending, and deficits in general. They would therefore not reward incumbents who engage in election-year fiscal distortion.

Using the assumption of information asymmetry, some scholars reconcile these contradicting views, however: a more refined argument regarding why rational voters may favor pre-electoral expenditure hikes is that it signals the presence of something unobservable about the incumbent that makes her more eligible to voters. The first two main contributions in this area are Rogoff and Sibert (1988) and Rogoff (1990).

Rogoff and Sibert (1988) assume that each political candidate has a competence level (high or low), which is only known to the politician and not to the electorate. Nevertheless, voters want to elect the more competent politician (either the incumbent or the challenger). They form rational expectations regarding the type of the incumbent based

on observable current fiscal policy outcomes. Before the election, the high-type incumbent will attempt to signal her type (and thereby increase her chances of reelection) by engaging in expansionary fiscal policy, which is less "costly" for him than it is for the low type. This leads to a pre-election increase in government deficit when a competent politician is in office (while no signaling takes place when the incumbent's type is low). In a related model, Rogoff (1990) argues that the incumbent can also signal her competence before an election by shifting government expenditure towards easily observed consumption spending and away from investment (whose effect can only be observed with a delay, Shi and Svensson, 2003). The idea is to increase those expenditures that send the strongest competence signals to voters and preferably those that are also noticeable immediately.

In the same vein, Martinez (2009) points at effort smoothing as another force driving the creation of fiscal cycles. In order to present some of the implications that result from effort smoothing, he made a quick comparison between politicians seeking re-election and the motivations of a tenure-track professor whose contract has come up for renewal. Tenure-track positions have been shown to suffer from renegotiation cycles. A renegotiation cycle occurs when performance improves the year before the signing of a new multi-year contract, and declines after the contract is signed. Consider a tenure-track professor who begins with an average reputation. The optimal strategy for this professor is to choose an intermediate level of effort early in the term of his contract. When the renegotiation period nears, the professor then observes his current reputation. If their reputation is still average, then it is optimal for them to exert more effort. However, if their current reputation is either very high or very low then a lower effort level should be chosen (Martinez, 2009).

Recently, Drazen and Eslava (2010) suggest a different approach to the standard "competence" argument. Voters value some types of spending more than others. Politicians differ in the value they assign to different types of spending, whereas these preferences are not observed by voters. By shifting the composition of spending towards the goods voters prefer, an incumbent politician will try to signal that her preferences are close

to those of voters, implying she will choose high post-election spending on those same goods. Political manipulation will therefore take the form of changing the composition of government spending, allowing its overall level (and the deficit) to remain unchanged.

Voter uncertainty about the incumbent's spending priorities makes electorally-motivated increases in some types of spending an effective tool to gain votes, as voters may be unable to separate politicians into those whose spending choices are meant simply to gain votes and those whose spending preferences actually correspond to what voters want. In this setting, voters rationally respond to pre-election increases in their most preferred types of spending, as it signals politician type. Hence political budget cycles emerge even if voters are fiscal conservatives, and even if they are able to observe fiscal policy perfectly.

Political and institutional features of a country are also advanced to explain the emergence of pre-electoral fiscal manipulation. Indeed, voters' awareness (Shi and Svensson, 2006), fiscal transparency (Alt and Lassen, 2006) and immaturity of democracy (Gonzalez, 2002) have been shown to magnify the size of opportunistic cycles. According to Shi and Svensson (2006), the magnitude of electoral budget cycles increases with the size of the rent that politician can earn by remaining in office and with the share of uninformed voters in the electorate. Brender and Drazen (2005) argue that the electoral budget cycles reflect the "experience and interactions of all actors with the electoral system". Experienced voters know that policymakers have incentives to inflate the economy in election years, and as a result fiscal manipulation loses its attractiveness. A long experience of competitive elections should thus make a democracy less susceptible to budget cycles.

1.2.2 Empirical puzzles

Basic theoretical models and their extensions have been tested empirically both at the national and local levels. At the national level, except for new democracies, political expenditure cycles do not seem to be strong (Cazals and Mandon, 2016; Philips, 2016). However, at the local level, there is some evidence of political budget cycles on the spending side, in particular. It comes in many forms: increase in public spending or employment (e.g., see, Veiga and Veiga, 2007b), or moving spending from less visible public services

to more visible ones (Kneebone and McKenzie, 2001, Drazen and Eslava, 2010).

In link with the purpose of this paper, we discuss two puzzles. First, the magnitude of the fiscal distortion depends linearly (Pettersson-Lidblom, 2001, Aidt et al., 2011 and Fiva and Natvik, 2013) or non-linearly (Price, 1998, Alt and Rose, 2009 and Efthyvoulou, 2012) on the government popularity. Second, voters are found to be either fiscal conservatives (Peltzman, 1992) or fiscal liberals (Jones et al., 2012).

Regarding the first point, Hanusch and Magleby (2014) build a model which has the potential to reconcile contradictory empirical findings. They argue that the way the government approval impacts political budget cycle is conditional on the degree of polarization in the party system: environments with low polarization should exhibit a non-linear pattern while linear relationships should be present in polarized political environments.

Hanusch and Magleby (2014) draw their argument upon the observation of the Database of Political Institutions (DPI) and empirical studies. For instance, during the periods that Pettersson-Lidblom (2001) studied elections in Sweden, and Aidt et al. (2011) examined elections in Portugal, Swedish and Portuguese parties were polarized according to the DPI. Likewise, between 1974 and 1994, the period of Price's (1998) study, government and opposition parties in the United Kingdom were unpolarized.

In case of a linear relationship, the empirical evidence comes also with either positive (Akhmedov and Zhuravskaya, 2004; Veiga and Veiga, 2007b) or negative correlations (Meloni, 2001; Brender, 2003) on the other hand. Akhmedov and Zhuravskaya (2004) evaluate local Russian governmental entities and find that pre-electoral manipulation of fiscal instruments increases the incumbent's chances of reelection. Using a sample of Columbian municipalities, Drazen and Eslava (2010) also bring evidence that governments, in their attempt to remain in office, tend to increase visible expenditures on housing, health, water and energy to target voters.

Balaguer-Colla et al. (2015) analyze the effect of public spending on municipal re-election in Spain. They find that, in general, increases in local government spending positively impact on local governments' chances of re-election. Moreover, the capital expenditure over the whole term positively affects the re-election probability, although

the pre-electoral capital expenditure has a stronger effect on the chances of re-election. They also find that the electorate only rewards increases in current expenditures made in the pre-election period.

However, other studies indicate that the opportunistic behavior has also a negative effect on the probability of re-election. For instance, Peltzman (1992) shows that increases in aggregate expenditures are politically damaging to US governors, lowering their vote share. This should decrease the likelihood of political cycles in aggregate expenditures at the state-level in the United States. Brender (2003), for the case of local elections in Israel, finds that a larger deficit in the year prior to elections reduces the probability of the incumbent party's re-election. Analyzing Argentine electoral districts, Meloni (2001) provides additional evidence in this regard, revealing that an increase in public expenditure negatively affects the percentage of votes obtained by the government party.

The remaining question is how to explain these divergent pieces of evidence. Jones et al. (2012) propose a first attempt at interpreting what might lie behind the distinct (seemingly conflicting) results encountered in the existing literature regarding the effect of fiscal variables on electoral outcomes. Their argument is that the structure of fiscal federalism in countries like Argentina makes voters reward fiscal expansion because they perceive that this extra spending at the margin is not financed by them, but rather drawn out of a common pool of national resources. They provide evidence and micro-foundations for the electoral connection implicit in this argument: voters reward public spending when they can pass the cost on to someone else (e.g., as in Argentina), and punish it otherwise (e.g., as in the United States).

Local policy outcomes are also supposed to be responsive to partisanship of the electorate. But the empirical evidence is also mixed on this point. For instance, Ferreira and Gyourko (2009) find that American cities are not politically polarized as states and countries. They show that whether the mayor is a Democrat or a Republican does not affect the size of city government, the allocation of local public spending, or crime rates. However, they find a substantial incumbent effect for mayors.

In contrast to previous work, de Benedictis-Kessner and Warshaw (2016) show that

mayoral partisanship matters for city policy. They find that Democratic mayors spend substantially more than Republican mayors. In order to pay for this spending, Democratic mayors issue substantially more debt than Republican mayors and pay more in interest. Their findings add to a growing literature indicating that the constraints imposed on city policy making do not prevent public opinion and elections from having a meaningful impact on municipal policy.

Given the conflicting theories and empirical results, deeper investigations are needed to shed light on political budget cycles. Therefore, some scholars conduct meta-analyses. For example, Philips (2016) find evidence of a statistically significant -yet substantively small- increase in government expenditures and public debt around elections, and reductions in revenues and fiscal balance. He finds support for some of the context-conditional theories in the literature. He also points out that the findings of political budget cycles are robust to publication bias as well as some of the methodological- and study-specific choices authors are forced to make. Likewise, Cazals and Mandon (2016) conduct a meta-analysis and find that leaders do manipulate fiscal tools in order to be re-elected but to an extent that is significantly exaggerated by scholars.

1.2.3 Previous studies on economic and elections in France

In France, there are also studies that investigate the existence of electoral budget cycles and voting behavior at the local level. Hereafter, we survey a non-exhaustive list of articles dealing with the interplay between economic factors and election results.

Jérôme-Speziari and Jérôme (2002) test empirically a municipal vote function using a pooled time series for 236 municipalities over 30,000 people. Their model identifies the factors that generate an electoral bonus and those that give an electoral malus to the outgoing municipal teams. Although it is not so obvious to conclude between punishment and reward hypothesis, they were able to assert that the 2001 vote has been marked by a real grievance asymmetry.

Previously, Martin (1996) analyzes municipal election results between 1977 and 1995 on the same sample. His analysis demonstrates the existence of an electoral bonus for

incumbent mayors. Moreover, he shows that the personal electoral dynamic of the incumbent mayor always follows the same law : it is at its height at the end of the first term, and then regresses. This development law becomes clear if one compares the score of an incumbent mayor to the average score of his/her colleagues belonging to the same party, the electoral score of an incumbent mayor being defined as the change registered in the score of his/her camp (right or left) from the nearest presidential election to the first round of the municipal election. The most popular mayors are characterized both by a very high electoral bonus at the end of the first term and a higher-than-average resistance to attrition.

Binet and Pentecôte (2004) demonstrate the existence of an opportunistic cycle of capital expenditure in 883 French towns of more than 10,000 inhabitants from 1988 to 1999. They also confirm a similar intensity cycle of public debt. Likewise, using a panel of 91 French municipalities over the period 1977-2001, Foucault and François (2005) find the presence of an electoral budget cycle on the spending side. Concerning the political determinants of such a cycle, they find that political changeover reduces the opportunity to behave opportunistically.

According to Auberger and Dubois (2005), the national (i.e., the real growth of GDP) and local economic conditions (i.e., the growth rate of the number of job-seekers in every department) play an important role on the outcomes of the French legislative elections. Farvaque and Jean (2007) study the impact of macroeconomic conditions and of party endorsements on the result of parties' candidates in local elections in France. They test for economic variables, and find that the electorate penalizes the incumbent party for unemployment or for a high misery index. They also find the presence of an incumbency premium and a strong impact of endorsement, confirming the presence of partisanship in local election results.

Dealing with the specificities induced by the two-round process of the French electoral rule, Cassette et al. (2013) establish three results. First, they show that in the first round of the electoral process, spending on equipment (including infrastructures) can influence the voter, and that electoral competition has a strong impact on the incumbent's score.

In the second round, the incumbent's vote is affected more by national considerations and local budget variables have no effect. Finally, they show that the dynamics between the first and the second rounds are intense.

Regarding the impact of the accumulation of debt over the electoral cycle on the incumbent's probability of reelection, Cassette and Farvaque (2014) separate the impact of the debt accumulated in the first years of the mandate from the last years. Their results show that French voters are fiscally conservative, punishing incumbents for the accumulation of debt, although the effect is offset when incumbents increase debt right before the election.

However, all the studies cited above use a uni-variate model or focus on the detection of electoral effects on public spending. But none of these have looked at the joint determination of the win margin and the opportunistic distortion, hence leaving aside a potential interesting issue. It is also noticeable that these studies used more restricted data-sets than the one we utilize here.

1.3 Data and econometric model

1.3.1 Data

In this study, we use political, economic, fiscal and demographic variables for all French municipalities of more than 3,500 inhabitants[1] over the period 2000-2015 . About two thirds of cities are populated by a range of 3,500 to 10,000 inhabitants and one third by more than 10,000 inhabitants. In the sample, all the departments in metropolitan France are represented. According to different electoral rules, cities of Paris, Marseille and Lyon were excluded from the sample, however.Table 1.1 presents data sources and the descriptive statistics of the variables mentioned in this study.

In terms of dependent variables, we study the two-way relationship between the win margin of victory of the incumbent mayor and the opportunistic distortion of fiscal policy. On the one hand, the win margin (WM) corresponds to the distance between the

[1]We consider these municipalities because of the difference in the electoral rules.

Table 1.1: Data sources and descriptive statistics

Variable	Data Source	Obs	Mean	Std. Dev.	Min	Max
Win Margin	Ministry of Internal Affairs	4472	19.1	19.14	-50.74	77.74
Win Margin in the Previous Election	Ministry of Internal Affairs	4386	-7.56	17.07	-100	61.79
OD-Total Expenditure	Census of Ministry of Finance	4393	-5.1	19.84	-335.75	143.44
OD-Operating Spending	Census of Ministry of Finance	4393	.06	10.31	-155.92	135.97
OD-Equipment Expenditure	Census of Ministry of Finance	4393	-35.45	92.91	-1738.65	232.79
\% change of transfers from central government	Census of Ministry of Finance	4350	127.53	1220.78	-100	45176.51
Years mayor	Ministry of Internal Affairs	4393	9.76	8.12	0	49
Government's Party	Ministry of Internal Affairs	4393	.36	.48	0	1
Right	Ministry of Internal Affairs	4393	.45	.5	0	1
Number of Lists	Ministry of Internal Affairs	4393	3.13	1.3	1	11
Population density	INSEE	4393	1171.92	1877.98	0	25958.57
% Population over 65 years old	INSEE	4393	16.77	6.15	0	51.56
Average real wages per capita	Census of Ministry of Finance	4393	13502.46	3631.99	5535.79	39792.23
Equipment expenditure per capita	Census of Ministry of Finance	4393	338.09	259.85	-312.58	7208.29
Operating expenditure per capita	Census of Ministry of Finance	4393	1054.53	435.23	321.09	8749.03
Total expenditure per capita	Census of Ministry of Finance	4393	1568.66	673.99	477.2	14107.7
Capital Transfers per capita	Census of Ministry of Finance	4393	69.08	83.32	0	2563.02
Municipal to interco equipment expenditure ratio	Census of Ministry of Finance	4251	.03	.17	.03	3.65
Municipal to interco operating spending ratio	Census of Ministry of Finance	4262	.01	.07	0	4.02
Municipal to interco total expenditure ratio	Census of Ministry of Finance	4262	.01	.1	0	5.12
Unemployment rate (local)	INSEE	4472	9.03	2.46	3.33	17.86
Unemployment rate (national)	INSEE	4393	8.79	1.1	7.68	9.88

Notes: OD: Opportunistic Distortion; INSEE: Institut National de la Statistique et des Etudes Economiques

incumbent's share of votes and that of her main challenger (candidate with the highest votes share from the opposition) at first round of municipal elections. We consider the results of the first round because it better captures the degree of electoral competition at the local level[1]. In case of defeat of the incumbent, the win margin takes a negative value. On the other hand, the opportunistic distortion (OD) of fiscal policy represents the percentage deviation of public expenditure from its term mean. Its construction closely follows Aidt et al. (2011). As municipal elections take place in March, this study considers that the opportunistic distortion could be higher in the year before the election[2].

In the time period under review, three municipal elections were held (2001, 2008 and 2014). The election of 2001 is not included in the analysis whenever lags, term averages or deviations from term averages are included.

In the full sample, 7 percent of all elections are single-candidate, while more than 35 percent had 2 candidates, 30 percent had 3 candidates, 16 percent 4 candidates and 11 percent had between 5 and 11 candidates. To exclude single-candidate elections, the general sample is restricted to be within 80% winning margin. Table 1.2 presents the frequency and percentage distributions of the win margin of victory for the resulting sub-sample. 75% of mayors won with a difference of vote shares of 0 to 40%. The mean value of the win margin is 19.38%.

Table 1.2: Frequency distribution of the Win Margin

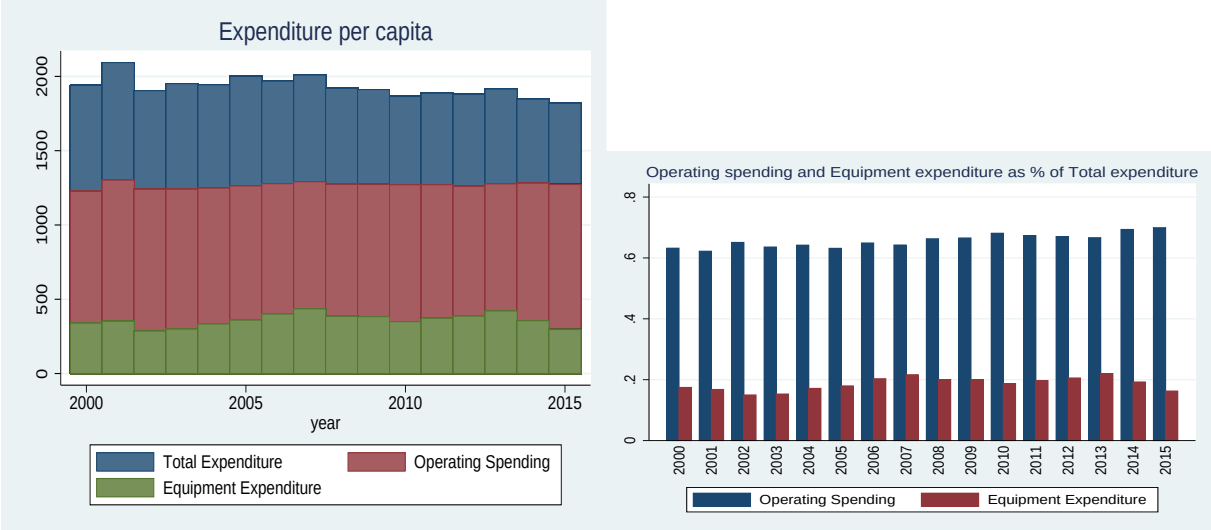
Observations	Frequency	Percentage
under -20	89.0	2.0 2
-20-00	447.0	10.0 3
00-20	1,881.0	42.1 4
20-40	1,404.0	31.4 5
40-60	574.0	12.8 6
60-80	77.0	1.70
	4,472.0	100

Source: Author's calculations.

[1]Dubois and Paty (2010) also restricted their analysis to the first round in order to avoid the modelling of complex configurations in the second round.

[2]According to Foucault and François (2005), the implementation of Local Political Business Cycle (LPBC) on the French municipalities raises some difficulties in terms of agenda. While the municipal election is usually planned in March, the budget of year t is voted in December of $t-1$ year and is theoretically applicable for year t whatever the result of election. This causes a real ambiguity concerning the importance of LPBC analysis. To limit this ambiguity, they suggest to consider that opportunistic cycles are likely to occur during the year before the election $(t-1)$ and/or during the year of election.

Figure 1.1: Types of local public spending.



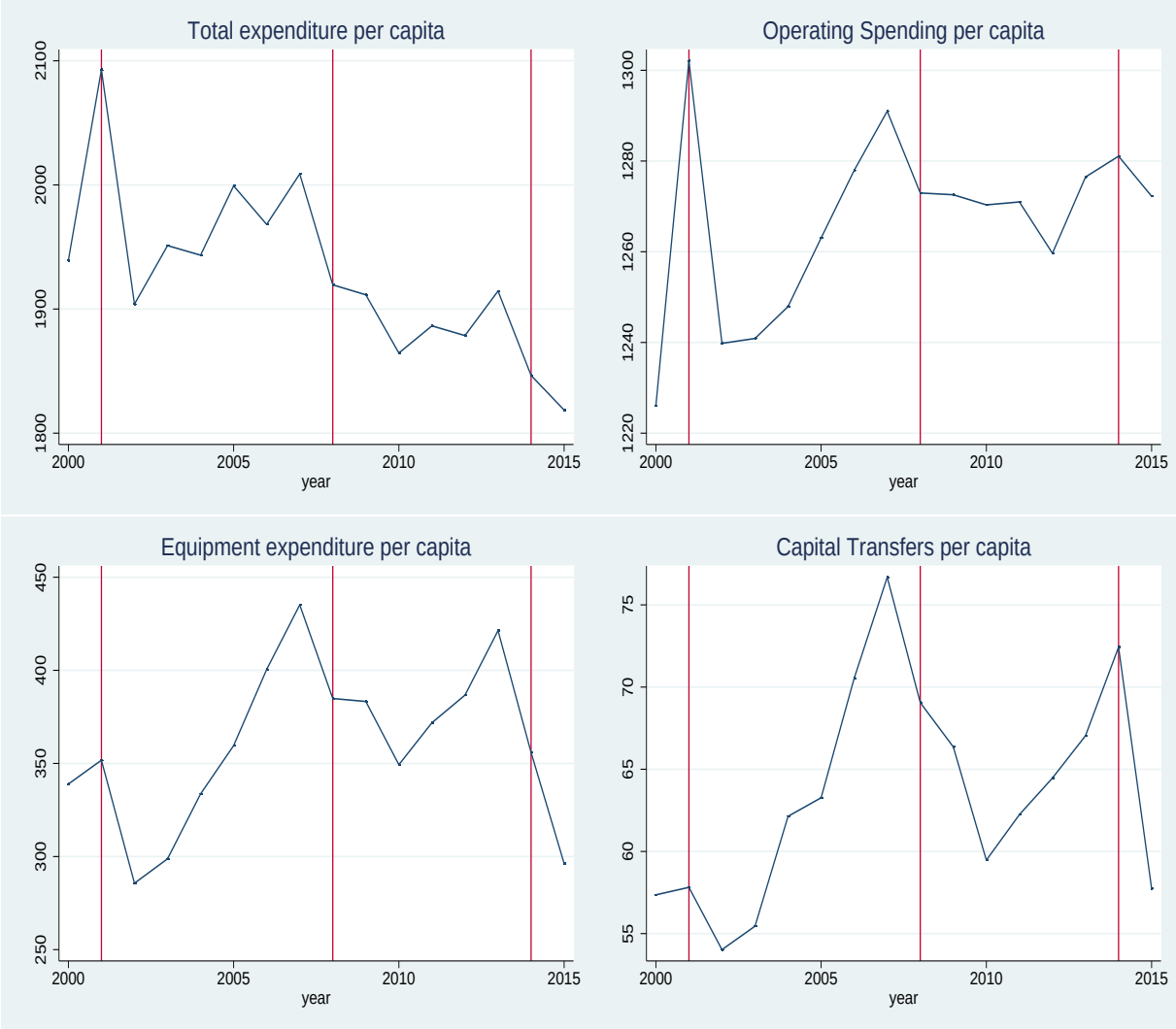
Regarding the opportunistic distortion of fiscal policy, we consider three different components of public expenditure: Total, Operating, and Equipment expenditures.

Operating spending includes personnel expenditures, current transfers and other charges. In this subcategory, personnel expenditures cover payments of salaries to local government employees both under long term contracts ("Permanent personnel") and those under short term contracts ("Temporary contracts"). Note also that, in the case of French municipalities, "current transfers" refer to benefits and transfers to specific groups or associations. Equipment expenditures include urban infrastructure (housing, marketplaces, public buildings financed by the local government, water provision...) and other investment spending.

Note that from descriptive statistics (Table 1.1), we can see that the opportunistic distortion is negative for Total expenditure and Equipment expenditure and positive for operating spending, on average. For instance, the increase in operating spending during the year before municipal elections amounts 3% of its term mean while the Total expenditure decrease by 4.95%.

An interesting feature to look at, is the structure of local public spending. Figure 1.1 helps for that. For instance, it appears graphically that operating spending account for about 62 to 70% of the total. The proportion of equipment expenditure ranges between 15% and 22% over the sample period.

Figure 1.2: Evolution of expenditure per capita



All expenditure variables are expressed in euros per capita, where the Consumer Price Index (CPI) has been used as deflator. The evolution of these variables in volume is depicted in Figure 1.2.

From Figure 1.2, it appears that all types of expenditures increase in pre-election years (2007 and 2013). These observations are in line with Foucault et al. (2008) who confirm the opportunistic behavior of local governments. They note an increase in all categories of public spending in pre-electoral periods. However, this does not reveal if there is a link between the opportunistic distortion *(OD)* and the win margin of victory *(WM)*, something which we analyze in this paper.

Note also that the Total expenditure shows a reduction during the second term covered by this study - this second term coincides with the period of 2008 financial crisis and its

repercussions.

1.3.2 Econometric model and estimation method

This study estimates a system of two simultaneous equations. The first equation represents a vote function and the second one is for the *opportunistic distortion* (OD). This specification allows analyzing the existence of a two-way relationship between the *win margin* and the *opportunistic distortion*. We thus write:

$$\begin{cases} WM_{it} = \alpha_1 OD_{it} + \alpha_2 \left(OD\right)^2 + \alpha_3 MIEx_{i,t} + \alpha_4 YO_{it} + \alpha_5 \left(YO\right)^2 + \alpha_6 URG_{it-1} + \alpha_7 INC_{it-1} \\ \qquad\qquad +\alpha_8 Debt_{it-1} + \alpha_9 WM_{it-1} + \alpha_{10} GovP_{it} + \alpha_{11} NBLIS_{it} + \upsilon_i + \epsilon_{it} \\ OD_{it} = \beta_0 WM_{it} + \beta_1 \left(WM_{it}\right)^2 + \beta_2 MIEx_{it} + \beta_3 YO_{it} + \beta_4 URG_{it-1} + \beta_5 INC_{it-1} + \beta_6 Debt_{it-1} \\ \qquad\qquad +\beta_7 CAPtm_{it} + \beta_8 VCAP_{it} + \beta_9 Pop65_{it} + \beta_{10} DENS_{it} + \beta_{11} Right + \gamma_i + \gamma_t + \mu_{it} \end{cases} \tag{1.1}$$

where i is the index for municipalities and t indicates election years[1]. Municipal fixed effects (υ_i) and (γ_i) are incorporated into the two equations and election year fixed effects (γ_t) into the equation 2. α_1 to α_{11} and β_0 to β_{11} are parameters to be estimated and ϵ_{it} and μ_{it} are random error terms with $E\left(\mu_{it}\right) = E\left(\epsilon_{it}\right) = 0$.

The structure of the second equation in (1.1) is based on the idea that the win margin could explain the opportunistic distortion. Therefore, we assume that incumbents are characterized by rational expectations. To verify the non-linear effect of the WM and the OD on each other, their square values are included in the estimates. Thus we expect the following sign for these variables of interest: $\alpha_1 > 0$, $\alpha_2 < 0$, $\beta_0 > 0$ and $\beta_1 < 0$.

There are common variables to the two equations. This concerns *Municipal to intercommunality Expenditures ratio* $(MIEx)$, *Years in office* (YO), *Unemployment rate gap* (URG), *municipal income*(INC) and *Debt*.

Intercommunalities share some identical competences with the municipalities. It is reasonable to expect that these interactions have an impact on mayors' behavior and electoral fortune. Therefore, the variable *Municipal to intercommunality Expenditures*

[1]The election years are 2001, 2008 and 2014. The election of 2001 is not included in the analysis whenever lags, term averages or deviations from term averages are included.

ratio (Municipal term mean expenditure per capita divided by Intercommunality term mean expenditure per capita) is introduced to test for the presence of two effects. We surmise that $MIEx < 1$, means that the municipality has less responsibility than the intercommunality. In this case, one could expect this variable to have no impact on the win margin of incumbent mayors. However, when $MIEx > 1$, it would be positively related to the *win margin* ($\alpha_3 > 0$).

The variable *Years in office* (YO) measures the number of years the incumbent has been in office. On average, Mayors in the sample have been in office for at least 10 years with the longest tenure being of 49 years. As documented by Martin (1996) there is a non-monotonic relationship between the number of years the incumbent mayor has been in office (YO) and the *win margin*. Hence, we introduce the variable Years in Office and its square value in the vote equation. We expect a positive sign for the YO (α_4) and a negative sign for its square value ($\alpha_5 < 0$).

Regarding *the unemployment rate (local and national)*, we compute the gap between the national average unemployment rate and that of the municipality[1]. The unemployment rate (local) varies between 8.96% and 17.86%. The *Average real income (INC), in euros per capita* measures the net disposal income of households in the municipality. This variable ranges from 5535.79 to 52044 with a mean of about 13630.19 euro per capita.

The *Unemployment rate gap* and the *Average real income* capture the local economic conditions and are included in the two equations for the following. Given the fact that voters tend to punish policymakers for bad economic outcomes, higher unemployment rates should lead to a lower percentage of votes for the incumbent mayors ($\alpha_6 < 0$). Likewise, since voters are expected to reward mayors who achieve high level of *average municipal income (INC)* during their tenure, a positive sign is expected for α_7.

We also include the Municipal debt (Debt); *in euros per capita.* The introduction of this variable, reflecting the financial liabilities generated in the years analyzed, allows verifying whether the electorate punishes high levels of local debt. Empirical findings suggest that the *Municipal debt* is associated to a negative sign in the vote equation($\alpha_8 < 0$).

[1]As the local unemployment rate is available only at the employment area level ("zone d'emploi"), we consider the same value for municipalities which belong to the same "zone d'emploi".

Equation 1 in (1.1) also includes the win margin in the previous election. This variable picks up unobserved factors such as the mayor's personal characteristics and ideologies, as well as party affiliations of voters. Persistence in voter preferences (and thus in voting behavior) is expected and a positive sign is predicted for α_9.

The variable *Government Party (GovP) is a* dummy variable equal to 1 if the incumbent mayor belongs to the majority in the Parliament and 0 otherwise. Voters may wish to punish or reward central government at local elections. Thus there is no a priori sign for the variable *Government Party.*

Regarding the determinants of fiscal distortion, one expects that greater *Municipal to intercommunality Expenditures ratio* makes it easier to be opportunistic and to create large percentage deviations of public expenditures at election times ($\beta_2 > 0$). It is also assumed that mayors with long tenures are more experienced and so are more able to manage public spending opportunistically ($\beta_3 > 0$). In the same way, there are possibilities through which economic conditions could explain the Opportunistic Distortion. For instance, the distortion would be stronger if the municipality was able to levy more taxes on the rich or the distortion regarding operational spending would be stronger if the municipal government strategically was to increase public employment in high unemployment municipalities. Thus, one expects the sign attached to the URG to be positive ($\beta_4 > 0$). Symmetrically, when the economy does well (income increases), there is less incentive to distort fiscal policy and $\beta_5 < 0$. In addition, it is obvious to note that in highly indebted municipalities, incumbent have less room for strategic manipulation of fiscal policy. Hence the coefficient of the variable Debt is expected to be negative ($\beta_6 < 0$).

In the distortion equation, four other variables are added. On the one hand, we have the *average capital transfers* from the national government during the preceding election term *(CAPTtm)* and the election year *change in the capital transfer (VCAP)*. These two variables are indicative of the availability of funds. The theory suggests that *capital transfers* increase the opportunistic distortion in election years without having a direct effect on the win-margin. Thus, β_7 and β_8 are expected to be positive.

On the other hand, two variables that are related to the voters' awareness are also

included because the theory suggests that voters' awareness tends to reduce the magnitude of the Political Budget Cycle. One way to seize voter awareness is to use a measurement based on education and urbanization, as in Akhmedov and Zhuravskaya (2004). Like Aidt et al. (2011), here the *percentage of the population over 65 years of age (Pop65)* is used to proxy for average education levels and the *population density (DENS)* for urbanization; in $inhab/km^2$. *Pop65* is expected to be associated with lower levels of awareness while *DENS* is expected to be associated with higher levels of voters' awareness. Thus, the predicted signs of their coefficients are respectively, $\beta_9 > 0$ and $\beta_{10} < 0$. The last variable in this equation is *Right*, a dummy variable that is equal to 1 if the mayor belongs to a right-wing party (UMP, Divers Droite or Droite Libérale). There is no prior on the sign of β_{11}.

To estimate the system of equations in (1.1) , various methods exist and include: Three Stage Least Squares (3SLS), Full Information Maximum Likelihood (FIML) and Generalized Method of Moments (GMM).

In order to choose between these methods, let us look at the problems raised by the specification here and the efficiency comparison of estimators. In the vote equation, there are two endogenous variables: the lagged-dependent variable and the *OD* while, in the equation 2, the win margin figures as an explanatory variable. Thus, one has many problems to address; in particular, the Nickell (1981) bias[1] and the simultaneity bias.

Regarding the dynamic panel structure of equation 1, Blundell and Bond (1998) show that to estimate the coefficient of the lagged-dependent variable with the GMM-system, the sufficient conditions apply for $T \geq 3$. Albeit this study covers three elections, the construction of the win margin reduces the sample to $T = 2$. Thus, it is impossible to use the GMM-system estimator. Moreover, according to Akhmedov and Zhuravskaya (2004) there is not a good instrument for the opportunistic distortion because all variables that sufficiently strongly correlate with it have an independent-of-the-cycles effect on the popularity of incumbents.

We thus turn to the other adequate estimators (3SLS and FIML). Nevertheless, the

[1]In auto-regressive equations, Nickell (1981) points that the dependent variable's coefficient is biased due to the correlation between the fixed effects and the lagged dependent variable.

choice between 3SLS and FIML is less clear. If FIML is efficient among all estimators, Greene (2000) indicates that "3SLS dominate FIML nonetheless". Hence, we use the 3SLS estimator and results are shown in the next section.

1.4 Results

In this section, the main results of the voting function (WM in equation 1.1) and of the Opportunistic distortion's equation (OD in equation 1.1) are discussed. The main results for the statistical analyses can be found in Table 1.3. Column (1) presents the

Table 1.3: Vote difference and Opportunism: main results

	(1)	(2)	(3)
	Total expenditure	Operating Spending	Equipment expenditure
Eq 1: Win Margin			
Opportunistic Distortion	2.833***	1.844***	0.313***
	(0.601)	(0.531)	(0.0316)
Opportunistic Distortion Squared	0.000751	0.000908	0.404**
	(0.00252)	(0.00215)	(0.158)
Municipal to interco expenditure	-2.073	1.480	-4.918*
	(9.200)	(5.095)	(2.663)
Years mayor	0.986***	0.873***	0.767***
	(0.207)	(0.124)	(0.101)
Years mayor squared	-0.0177***	-0.0169***	-0.0155***
	(0.00557)	(0.00377)	(0.00299)
Government's Party	-2.269***	-5.560***	-6.828***
	(0.876)	(0.704)	(0.720)
Win Margin in the Previous Election	0.469***	0.504***	0.486***
	(0.0500)	(0.0223)	(0.0257)
Difference to national unemployment rate	0.255	0.287	0.929***
	(0.424)	(0.201)	(0.218)
Average real wages per capita	0.000327	-0.000203	0.000366***
	(0.000264)	(0.000132)	(0.000136)
Municipal debt	-1.555**	-0.493	-1.304***
	(0.721)	(0.325)	(0.371)
Right	7.150***	5.192***	5.116***
	(2.046)	(0.962)	(0.969)
Number of candidates	-0.0248	0.143	0.00849
	(0.316)	(0.259)	(0.270)
_cons	47.84***	26.54***	43.91***
	(11.97)	(5.211)	(6.080)

R^2	0.317	0.126	0.332
Eq 2: Opportunistc distortion			
Win Margin	-0.359***	-0.427***	-3.264***
	(0.0809)	(0.0484)	(0.409)
Win Margin Squared	0.0105***	0.0117***	0.0914***
	(0.00126)	(0.000799)	(0.00665)
Municipal to interco expenditure	2.621	1.648	4.135
	(3.345)	(2.493)	(9.416)
Years mayor	-0.0697*	-0.0201	0.0920
	(0.0414)	(0.0245)	(0.209)
Capital transfers (term mean)	0.491**	0.364***	3.951***
	(0.198)	(0.130)	(1.090)
% change of transfers from central government	-0.000186	-0.000217**	-0.00294***
	(0.000133)	(0.000109)	(0.000881)
% Population over 65 years old	-0.0599	-0.0588**	-0.125
	(0.0384)	(0.0298)	(0.165)
Population density	0.000234***	0.000246***	0.00251***
	(0.0000769)	(0.0000863)	(0.000631)
Difference to national unemployment rate	0.0562	0.130	-1.666**
	(0.154)	(0.0898)	(0.764)
Average real wages per capita	-0.000196**	0.0000973*	-0.00136***
	(0.0000944)	(0.0000552)	(0.000477)
Municipal debt	0.186	-0.184	1.079
	(0.268)	(0.163)	(1.390)
Right	-0.435	-0.104	1.095
	(0.702)	(0.399)	(3.397)
_cons	-11.04**	8201.0***	79201.4***
	(4.331)	(788.2)	(7252.8)
Observations	4179	4179	4168
R^2	0.117	0.376	0.168
Municipal FE	Yes	Yes	Yes

Standard errors in parentheses. Significance levels: * p<.1, ** p<.05, *** p<.01
Estimation method: Three Stage Least Squares.

results when considering Total expenditures, while columns (2), and (3) relate to the sub-components of public spending (respectively operating spending and equipment expenditures).

1.4.1 Analysis of vote shares difference

We begin the discussion of results by those attached to the vote equation (equation 1 in (1.1)). The first point to be scrutinized is the presence of a linear or a non-linear relation between the win margin of victory and the opportunistic distortion of fiscal policy. From Table 1.3, it appears that the opportunistic distortion appears to be significantly positive while its square value comes up to be non significant. However, the Wald test does not reject the joint significance of the two variables. Thus, we kept them in the regressions.

The results suggest that the opportunistic distortion increases the win margin of victory whatever the expenditure item considered. A one percentage deviation from the term mean of total expenditure, operating spending and equipment expenditure increases the win margin of victory by respectively 2.83%; 1.84% and 0.31%. In other words, the fiscal distortion prior to elections pays off. These results seem to verify the previous studies of Veiga and Veiga (2007b) and Aidt et al. (2011).

It is interesting to notice that the impact of operating spending is higher than that of equipment expenditure. This could be seen as corroborating the prediction of Rogoff's (1990) seminal paper. Indeed, operating spending like raising salaries or increasing municipal employment even by temporary contracts is immediately noticeable. Moreover, Jones et al. (2012) give a micro-foundation to this mechanism. They argue that, for voters to reward higher spending at the margin, it has to be the case that increases in spending are welfare enhancing from their perspective. This could happen: (i) in a hard budget constraint scenario because the extant level of spending and taxation is too low, or (ii) in a soft budget constraint scenario because increases in spending at the margin are largely financed from external sources as opposed to taxes on local citizens. The politically successful politician is the one who is able to expand the local budget constraint by obtaining more funds from the central government. Then, we argue that French voters reward operating spending increases because it is largely (if not entirely) financed by central government transfers ("Dotation Globale de Fonctionnement, DGF"). As shown below, municipalities benefiting from large central transfers, are more opportunistic. Thus, the result obtained here could traduce a reward of partisan loyalty. Joanis

(2011) shows in the case of districts in Québec that districts which display loyalty to the incumbent government receive disproportionately more spending, especially close to an election.

As far as the variable *Municipal to Intercommunality Expenditures ratio* is concerned, it does not have a significant effect on the win margin. Surprisingly, greater municipal expenditure relative to that of the intercommunality reduces the win margin in equipment expenditure specification (column 3). For instance, 1.0 unit change of the municipal to intercommunality equipment expenditure ratio produces 4.92 change in the win margin. However, an immediate interpretation of these numbers is misleading, given that term mean expenditure ratio and win margin are measured on different metrics. Consider, then, what happens to the win margin when the term mean expenditure changes one standard deviation. With such an increase, the expected decrease in the win margin is 0.83 percentage points (4.92*0.17). That change translates into a 0.04 standard deviation change in the win margin.

From the estimates of vote equation , the number of years the incumbent has been in office has a non linear effect on her win margin. For instance, the estimated functional effects of the variable years in office on the win margin exhibit an inverted U-shape form. Albeit voters are attached to their mayors, a "fatigue effect" appears. This effect emerges after 4 terms in office. In other words, experience is good but there is a risk of fatigue.

The coefficient of the variable win margin in the previous election is positive and highly significant. This indicates that the win margin is persistent. This gives a strong support to the fact that voters are attached to their mayors. This result may also reflect a strong degree of partisanship, a result in line with Farvaque and Jean (2007).

Regarding the variable Government's Party, its coefficient is negative. Similar results are obtained in studies by Aidt et al. (2011), Cassette and Farvaque (2014) and Sakurai and Menezes-Filho (2008). As Aidt et al. (2011) point out, the explanation for this negative relationship could be that voters want to prevent a concentration of power in a single party at both national and local levels, or that they use the local elections to express their dissatisfaction with the national government.

The estimations show also that the unemployment rate gap (difference between the national and the local unemployment rates) impacts positively the win margin of victory. This means that when the local economy performs better than the national level, this increases the support for the incumbent. Concerning the magnitude of the effect, when the local unemployment is one point of percentage higher than the national unemployment, the incumbent's win margin decreases by approximately 0.3 to 1%.

As many previous studies find it, the municipal debt reduces the win margin of victory. The decrease is about 1.3 to 1.6% for an increase of the municipal debt by 1%. This result is in line with Cassette and Farvaque (2014) who study the impact of debt accumulation on the re-election possibilities of French local governments. Their results indicate that the accumulation of debt during the whole term adversely affects the probability of re-election. Finally, results also indicate an increase in the win margin for the mayors belonging to the right-wing party while the number of candidates seems to have no effect.

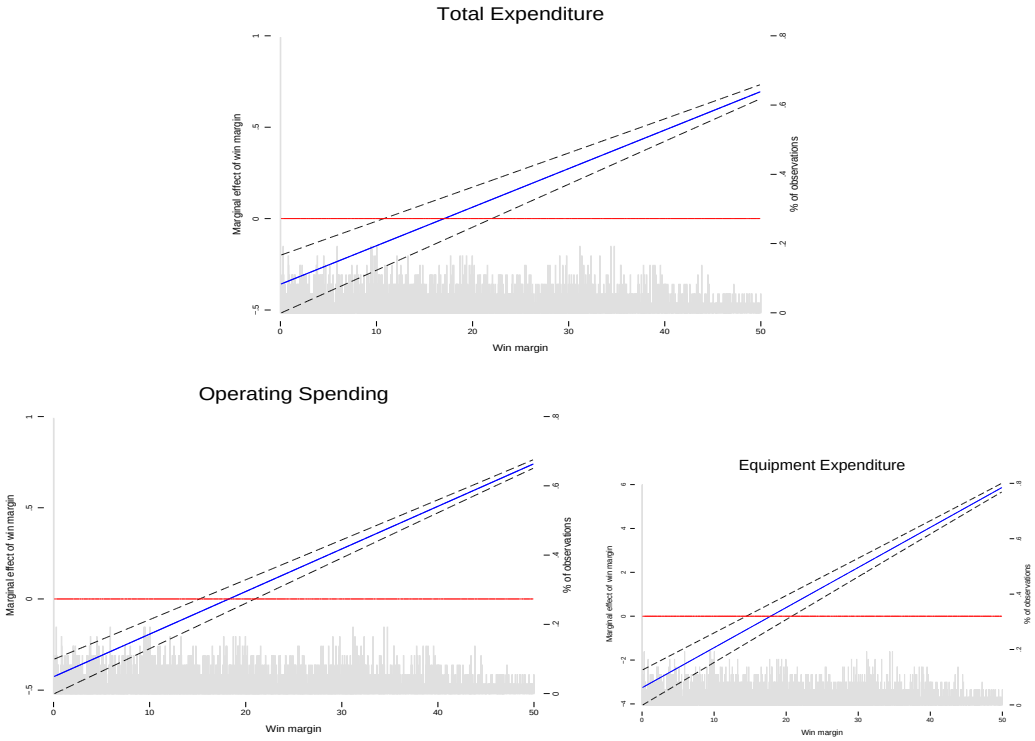
1.4.2 Determinants of opportunism

We now turn to the discussion of the estimates of equation 2 in (1.1). This equation identifies the determinants of opportunistic behavior over the components of public expenditures.

The results presented in columns (1) to (3) of Table 1.3 show that the coefficient of variables win margin and win margin squared are statistically significant with, respectively, negative and positive signs. This indicates that the relationship between opportunism over Total expenditure, operating spending and Equipment expenditure and the win margin of victory has a U-shape form. In other words, the estimated coefficients confirm the existence of non-linear effects of the win margin on the opportunistic distortion of fiscal policy. In Figure 1.3, the solid sloping line indicates how the marginal effect of win margin changes when the win margin increases. The intersection between the solid sloping line and the horizontal red line materializes the threshold[1] of the win margin under which the inclination to distort fiscal policy increases. The value of this threshold ranges between

[1]From the first partial derivative of OD over WM in the second equation in 1.1 one obtains the threshold equal to $WM = \frac{-\beta_0}{2\beta_1}$.

Figure 1.3: Marginal effect of win margin



17% and 19% . Interestingly, it is close to the mean of the win margin (19.4%).

The U-shape relationship between opportunism and the win margin of victory means that there is an efficient level of effort the incumbent should exert (see Martinez, 2009). Note also that the above parabolic relationships are in line with Hanusch and Magleby (2014) who argue that in environments with low polarization, the government popularity affects political budget cycle in a non-linear way. Note that, from 2000 to 2015, the DPI indicates that parties in France differ by an average of 0.6 on a scale of 0 (no polarization) to 2 (the maximum amount of polarization)(Cruz et al., 2016).

With regard to the control variables, *Municipal to Intercommunality Expenditures ratio* does not influence significantly the opportunistic behavior of incumbent mayors. The results indicate also that opportunism depends positively and significantly on average capital transfers from the central government over the election term. Thus, municipalities which receive more transfers, on average, also behave more opportunistically. In terms of sensitivity, a 1 point increase of standard deviation of capital transfers raises the degree of opportunism by 0.03%. The impact is about 0,04% for operating spending and 0,05% as regards equipment expenditure.

The number of years the incumbent mayor has been in office tend to reduce the distortion of total expenditure and increase that of equipment expenditure. This traduces the impact of experience on the manipulation of budget composition. Drazen and Eslava (2010) present a model of the political budget cycle in which incumbents try to influence voters by changing the composition of government spending, rather than overall spending or revenues.

The impact of population density on the opportunistic behavior of the incumbent is positive. Consider that high population density corresponds to big cities and equivalently to high levels of expenditures. Consequently, in order to be noticeable as competence signaling, the distortion should be greater.

The share of older people (population over 65) tends to reduce the incentive to distort municipal expenditures. Noting that older people are those who turnout more, this result is in line with the theoretical findings of the literature according to which voters awareness reduces politicians' opportunism. Shi and Svensson (2006) argue that a large share of informed voters renders fiscal policy manipulation less effective.

Although, the *percentage change in the capital transfers* from the previous year is not statistically significant in columns (1), it reduces the incentive to distort operating spending and equipment expenditure. Thus, it tends to offset the impact of the *average capital transfers.*

Economic conditions are expected to have an indirect impact on win margin through the incentive to behave opportunistically. The estimated coefficients of unemployment rate gap and average municipal income appear to be non significant for the former and significant for the latter. For instance, an increase of the average municipal income tends to reduce the incentive to distort total and equipment expenditures.

Finally, the fiscal liabilities of the municipality (as measured by its debt level) induces less opportunism. It is straightforward to notice that in highly indebted municipalities, mayors have less room to maneuver principally with respect to equipment expenditure. This result is in line with the fact that French municipalities are allowed to borrow only to fund investment expenditures.

To conclude this section, notice that the above results are obtained by pooling the 2 terms (2001-2008 and 2008-2014) summarized informations. Hence, it is important to check their robustness. To this end, we split the sample according to municipal population size. Table A.1 in the appendix presents the results of this strategy. We also run a cross-section test, re-estimating the system of equations (1.1) using the data that summarize the informations over terms separately. The results are displayed in Table A.2 in the appendix.

Regarding the focal variables, the sample split test and the cross-section test confirm findings from the semi-panel regressions (the presence of a non-monotonic relation between the win margin of victory and the magnitude of the cycle). As for differences, the relationship between the win margin and the opportunistic distortion is an inverted U-shaped in municipalities of more than 10,000 inhabitants.

In the cross-section regressions, the dummy variable *Right* is dropped from the win margin equation due to collinearity with the variable *Government party* during the term 2001-2008. The manipulation of public spending increases the reelection chances of incumbent mayors. The non-linear effect of the win margin on the opportunism degree is confirmed.

Specific results indicate that in small cities (population less than 10,000 inhabitants), an increase of the number of candidates reduces the incumbent's win margin of victory while this is beneficial to her in big cities (population greater than 10,000 inhabitants).

Before the 2008 municipal election, the municipal debt plays against opportunistic behavior. But, during the 2008-2014 term, it tends to give mayors a leeway to act opportunistically (see Table A.2 in the appendix).

1.5 Conclusion

There is an extensive literature focusing on the Rational Political Business cycles. Nevertheless, the past literature presents ambiguous evidence about the bidirectional and causal influences between the government popularity and the size of the fiscal cycle. Aidt et al. (2011) introduced an innovation which is to acknowledge this interaction. This paper

adds a new set of empirical evidence to this innovation by taking advantage of a large data-set of French municipalities of more than 3,500 inhabitants.

This paper enlightens the nature of the functional form of the relationship between incumbent's win margin of victory and the size of fiscal distortion in French municipalities. Here, we find that the pre-electoral manipulation of public expenditure increases the reelection chances of incumbent mayors. As the main determinant of opportunistic behavior, the win margin of incumbent mayor impacts the magnitude of the fiscal cycle in a non-linear way. Overall, the estimated coefficients indicate the existence of a U-shaped relationship between the two variables. Hence, the main contribution of this paper is to evidence these non-linearities controlling for the interactions between municipalities and intercommunalities.

The results indicate also that incumbent mayors who care about their reelection will have to take into account local economic conditions and their fiscal performance. The results confirm that voters tend to be conservative as regards the accumulation of municipal debt. Finally, we note that political alignment with the central government matters in the sens that voters may use municipal elections to punish national politics.

1.A Robustness check

Table A.1: Vote difference and Opportunism by municipality size

	(1)	(2)	(3)	(4)	(5)	(6)
	3500-10000			>10000 inhabitants		
	Total	Operating	Equipment	Total	Operating	Equipment
Eq 1: Win Margin						
Opportunistic Distortion	1.609***	2.934***	0.0273***	4.242***	6.462**	0.0345***
	(0.367)	(0.643)	(0.00413)	(1.428)	(3.083)	(0.00743)
Opportunistic Distortion Squared	-0.0000855	-0.0000217	0.0290	0.00216	0.0142	0.306
	(0.00210)	(0.00244)	(0.0285)	(0.00500)	(0.0250)	(0.214)
Municipal to interco expenditure	-2.701	-1.169	-0.291	53.57	75.75	-6.258**
	(6.212)	(8.090)	(1.632)	(44.36)	(47.85)	(3.115)
Years mayor	0.891***	0.836***	0.737***	0.893**	1.123**	0.607***
	(0.161)	(0.178)	(0.102)	(0.440)	(0.465)	(0.118)
Years mayor squared	-0.0159***	-0.0183***	-0.0153***	-0.0178	-0.0179	-0.00776**
	(0.00438)	(0.00555)	(0.00342)	(0.0129)	(0.0114)	(0.00361)
Government's Party	-2.707***	-3.013***	-5.308***	2.721	3.224	-2.044**
	(0.699)	(0.778)	(0.686)	(2.702)	(2.129)	(1.017)
Win Margin in the Previous Election	0.314***	0.348***	0.420***	1.063***	1.182***	0.826***
	(0.0358)	(0.0391)	(0.0181)	(0.142)	(0.158)	(0.0291)
Difference to national unemployment rate	0.309	-0.160	0.673***	0.152	0.805	0.965***
	(0.339)	(0.371)	(0.154)	(0.922)	(0.660)	(0.180)
Average real wages per capita	-0.0000216	-0.000698**	0.0000445	0.00100	0.000448	0.0000763
	(0.000212)	(0.000274)	(0.0000962)	(0.000633)	(0.000409)	(0.000107)
Municipal debt	-1.745**	-1.665**	-1.549***	-3.150*	-0.520	-0.556*
	(0.732)	(0.740)	(0.323)	(1.738)	(1.192)	(0.322)
Right	6.374***	7.079***	4.538***	5.735	-0.0898	0.698
	(1.562)	(1.671)	(0.683)	(4.823)	(3.230)	(0.949)
Number of candidates	-0.616	-0.616	-2.617***	1.557**	1.426**	0.899***
	(0.386)	(0.475)	(0.419)	(0.670)	(0.663)	(0.286)
_cons	50.07***	49.47***	47.82***	70.86**	17.65	27.18***
	(11.49)	(11.64)	(5.096)	(29.31)	(22.04)	(5.357)
R^2	0.270	2.633	0.217	5.121	0.133	0.214
Eq2:Opportunistic distortion						
Win Margin	-0.255**	-0.199***	1.138***	-0.554***	-0.401***	0.329*
	(0.107)	(0.0596)	(0.181)	(0.115)	(0.0539)	(0.173)
Win Margin Squared	0.0122***	0.00751***	-0.0121***	0.0114***	0.00787***	-0.000323
	(0.00169)	(0.000951)	(0.00386)	(0.00182)	(0.000848)	(0.00338)
Municipal to interco expenditure	4.204	2.324	7.682	-12.62	-10.82*	22.29*
	(3.777)	(2.668)	(10.58)	(10.50)	(6.032)	(13.54)
Years mayor	-0.153***	-0.0323	-0.192	0.0314	-0.00471	-0.0820
	(0.0572)	(0.0314)	(0.261)	(0.0592)	(0.0277)	(0.191)
Capital transfers (term mean)	0.851***	0.519***	10.41***	0.0222	0.0207	5.988***

	(0.291)	(0.148)	(1.980)	(0.211)	(0.186)	(1.700)
% change of transfers from	-0.000160	-0.000128*	-0.00214	-0.00130	-0.000889**	0.0140***
central government	(0.000157)	(0.0000777)	(0.00132)	(0.00110)	(0.000386)	(0.00468)
% Population over 65 years old	-0.0971*	-0.0641**	-0.123	-0.0246	-0.0199	-0.117
	(0.0529)	(0.0321)	(0.326)	(0.0348)	(0.0242)	(0.291)
Population density	0.000789**	0.000387	-0.00493	0.000198**	0.000146**	0.000881
	(0.000334)	(0.000259)	(0.00357)	(0.0000898)	(0.0000731)	(0.000659)
Difference to national unemployment rate	-0.0143	0.166	-2.235**	0.189	0.0257	-0.348
	(0.205)	(0.113)	(0.964)	(0.235)	(0.111)	(0.787)
Average real wages per capita	-0.000109	0.000165**	-0.00157**	-0.000312**	-0.000130*	-0.000893*
	(0.000130)	(0.0000710)	(0.000619)	(0.000140)	(0.0000663)	(0.000479)
Municipal debt	0.411	0.151	-4.420**	0.632	0.0326	-0.735
	(0.450)	(0.247)	(2.140)	(0.395)	(0.193)	(1.498)
Right	-0.676	-0.403	-5.325	-0.650	0.614	-2.701
	(0.967)	(0.531)	(4.221)	(1.011)	(0.477)	(3.299)
_cons	-21.77***	-11.04***	-85.18**	-8.935	2.529	-90.22***
	(7.359)	(3.998)	(37.70)	(7.061)	(3.663)	(26.12)
Observations	2672	2672	2664	1507	1507	1504
R^2	0.100	0.143	0.127	0.121	0.343	0.434

Standard errors in parentheses. Significance levels:* p<.1, ** p<.05, *** p<.01

Estimation method: Three Stage Least Squares.

Table A.2: Vote difference and Opportunism by election

	(1)	(2)	(3)	(4)	(5)	(6)
		2001-2008			2008-2014	
	Total	Operating	Equipment	Total	Operating	Equipment
Eq 1: Win Margin						
Opportunistic Distortion	2.0788***	5.8225***	0.5851***	3.2850**	2.7915***	0.0197***
	(0.4678)	(1.9289)	(0.1108)	(1.3889)	(0.9758)	(0.0048)
Opportunistic Distortion Squared	0.0020	0.0004	2.8394*	0.0001	0.0001	0.0242
	(0.0024)	(0.0012)	(1.5377)	(0.0055)	(0.0076)	(0.0304)
Municipal to interco expenditure	0.8828	-58.0212	3.6108	-3.1221	4.8261	-4.0174*
	(32.8814)	(44.1054)	(4.8388)	(11.2008)	(7.2626)	(2.1399)
Years mayor	0.5171**	0.4080	0.4116**	1.0890***	1.0503***	0.9140***
	(0.2588)	(0.3552)	(0.1985)	(0.3525)	(0.2085)	(0.1074)
Years mayor squared	-0.0092	-0.0064	-0.0062	-0.0159*	-0.0173***	-0.0160***
	(0.0080)	(0.0113)	(0.0062)	(0.0088)	(0.0054)	(0.0033)
Government's Party	-2.1136	-3.2027	-1.9123	-3.9531***	-4.5278***	-4.9483***
	(2.0175)	(2.8750)	(1.7631)	(1.1836)	(1.0612)	(1.0259)
Win Margin in the Previous Election	0.3395***	0.2974***	0.3771***	0.5261***	0.6055***	0.7172***
	(0.0538)	(0.0747)	(0.0484)	(0.0992)	(0.0443)	(0.0237)
Difference to national unemployment rate	0.6852	-0.3114	1.0783**	-0.2137	0.0441	0.5368***
	(0.4865)	(0.8238)	(0.4296)	(0.6533)	(0.3630)	(0.1642)

Average real wages per capita	0.0001	-0.0005	0.0001	0.0005	-0.0002	0.0000
	(0.0003)	(0.0005)	(0.0003)	(0.0005)	(0.0003)	(0.0001)
Municipal debt	0.7017	2.4841**	0.9907	-4.1070***	-1.6202***	-1.0458***
	(0.7750)	(1.2067)	(0.7167)	(1.2389)	(0.5759)	(0.3157)
Right	0.0000	0.0000	0.0000	13.3989***	7.1351***	3.2810***
	(.)	(.)	(.)	(4.0097)	(1.8680)	(0.8250)
Number of candidates	-0.4131	-0.4917	-0.6945	0.9230	0.8474**	0.2764
	(0.6333)	(0.7706)	(0.5632)	(0.7189)	(0.3424)	(0.3171)
_cons	17.6569	-7.2086	16.2701	82.8979***	37.7659***	32.1861***
	(12.7083)	(19.6758)	(11.4892)	(21.8935)	(9.5114)	(4.9687)
R^2	08.789	21.657	17.476	08.117	22.568	12.403
Eq2:Opportunistic distortion						
Win Margin	-1.6626***	-0.5227***	-7.1934***	-0.0984	-0.1321***	0.5735***
	(0.3844)	(0.1840)	(1.3806)	(0.0680)	(0.0380)	(0.1768)
Win Margin Squared	0.0339***	0.0110***	0.1418***	0.0056***	0.0059***	-0.0017
	(0.0062)	(0.0029)	(0.0224)	(0.0010)	(0.0006)	(0.0040)
Municipal to interco expenditure	0.4067	10.3994	-6.7343	2.0396	-0.3124	25.5683*
	(17.2119)	(7.4693)	(10.2740)	(3.3418)	(2.4132)	(13.9956)
Years mayor	-0.0322	-0.0100	-0.0778	-0.0952*	-0.0665**	0.1789
	(0.0677)	(0.0327)	(0.2415)	(0.0544)	(0.0299)	(0.2815)
Capital transfers (term mean)	0.9235*	0.2822**	6.3045***	0.0612	0.1289	6.1991***
	(0.4969)	(0.1348)	(1.8751)	(0.1156)	(0.1023)	(1.9269)
% change of transfers from	-0.0003	-0.0001	-0.0013	-0.0001	-0.0001	-0.0052***
central government	(0.0003)	(0.0001)	(0.0011)	(0.0001)	(0.0001)	(0.0017)
% Population over 65 years old	0.0633	0.0178	0.3026*	-0.0359	-0.0538	0.2940
	(0.0493)	(0.0368)	(0.1741)	(0.0684)	(0.0390)	(0.4041)
Population density	0.0004*	0.0001	0.0017**	0.0001*	0.0001	0.0013
	(0.0002)	(0.0001)	(0.0008)	(0.0001)	(0.0001)	(0.0013)
Difference to national unemployment rate	-0.1872	0.1019	-1.8487**	0.1907	0.1551	-1.6293
	(0.2582)	(0.1249)	(0.9072)	(0.1989)	(0.1096)	(1.0700)
Average real wages per capita	0.0001	0.0001*	0.0005	-0.0002	0.0000	-0.0017**
	(0.0002)	(0.0001)	(0.0006)	(0.0001)	(0.0001)	(0.0007)
Municipal debt	-0.9803**	-0.6150***	-4.8081***	1.0436***	0.2785	1.5388
	(0.4672)	(0.2080)	(1.7381)	(0.3351)	(0.1924)	(2.1167)
Right	0.2410	0.3035	0.0043	-3.3602***	-1.5886***	-13.7790***
	(1.0508)	(0.5085)	(3.7315)	(0.9822)	(0.5404)	(5.1419)
_cons	8.1280	6.7685*	15.1160	-20.4427***	-6.6703**	-141.4269***
	(7.9139)	(3.6012)	(28.3567)	(5.6381)	(3.1665)	(33.4919)
Observations	2025	2025	2023	2154	2154	2145
R^2	5.789	15.657	18.477	0.317	0.168	0.417

Standard errors in parentheses. Significance levels:* p<.1, ** p<.05, *** p<.01

Estimation method: Three Stage Least Squares.

Chapter 2

Disentangling Political and Institutional Determinants of Budget Forecast Errors: A Comparative Approach

2.1 Introduction

This chapter assesses the reliability of budget forecasts presented by local governments in France and Portugal, comparing expenditures and revenues predicted (forecasted) in the approved local budgets for the upcoming year with the values that materialized. It addresses two main empirical questions regarding budget forecast errors:

- Are budget forecasts systematically biased at the local level, and to what extent?
- How do political and institutional factors influence these biases?

These questions are at the core of the literature on the political economy of fiscal forecasting. Previously, scholars have focused on the unintentional sources of forecast errors (technical and calculation limitations, data availability,...).[2] But, many studies on fiscal performance have recently began to tackle systematically the issue of how differences

[2]See Leal et al. (2008) for a survey.

in political and institutional conditions affect the quality of fiscal forecasts (Brück and Stephan, 2006; Boylan, 2008; Bischoff and Gohout, 2010; Buettner and Kauder, 2010; Chatagny, 2015; Buettner and Kauder, 2015; Benito et al., 2015; Giuriato et al., 2016). Most of these studies focus on either the influence of electoral business cycles (Brück and Stephan, 2006; Boylan, 2008; Cimadomo, 2016; Kauder et al., 2015) or partisan politics (Heinemann, 2006; Chatagny, 2015).[1] Other papers look at institutional and organizational factors (Buettner and Kauder, 2010; Giuriato et al., 2016).

Most papers analyze the behavior of central governments and very few focus on local authorities, particularly in Europe (exceptions being Goeminne et al., 2008; Sedmihradská and Čabla, 2013; Galinski, 2013; and Benito et al., 2015).[2] Additionally, to the best of our knowledge, no study has tested a possible impact of fiscal decentralization on budget forecast errors.

Consequently, our chapter aims at extending the existing literature in two ways. First, by studying the link between fiscal decentralization and forecast cycles. Second, by adopting a comparative perspective which uses data from French departments and Portuguese municipalities. The focus of our analysis is, not only to characterize fiscal forecasting accuracy in these countries, but also to ascertain if and how forecasts at the local level are influenced by political, economic, and institutional factors.

As far as fiscal forecast errors are concerned, the present chapter makes two main contributions to the literature. First, unlike previous comparative studies, this chapter is concerned with local governments and their dis-aggregated fiscal data (total revenue and total expenditure, as well as their components).[3] Existing comparative studies analyze forecasting errors of international organizations (e.g., Dreher et al., 2008, for the International Monetary Fund), in errors for EU countries (Pina and Venes, 2011) or OECD countries (Jochimsen and Lehmann, 2017), and/or mainly focus on the consequences of forecast errors for the budget balance. Here, we are mainly interested in the political and

[1] For the United States, some studies mention the influence of political ideology on the forecast accuracy of tax revenues (see, e.g., Bretschneider et al., 1989; Mocan and Azad, 1995; Paleologou, 2005).

[2] At the sub-national level, many studies come out of North America (Feenberg et al., 1989; Mocan and Azad, 1995; and Boylan, 2008, among others).

[3] Benito et al. (2015) look at dis-aggregated revenues and expenditures data, but within a single country (Spain).

institutional determinants of local governments' budget forecast errors. Moreover, the uncertainty or the variability associated with some specific budget components may be different from that of budget aggregates (total revenue and total expenditure), which calls for a more detailed analysis of forecasts than those available for panel country studies.

Second, the selection of two countries with different institutional structures allows us to analyze the impact of institutions on budget forecast errors at the local level. For instance, French departmental presidents and Portuguese mayors have different degrees of autonomy regarding the management of local finances, the capacity to approve their budgets without having to negotiate with opposition parties, and only Portuguese mayors face a limitation on the number of consecutive terms in office. Moreover, at the country level, and in a recent contribution, Giuriato et al. (2016) find that the forecasting bias is more effectively countered in presidential and semi/presidential systems, in parliamentary systems with strong bicameralism, and when executive/legislature relations are constrained by checks and balances. In this chapter, we take this analysis to the local level by arguing that the political system of French departments can be compared to majoritarian parliamentarism, while the Portuguese municipalities' system can be seen as presidentialism. Given these institutional structures, we are interested in analyzing the impact of fiscal autonomy on budget forecasting.

The chapter is structured as follows. Section 2.2 describes the institutional frameworks in which French departments and Portuguese municipalities operate. Section 2.3 briefly reviews the related literature and derives the hypotheses to be tested. Section 2.4 presents the data and analyzes the bias in budget forecasts. Section 2.5 describes the results of the econometric analysis of the determinants of percentage forecast errors and their implications for the hypotheses derived in section 2.3. Finally, section 2.6 concludes the chapter.

2.2 Institutional framework

Institutions determine the rules in a society and shape the incentives of policymakers and voters. Therefore, institutional differences between the two countries considered in

this chapter may help explain differences in results regarding the determinants of budget forecast biases. Mainly for readers not familiar with local governments in France and/or Portugal, we provide in this section a brief description of the institutional frameworks in which French departments and Portuguese municipalities operate.

2.2.1 French departments

The French institutional setting is a four-tier system comprising the central government, 18 regions, 101 departments, and about 36,000 municipalities. In this study we focus on metropolitan France which is divided into 96 departments[1]. A department is composed of several counties (*cantons*) and of several constituencies (*circonscriptions*). In constituencies, voters elect their representatives at the National Assembly and, in counties, voters elect their representatives at the General Council[2] (Dubois et al., 2007). Indeed, French departments are governed by the departmental council.

The councilors are nominated trough democratic elections for six years. Before 2013, these elections took place once every three years (generally in March) in which half of the departmental council was elected in each department. In the context of a multi-party-system, a two-round majority vote is used. To be elected in the first round, a candidate must get at least half of the votes plus one, and a number of votes equal to at least 25% of the registered voters. To be a candidate in the second round, it is necessary to have obtained in the first round a number of votes equal to at least 10% of the registered voters. However, if only one candidate clears this threshold, the one ranked second can remain a candidate. The candidate who gets the biggest number of votes in the second round is elected. After every election, the departmental council elects a president. Since 2013, the electoral rule has changed, to a bi-nominal majority vote with two rounds. Every county is represented by a "twin-ticket" ("binôme" in French) of a man and a woman, and the whole departmental council is to be elected every six years. To be elected in the first round, the binôme must obtain at least half of the votes plus one, and a number of votes equal to at least 25 per cent of the registered voters. If a second round is necessary, all

[1]Given the particularity of Paris as municipality and department, we exclude it from our analysis.
[2]Since the reform of 2013, General Councils are renamed into departmental councils.

the binômes with at least 12.5% of registered voters can compete. The reelection rule is as in the previous paragraph.

The decentralization Act of 1982 (and afterwards the Act of 2003) provided the departmental council with new competencies and a relative autonomy. The President of the departmental Council prepares and implements the department's budget. The departmental resources rely in part on central government transfers (about 40%) and on own resources such as local taxes. In terms of competencies, French departments are responsible for the management of a number of social and welfare allowances, of junior high school (*collège*) buildings and technical staff, of local roads, school and rural buses, and for a contribution to municipal infrastructures.

For the elaboration of budget forecasts, the ministry of finance provides departmental councils the macroeconomic forecasts. On this basis and given their needs, departments set their own tax rates on a common tax base for a large range of local direct taxes. Budgets are prepared by the president of council with the help of a technical staff. Before being enacted, the budget has to be voted by the council.

2.2.2 Portuguese municipalities

The Portuguese institutional setting comprises 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. The financial regime for local authorities (Law n. 73/2013), which governs municipal own revenues, transfers from the central government, budgetary procedures and debt, also applies to all municipalities, regardless of their location. Municipalities are responsible for the promotion of local economic development and territorial organization, as well as for the provision of several public goods related to water and sewage, energy, transportation, housing, healthcare, education, culture, sports, environmental protection and public order.

Regarding the municipal institutional structure, the representative branches of munici-

palities' government are 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 (Veiga and Veiga, 2007b). The members of both chambers are elected by the registered voters of each municipality for a four-year term. The elections for both chambers, and those for the parish assemblies,[1] 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. While all members of the Town Council are elected directly by voters, half of the members of the Municipal Assembly are elected directly, and the other half are the presidents of the parishes that belong to the municipality.[2] The leader of the most voted list for the Town Council becomes the mayor.

Besides presiding the Town Council and choosing which executive competencies are delegated to other elected members,[3] 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,[4] 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]

[1]Parishes (*freguesias*) are subdivisions of municipalities and constitute the lowest administrative unit in Portugal.

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

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

[4]This happens 81% of the time in our sample (the variable Majority has a mean of 0.81 in Table A.2 in the Appendix).

[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.

2.3 Theoretical framework and hypotheses

This section briefly reviews the related literature and derives the main hypotheses to be tested using a panel dataset composed of 95 French departments and 308 Portuguese municipalities. Instead of coming up with a theoretical model that can only deal with a limited number of political determinants of electoral forecast cycles, we derive our hypotheses from three different strands in the literature, i.e., studies on (i) the opportunistic theory, (ii) the literature on fiscal autonomy (iii) the partisan theory.

2.3.1 Opportunistic budget forecast cycles

A classical argument in political economy holds that incumbent policymakers manipulate fiscal policy in order to increase their probability of reelection. This is the political budget cycle (PBC) theory (see Dubois, 2016, for a survey). Analogously, Brück and Stephan (2006) introduced the concept of "Electoral Forecast Cycle". They argue that the process of developing revenue forecasts and spending budgets serves as a political tool by incumbents who seek to manage the electorate's expectations of overall job performance, particularly during an election cycle. For instance, it is logical to think that more promises will be made just before elections to increase the incumbent's popularity among voters (Blais and Nadeau, 1992). Likewise, Heinemann (2006) considers that under the vote or popularity maximization assumption, the government might be tempted to use non-binding financial planning as a marketing instrument for depicting a bright fiscal future in order to gain political support.

Information asymmetries between the government and voters on the fiscal future do clearly exist. The consequence is that the government has a certain leeway to cheat voters about the country's fiscal future. Indeed, the lack of transparency in the budgetary process enables politicians to strategically manipulate fiscal forecasts.[1] Thus, politicians can have incentives to be optimistic or pessimistic (Goeminne et al., 2008; Chatagny and Soguel, 2012). First, optimism over revenue (overestimation) allows governments to provide increased services without an immediate increase in taxes, or to satisfy a

[1] Bohn (2014) provides a moral-hazard model to explain such behavior.

balanced-budget requirement. In addition, optimistic revenue forecasts carry a lower political cost in terms of potential loss of votes than tax increases. Second, pessimistic revenue forecasts (underestimation) may provide a cushion for unanticipated expenditures or revenue shortages, and show that prudent management results in year-end operating savings (Benito et al., 2015).

In line with the insights on voting cycles, a particularly optimistic assessment of the budgetary future is to be expected before an election. Generally, this leads to deficits.[1] We then hypothesize the following:

Hypothesis 1: The government tends to underestimate expenditure and overestimate revenue for the election years.

But, as for the Political Budget Cycles, we can ask whether this mechanism does exist with rational voters. Heinemann (2006) argues that, even if rational voters understand the above incentives and regard fiscal projections as biased, the problem will not be solved: unbiased fiscal forecasts are not time-consistent as long as fiscal projections have an impact on the government's popularity. Rational voters will then suspect a bias and, thus, the government must react to this by delivering over-optimistic projections. The resulting equilibrium implies distorted forecasts whose degree of bias is correctly assessed by rational voters.[2]

2.3.2 Fiscal autonomy and budget forecast cycle

This chapter relates also to the literature on political economy of fiscal decentralization (Joanis, 2014; Bröthaler and Getzner, 2011; González et al., 2013). We put forward the concept of fiscal autonomy in order to link it to electoral forecast cycle.

Before proceeding, it is useful to define the term tax autonomy. Fiscal autonomy of sub-national governments is understood as a gradual range of decision power on own

[1] However, recurrent deficits suggest nonfeasance and incompetence on the part of those charged with financial management. Thus, governments may want to register compensating surpluses in non-election years. According to Larkey and Smith (1989), greater optimism is expected in election years because revenue increases and expenditure cuts cost votes.

[2] A time-inconsistency problem arises here and can be overcome for example by handing the fiscal forecasts over to an independent third party. Only then the bias incentive can be overcome in a reliable way and the projections be credibly established (see Debrun et al., 2009, for a survey).

resources and expenditure. Own taxes represent the highest degree of sub-national autonomy. They provide the political and legal autonomy (partially restricted by central regulations) to impose taxes, to set the tax base, rates, and reliefs. Individual sub-national governments have the power to alter the amount of revenue, and thus can control the level of spending to a certain extent. Shared taxes, which are distributed between the levels and units of public authorities, represent a middle degree of autonomy (Bröthaler and Getzner, 2011).

In multi-tiered governmental systems, local budgets can be affected by electoral incentives at various levels of the government. Local governments can be expected to adjust their fiscal decisions in order to influence local election outcomes.

In this chapter, we emphasize the role of fiscal autonomy on the magnitude of budget forecast errors. For instance, Bohn (2014) notices that there is a history of budget forecasts which are distorted for political reasons, especially prior to elections. There are at least two motives for such forecast manipulations: (i) the government is overly optimistic (for instance, overestimates revenues) in order to have more room for maneuver prior to an election; (ii) the government is overly pessimistic (i.e. underestimates the budget balance) in order to show its competence by being able to implement unexpected expansionary fiscal policies.

From a theoretical viewpoint, more control over a policy instrument implies more accountability. In fact, decentralization alters the government's structure so as to increase citizen voice and change the deep incentives that politicians face. Recently, scholars examine the possibility that if some costs of electoral fiscal manipulation could be shifted outside the jurisdiction- e.g. to the central government- it may affect voters' attitudes towards the manipulation and, accordingly, the tendency of local policy makers to induce political budget cycles (Baskaran et al., 2016; Asatryan et al., 2015)

Jonung and Larch (2006) show that budget forecast errors have contributed to the accumulation of budget deficits. Under high fiscal autonomy, deficits are expected to lead to higher taxes in the future. Thus, deficits are likely associated with electoral costs for politicians (Brender, 2003; Drazen and Eslava, 2010), inducing them to refrain

from opportunistic budgeting. When fiscal autonomy is lower, and local governments are highly dependent on government transfers, the costs of opportunistic deficits in a given circumscription are not fully internalized by its voters, as costs will be shared with taxpayers of the rest of the country, especially in the presence of soft budget constraints and bailouts by the central government. In such cases, opportunistic budgeting, and the resulting election-year deficits, may actually pay off at the polls.[1] Hence, we postulate the following:

Hypothesis 2 : More fiscal autonomy should induce more conservatism in budget forecasting.

2.3.3 Partisan budget forecast cycles

The partisan theory posits that government policies are sensitive to ideological motives (Hibbs, 1977). Traditionally, left-wing governments are expected to run more expansionary policies than right-wing incumbents. Thus, they may also be more willing to run deficits. Following this literature, Heinemann (2006) suggests that the government might use financial projections as a strategic tool to influence budgetary processes according to its ideological view on the future of the government. A left-wing government with a preference for the expansion of the public sector may consciously depict a particularly optimistic picture about the future of public finances. By doing so, it might hope to convince the public that a present expansion can be financed. A right-wing government with opposite preferences would depict a particularly gloomy picture of the fiscal future, as a way to lobby for budgetary cuts. Based on the preceding arguments, we formulate our third hypothesis as follows:

Hypothesis 3: Left-wing governments tend to produce positive markups on budgeted revenues when compared to right-wing governments. The opposite holds for expenditures.

[1] Aidt et al. (2011) show that mayors' opportunistic election-year fiscal manipulations pay off in Portuguese municipal elections.

2.4 Data and analysis of forecast performance

This section starts with the presentation of our indicator of budget forecast errors and of the main criteria for evaluating forecast accuracy. Then, the data collected for French departments and Portuguese Municipalities are described. Finally, the results of bias tests are reported and discussed.

2.4.1 Forecast Accuracy

The first step of our empirical analysis is to check the rationality of budgetary plans. Hence, it is important to define the concept of forecast error. Generally, it is defined as the difference between forecasted and realized values. Forecasted values for year t are taken from the local budget for year t, approved at the end of year $t-1$. The realized values are those from the approved final accounts of year t. Let A denote the actual revenue/expenditure and F the forecast value of the same variable. This chapter uses the following budget inaccuracy or forecasting error indicator is used:

$$PFE_{x,t} = \frac{(A_{x,t} - F_{x,t}) * 100}{A_{x,t}} \tag{2.1}$$

where x is the analyzed budget segment (revenues, expenditures or a part of them), and PFE is the Percent Forecast Error.

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 expenditure side (see Table 2.1).

Table 2.1: Interpretation of the variable PFE

Revenue PFE	$A - F > 0$	Underestimate	Pessimistic
	$A - F < 0$	Overestimate	Optimistic
Expenditure PFE	$A - F > 0$	Underestimate	Optimistic
	$A - F < 0$	Overestimate	Pessimistic

Source: Adapted from Benito et al. (2015).

We evaluate the forecasts by means of the following error tests (MPFE, MAPE):

1. *The Mean Percentage Forecast Error (MPFE).* It measures the average of percentage errors by which forecasts differ from outcomes. It shows whether systematic over or under-prediction is present. Since positive and negative forecast errors can offset each other, it tends to minimize the overall size of the error.

$$MPFE_{x,t} = \frac{1}{T}\sum_{t=1}^{T} PFE_{x,t}$$

2. *The Mean Absolute Percentage Forecast Error (MAPFE).* It measures the average percentage absolute difference between the forecast and the outturn. Since positive and negative errors no longer cancel each other out, it is a more accurate measure of the average forecast error than the MPFE.

$$MAPFE_{x,t} = \frac{1}{T}\sum_{t=1}^{T} \mid PFE_{x,t} \mid$$

Regarding unbiasedness, these indicators should be equal to zero, otherwise forecasts are biased.

2.4.2 Data

For comparative purposes, this study employs two databases. The first covers 95 French departments over the period 2004-2015. The second encompasses all 308 Portuguese municipalities through the period 1998-2015. We restrict our analysis to these periods because of data availability. These data-sets comprise financial, economic and political variables. Financial and economic variables were gathered from the Directorate General of Local Governments (France) and its equivalent in Portugal (DGAL). Political variables come from the Ministries of Internal Affairs of both countries.

These data-sets are suitable for the purpose of this chapter. First, all French departments operate under the same institutional framework, and the same applies to Portuguese municipalities. Second, the local governments decide autonomously on the projected fiscal resources and expenses they use in the budgetary process.

Regarding our dependent variable, we concentrate on actual and budgeted (one year ahead) amounts for seven variables: total revenue, current revenue, capital revenue, direct taxes, total expenditure, current expenditure, and capital expenditure.

In the time period under review, four departmental elections (2004, 2008 2011 and 2015) were held in France[1] and four municipal elections (2001, 2005, 2009 and 2013) in Portugal.

Descriptive statistics of the variables for which annual data was collected are presented in Tables A.1 and A.2 for French departments and Portuguese municipalities, respectively.

Concerning ideology, we include the dummy variable Left wing, which takes the value of 1 if the president of a French departmental council belongs to a left-wing party (PS, DVG, PRG or PCF) or if the mayor of a Portuguese municipality belongs to a left-wing party (PS, PCP, or BE), and equals 0 otherwise. In the French database, the percentage of left-wing presidents of councils is 53%, whilst the rightist represent 42%. The remaining 5% are from the centre. Thus, on average, more left-wing presidents are present in the French data. In the Portuguese case, there is the same pattern: also 53% of mayors are leftists, while 45% are from the right-wing, and 2% are independent. In France, 43% of the council presidents belong to the government party, and 76% run for reelection. The figures for Portuguese mayors are quite similar, 42% and 75%, respectively. Regarding the economic environment, the unemployment rate varies between 4.2% and 16% for a mean of 8.9% in French departments. In Portuguese municipalities, it ranges from 0.64% to 18.29% for a mean of 6.7% over the period under study.

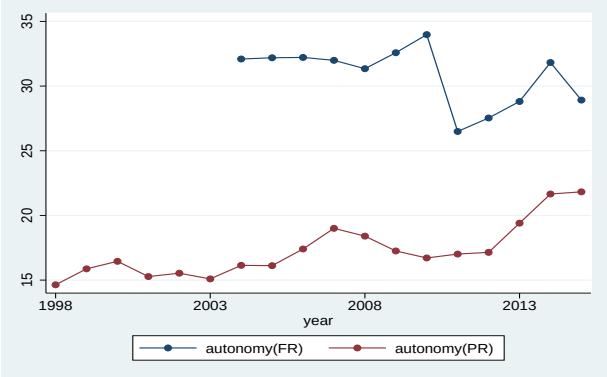
As for a measure of fiscal autonomy, we consider the ratio of Direct taxes to Total revenue of the local entity.[2] The average value of this variable is about 30.72% for French departments and 17.44% for Portuguese municipalities. From Figure 2.1, it appears that on average, French departments rely considerably more on local taxes than Portuguese municipalities. Hypothesis 2 implies that, being more fiscally autonomous, French departments should be more conservative in their budget forecasts than Portuguese munic-

[1]For homogeneity reasons, we have excluded Paris since the French capital is simultaneously a municipality and a county government.

[2]Direct taxes represent the bulk of local governments' tax revenues (roughly 56% in French departments and 95% in Portuguese municipalities).

ipalities.

Figure 2.1: Fiscal autonomy



2.4.3 Bias test

Table 2.2: Descriptive statistics of Forecast Performance Indicators

	French Departments (2004-2015)			**Portuguese Municipalities (1998-2015)**		
Variable	Obs	Mean	Std. Dev.	Obs	Mean	Std. Dev.
			Percent Forecast Errors (PFE)			
PFE-Total Revenue	1045	-3.26	6.29	4496	-56.73	46.77
PFE-Current Revenue	1045	3.2	2.97	4496	-14.09	24.95
PFE-Capital Revenue	1045	-41.35	38.99	4496	-191.37	254.17
PFE-Direct taxes	1045	1.47	5.57	4496	-5.4	36.38
PFE-Total Expenditure	1045	-3.83	5.95	4496	-54.5	45
PFE-Current Expenditure	1045	-1.18	2.94	4496	-16.38	25.61
PFE-Capital Expenditure	1045	-15.65	24.35	4496	-114.75	104.81
			Absolute Percent Forecast Errors (APFE)			
APFE-Total Revenue	1045	5.38	4.6	4496	57.1	46.32
APFE-Current Revenue	1045	3.52	2.59	4496	16.85	23.18
APFE-Capital Revenue	1045	48.15	30.17	4496	192.15	253.58
APFE-Direct taxes	1045	3	4.91	4496	20.32	30.66
APFE-Total Expenditure	1045	5.4	4.57	4496	55.18	44.16
APFE-Current Expenditure	1045	2.36	2.11	4496	18.75	23.93
APFE-Capital Expenditure	1045	20.55	20.38	4496	116.1	103.32

Source: authors´ calculations.

To check for the presence of biases in budget forecasts, we summarize their statistical properties in Table 2.2, which presents the mean values of the forecasting performance

indicator (the Percent Forecast Error, PFE, and its absolute value) and its standard deviations in French departments and in Portuguese municipalities during the time span considered in each country.[1]

Table 2.2 shows that the executives of French departments have overestimated total and capital revenues on average by 3.3% and 41.4%, respectively, underestimated direct taxes, and over-forecasted all expenditure items we analyzed. Regarding Portuguese municipalities, the Mean Percentage Forecast Error over the period 1998-2015 is negative for all the budget items considered. For instance, the average PFE for total revenue (excluding loans) is -56.7% and for total expenditure it is -57.1%. Overall, there is evidence of optimistic revenue and pessimistic expenditure forecasts in Portuguese municipalities. Altogether, the calculations show that, on average, the forecasts of total revenue and of the other budget components exceed actual outcomes.

We also compute the Absolute Percent Forecast Error (APFE). This indicator reveals the real average size of the forecast errors. For instance, total revenue and total expenditure were over-forecasted by about 5.4% in French departments. For Portuguese municipalities, these values are, respectively, of 57.1% and 55.2%. The standard deviations (SD) of the PFE and the APFE are larger for capital revenue than for the other budget items, which indicates that this variable may be more difficult to forecast.

On the basis of these summary statistics, we can conclude that budget forecasts are biased in both French departments and in Portuguese municipalities.[2] It is interesting to notice that forecast errors are considerably lower in French departments than in Portuguese municipalities. This may happen because, as explained in section 2.2, most Portuguese mayors (81%) are supported by majorities in the Town Council and the Municipal Assembly, which makes budgets relatively easy to approve, even if they are somewhat unrealistic.. On the contrary, French departmental presidents usually depend on coalition partners and may have a harder time negotiating budgets which involve forecast

[1] We have a longer time span for Portuguese municipalities due to greater availability of budget forecasts. However, restricting the analysis to the same period as in French departments does not change the standing of the results.

[2] A forecast is unbiased if its average deviation from the outcome is equal to zero (Holden and Peel, 1990).

manipulation.

It is also possible that larger forecast errors in Portuguese municipalities are explained by the fact that they are, on average, considerably smaller than French departments (in terms of population and size of the local economy), and have smaller staffs working on budget forecasts. But, if larger forecast biases are due to lack of staff or expertise, they should not be affected by the political cycle. As shown in the next section, this does not appear to be the case.

2.5 Determinants of budget forecast errors

This section presents the empirical model used to analyze the main determinants of budget forecasts errors, and describes the results of fixed effects and system-GMM estimations, discussing how they conform, or not, to our testable hypothesis. Finally, it briefly discusses the tests implemented to check the robustness of the main results.

2.5.1 Estimation model

In order to test the hypotheses mentioned in section 2.3, we estimate a multiple regression model using a combined panel data of French departments and of Portuguese municipalities. As mentioned above, forecast errors are related to the political and institutional characteristics of the department or municipality. As main explanatory variables, we consider the electoral cycle ($Cycle$), fiscal autonomy ($Autonomy$), the ideology of the incumbent government ($Leftwing$). Several other political and economic variables are included as controls.

The empirical model can be summarized as follows:

$$PFE_{x,i,t} = c_x + a_0 PFE_{x,i,t-1} + a_1 Cycle_{i,t} + a_2 Autonomy_{i,t} + a_3 Leftwing_{i,t} + a_4 Majority_{i,t} + X'_{i,t}\theta + \gamma_i + \nu_t + \varepsilon_{x,i,t} \quad (2.2)$$

where PFE is the percentage forecast error, the main explanatory variables are as

described above (more details are given below),[1] $\mathbf{X}$ is a vector of economic and financial control variables, γ_i are fixed-effects covering the unobservable heterogeneity between "departments" (France) or municipalities (Portugal), ν_t captures year fixed-effects which are included to control for common shocks. c is a constant and $\varepsilon_{i,t}$ is the residual. Note that equation (2.2) represents a test of the rationality hypothesis. The joint null hypothesis is that all the coefficients of the right-hand side variables are equal to zero.

A large number of previous studies test for the presence of electoral bias using a dummy variable for the election year (e.g., Larkey and Smith, 1989; Boylan, 2008; Pina and Venes, 2011). Here, we also include a dummy for the pre-election year, as opportunistic policies may be implemented sooner, especially in France, where departmental elections take place in the first quarter of the election year. That is, in order to produce results visible to voters before the elections, most policy changes would have to be implemented in the pre-election year, rather than in the election year itself. Since Portuguese municipal elections take place in the last quarter of the year, opportunistic policies may be implemented mostly during the election year. Thus, the following two dummy variables are included in the model: $Elec_{i,t}$, which is a dummy variable that takes the value 1 for each election year, and zero otherwise; and $YBElec_{i,t}$, which is a dummy variable that takes the value 1 in the year before the election, and zero otherwise. According to Hypothesis 1, negative and statistically significant coefficients for revenue items would be consistent with an opportunistic overestimation of revenues prior to elections. The underlining idea here is that, in an opportunistic forecast cycle (see section 2.3), budget-makers should overstate revenues (leading to negative PFEs) before and/or during election years. The inverse applies to expenditures.

To test our second main hypothesis, we introduce the variable *autonomy* to capture the impact of fiscal autonomy on budget forecast errors. We expect this variable to have a positive sign on the revenue side and a negative sign on the expenditure side, greater conservatism when fiscal autonomy is higher.

We include the $LeftWing$ dummy variable in order to control for the partisan effects.

[1] In order to check for persistence in forecast errors, we include the lagged PFE as an explanatory variable. Its statistical significance would constitute further evidence of inefficient budget forecasts.

Left-wing council presidents or mayors are supposed to be more optimistic, or less pessimistic, than right-wing and independent incumbents. Thus, a negative sign is expected for the coefficient of the variable $LeftWing$ for PFEs in revenues, and a positive one for PFEs in expenditures.

In order to check if the effects of the above-referred variables differ in the two countries, we interact them with the dummy variable PT which takes the value of 1 for Portuguese municipalities and 0 for French departments.[1] While the estimated coefficients of the variables of interest indicate their impact in the case of French departments, the effects for Portuguese municipalities are obtained by adding the estimated coefficient of the variable of interest with that of the respective interaction with PT.

As a first control variable, we include a measure of political strength of the local government ($Majority$). This variable takes the value of 1 when the President of departmental council has majority in the council. In Portugal, it 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. In these cases of no fragmentation, the mayor has no need to negotiate the budgets with the opposition. As fragmentation may lead to over-optimism, its absence is expected to lead to more conservative (pessimistic) budget forecasts. Thus a positive (negative) sign is expected for the coefficient of the variable $Majority$ in estimations for revenue (expenditure) items.

We add other political variables as controls, such as *Government party* ($GovParty$), *Terms in office* ($Terms$) and *Run for reelection* (RR). The variable $GovParty$ is a dummy variable which takes the value of 1 if the national government is led by the party of the mayor or of the president of the council. *Terms in office* is the number of consecutive mandates the incumbent has been in office. RR is a dummy variable which takes the value of 1 if the president of the council or the mayor runs for a new mandate, and 0 otherwise. Coded like this, it indicates the opposite of the lame-duck effect.[2] Because an incumbent running for a new term has to worry about winning elections, her budget formulations

[1] The dummy variable PT cannot be included by itself in the model because it would be collinear with the department/municipal fixed effects (γ_i).

[2] See Larkey and Smith (1989).

may be influenced by electoral considerations. This would imply a negative coefficient of RR for revenue items and a positive sign for expenditure items. But, if incumbents not running for reelection also care about their parties' success in the upcoming elections, the variable RR may not be statistically significant.

Some additional economic variables are also added as controls, namely the *unemployment rate* ($Unemp$), *regional GDP growth* ($Rgdpg$), and *population growth* ($Popgr$). Boylan (2008) brought forward that the unemployment rate plays a crucial role for the accuracy of fiscal forecasts. Boylan (2008) finds that in times of high unemployment, states in the U.S. overestimate tax revenue changes. Thus, a negative sign is expected for the unemployment rate on the revenue side and a positive sign on the expense side. We use the previous year values of these variables since that is the information local governments have at the time the budget is made. The *regional GDP* reflects the regional per capita gross domestic product (GDP data are not available at the department or municipality levels in France and Portugal, respectively).[1] We consider its growth as a proxy of economic expansion or recession. Thus, the coefficient of $Rgdpg$ should have the opposite sign to that of the *Unemp.* In order to account for economic crises which affected the countries, with greater incidence in Portugal, we include the dummy variable $Crisis$ which takes the value of one in recession years and equals zero in the remaining years.

Population growth is another control variable we consider. This variable is measured as year-on-year growth rate in population size. As labor force and taxpayers, the evolution of the number of inhabitants may affect local taxes and overall total revenue and, in turn, budget forecast errors. On the revenue side, a negative coefficient is expected for this variable. The reason is that inhabitants leaving (entering) the territory stop (start) paying local taxes while the local government is unaware of the intention of individuals to leave (enter) at the time of preparing the budget. Hence, a higher number of inhabitants leaving (entering) decreases (increases) the amount of taxes collected by the department/municipality. As the amount of revenues/expenditures as recorded in the

[1]For Portugal, we use regional GDP at the NUTS III level. NUTS is the European Union nomenclature for territorial statistical units. Portugal is subdivided into three NUTS I regions (Mainland, Azores and Madeira), seven NUTS II regions, and 25 NUTS III regions. Each NUTS III region aggregates several municipalities, which correspond to the NUTS IV level.

budget remains fixed at the time of this population changes, a lower (higher) amount of revenues/expenditures due to these changes leads to higher (lower) values of the dependent variable (see Goeminne et al., 2008).

We use the *Budget stress* (Bss)[1] as a proxy of the fiscal pressure the local government faces. This variable assesses the fiscal situation of the local government at the time that the budget was being formulated and approved. As the fiscal condition of a government worsens (i.e., Bss values become more negative), presidents of councils or mayors will have less leeway to underestimate budget deficits. Thus, revenues will be underestimated less (the Bss coefficient will have a positive sign) and expenditures will be overestimated less (the Bss coefficient will have a negative sign). We also interact this variable with the dummy PT.

The full linear dynamic panel data model can be written as:

$$\begin{aligned} PFE_{i,t} = {} & c + \rho PFE_{i,t-1} + \alpha_1 Elec_{t-1} + +\alpha_2 Elec_{t-1} * pt + \alpha_3 Elec_t + +\alpha_4 Elec_t * PT \\ & + \alpha_5 autonomy_{i,t} + \alpha_6 autonomy_{i,t} * PT + \alpha_7 LeftWing_{i,t} + \alpha_8 LeftWing_{i,t} * PT \\ & + \alpha_9 Majority_{i,t} + \alpha_{10} RR_{i,t} + +\alpha_{11} Terms_{i,t} + \alpha_{12} GovParty_{i,t} + \alpha_{13} Unemp_{i,t-1} \\ & + \alpha_{14} Rgdpg_{i,t-1} + \alpha_{15} Crisis + \alpha_{16} Bss_{i,t-1} + \alpha_{17} Bss_{i,t-1} * PT + \alpha_{18} Popgr_{i,t} + \gamma_i \\ & + \nu_t + \varepsilon_{i,t} \end{aligned} \tag{2.3}$$

We now turn to the estimation method. Given the fact that the set of cross-sectional units (French departments or Portuguese 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 entity (department/municipality) level. But, the equation (2.3) contains a lagged dependent variable and the time dimension is short relative to the number of "departments" or municipalities. In this case, Nickell (1981) pointed that the lagged dependent variable's coefficient is biased due to the correlation between the fixed effects and the lagged dependent variable.

[1] $Bss = \frac{(Revenues - Expenditures) * 100}{Revenues}$.

Several alternative estimators were proposed to cope with this problem: N-consistent Generalized Method of Moments (GMM) estimators, with the two most popular being the difference-GMM by Arellano and Bond (1991) and the system-GMM by Blundell and Bond (1998); the Bias-Corrected Least Squares Dummy Variables (BC-LSDV), of Bruno (2005a), and the Bias-Corrected Fixed Effects (BCFE), of De Vos et al. (2015). We follow the recommendations by Roodman (2009) and use the system-GMM estimator, which is more appropriate for large-N, small-T datasets such as ours, in which the dependent variable is persistent. We show Fixed-Effects and system-GMM results in the next subsection, and those obtained with BC-LSDV and BCFE in the Appendix.

2.5.2 Results

In this sub-section, we turn to the analysis of the estimation results regarding the determinants of percentage forecast errors (PFE). The results are presented in Table 2.3 for revenues and in Table 2.4 for expenditures. In Table 2.3, the results of the fixed effects (within) estimations are shown in the first four columns respectively for Total, current and capital revenues and direct taxes. As fixed-effects results are quite similar to those of system-GMM estimations, we focus our comments on the former.

The dependent variable is the percent forecast error (PFE) as defined by equation (2.1). The lagged PFE is always positive and statistically significant indicating that forecasts are inefficient. The forecast error is generally persistent. In other words, the errors in any given year are not systematically resolved in the following years.

The results point at the presence of an electoral bias both in French departments and in Portuguese municipalities. In Table 2.3, there is evidence that presidents of departmental councils tend to underestimate total and current revenues in the year before the elections. As for Portuguese municipalities, the effects is negative, indicating overestimation of revenues. For the election year, current and direct taxes revenues are underestimated and capital revenues are overestimated (only in fixed-effects estimations) in French departments. In Portuguese municipalities, total revenues and direct taxes are overestimated, while the effects are practically null for current and capital revenues. Overall, this indic

Table 2.3: Determinants of Revenue PFE (Combined Sample)

	Fixed Effects Estimation				**Sys-GMM estimation**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total	Current	Capital	Taxes	Total	Current	Capital	Taxes
Lagged_PFE	0.378***	0.377***	0.339***	0.160***	0.400***	0.401***	0.440***	0.161***
	(0.0474)	(0.0703)	(0.0868)	(0.0460)	(0.0634)	(0.0990)	(0.0805)	(0.0548)
Year before elections	15.52***	7.449***	12.32	2.783	14.23***	8.677***	5.846	7.968***
	(2.273)	(1.319)	(12.37)	(2.003)	(2.667)	(1.689)	(15.27)	(2.132)
Year before elections*PT	-29.76***	-13.27***	-24.81	-7.194**	-35.11***	-18.89***	-47.77	-26.29***
	(3.711)	(2.186)	(19.75)	(3.462)	(5.088)	(3.023)	(29.21)	(4.724)
Election year	0.202	5.182***	-36.07**	5.023***	2.941	4.973***	-15.74	4.830**
	(1.770)	(0.748)	(14.87)	(1.914)	(2.193)	(1.194)	(24.25)	(2.432)
Election year*PT	-6.122**	-3.575***	37.84*	-7.287**	-11.80***	-6.058***	-6.653	-17.19***
	(2.774)	(1.229)	(21.26)	(2.910)	(3.640)	(1.855)	(28.06)	(3.491)
Financial autonomy	0.209	0.343***	-1.475*	0.759***	0.738***	0.235***	0.682	0.0740
	(0.209)	(0.0927)	(0.756)	(0.143)	(0.172)	(0.0648)	(1.179)	(0.123)
Financial autonomy*PT	-0.385	0.185	-8.116***	1.367***	-0.677***	-0.194***	-4.304***	0.123
	(0.307)	(0.141)	(2.037)	(0.236)	(0.133)	(0.0698)	(0.796)	(0.106)
Left wing	4.747**	1.364*	18.96*	-0.329	4.713	0.0769	27.32	0.657
	(2.114)	(0.738)	(10.21)	(1.239)	(3.409)	(1.643)	(19.19)	(2.299)
Left wing*PT	-1.410	0.352	-23.77	2.643	0.429	-0.0562	-2.137	-0.747
	(3.044)	(1.457)	(14.98)	(2.279)	(3.911)	(1.993)	(22.27)	(3.017)
Majority	2.648	2.219*	7.906	-0.837	3.083	0.459	-14.13	-1.449
	(1.769)	(1.135)	(10.04)	(1.551)	(3.126)	(1.939)	(23.03)	(2.974)
Run for reelection	-0.844	-0.760	5.227	0.459	-2.067	-2.114*	23.94**	0.468
	(1.230)	(0.642)	(6.976)	(1.193)	(2.092)	(1.189)	(10.30)	(1.568)
Terms in Office	-0.792*	-0.168	-4.308	0.180	-0.750	-0.697*	3.075	0.0378
	(0.408)	(0.190)	(2.820)	(0.377)	(0.667)	(0.387)	(4.562)	(0.529)
Government party	1.226	0.430	11.81**	-0.748	1.744	0.449	4.344	-2.120**
	(0.986)	(0.494)	(5.732)	(0.982)	(1.234)	(0.651)	(6.144)	(1.054)
Unemployment rate	-0.186	-0.0980	-6.849**	0.0146	-1.633**	-1.027***	-19.35**	-2.159***
	(0.460)	(0.200)	(3.246)	(0.580)	(0.649)	(0.387)	(7.662)	(0.615)
Regional GDP growth	-0.232	-0.184*	0.720	0.115	-1.125***	-0.691***	-4.622*	-1.300***
	(0.196)	(0.0996)	(0.890)	(0.196)	(0.365)	(0.168)	(2.583)	(0.475)
Crisis	-6.121***	-6.809***	7.531	-1.793	-10.26***	-7.823***	-2.537	-4.617***
	(1.567)	(0.995)	(6.463)	(1.265)	(1.743)	(1.348)	(7.930)	(1.779)
Population growth	-0.111	-0.188	-0.326	-0.153	0.217	-0.249	4.429	-0.345
	(0.438)	(0.149)	(2.852)	(0.240)	(0.544)	(0.204)	(4.449)	(0.404)
Budget stress	0.228***	-0.0141	0.956***	0.0163	0.814***	0.153	3.924	0.782***
	(0.0587)	(0.0317)	(0.312)	(0.0558)	(0.201)	(0.120)	(2.626)	(0.168)
Observations	5541	5541	5541	5541	5541	5541	5541	5541
R-squared	0.2502	0.2758	0.1583	0.1656				
AR(1) P-val					0.0000	0.0013	0.0001	0.0000

AR(2) P-val	0.3270	0.7872	0.5203	0.1968
Hansen P-val	0.0954	0.1484	0.2004	0.0961

Notes: All estimations include year dummies and a constant. In the system-GMM estimations, all variables, except the dummies related to election years and the year dummies, were treated as potentially endogenous. Their twice lagged levels were used as instruments in the first-difference equations and their once lagged first-differences were used in the levels equation. The number of instruments is 386 (for 403 cross-sections) in all system-GMM estimations. Robust standard errors in parentheses. PT:Portugal. Significance levels:* p<.1, ** p<.05, *** p<.01.

ates that revenue forecasts are managed opportunistically (overestimated) in Portugal, while the opposite tends to happen in France. This is consistent with the fact that Portuguese mayors have larger room of maneuver than departmental presidents, not only because they are generally supported by majorities in the Town Council and in the Municipal Assembly, but also because Portuguese mayors play a more prominent role in the conduct of their local governments than French departmental presidents. Therefore, for Portuguese municipalities, the empirical evidence gives support to Hypothesis 1, according to which politicians opportunistically manipulate budget forecasts in the preelection period. These findings also confirm those of previous studies (Brück and Stephan, 2006; Benito et al., 2015)

The results indicate that fiscal autonomy is relevant for electoral forecast cycle. For instance, fiscal autonomy pushes Presidents of departmental councils to be conservative when it comes to forecast current and direct taxes revenues and to be less conservative as regards the forecast of capital revenue, but more conservative regarding direct taxes. All in all, Hypothesis 2, which postulates a positive link between fiscal autonomy and conservatism, is verified in France regarding current and direct taxes, and in Portugal for direct taxes. These results are directly in line with Feld and Baskaran (2010) who argue that more revenue autonomy may imply more responsibility.

We also check the existence of partisan effects. Contrary to our expectations, left wing presidents of departmental council tend to be conservative in their revenue forecasting. This result is in line with Chatagny (2015), however. In fact, he argues that a left-wing finance minister needs to curb deficits relatively more and thereby produce

more conservative forecasts than a right-wing finance minister in order to compensate for the negative signal sent by his/her ideology to the voters and to be considered at least as competent by the voters, everything else being equal. The effects are similar for Portuguese municipalities, as the coefficient for the interaction variable ($Left\ wing * PT$) is not statistically significant. Overall, the estimations for revenue forecasts do not provide empirical support for Hypothesis 3.

Another constraint that could influence politicians' behavior in revenue forecasting is the fiscal pressure. In our study, the variable capturing this effect is Budget stress. It has a positive and statistically significant coefficient for, respectively, total and capital revenues, indicating that greater budget stress leads to more conservative revenue forecasts. Concerning the other control variables, $Run\ for\ reelection$, $Terms\ in\ Office$, and $Government\ party$, they are generally insignificant, providing no evidence of *lame duck,* experience, or party similarity effects in the case of French departments. Higher unemployment rates seem to be associated with optimistic revenue forecasts, mainly in the system-GMM estimations. [1] Recession years are associated with optimistic forecasts in French departments. Finally, population growth does not seem to significantly affect budget forecasts.

Regarding the expenditure side (see Table 2.4), the results indicate opportunism in France (underestimation of expenditures in the year before election) and in Portugal, but just for current expenditures (underestimated in the election year). Interestingly, we recall that revenues are overestimated in Portugal so that more expenditure can be predicted in the budget, allowing the mayor to spend more. Since the actual revenues are considerably lower than the forecasted ones, there would be a huge deficit if the mayor spent all that was predicted. Thus, mayors generally spend less than the forecasted expenditures, but more than actual revenues, ending up with a deficit in the election year, as shown by Aidt et al. (2011).

Concerning our second variable of interest, the results confirm the conservatism bias due to financial autonomy only in the case of Portuguese municipalities (especially in the

[1] These results are in line with Boylan (2008).

Table 2.4: Determinants of Expenditure PFE (Combined Sample)

	Fixed Effects Estimation			**Sys-GMM estimation**		
	(1)	(2)	(3)	(4)	(5)	(6)
	Total-FE	Current-FE	Capital-FE	Total-GMM	Current-GMM	Capital-GMM
Lagged_PFE	0.385***	0.272***	0.320***	0.413***	0.170**	0.415***
	(0.0528)	(0.0907)	(0.0298)	(0.0750)	(0.0714)	(0.0574)
Year before elections	14.47***	4.667***	55.22***	13.59***	6.261***	45.26***
	(2.265)	(1.190)	(6.170)	(2.929)	(1.302)	(7.381)
Year before elections*PT	-28.50***	-10.82***	-103.5***	-33.80***	-16.77***	-94.33***
	(3.604)	(2.341)	(10.35)	(5.272)	(2.804)	(13.71)
Election year	-2.207	0.597	-4.520	0.491	1.403	0.750
	(1.694)	(0.895)	(4.749)	(2.043)	(1.079)	(5.439)
Election year*PT	-0.206	4.089**	-16.05**	-5.533	0.779	-20.90**
	(2.814)	(1.714)	(7.292)	(3.680)	(2.024)	(9.082)
Financial autonomy	0.266	0.0762	0.339	0.777***	0.249***	1.164***
	(0.208)	(0.0683)	(0.636)	(0.175)	(0.0745)	(0.396)
Financial autonomy*PT	-0.408	-0.0869	-1.871**	-0.665***	-0.472***	-1.044***
	(0.307)	(0.156)	(0.891)	(0.146)	(0.0946)	(0.310)
Left wing	4.840***	1.608**	19.87***	4.398	3.163*	13.90**
	(1.804)	(0.682)	(6.545)	(3.125)	(1.664)	(6.846)
Left wing*PT	-1.838	-1.239	-11.15	0.548	-1.824	-6.743
	(2.846)	(1.569)	(8.232)	(3.546)	(2.199)	(8.445)
Majority	2.666	1.402	5.048	2.367	-0.522	11.29
	(1.694)	(1.180)	(3.949)	(3.069)	(2.193)	(7.929)
Run for reelection	-0.724	-0.442	-1.779	-2.812	-0.743	-3.728
	(1.196)	(0.683)	(2.996)	(2.004)	(1.388)	(4.980)
Terms in Office	-0.633	-0.163	-1.752*	-0.761	0.350	-3.249*
	(0.411)	(0.249)	(1.014)	(0.645)	(0.457)	(1.737)
Government party	1.624*	1.727***	1.362	1.991	1.579**	1.878
	(0.959)	(0.577)	(2.381)	(1.247)	(0.758)	(2.782)
Unemployment rate	-0.311	-0.646**	-2.229*	-1.568**	-1.356***	-3.364**
	(0.459)	(0.323)	(1.219)	(0.712)	(0.448)	(1.584)
Regional GDP growth	-0.213	-0.0648	-0.341	-1.041***	-0.561***	-1.103
	(0.187)	(0.0823)	(0.526)	(0.332)	(0.167)	(0.877)
Crisis	-6.589***	-5.908***	-18.02***	-10.61***	-8.098***	-21.26***
	(1.586)	(1.239)	(4.171)	(1.908)	(1.304)	(4.422)
Population growth	-0.0270	-0.0783	0.111	0.184	0.0569	0.587
	(0.335)	(0.144)	(1.097)	(0.444)	(0.217)	(1.269)
Budget stress	0.361***	0.0711	0.976***	0.781***	-0.0386	2.436***
	(0.0664)	(0.0476)	(0.134)	(0.198)	(0.129)	(0.432)
Observations	5541	5541	5541	5541	5541	5541
R-squared	0.2542	0.1717	0.1781			
AR(1) P-val				0.0000	0.0197	0.0000

AR(2) P-val	0.9426	0.6214	0.4225
Hansen P-val	0.0696	0.0836	0.0836

Notes: All estimations include year dummies and a constant. In the system-GMM estimations, all variables, except the dummies related to election years and the year dummies, were treated as potentially endogenous. Their twice lagged levels were used as instruments in the first-difference equations and their once lagged first-differences were used in the levels equation. The number of instruments is 386 (for 403 cross-sections) in all system-GMM estimations. Robust standard errors in parentheses. PT:Portugal. Significance levels:* p<.1, ** p<.05, *** p<.01.

system-GMM results). Regarding ideology, French left-wing departmental presidents tend to underestimate expenditures. The same applies to left-wing Portuguese mayors, as the coefficient on the interaction variable is not statistically significant. Therefore, contrary to what happened for revenues, the results for expenditures provide empirical support to Hypothesis 3, according to which left-wing politicians are inclined to underestimate expenditures.

2.5.3 Robustness tests

Besides estimating all models using both the fixed-effects and the system-GMM estimators, the robustness of our results was checked in two additional ways. First, all models were re-estimated using a common time period (2004-2015) for both countries. As shown in Tables A.1 and A.2 of the Appendix, the main results are essentially the same. Second, two alternative estimators for linear dynamic panel data models were used: the Bias-Corrected Least Squares Dummy Variables (BC-LSDV) estimator, of Bruno (2005a) and the Bias-Corrected Fixed Effects (BCFE) estimator, of De Vos et al. (2015). The results, shown in Tables B.3 and B.4 of the Appendix are very similar to those of Tables 5 and 6, providing further evidence of their robustness.

2.6 Conclusion

In this chapter, we tested three hypotheses based on the existing literature about the political economy of budget forecast errors, using a panel dataset for 95 French metropolitan

departments and 308 Portuguese municipalities. As a first step of the empirical analysis, we characterized the statistical properties of budget forecast errors of local governments in each country, and found that budget forecasts are biased and inefficient both in French departments and in Portuguese municipalities, with greater biases for the latter. Then, we proceeded to the analysis of the political, institutional, economic and demographic determinants of these biases.

The results of fixed effects and system-GMM estimations suggest that local budgets are affected by electoral motives, thus providing some support for Hypothesis 1, which suggests that local governments opportunistically underestimate expenditure and overestimate revenue for election years. Concretely, we found that French departments underestimate expenditures in pre-election years and overestimate capital revenue for the election year. Since departmental elections take place in the first quarter of the election year, it makes sense that the strongest evidence of opportunistic manipulation of budget forecasts is found for the year before the elections. But, contrary to Hypothesis 1, revenue forecasts for the pre-election year in French departments are mainly conservative. Regarding Portuguese municipalities, there is underestimation of current expenditures in the election year and overestimation of total and direct taxes revenues, both in the election year and the year before.

Overall, the evidence of opportunistic budget forecasting is stronger in Portugal, which is consistent with the greater margin of maneuver that mayors enjoy when compared to French departmental presidents. Portuguese mayors generally enjoy the support of majorities in both the Town Council and the Municipal Assembly, making budget approval relatively easy, while French departmental presidents usually need to negotiate budget proposals with opposition parties. Additionally, operating in a system resembling presidentialism, mayors play a more prominent role in their governments than departmental presidents, who operate in a system comparable to majoritarian parliamentarism. Greater opportunism in Portuguese municipalities may also result from the fact that most of them are highly dependent on central government transfers. Therefore, voters may not fully internalize the costs of the budget deficits which result from the opportunistic manage-

ment of budget forecasts, and actually tend to reward opportunism at the polls (see Aidt et al., 2011; Veiga and Veiga, 2007b).

Concerning other hypotheses, our results suggest that greater reliance on local direct taxes lead to conservatism bias in the budget forecasting (hypothesis 2), and the evidence is mixed regarding partisan effects (Hypothesis 3). On the one hand, contrary to our expectations, left-wing executives tend to produce conservative revenue forecasts (especially in France). But, on the other hand, and as expected, left-wing executives tend to underestimate expenditures.

Besides contributing to the literature by analyzing the determinants of budget forecast errors in a comparative perspective, involving French departments and Portuguese municipalities, this chapter shows that electoral motives and institutional differences across countries help explain forecast biases.

Finally, having identified a number of instances of budget forecast cycles, future research could look at the electoral consequences of these budget forecast manipulations.

2.A Descriptive statistics

Table A.1: Descriptive statistics of independent variables (French departments)

Variable	Obs	Mean	Std. Dev.	Min	Max
Year before elections	1045	.18	.39	0	1
Election year	1045	.27	.45	0	1
Autonomy	1045	30.72	5.12	12.19	51.27
Left wing	1045	.53	.5	0	1
Right wing president	1045	.42	.49	0	1
Centre president	1045	.05	.23	0	1
Terms in Office	1045	1.37	1.2	0	10
Government party	1045	.43	.5	0	1
Run for reelection	1045	.76	.43	0	1
Unemployment rate	1045	8.91	1.88	4.2	16
Regional GDP growth	1045	2.21	2.57	-5.58	7.69
Regional GDP per capita	1045	28384.05	6568.41	21685.21	53416.33
Budget stress	1045	-.34	3.04	-16.95	17.45
Crisis	1045	.09	.29	0	1
Population growth	1045	.68	.95	-1.4	6.31
Population	1045	639673.1	468917.9	76800	2627956
Population density (inhabitants per km2)	1045	333.3	1203.82	14.2	9033.85
Total revenue per capita	1045	1053.93	184.29	264.06	1879.17
Current revenue per capita	1045	936.66	160.56	250.65	1587.69
Capital revenue per capita	1045	117.47	71.53	13.41	622.77
Direct taxes per capita	1045	318.8	55.95	63.27	598.67
Total expenditure per capita	1045	1051.79	182.37	273.86	1803.92
Current expenditure per capita	1045	804.61	152.69	235.06	1317.75
Capital expenditure per capita	1045	247.17	83.73	38.8	666.64

Source: authors´ calculations.

Table A.2: Descriptive statistics of independent variables (Portuguese municipalities)

Variable	Obs	Mean	Std. Dev.	Min	Max
Year before elections	4496	.26	.44	0	1
Election year	4496	.26	.44	0	1
Autonomy	4496	17.44	13.7	.11	68.38
Majority	4496	.81	.39	0	1
Left wing	4496	.53	.5	0	1
Right-wing mayor (PPD-PSD or CDS-PP)	4496	.45	.5	0	1
Independent mayor (Group of Citizens)	4496	.02	.14	0	1
Terms in office	4496	2.5	1.75	0	10
Government party	4496	.42	.49	0	1
Run for reelection	4496	.75	.43	0	1
Unemployment rate	4496	6.71	2.83	.64	18.29
Regional GDP growth	4496	.85	3.73	-15.65	14.84
Regional GDP per capita	3950	14847.29	3412.34	9129.65	26169.33
Budget stress	4496	-1.03	10.45	-68.36	40.26
Crisis	4496	.32	.47	0	1
Population Growth	4496	-.29	2.13	-21.56	24.98
Population - total	4496	34346.52	55312.08	430	580436
Population density (inhabitants per km2)	4496	296.29	809.56	4.3	7535.72
Total effective revenue per capita	4496	903.61	489.25	255.55	7500.72
Current revenue per capita	4496	619.4	321.87	173.43	3075.86
Capital revenue minus loans per capita	4496	285.87	248.48	2.07	5230.39
Direct taxes per capita	4496	128.37	107.58	4.31	1251.59
Total expenditure per capita	4496	969.84	540.37	284.71	7883.85
Current expenditure per capita	4496	566.78	319.81	116.79	2546.89
Capital expenditure per capita	4496	259.31	216.29	3.26	2165.28
Personnel expenditure per capita	4496	273.41	170.65	39.4	1582.62

Source: authors´ calculations.

2.B Common sample period (2004-2015)

Table B.3: Determinants of Revenue PFE (Common Period)

	Fixed Effects Estimation				**Sys-GMM estimation**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total	Current	Capital	Taxes	Total	Current	Capital	Taxes
Lagged_PFE	0.337***	0.374***	0.228***	0.180**	0.503***	0.468***	0.441***	0.286**
	(0.0357)	(0.0702)	(0.0816)	(0.0802)	(0.0639)	(0.124)	(0.0800)	(0.133)
Year before elections	14.34***	6.636***	11.53	-0.574	11.47***	7.433***	7.659	5.070**
	(2.261)	(1.257)	(12.26)	(2.053)	(2.688)	(1.916)	(14.56)	(2.156)
Year before elections*PT	-27.79***	-12.60***	-17.70	-3.313	-27.57***	-17.11***	-36.19	-20.23***
	(3.809)	(2.069)	(20.97)	(3.400)	(5.167)	(3.841)	(25.12)	(4.117)
Election year	-0.457	4.585***	-33.84**	2.171	2.285	3.560***	-9.053	2.943
	(1.708)	(0.744)	(14.21)	(1.729)	(2.323)	(1.235)	(21.87)	(1.898)
Election year*PT	-4.592*	-2.826**	37.28*	-2.870	-9.055**	-4.890**	-8.362	-13.17***
	(2.774)	(1.230)	(20.85)	(2.853)	(3.983)	(1.958)	(24.58)	(3.153)
Financial autonomy	0.146	0.313***	-1.534**	0.683***	0.472**	0.180**	-0.625	-0.0760
	(0.201)	(0.0859)	(0.779)	(0.130)	(0.205)	(0.0840)	(1.043)	(0.112)
Financial autonomy*PT	-0.00662	0.349*	-9.023***	1.604***	-0.539***	-0.128	-4.819***	0.134
	(0.331)	(0.178)	(2.571)	(0.279)	(0.138)	(0.0888)	(0.869)	(0.0855)
Left wing	4.659**	1.202*	17.24*	-0.985	2.817	0.402	22.05	-0.626
	(2.029)	(0.688)	(10.22)	(1.294)	(3.119)	(1.628)	(19.95)	(2.059)
Left wing*PT	-1.994	-0.544	-29.44	2.307	1.039	-1.266	-5.294	-1.437
	(3.371)	(1.777)	(18.92)	(2.715)	(4.006)	(2.165)	(22.42)	(2.670)
Majority	2.368	2.096	5.493	-2.304	2.118	0.897	-23.29	-1.180
	(2.079)	(1.407)	(14.82)	(1.621)	(3.904)	(2.169)	(28.20)	(2.498)
Run for reelection	-0.411	-0.569	9.097	1.169	-2.948	-2.058*	12.42	-0.229
	(1.265)	(0.665)	(7.492)	(1.217)	(2.247)	(1.152)	(11.42)	(1.253)
Terms in Office	-0.801*	-0.216	-3.032	0.0382	-1.326*	-0.784**	2.682	-0.521
	(0.440)	(0.213)	(2.654)	(0.411)	(0.707)	(0.359)	(4.530)	(0.430)
Government party	1.785	0.137	15.34**	-1.525	1.733	0.398	4.636	-1.304
	(1.106)	(0.605)	(7.369)	(1.076)	(1.551)	(0.846)	(7.124)	(1.016)
Unemployment rate	0.532	0.318	-6.076*	2.026***	-0.976	-0.583	-18.67**	-1.160**
	(0.500)	(0.266)	(3.481)	(0.512)	(0.767)	(0.534)	(8.888)	(0.581)
Regional GDP growth	-0.137	-0.247**	1.410	0.0208	-0.864**	-0.832***	-2.384	-1.147***
	(0.197)	(0.119)	(1.296)	(0.153)	(0.368)	(0.194)	(2.636)	(0.340)
Crisis	-6.224***	-6.874***	9.289	-2.099	-8.699***	-6.482***	2.585	-3.219*
	(1.605)	(1.027)	(7.129)	(1.419)	(1.899)	(1.590)	(7.829)	(1.701)
Population growth	-0.0801	-0.256*	-0.273	-0.196	0.120	-0.397*	3.974	-0.0819
	(0.451)	(0.152)	(2.987)	(0.223)	(0.539)	(0.239)	(3.559)	(0.339)
Budget stress	0.334***	-0.0129	1.152***	0.0169	1.197***	0.0361	5.014*	0.530***
	(0.0597)	(0.0406)	(0.344)	(0.0528)	(0.201)	(0.122)	(2.917)	(0.157)
Observations	4286	4286	4286	4286	4286	4286	4286	4286
R-squared	0.2613	0.2996	0.0909	0.1805				
AR(1) P-val					0.0000	0.0001	0.0001	0.0005

AR(2) P-val	0.1194	0.6830	0.5119	0.1965
Hansen P-val	0.0029	0.0050	0.0966	0.0851

Notes: All estimations include year dummies and a constant. In the system-GMM estimations, all variables, except the dummies related to election years and the year dummies, were treated as potentially endogenous. Their twice lagged levels were used as instruments in the first-difference equations and their once lagged first-differences were used in the levels equation. The number of instruments is 263 (for 403 cross-sections) in all system-GMM estimations. Robust standard errors in parentheses. PT:Portugal. Significance levels:* p<.1, ** p<.05, *** p<.01.

Table B.4: Determinants of Expenditure PFE (Common Period)

	Fixed Effects Estimation			**Sys-GMM estimation**		
	(1)	(2)	(3)	(4)	(5)	(6)
	Total-FE	Current-FE	Capital-FE	Total-GMM	Current-GMM	Capital-GMM
Lagged_PFE	0.334***	0.207**	0.240***	0.498***	0.209**	0.448***
	(0.0466)	(0.0841)	(0.0290)	(0.0944)	(0.0921)	(0.0709)
Year before elections	13.44***	4.530***	53.11***	10.70***	5.813***	36.97***
	(2.282)	(1.226)	(6.263)	(3.173)	(1.277)	(8.265)
Year before elections*PT	-27.03***	-11.17***	-100.6***	-25.77***	-15.10***	-74.47***
	(3.770)	(2.550)	(10.83)	(5.474)	(2.520)	(15.19)
Election year	-2.998*	0.555	-7.735	-0.620	0.849	-0.290
	(1.641)	(0.811)	(4.860)	(2.075)	(1.104)	(6.030)
Election year*PT	1.405	3.926**	-9.835	-1.831	0.501	-13.25
	(2.845)	(1.553)	(7.551)	(3.774)	(1.813)	(9.954)
Financial autonomy	0.182	0.0161	0.154	0.468**	0.184**	0.650
	(0.196)	(0.0651)	(0.617)	(0.197)	(0.0855)	(0.432)
Financial autonomy*PT	0.0955	0.254	-0.800	-0.528***	-0.434***	-0.804**
	(0.338)	(0.172)	(0.981)	(0.147)	(0.0843)	(0.358)
Left wing	4.847***	1.452**	20.66***	2.659	2.472	10.25
	(1.757)	(0.639)	(6.613)	(2.887)	(1.523)	(8.296)
Left wing*PT	-1.751	-1.942	-9.447	1.252	-2.189	-1.324
	(3.289)	(1.897)	(9.547)	(3.564)	(2.269)	(10.09)
Majority	2.404	1.545	2.214	0.0425	-0.692	0.479
	(1.980)	(1.288)	(5.663)	(3.383)	(2.491)	(8.955)
Run for reelection	-0.617	-0.302	-1.413	-3.625*	-0.162	-6.571
	(1.210)	(0.723)	(3.211)	(2.175)	(1.264)	(4.851)
Terms in Office	-0.614	0.0187	-1.621	-1.198*	0.462	-4.197**
	(0.440)	(0.262)	(1.078)	(0.641)	(0.357)	(1.705)
Government party	2.239**	1.659**	2.360	2.061	1.441	3.918
	(1.063)	(0.672)	(2.693)	(1.461)	(0.901)	(3.568)
Unemployment rate	0.301	-0.821**	0.219	-0.485	-1.138**	-0.936
	(0.501)	(0.373)	(1.336)	(0.843)	(0.500)	(1.896)
Regional GDP growth	-0.199	-0.167*	-0.236	-0.667*	-0.569***	-0.133
	(0.182)	(0.0949)	(0.531)	(0.341)	(0.167)	(0.955)
Crisis	-6.810***	-6.097***	-19.51***	-8.385***	-6.740***	-16.43***

	(1.635)	(1.242)	(4.330)	(1.996)	(1.190)	(4.588)
Population growth	0.0234	-0.0762	0.268	-0.00256	0.0247	0.168
	(0.341)	(0.151)	(1.111)	(0.396)	(0.170)	(1.317)
Budget stress	0.440***	0.102**	1.025***	1.065***	-0.0250	2.944***
	(0.0603)	(0.0404)	(0.160)	(0.225)	(0.149)	(0.496)
Observations	4286	4286	4286	4286	4286	4286
R-squared	0.2643	0.1377	0.1618			
AR(1) P-val				0.0000	0.0403	0.0000
AR(2) P-val				0.2281	0.4628	0.2593
Hansen P-val				0.0037	0.0483	0.0128

Notes: All estimations include year dummies and a constant. In the system-GMM estimations, all variables, except the dummies related to election years and the year dummies, were treated as potentially endogenous. Their twice lagged levels were used as instruments in the first-difference equations and their once lagged first-differences were used in the levels equation. The number of instruments is 263 (for 403 cross-sections) in all system-GMM estimations. Robust standard errors in parentheses. PT:Portugal. Significance levels:* p<.1, ** p<.05, *** p<.01.

2.C Alternative estimators for dynamic panels

Table C.5: Determinants of Revenue PFE (Alternative Methods)

	Bias-Corrected LSDV				**Bias-Corrected Fixed Effects**			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Total	Current	Capital	Taxes	Total	Current	Capital	Taxes
Lagged_PFE	0.462***	0.453***	0.439***	0.181***	0.487***	0.527***	0.369**	0.323***
	(0.0165)	(0.0164)	(0.0178)	(0.0103)	(0.0380)	(0.0846)	(0.143)	(0.0955)
Year before elections	15.44***	7.449***	10.98	2.787	15.57***	6.447***	16.77	-1.681
	(4.142)	(2.172)	(27.20)	(3.973)	(2.240)	(1.257)	(13.93)	(2.083)
Year before elections*PT	-29.67***	-12.97***	-25.53	-7.213	-30.69***	-11.89***	-37.50	-2.862
	(6.303)	(3.293)	(41.47)	(5.875)	(3.540)	(2.045)	(23.63)	(3.263)
Election year	-0.199	5.020**	-39.33	5.016	-0.615	4.305***	-30.79**	1.280
	(3.862)	(2.021)	(25.34)	(3.815)	(1.805)	(0.835)	(12.68)	(1.957)
Election year*PT	-5.382	-3.333	42.23	-7.173	-3.038	-2.223*	40.27*	-3.708
	(5.876)	(3.078)	(38.70)	(5.783)	(2.805)	(1.253)	(21.76)	(3.162)
Financial autonomy	0.187	0.342	-1.533	0.757*	0.184	0.312***	-1.267	0.584***
	(0.457)	(0.238)	(3.000)	(0.413)	(0.185)	(0.0840)	(0.776)	(0.127)
Financial autonomy*PT	-0.381	0.182	-7.801**	1.364***	-0.192	0.403**	-8.166***	2.105***
	(0.490)	(0.256)	(3.229)	(0.441)	(0.296)	(0.178)	(2.479)	(0.272)
Left wing	4.337	1.191	18.54	-0.338	4.030*	0.872	14.04	-1.887

	(4.939)	(2.581)	(32.44)	(4.676)	(2.133)	(0.719)	(8.980)	(1.462)
Left wing*PT	-1.430	0.540	-24.98	2.644	0.111	-0.430	-20.34	2.459
	(5.888)	(3.075)	(38.57)	(5.574)	(3.404)	(1.758)	(18.86)	(3.287)
Majority	2.533	2.142*	6.838	-0.852	1.291	1.929	4.262	-1.538
	(2.109)	(1.102)	(13.83)	(1.934)	(1.881)	(1.210)	(11.59)	(1.707)
Run for reelection	-0.903	-0.764	4.697	0.377	-1.738	-0.848	0.534	0.956
	(1.799)	(0.939)	(11.77)	(1.687)	(1.196)	(0.662)	(6.521)	(1.076)
Terms in Office	-0.816*	-0.188	-4.358	0.167	-0.740*	-0.105	-1.845	0.469
	(0.482)	(0.252)	(3.160)	(0.441)	(0.396)	(0.196)	(2.069)	(0.411)
Government party	1.231	0.434	11.59	-0.691	1.441	0.330	11.29**	-1.390
	(1.167)	(0.609)	(7.642)	(1.095)	(1.002)	(0.549)	(5.590)	(1.269)
Unemployment rate	-0.101	-0.0363	-6.287*	0.0419	0.204	0.247	-7.286***	1.033*
	(0.490)	(0.257)	(3.223)	(0.437)	(0.506)	(0.228)	(2.815)	(0.577)
Regional GDP growth	-0.245	-0.195	0.658	0.119	-0.358*	-0.332***	-0.0213	-0.217
	(0.271)	(0.142)	(1.775)	(0.260)	(0.199)	(0.107)	(0.799)	(0.164)
Crisis	-5.885*	-6.532***	6.877	-1.837	-7.665***	-6.369***	-1.880	-0.263
	(3.100)	(1.629)	(20.29)	(2.923)	(1.737)	(1.251)	(7.612)	(1.600)
Population growth	-0.118	-0.198	-0.294	-0.161	-0.115	-0.265*	-0.295	-0.187
	(0.392)	(0.205)	(2.571)	(0.381)	(0.475)	(0.156)	(2.756)	(0.251)
Budget stress	0.228***	-0.0194	0.977**	0.0137	0.258***	-0.0167	0.822*	0.0123
	(0.0667)	(0.0350)	(0.438)	(0.0629)	(0.0607)	(0.0386)	(0.449)	(0.0567)
Observations	5541	5541	5541	5541	4463	4463	4463	4463

Notes: All estimations include year dummies and a constant. The Blundell-Bond estimator was used to initialize the bias correction in the BC-LSDV estimations. Options chosen in the BCFE estimations: deterministic initialization; Monte Carlo error sampling with cross-sectional heteroscedasticity; standard errors estimated from the bootstrap distribution of the *xtbcfe* estimator. Standard errors in parentheses. PT:Portugal. Significance levels:* p<.1, ** p<.05, *** p<.01.

Table C.6: Determinants of Expenditure PFE (Alternative Methods)

	Bias-Corrected LSDV			**Bias-Corrected Fixed Effects**		
	(1)	(2)	(3)	(4)	(5)	(6)
	Total-FE	Current-FE	Capital-FE	Total-GMM	Current-GMM	Capital-GMM
Year before elections	14.15***	4.431*	54.61***	1.485***	0.357	7.326***
	(4.074)	(2.517)	(10.29)	(0.468)	(0.250)	(1.551)
Year before elections*PT	-27.99***	-10.28***	-102.8***	-0.696	-0.854	-15.50***
	(6.201)	(3.817)	(15.62)	(1.545)	(0.716)	(3.884)
Election year	-2.840	0.229	-5.989	0.667	1.286***	-5.862***
	(3.809)	(2.367)	(9.620)	(0.926)	(0.390)	(2.230)
Election year*PT	0.887	4.711	-13.79	7.699***	3.730***	13.62***
	(5.786)	(3.593)	(14.57)	(1.698)	(0.801)	(4.038)
Financial autonomy	0.247	0.0709	0.323	0.0568	-0.00492	-0.537
	(0.450)	(0.276)	(1.131)	(0.0991)	(0.0450)	(0.331)
Financial autonomy*PT	-0.404	-0.0691	-1.889	0.765***	0.401***	1.439**

	(0.483)	(0.297)	(1.216)	(0.259)	(0.139)	(0.654)
Left wing	4.440	1.433	18.62	3.539***	0.539	15.69***
	(4.863)	(3.013)	(12.28)	(1.162)	(0.524)	(4.434)
Left wing*PT	-1.842	-1.108	-10.57	-0.394	-1.245	-7.722
	(5.794)	(3.576)	(14.62)	(3.188)	(1.754)	(7.807)
Majority	2.556	1.375	4.387	1.858	0.940	2.922
	(2.074)	(1.277)	(5.220)	(2.315)	(1.105)	(5.559)
Run for reelection	-0.724	-0.439	-1.870	0.210	1.226*	2.586
	(1.771)	(1.091)	(4.462)	(1.255)	(0.668)	(2.788)
Terms in Office	-0.657	-0.187	-1.827	-0.876**	-0.106	-2.622***
	(0.475)	(0.291)	(1.192)	(0.384)	(0.220)	(0.980)
Government party	1.663	1.719**	1.516	1.166	1.466**	-0.596
	(1.149)	(0.707)	(2.889)	(0.970)	(0.580)	(2.658)
Unemployment rate	-0.225	-0.600**	-1.924	1.489***	-0.562**	1.873**
	(0.482)	(0.297)	(1.216)	(0.364)	(0.265)	(0.869)
Regional GDP growth	-0.222	-0.0716	-0.356	0.254*	0.0363	0.496
	(0.267)	(0.165)	(0.672)	(0.149)	(0.0695)	(0.448)
Crisis	-6.281**	-5.648***	-17.32**	-4.288**	-3.100***	-7.463**
	(3.054)	(1.895)	(7.684)	(1.843)	(0.906)	(3.764)
Population growth	-0.0330	-0.0833	0.0978	0.0747	-0.0414	0.421
	(0.385)	(0.240)	(0.975)	(0.357)	(0.150)	(1.110)
Budget stress	0.367***	0.0714*	0.994***	0.525***	0.154***	1.300***
	(0.0656)	(0.0405)	(0.165)	(0.0677)	(0.0441)	(0.173)
Observations	5541	5541	5541	4463	4463	4463

Notes: All estimations include year dummies and a constant. The Blundell-Bond estimator was used to initialize the bias correction in the BC-LSDV estimations. Options chosen in the BCFE estimations: deterministic initialization; Monte Carlo error sampling with cross-sectional heteroscedasticity; standard errors estimated from the bootstrap distribution of the *xtbcfe* estimator. Standard errors in parentheses. PT:Portugal. Significance levels:* p<.1, ** p<.05, *** p<.01.

Chapter 3

Is strategic optimism good for long term policies?

3.1 Introduction

This chapter addresses the topic of politicians´ rational limitations, in particular optimism bias, and its consequences for myopia in budget composition choices. An optimistic bias is commonly defined as the mistaken belief that favorable future events are more likely than they actually are, and that people have more precise knowledge about future events than they actually have (Hackbarth, 2008).

Optimism is found to be at the root of many economic phenomena (Puri and Robinson, 2007). For instance, optimism is important for financial intermediation (Coval and Thakor, 2005); it can affect corporate financial and accounting decisions (Heaton (2002); Hackbarth (2008); Ashton and Roberts (2011), and others); it can inflate security prices in the presence of short-sale constraints (Chen et al., 2003); it can be an important component of utility (Brunnermeier and Parker, 2005); and it can lead to over- and under-reaction in stock returns (Barberis et al., 1998). Yet, in political economy, there is relatively little direct evidence on the effect of optimism bias on political decisions.

The behavioral political economy approach may be useful in the process of solving politicians' behaviors, however. Indeed, political economy is one of the fields particularly

likely to benefit from applying behavioral economics insights (Schnellenbach and Schubert, 2015). In this context, the purpose of this chapter is to study the impact of optimism bias on the budget structure, i.e., the allocation of public resources between capital and current expenditures.

The first objective is to distinguish between two types of optimism: strategic optimism and dispositional optimism. For the strategic optimism, the literature on political economy of fiscal forecasting show that tax revenues have been biased and moreover optimistically biased. In fact, empirical studies show that budget forecasts are distorted for political and/or institutional reasons (see, e.g., Bischoff and Gohout, 2010; Chatagny, 2015; Jochimsen and Lehmann, 2017; Benito et al., 2015).

Another illustration of strategic optimism comes from the analysis of campaign discourses. Reagan's "*Morning in America*" campaign theme is an obvious example. Arthur C. Brooks wrote in the *New York Times* that: "Reagan's success came from his sunny optimism"[1]. He adds that "Reagan was Wordsworth's happy warrior whose high endeavors are an inward light that makes the path before him always bright." Likewise, in 2008, Obama's motto was "*Yes, We Can*". These three words simply call for hope, traducing optimism.

These two examples are in line with the political convention according to which voters prefer candidates who they perceive to be "sunny optimists" (Malhotra and Margalit, 2014). For instance, *The New York Times* claimed that "one axiom of politics is that the optimistic candidate wins .. . " (Stolberg, 2011). This conventional wisdom has also received some scholarly support. Zullow and Seligman (1990) conducted an extensive textual analysis of over 80 years of presidential candidates' election speeches and found that the candidate who was more of a "pessimistic ruminator" lost in the large majority of the cases.

Malhotra and Margalit (2014) develop a theoretical framework of how expectation setting affects voters' retrospective evaluations of incumbent performance. They find that in domains where politicians have practical authority, or direct influence over out-

[1]https://www.nytimes.com/2015/07/26/opinion/sunday/arthur-c-brooks-we-need-optimists.html.

comes, setting high expectations incurs a cost in public support if the projected outcome is not attained. The same is true in domains where politicians have theoretical authority, or limited influence, but where expectation setting sends a signal about the leader's judgement. However, in domains where politicians have neither practical nor theoretical authority, setting high expectations is unambiguously beneficial, implying that optimism is valued by voters as a personality disposition. This intrinsic trait is the one we refer to as dispositional optimism.

The second objective is to show that the implications of optimism bias for decision-making form the basis of another rationale for political decisions, the short-term bias being the first one. For instance, the literature on Political Budget Cycles (PBCs) shows that politicians tend to be short-sighted. Indeed, economists and political scientists alike have long been intrigued by the idea that elections, while providing a fundamental mechanism of accountability, may at the same time induce a short-term bias (Bonfiglioli and Gancia, 2013).

The short-term bias refers to policy inefficiencies (low capital accumulation, low growth, high deficit or debt...) due to political frictions. In fact, the electoral pressure leads politicians to undertake myopic policies either to increase their chances of reelection (Rogoff, 1990) or to tie the hands of their potential successor (Tabellini and Alesina, 1990; Persson and Svensson, 1989). Therefore, policy myopia is determined by the incumbent policy maker's choices with respect to fiscal policy. In Rogoff's (1990) seminal article, politicians take advantage of information asymmetry and distort the budget composition in favor of consumption expenditures. Hence, one observes a decline in the capital to current expenditure ratio (e.g., Katsimi and Sarantides, 2012; Gupta et al., 2016).

Using the concept of optimal expectations (Brunnermeier and Parker, 2005), I establish a link between optimism bias and the budget composition. The main prediction is that strategic optimism increases the short-term bias. This effect is mitigated by strategic pessimism. These predictions are tested using data from 95 metropolitan French departments over the period running from 2004 to 2015. The results are consistent with the theory under alternative estimation strategies.

This chapter contributes to the literature that expands the concept of optimism bias to models and empirical analysis of political decisions. To the best of my knowledge, it is the first attempt to pin down on the theoretical side the relashionship between strategic optimism and the budget structure. From the normative point of view, the result of this chapter brings another argument to the advocates of the golden rule of fiscal forecasting which require policymakers to be conservative when making budget forecasts.

In the next section, the theoretical model is laid out to examine the impact of optimism bias on budget composition. Section 3.4 describes the institutional context and data and tests empirically the relationship established between the two concepts. Section 3.6 concludes.

3.2 Related literature

This chapter is related to two strands of literature. First, it is consistent with the political budget cycles literature. Therefore, the first part of this section presents a brief review of theoretical and empirical literature on myopic policies.

Second, the present analysis also draws from behavioral economics. In fact, a growing literature in economics is concerned with the impact of political leaders' traits on fiscal policy (see, e.g., Hayo and Neumeier 2012, 2016; Alesina et al. 2016). Hence, we review this literature putting the impact of cognitive biases into perspective.

3.2.1 Policy myopia leads to lower investment levels: theoretical approaches

The literature on political economy provides several explanations for short-term bias inefficiencies. We focus mainly on papers dealing with political uncertainty and social polarization.

Let us begin by the deficit bias. In a recent survey, Eslava (2011) summarizes the literature regarding political explanations for fiscal deficits. His review ascribes the emergence of fiscal deficits to conflicts of interest. First, opportunistic politicians generate deficits

to win elections, even if this conflicts with general welfare. Second, conflicts of interests between politicians' partisan preferences create incentives for (at least some) incumbents to run deficits[1] and, finally, conflicts of interest between different social groups or regions generate tensions in the allocation of government resources, leading to overspending.

Besley and Coate (1998) investigate the efficiency of equilibrium policy choices with repeated elections. They embed their model of representative democracy in a simple two-period economic model that incorporates redistribution and public investment. Then, they identify three reasons why public investments that are potentially Pareto improving with the available policy instruments may not be undertaken in political equilibrium. The first reason concerns nonpayment of future compensation. Indeed, to generate a Pareto improvement, a public investment may require some individuals to be compensated, via the tax and transfer system, after future gains are realized. However, compensation may not actually be paid in political equilibrium, since future tax rates are determined by policy makers at that time. Thus, if future policy makers are expected to have different preferences, the incumbent may be deterred from undertaking efficient investments. The other two reasons apply to public investments that do not require manipulation of future taxes and transfers to be Pareto improving. These may not be undertaken if they change the identity of future policy makers in a way disadvantageous to the current incumbent. To sum up, they highlight a general problem in democratic regimes that derives from the temporal mismatch between the incidence of fiscal policy benefits and costs.

In line with the preceding, the political risk and the threat of turnover can also induce fiscal distortions. According to Aidt and Dutta (2007), policy myopia arises when rational voters set performance standards that allow elected politicians to distort the portfolio of public investments towards short-term investments. In the same vein, Azzimonti (2015) studies the effects of asymmetries in re-election probabilities across parties on public policy and its subsequent propagation to the economy. The struggle between groups that disagree on targeted public spending results in governments being endogenously short-sighted: systematic under-investment in infrastructure and overspending on public goods

[1]See, for example Alesina and Tabellini (1990) or Tabellini and Alesina (1990).

arise, beyond what is observed in symmetric environments. Because the party enjoying an electoral advantage, is less short-sighted, it devotes a larger proportion of revenues to productive investment. Hence, political turnover induces economic fluctuations in an otherwise deterministic environment. She characterizes analytically the long-run distribution of allocations, and shows that output increases with electoral advantage, despite the fact that governments expand their size. Volatility is non-monotonic in electoral advantage and is an additional source of inefficiency.

Previously, Azzimonti (2011) presents a dynamic political economy model where greater polarization results in larger barriers to investment, although this is mitigated by the degree of political stability. Acemoglu et al. (2011) build a framework which helps analyzing the implications of political economy frictions/distortions on the allocation of resources. They characterize Pareto efficient allocations in a dynamic production economy where the group that holds political power decides upon the allocation of resources. They show that, for high discount factors, the economy converges to a first-best allocation where labor supply decisions are not distorted. For low discount factors, distortions do not disappear and fluctuate over time. Most importantly, the set of sustainable first-best allocations is larger when there is less persistence in the identity of the party in power (because this encourages political compromise). This result contradicts the common presumption that there will be fewer distortions when there is a "stable ruling group".

With regard to polarization, Natvik (2013) studies how disagreement over which goods government should provide affects resource allocation in the public sector. In his model, an incumbent combines pre-determined capital with labor to produce different goods in the current period, and accumulates physical and financial capital for future production. Capital-labor complementarity determines how anticipated political turnover shapes governments' choice between saving in physical capital or financial assets. Turnover tends to render the stock of physical capital for public production too low and inefficiently combined with labor. The main cost of political turnover is production inefficiency in the public sector, not a sub-optimal savings level.

Other studies look also at the simultaneous or indirect effect of electoral uncertainty

on investment and growth. Darby et al. (2004) set out an infinite-horizon political economy model with partisan and office motivation effects in an endogenous growth context. They demonstrate that the existence of political uncertainty regarding re-election tends to reduce the amount of public investment by incumbent governments and underlies a switch from government investment to government consumption, thereby reducing growth. The political equilibrium is inefficient and so does not maximize social welfare.

Malley et al. (2007) propose a model which predicts that forward-looking incumbents, with uncertain prospects of re-election, find it optimal to follow relatively shortsighted fiscal policies, and that this hurts capital accumulation. Their econometric estimation, using U.S. data, finds a statistically significant link between electoral uncertainty and policy instruments and, in turn, macroeconomic outcomes.

Drometer (2006) proposes hyperbolic discounting as an alternative rationale for political short-sightedness. He shows that, if voters' preferences are dynamically inconsistent and politicians tend to act according to the will of the electorate in order to be re-elected, the political process results in an allocation of public funds which is distorted towards consumption expenditures.

3.2.2 Policy myopia: stylized facts and empirical results

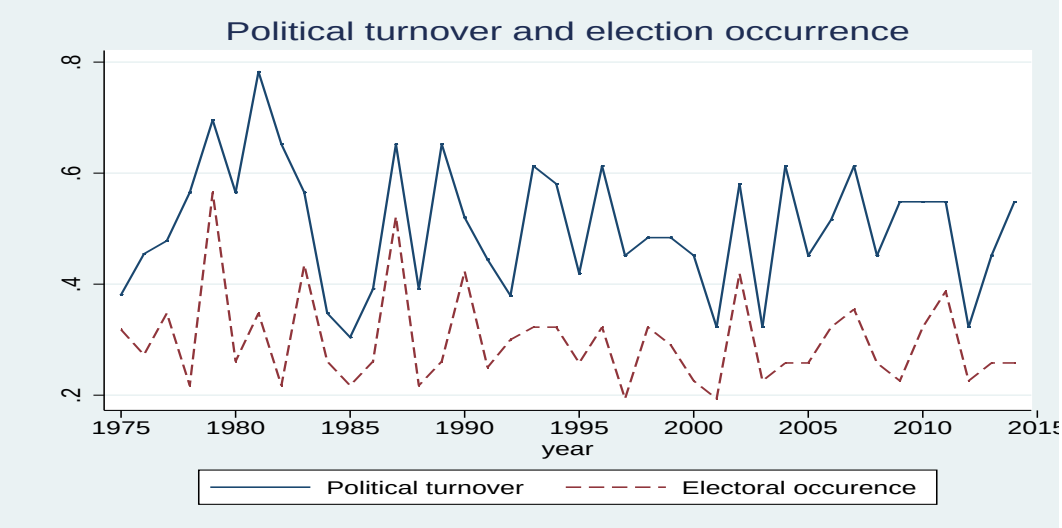
In this subsection we present some stylized facts on the basis of updated data sets at national level and then we review some empirical studies.

Although there may be many other reasons than myopic decisions made by democratically elected politicians that can explain the low long- to short-term spending ratio pattern, myopa is more frequently observed in rich than in poor democracies (Aidt and Dutta, 2007). We thus focus on well-established democracies of the Organization for Economic Co-operation and Development (OECD) countries.

Rather than occasional and rarely occurring, elections are a widely spread and recurrent phenomenon. Figure 3.1 below illustrates this by displaying the average number of elections per year across 31 OECD countries over the period 1975-2014. It can be observed that the value of this indicator is significantly different from zero. It is also noticeable

that elections and government changes are highly correlated.

Figure 3.1: Average Number of elections and government change per year (OECD)



Source: Comparative Political Data Set (CPDS), Armingeon et al. (2016)

Figure 3.2: Political turnover, Investment, growth and Debt.

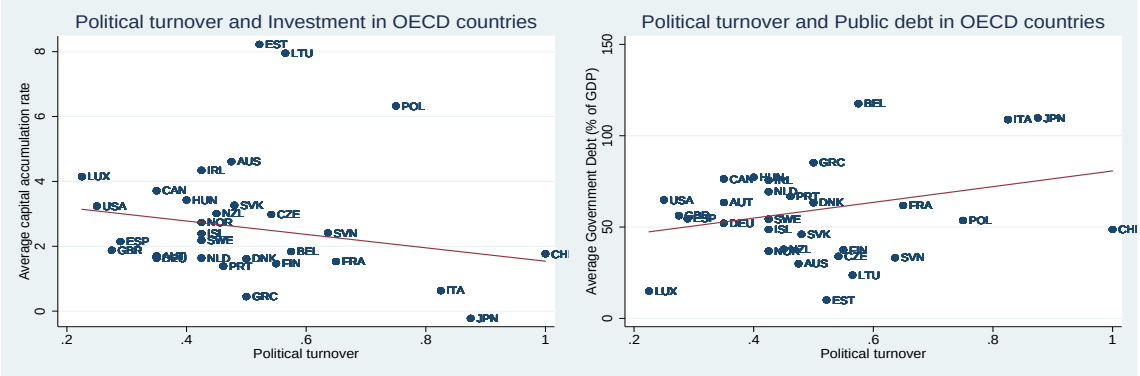
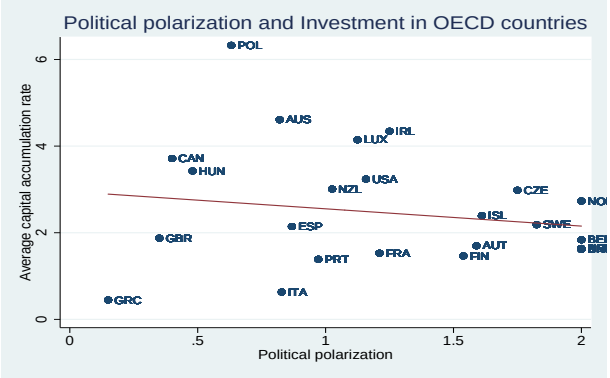


Figure 3.2 shows a negative relationship between political turnover and investment growth rate for OECD countries. Similarly, it shows a positive relationship between political turnover and government debt. These observations tend to confirm that political turnover may be harmful for capital accumulation, and may reveal the short-term bias. What about political polarization? Figure 3.3 on the next page points at a negative correlation between political polarization and public investment.

Figure 3.3: Political polarization and capital accumulation



The relations illustrated in Figures 3.2 and 3.3 have been scrutinized by many empirical studies. Political turnover impacts resource allocation in the public sector. Empirical papers shed light on the effect of reelection probability on public investment (Darby et al., 2004; Azzimonti, 2015; Fiva and Natvik, 2013). Darby et al. (2004) find that, across countries, investment is lower when turnover is higher. Azzimonti (2015) shows that across US states, investment is higher in states where electoral advantage is stronger. These findings at national level are also noticeable at the local one. For instance, using a panel of Norwegian municipalities, Fiva and Natvik (2013) find that higher re-election probabilities stimulate investment, particularly in programs preferred more strongly by incumbent parties. This lies in conformity with theory where capital and current expenditures are considered as complementary inputs to a government's production function.

Crain (2002) employs the Besley and Coate (1998) framework to examine whether particular political institutions promote or impede public investments across nations. Their findings indicate that institutions that enhance decision-makers' time horizons promote public sector investments. Their results suggest also that staggering parliamentary terms and, thereby, shortening the time required to change the legislative majority deters public investments. In addition, they bring evidence to the Besley-Coate thesis that citizen diversity[1] fuels the commitment problem and discourages public investments.

Darby et al. (2004) show, for OECD countries, that there is empirical support for the hypothesis that political uncertainty tends to reduce public investment, and that there are partisan effects in public investment decisions. Likewise, Asteriou and Price (2005)

[1]They use the Ethno-Linguistic Diversity index as proxy of citizen diversity.

study the interactions between uncertainty, investment and economic growth. Utilizing panel data for a sample of 59 industrial and developing countries between 1966 and 1992, they estimate reduced form equations to explore the possible effects of uncertainty on economic growth and investments. They find that uncertainty reduces both investment and growth.

Katsimi and Sarantides (2012) investigate the impact of elections on the level and composition of fiscal instruments using a sample of 19 high-income OECD democracies during the period 1972–1999. They find that elections shift public spending towards current expenditures at the cost of public investment. Although they find no evidence for an electoral cycle for government deficit and overall expenditures, they find a negative effect of elections on revenue, attributed to a fall in direct taxation. Their results apply to systems with predetermined electoral periods, while political systems with endogenous elections seem to be related with larger deficits, leaving the composition of fiscal policy unaffected.

More recently, Gupta et al. (2016) explore the impact of political and institutional variables on public investment. Using a sample of 80 presidential and parliamentary democracies between 1975 and 2012, they find that the rate of growth of public investment is higher at the beginning of electoral cycles and decelerates as the next election approaches. They estimate that the peak in public investment growth occurs between 21 and 25 months before elections. Thereafter, the trade-off between consumption and investment accelerates, and public spending shifts in favor of more "visible" current spending.

From the review above, it appears that political uncertainty can have negative consequences. Thus, all the factors that are able to foster or weaken these effects deserve attention. As indicated in the introduction, I focus here on a psychological factor: the optimism bias.

3.2.3 Optimism bias and Optimal expectations

This subsection introduces the concept of optimism and discusses its consequences in decision-making. While the study of optimism originated in psychology, the phenomenon has migrated into the economics and finance literature.

Let us define optimism before expanding on these literatures. An optimistic bias is commonly defined as the mistaken belief that one's chances of experiencing a negative event are lower (or a positive event higher) than that of one's peers. To clearly fix the idea of optimism bias, it is important to recall the Rational Expectation theory. This theory declares that agents' predictions of the value of economically relevant variables are not systematically wrong, in that errors are random. Equivalently, this is to say that an agent's expectation is consistent with the true statistical expectation. Nevertheless, there is plentiful evidence of deviations from rational expectations. The most prominent one shows that individuals err in their probability assessments and not in random, but in systematic directions.[1]

Moreover, if expectations are better than reality, the bias is optimistic; if reality is better than expected, the bias is pessimistic. The extent of the optimism bias is thus measured empirically by recording an individual's expectations before an event unfolds, and contrasting those with the outcomes that transpire (Sharot, 2011).

In addition, in the classical expected utility (EU) model, decision makers are assumed to be ironmen. The risks that they take have no effect on their felicity before the resolution of the uncertainty, which means that they have no anticipatory feelings, no anxiety. Moreover, once the uncertainty is resolved, they evaluate the final outcome in a vacuum. In particular, they feel no disappointment if the final outcome does not fulfill their expectation. These assumptions are contradicted by introspection (Gollier and Muermann, 2010). Both in Psychology and Economics, in fact, new results show a significant difference between the actual behavior of actors and the traditional model (Kahneman, 2011). In the same vein, Minozzi (2013) notes that human belief formation is often very different from that posited in the standard rational choice model, and these differences are bound

[1]See DellaVigna (2009) for surveys of the literature at the intersection of psychology and economics, including detailed discussion of many belief-pertubating biases.

to alter foundational results, causal mechanisms, empirical implications, and predictions in a wide range of cases.

It is thus interesting to explore alternative models to the standard EU model. Therefore, a number of formal work has begun to reexamine the role that beliefs play in decision-making (Akerlof and Dickens, 1982; Caplin and Leahy, 2001; Brunnermeier and Parker, 2005). The main premise of the literatures on distorted optimal beliefs is that people choose subjective biased beliefs departing from the real probabilities. Previous studies can be divided into three branches: one focuses on anticipatory utilities of forward-looking decision makers (Caplin and Leahy, 2001; Brunnermeier and Parker, 2005); one focuses on cognitive dissonance in which people hold inconsistent beliefs to comfort their past experiences,[1] while the third branch focuses on biased beliefs arising from self-signaling with imperfect memory (Benabou and Tirole, 2002; Bénabou and Tirole, 2004). This review focuses on the first branch, as it is the most relevant to this chapter. For instance, research at the frontiers between economics and psychology acknowledge the presence of optimism bias. Kahneman (2011) emphasizes what Adam Smith signaled three centuries ago. He contends that "most of us view the world as more benign than it really is.... We also tend to exaggerate our ability to forecast the future. In terms of its consequences for decisions, the optimistic bias may well be the most significant cognitive bias."[2]

Brunnermeier and Parker (2005) (BP) build a structural model assuming that forward-looking agents care about expected future utility flows, and hence have higher instantaneous well-being if they are optimistic about the future. The optimal expectations framework established in Brunnermeier and Parker (2005) involves a two-stage decision making process. In stage 1, agent chooses "optimally" subjective beliefs subject to the optimal actions of stage 2. In stage 2, the agent solves the portfolio allocation problem given subjective beliefs. Beliefs impact instantaneous well-being directly through anticipatory

[1] Akerlof and Dickens (1982) propose a model in which workers in hazardous professions choose their subjective beliefs of an accident to balance their anticipatory feelings of danger and money spent on safety equipment.

[2] "Dozens of studies show that people generally overrate the chance of good events, underrate the chance of bad events and are generally overconfident about their relative skill or prospects. For example, 90 percent of American drivers in one study thought they ranked in the top half of their demographic group in driving skill" Camerer (1997).

emotions of the future flow utility, and indirectly through their effect on portfolio allocations. Applying this model to financial data, BP reach two conclusions: i) investors always overestimate the return of their investment, which encourages them to long or short too much of the risky asset compared to what would maximize their objective expected utility; ii) investors tend to invest in an asset with high level of positive skewness even if the asset earns a negative average excess return. In their consumption-saving application, BP further conclude that agents are both over-confident and over-optimistic.

As for empirical evidence of the impact of optimism bias, most of studies come out of behavioral finance (Hackbarth, 2009; Chen and Lin, 2012). For instance, Chen and Lin (2012) investigate the influences of different levels of managerial optimism on improving the investment efficiency when firms tend to under-invest or over-invest. Their results indicate that an under-invested firm with a CEO that has a high level of managerial optimism can improve the firm's investment efficiency by reducing the degree of under-investment, further increasing the value of a firm.

Glaser et al. (2008) examine the link between managerial optimism and corporate investment and whether the CEO is the only responsible for this relation. They found that managers are optimistic and often voluntarily increase their exposure to risk. In addition to that, firms with optimistic managers tend to invest more, while the investment-cash flow sensitivity is higher for firms whose managers are optimistic.

The above review points out the lack of a large scale study on the effects of optimism on political decisions. Standard political economy models assumes rationality of political agents. In real life and in experiments, however, agents have systematically biased beliefs and use decision rules that are inconsistent with rationality. What happens if we assume that psychological drivers (specifically, optimism bias) can influence the decisions of policymakers?

3.3 The model

In this section, I present the model from which I derive the impact of optimism bias on the budget structure. I build on the concept of optimal beliefs à la Brunnermeier and

Parker (2005). Optimal expectations is a strategic model of choice under uncertainty where beliefs are posited to be endogenous. Observed choice is the result of equilibrium in which beliefs are chosen to resolve a trade-off between a standard instrumental payoff and some notion of psychologically based belief utility.[1]

3.3.1 The economic environment

Voters' preferences

I consider a simple two-period ($t = 1, 2$) economy populated with two groups of citizen-voters ($i = R, L$). Each member of a group i is small and has the same preferences for public goods within the group. The representative agent in group i derives utility from the two public goods ($g; f$) with a bias towards one of them. Abstracting from private consumption, I thus write her utility as:

$$V_t^i = V\left(g_t^i, f_t^i\right) \tag{3.1}$$

where f_t and g_t are two different public goods provided by the government. $V(\cdot)$ is a concave and twice continuously differentiable utility function.

Let us note $k = \frac{g}{f}$ the ratio of type g to type f expenditures. From equation 3.1, one has:

$$V\left(1; \frac{g^i}{f^i}\right) \equiv \upsilon(k) \tag{3.2}$$

Equation 3.2 says that the utility of the representative citizen-voter depends on the ratio of the public good g to f expenditures. Examples of different preferences about public goods among citizen-voters abound. One can think for example of Republicans preferring defense expenditures to social expenditures (see, e.g., Alesina and Ferrara, 2005). For the purpose of this chapter, we consider f as public *consumption* services and g as public *production* services (that provide externalities to firm's capital). In other words, f can be seen as current expenditures and g as capital/investment expenditures. We note $s = \{r, d\}$, the two states of nature where state r corresponds to reelection, and

[1] The axiomatic foundation for this is provided by Caplin and Leahy (2001).

state d, to defeat at election.

For simplicity, we assume that the representative citizen-voter has the logarithmic utility function $v = lnk$. From the point of view of voters, the expected utility in the second period is:

$$v_t^E = \pi_r lnk_{r,t} + \pi_d lnk_{d,t} \tag{3.3}$$

where π_r is the objective probability of reelection and π_d the objective probability of defeat of the incumbent. How do voters decide to cast their votes? They use the incumbent's choices during the first period to learn about her preferences. Then, they decide to vote for her if their expected utility is greater than voting for an unknown challenger.

Politician

Each period, a citizen-voter is elected to run the government and provide public goods. Thus, groups alternate in power via a democratic process, and election outcomes are uncertain. The degree of political stability (i.e., frequency of turnover) is determined in a voting equilibrium. After the first period, the incumbent policymaker may lose office to another one with a subjective probability ($\hat{\pi}_d$). She stays in power with subjective probability $\hat{\pi}_r$.

Each of the two types of policymaker (R and L) provides both types of public goods, but to differing degrees. That is, the two groups agree on the size of the government, but they disagree over the composition of expenditure. The intensity of such disagreements can be captured by the degree of polarization α, which ranges from $1/2$ to 1.[1] $\alpha = 1/2$ corresponds to an homogeneous society, while α close to 1 is the situation of a highly polarized society. For simplicity, α will be assimilated to the share of public good f in the budget structure.

In order to investigate the impact of the optimism bias on budget structure, I embed the incumbent's problem into the optimal expectations framework (see, Brunnermeier and Parker, 2005). In this framework, the information structure can be laid out by listing the

[1] See, e.g., Bohn (2007).

timing of events:

1. At the beginning of period 1, the incumbent forms beliefs about her chances of reelection. Under the rational expectations hypothesis, beliefs would be given exogenously. In the optimal expectations framework, beliefs are not required to match objective probabilities.

2. Next, she decides how to allocate resources between the two public goods (f; g).

3. Then, she experiences uncertainty resolution about her chances of being reelected. This occurs during the step of anticipation in which she experiences anticipatory utility, i.e., utility over optimism.

4. At the end of period 1, an election takes place where the incumbent runs against a randomly chosen challenger. The incumbent is reelected if she is supported by a majority of citizen-voters; otherwise the challenger takes office. Once the election results are published, the incumbent experiences outcome utility.

To sum up, the incumbent's problem is a two-stage decision making process. In the first stage, the incumbent forms beliefs considering optimal actions of second stage. In stage 2, she chooses how to allocate public resources (T) between current and capital goods. Therefore, she faces the following budget constraint: $f_{_t} + g_t = T_{_t}$.

In order to fully exploit the concept of optimal beliefs, we assume that the $k - ratios$ can be assimilated to a complete set of Arrow-Debreu securities (see, e.g., Brunnermeier et al., 2007). In other words, the incumbent behaves like an investor who builds a portfolio in the first period and consumes the payoff from this portfolio in the second period; the gain being reelection and ego rent.

Considering the vote share as the price of a specific budget composition choice, we transform the budget constraint into:

$$(1 - \alpha)\, k_{r,t} + \alpha k_{d,t} \leq T_{_t} \tag{3.4}$$

where $k_s \geq 0$. k_r is the composition index in case of reelection and k_d that of defeat.

3.3.2 Solution to the politician's problem

The structure described above is a sequential game of incomplete information. Therefore, the appropriate solution concept is a Perfect Bayesian Equilibrium (PBE)

Definition:

A PBE is a pair of first-period fiscal allocations, and a reelection rule such that the incumbent selects an optimal allocation given the reelection rule, voters' reelection rule is optimal given their beliefs about the type of the incumbent, and voters' beliefs are whenever possible updated according to Bayes's rule.

To pin down the set of equilibria, we follow Brunnermeier and Parker (2005).Hence, the incumbent's problem is solved by backward-induction. Therefore, in the first step, the incumbent chooses k so as to maximize the following expected utility *(anticipatory utility)* given her subjective belief of winning the upcoming election:

$$\upsilon_1 = \hat{\pi}_r \ln k_r + \hat{\pi}_d \ln k_d \tag{3.5}$$

subject to equation (3.4).

Given the properties of the υ function, it is easy to see that this problem has closed form solutions. We thus write the following proposition:

Proposition 1 *(Existence and Uniqueness of budget structures) Given the incumbent's subjective beliefs, optimal budget compositions exist and are unique:*

- $k_r^* = \frac{\hat{\pi}_r}{1-\alpha}$
- $k_d^* = \frac{\hat{\pi}_d}{\alpha}$

Proposition 1 links the budget index to the subjective perception of reelection/defeat and to the polarization index. In the political equilibrium, the optimal budget ratio will also depend on the objective probabilities. Thus, it is interesting to characterize the incumbent's optimal beliefs. Then, one could establish a link between optimism bias and budget composition.

Optimal beliefs

In this subsection, we discuss how the presence of optimism bias might influence behavior, and therefore the decisions of policymakers. Therefore, it is important to characterize optimal beliefs.

As stated above, the incumbent faces uncertainty about her reelection. She may form beliefs[1] about it during her first term. If she is optimistic, she will savor her expected success during that period, but she faces the risk of being disappointed ex-post if she is defeated at the election, an outcome below her expectation. On the contrary, she could rather prefer to be pessimistic, thereby being depressed during the first term, but with the potential benefit to be reelected, yielding much rejoice ex-post.

Here, I reach the second step of resolution of the incumbent maximization problem. The politician's objective is to maximize a psychological expected utility, i.e., the sum of her anticipatory utility (υ_1) and the expected utility of voters $\left(\upsilon^E\right)$. Then, her beliefs maximize $\frac{1}{2}E\left[\upsilon_1+\upsilon_2\right]$ subject to $\sum_{s=\{r,d\}}\hat{\pi}_s=1$.

Specifically, the objective function of the incumbent is:

$$\max W=\hat{\pi}_r lnk_r^*\left(\hat{\pi}_r\right)+\hat{\pi}_d lnk_d^*\left(\hat{\pi}_d\right)+\pi_r lnk_r^*\left(\hat{\pi}_r\right)+\pi_d lnk_d^*\left(\hat{\pi}_d\right) \tag{3.6}$$

$$\text{subject to: } 1-\hat{\pi}_r-\hat{\pi}_d=0;$$

Note that the voters' expected utility depends on the optimal budget structure chosen by the incumbent. Hence, optimal beliefs maximize the Lagrangian:

$$\mathcal{L}=\hat{\pi}_r lnk_r^*\left(\hat{\pi}_r\right)+\hat{\pi}_d lnk_d^*\left(\hat{\pi}_d\right)+\pi_r lnk_r^*\left(\hat{\pi}_r\right)+\pi_d lnk_d^*\left(\hat{\pi}_d\right)+\mu\left(1-\hat{\pi}_r-\hat{\pi}_d\right) \tag{3.7}$$

The first order conditions are:

$$\frac{\partial\mathcal{L}}{\partial\hat{\pi}_r}=\ln\left(\frac{\hat{\pi}_r}{1-\alpha}\right)+1+\frac{\pi_r}{\hat{\pi}_r}-\mu=0 \tag{3.8a}$$

[1]Beliefs can be optimistic or pessimistic. Pessimism is simply the inverse of optimism - a human who is more optimistic is simultaneously less pessimistic.

$$\frac{\partial \mathcal{L}}{\partial \hat{\pi}_d} = \ln\left(\frac{\hat{\pi}_d}{\alpha}\right) + 1 + \frac{\pi_d}{\hat{\pi}_d} - \mu = 0 \tag{3.8b}$$

The combination of equations 3.8a and 3.8b yields:

$$\ln\left(\frac{\alpha}{1-\alpha}\right) = \frac{\pi_d}{\hat{\pi}_d} - \frac{\pi_r}{\hat{\pi}_r} - \ln\left(\frac{\hat{\pi}_r}{\hat{\pi}_d}\right) \Rightarrow \ln\left(\frac{1}{k}\right) = \frac{\pi_d}{\hat{\pi}_d} - \frac{\pi_r}{\hat{\pi}_r} - \ln\left(\frac{\hat{\pi}_r}{\hat{\pi}_d}\right)$$

Recall that α is the share of expenditures on public good f and $1-\alpha$, public good g's share in the budget structure. As $k = \frac{g}{f}$, it follows that $k = \frac{1-\alpha}{\alpha}$. Hence, from the preceding combination, one derives:

$$k^* = \frac{\hat{\pi}_r}{\hat{\pi}_d} * \exp\left(\frac{\pi_r}{\hat{\pi}_r} - \frac{\pi_d}{\hat{\pi}_d}\right)$$

Using the property that probabilities sums to 1 ($\pi_r + \pi_d = 1$; $\hat{\pi}_r + \hat{\pi}_d = 1$), one obtains the expression in (3.9).

$$k^* = \frac{\hat{\pi}_r}{\hat{\pi}_d} * \exp\left(\frac{\pi_r - \hat{\pi}_r}{\hat{\pi}_r\left(1-\hat{\pi}_r\right)}\right) \tag{3.9}$$

Equation 3.9 indicates that the ratio k depends on the difference between the objective probability of reelection and the subjective one. It also depends on the ratio of the subjective reelection probability and that of defeat. Let us denote $\varepsilon \equiv \pi_r - \hat{\pi}_r$. Then, the following definition can be given:

$$If \begin{cases} \varepsilon < 0 \\ \varepsilon = 0 \\ \varepsilon > 0 \end{cases} \iff the\ beliefs\ are \begin{cases} optimistic \\ rational \\ pessimistic \end{cases} \tag{3.10}$$

On the basis of this notation, I rewrite the equation (3.9) as:

$$k^* = \frac{\pi_r - \varepsilon}{\hat{\pi}_d} * \exp\left(\frac{\varepsilon}{\hat{\pi}_r\left(1-\hat{\pi}_r\right)}\right) \tag{3.11}$$

Derivating k^* over ε yields:

$$\frac{dk^*}{d\varepsilon} = \frac{1}{\hat{\pi}_d} * \left[-1 + \frac{\pi_r - \varepsilon}{\hat{\pi}_d}\right] * \exp\left(\frac{\varepsilon}{\hat{\pi}_r\left(1-\hat{\pi}_r\right)}\right) \tag{3.12}$$

Then, there is a threshold under which $\frac{dk^*}{d\varepsilon} > 0$ and $\frac{dk^*}{d\varepsilon} < 0$ above. This threshold is such as $\pi_r = \hat{\pi}_r\left(1-\hat{\pi}_r\right) \equiv E\left(\hat{\pi}_r\right)$. Hence, the impact of the incumbent's beliefs on the budget ratio is summarized in the proposition 2:

Proposition 2 *There is a negative link between optimal beliefs and the budget composition index measured by the ratio of capital to current expenditures.*

$$\begin{cases} \frac{dk^*}{d\varepsilon} > 0 \quad ; \quad \varepsilon < 0 \\ \frac{dk^*}{d\varepsilon} < 0 \quad ; \quad \varepsilon > 0 \end{cases}$$

Proposition 2 states the core result of the chapter. Optimistic revenue forecasts decrease the ratio of capital to current expenditure whilst pessimistic forecasts increase it. Hence, optimism bias tend to increase the short-term bias.

3.4 Empirical evidence

In this section, we present empirical evidence supporting the results presented above, using data from French departments.

3.4.1 Legal context of French departments

The French institutional setting is a four-tier system comprising the central government, 18 regions, 101 departments, and about 36,000 municipalities. In this study I focus on metropolitan France which is divided into 96 departments[1]. A department is composed of several counties (*cantons*). In counties, voters elect their representatives at the General Council[2]. Indeed, French departments are governed by the departmental council.

[1]Given the particularity of Paris as municipality and department, I exclude it from the analysis.
[2]Since the reform of 2013, General Councils are renamed into departmental councils.

The councilors are nominated trough democratic elections for six years. Before 2015, these elections took place once every three years (generally in March) in which half of the departmental council was elected in each department. In the context of a multi-party-system, a two-round majority vote is used. To be elected in the first round, a candidate must get at least half of the votes plus one, and a number of votes equal to at least 25% of the registered voters. To be a candidate in the second round, it is necessary to have obtained in the first round a number of votes equal to at least 10% of the registered voters. However, if only one candidate clears this threshold, the one ranked second can remain a candidate. The candidate who gets the biggest number of votes in the second round is elected. After every election, the departmental council elects a president. Since 2015, the electoral rule has changed, to a bi-nominal majority vote with two rounds. Every county is represented by a "twin-ticket" ("binôme" in French) of a man and a woman, and the whole departmental council is to be elected every six years. To be elected in the first round, the binôme must obtain at least half of the votes plus one, and a number of votes equal to at least 25 per cent of the registered voters. If a second round is necessary, all the binômes with at least 12.5% of registered voters can compete. The reelection rule is as in the previous paragraph.

The decentralization Act of 1982 (and afterwards the Act of 2003) provided the departmental council with new competencies and a relative autonomy. The President of the departmental Council prepares and implements the department's budget. The departmental resources rely in part on central government transfers (about 40%) and on own resources such as local taxes. In terms of competencies, French departments are responsible for the management of a number of social and welfare allowances, of junior high school (*collège*) buildings and technical staff, of local roads, school and rural buses, and for a contribution to municipal infrastructures.

3.4.2 Data and variables

The aim of this subsection is to test the implication of proposition 2: the positive effect of optimism bias (ε) on the budget composition index (k). The first challenge is thus the

measurement of these two concepts. For this purpose, I take advantage of the Metropolitan French departments data over the period from 2004 to 2015. This data is suitable for the analysis conducted here because of at least two reasons. First, the institutional context of departments does not vary during the sample period. Second, budget forecasts have been optimistic as regards total revenue (see Appendix B1). This provides a proxy for the independent variable of interest (*Belief*).

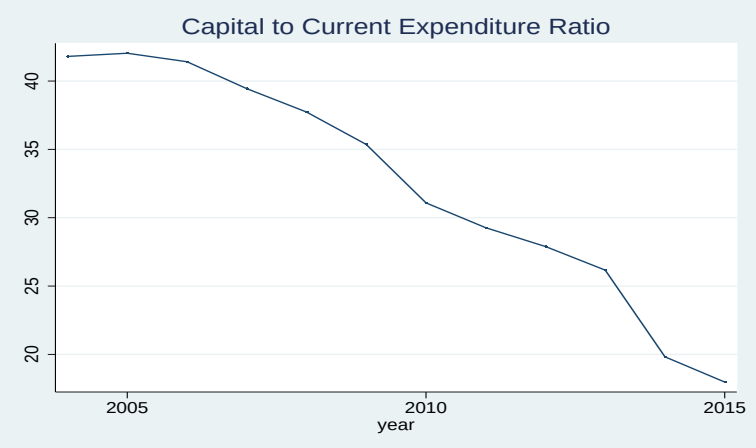
Following the existing literature on determinants of political budget cycles and the discussion above, I write the structural form of the model as:

$$k = m(\varepsilon, X) \tag{3.13}$$

where ε is an indicator of optimism bias and X is a vector of other determinants of budget composition. Optimism bias corresponds to negative values of ε.

The budget composition index, measured as the ratio of capital to current expenditures, is used as the dependent variable in the regression. Figure 3.4 displays the evolution of the mean of the capital to current expenditure ratio[1]. It clearly shows a downward-sloping trend of this budget composition index in French departments over the sample period.

Figure 3.4: Evolution of the k-ratio



Three sets of independent variables are used in the regression: a behavioral determinant, political determinants and economic and demographic determinants. The behavioral

[1]Figure A.1 in the Appendix displays the evolution of k by department.

factor is the difference between the the incumbent´s subjective probability of reelection and the objective probability of reelection ($Belief$). This variable is introduced to capture the impact of optimism bias on the budget structure. It is measured through a proxy which is the total revenue percent forecast error. Despite the fact that budget forecasts are subject to strategic manipulation, there is a part of budget forecast errors which is due to cognitive biases. Notice that in the theoretical model above, $\varepsilon \equiv PFE$; where PFE is the Percent Forecast Error of Total revenue. Therefore, I write:

$$Belief_{i,t} = \varepsilon_{i,t} = \frac{(A_{i,t} - F_{i,t}) * 100}{A_{i,t}} \tag{3.14}$$

where A denote the actual revenue and F its forecasted value.

The average value of the PFE-Total revenue is negative (-3.26%), indicating that revenue forecasts have been optimistic. Hence, I consider this variable as an indicator of strategic optimism.

The political determinants of budget structure are electoral cycle, party color, number of terms in office and the alignment with the central government. The economic and demographic variables are fiscal pressure, regional GDP growth, population density, and population growth. Table **??** in the appendix describes the variables and data sources whilst table B.1 provides descriptive statistics on different variables in the model.

Political variables include dummies to account for the electoral cycle (the before, after and election year), terms in office, same party as the central government (*government party*) and left wing. The variable "terms in office" is the number of terms the president of the council has served. On average, presidents of councils have been in office for one term.

The variable "left wing" indicates that the president of departmental council belongs to the left-wing party. Therefore, it helps to control for the partisan effect on the budget composition. 43% of Presidents of departmental councils belongs to the same party as the French President. The variable *government party* controls for the political alignment of the department.

The variable "fiscal pressure" measures the financial situation of the department. It

is computed as the ratio of budget balance to total revenue. The "unemployment rate" is relatively high, ranging from 4.2% to 16%, with a mean equal to 9%. On average, the population has grown by 0.68% in French departments while the regional GDP has grown by 1.87% over the period under review.

3.4.3 Model specification

The estimated panel data model has the following structure:

$$k_{i,t} = \beta_0 + \beta_1 k_{i,t-1} + \beta_2 Belief_{i,t} + \gamma X + \xi_i + \lambda_t + \varepsilon_{i,t} \tag{3.15}$$

where X is a vector of control variables, γ the vector of coefficients. β_2 is expected to be positive (proposition 2).

The above discussed independent variables have both temporal and spatial variations. There are determinants which vary only in one dimension. The time-invariant and department-specific unobservable explanatory variables like institutions, historical factors, and geographical features need to be controlled for as there is ample evidence suggesting that these factors play significant role in determining expenditure requirements of an economy. Similarly, over the years, the central government of France has implemented various decentralization policies that affect the expenditures of departments. The attempts made at the central level will have harmonious effects across all the departments. The impact of such policies, department-invariant and time-specific, also needs to be incorporated in the model. Hence, ξ_i, the department fixed effect and λ_t,time fixed effect are introduced in the equation.

Fiscal variables are seen to show inertia. Hence, the lag of the dependent variable is used as an independent variable in the regression to control for autocorrelation. Given the short time dimension of the study, Nickell (1981) pointed that the dependent variable's coefficient is biased due to the correlation between the fixed effects and the lagged dependent variable. An appropriate strategy of estimation is needed.

3.5 Results

3.5.1 Baseline results

Table 3.1 on the next page reports the results of the main regressions. The first three columns display the results of the fixed-effect estimator. In columns (1) and (2), the equation is estimated excluding the lagged dependent variable and with robust standard errors clustered at the department level. The regressions are able to explain about 58% of the variation in the budget composition index. Notice that in columns (2), (3), and (6) we introduce three dummy variables to capture the electoral cycles. These variables take the value of 1 in before, election and after election year and zero otherwise. These dummies stand also for the time fixed effects. In addition, the lagged dependent variable is included in the specifications in columns (3) to (7) . In order to cope with the Nickell(1981) bias, we use the bias-corrected least-squares dummy variable (LSDVC) estimator developed by Bruno (2005b) and designed for dynamic panel data models.[1]

Regarding the variable of interest (*Belief*), we note that its marginal effect is significantly positive in the first six columns. The positive effect means that, the optimism bias tends to reduce capital expenditures relative to current ones as predicted theoretically. This reinforces the tendency of decreased investment due to policy myopa. Hence, strategic optimism tend to increase short-term bias. In terms of impact, a one percentage increase in the degree of optimism tends to reduce the capital to current expenditure ratio by 0.22 to 0.33%.

Notice that in column 6, only the negative values of the variable Belief are used whilst their positive values are considered in column 7. Interestingly, the coefficient of the variable Belief has a positive and negative signs respectively. This lends support to the theoretical prediction in proposition 2.

With respect to the other variables, fiscal pressure and unemployment rate tend to increase the composition bias towards current expenditures. The negative effect of fiscal

[1]We choose the Blundell and Bond (1998) estimator as the initial estimator in which the instruments are collapsed as suggested by Roodman (2009). This procedure makes sure to avoid using invalid and too many instruments. We undertake 50 repetitions of the procedure to bootstrap the estimated standard errors (see Bruno (2005b) for further details).

pressure means that the lower the deficit, the more degree of freedom the incumbent has.

Table 3.1: Main regression results

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	FE	FE	FE	BC-LSDV	BC-LSDV	BC-LSDV	BC-LSDV
Lagged k			0.618***	0.791***	0.789***	0.897***	0.860***
			(0.0414)	(0.0192)	(0.0205)	(0.0495)	(0.0196)
Belief	0.334***	0.338***	0.226***	0.232***	0.227***	0.207***	-0.190***
	(0.0685)	(0.0660)	(0.0537)	(0.0398)	(0.0398)	(0.0619)	(0.0503)
Terms in Office	-0.0705	-0.239	-0.0117	0.0187	0.0697	-0.264	0.232
	(0.286)	(0.281)	(0.176)	(0.195)	(0.193)	(0.291)	(0.196)
Fiscal Pressure	-0.154*	-0.0608	-0.252***	-0.255***	-0.248***	-0.336***	-0.290***
	(0.0777)	(0.0821)	(0.0562)	(0.0596)	(0.0613)	(0.0910)	(0.0602)
Unemployment rate	-6.367***	-5.987***	-2.539***	-1.831***	-1.750***	-0.696	-1.771***
	(0.400)	(0.409)	(0.315)	(0.197)	(0.213)	(0.510)	(0.212)
Regional GDP growth	1.312***	1.311***	0.663***	0.414***	0.470***	0.266**	0.551***
	(0.0986)	(0.0967)	(0.0889)	(0.0753)	(0.0796)	(0.135)	(0.0780)
Government party	0.0811	-0.266	-0.257	-0.223	-0.205	0.508	-0.376
	(0.820)	(0.771)	(0.509)	(0.466)	(0.465)	(0.872)	(0.458)
Population growth	0.537**	1.378***	0.315	-0.00541	0.0620	0.129	-0.0420
	(0.219)	(0.278)	(0.234)	(0.176)	(0.208)	(0.320)	(0.204)
Left wing	-1.022	-1.985	-1.031	-0.687	-0.626	-0.681	-0.152
	(1.712)	(1.698)	(1.232)	(0.925)	(0.908)	(1.072)	(0.898)
Year before elections		0.130	-0.696		-0.525	0.750	-0.927*
		(0.559)	(0.464)		(0.494)	(0.893)	(0.497)
Election year		-4.042***	-0.660*		0.324	1.083*	0.677
		(0.446)	(0.384)		(0.536)	(0.638)	(0.538)
Year after elections		-0.0990	0.552		0.729*	1.770**	1.210***
		(0.441)	(0.486)		(0.424)	(0.710)	(0.431)
Observations	1045	1045	1045	1045	1045	641	306
Adjusted R^2	0.571	0.599	0.745				

Standard errors in parentheses. Significance levels:* p<.1, ** p<.05, *** p<.01

Notes:FE-Fixed Effect estimator, BC-LSDV: Bias Corrected Least Square Dummy Variables

As it is generally difficult to cut current expenditures, then the capital ones are sacrificed in case of tight fiscal situation. Conversely, *Regional GDP growth* has a positive

impact on the bias towards capital expenditures. The rationale behind this positive effect is that economic expansion enlarges the room for maneuver by making additional resources available to fund structural investments.

The coefficient of the lagged dependent variable is positive and highly significant. This indicates the persistence of budget composition over time.

3.5.2 Robustness check

The above results are obtained in regressions in which we did not take into account the potential problem of endogeneity as regards the belief of the incumbent. However, it is reasonable to think that governments have incentives to bias their beliefs towards optimism. Precisely, Boylan (2008) and Bischoff and Gohout (2010) provide evidence that politicians tend to strategically overestimate revenues when their popularity, i.e. their objective probability of reelection, is low. A short-term bias in the budget composition may increase the incumbent´s chances for reelection. Then, a reverse causality may exist here. Further, Brunnermeier and Parker (2005) show that people tend to make optimistic beliefs when this increases their well-being. Thus, the variable *Belief* is endogenous. Therefore, I tackle this problem using the win margin of victory in the previous election as instrument in GMM estimation. The results are presented in Table 3.2.

In column 4, I consider only the values of the PFE which corresponds uniquely to optimistic forecasts ($Belief < 0$). Likewise, I use the positive values of the variable Belief in columns 5 of table 3.2 . The Hansen test indicates that the win margin is a valid instrument.

The results confirm the persistence of the budget composition ratio. This is in line with the conventional wisdom according to which economic and fiscal variables show inertia.

Regarding the variable capturing strategic optimism, its coefficient is still positive and significant from colum 1 to 4. For instance, in columns 4 of table 3.2, a one percent increase in the strategic optimism (optimistic forecasts) could raise the budget composition ratio by about 0.19% in favor of current expenditures. Conversely, in column 5, the impact of pessimistic forecasts on he budget structure is negative. This comforts the

Table 3.2: Robustness check (GMM estimation)

	(1)	(2)	(3)	(4)	(5)
	M8	M9	M10	M11	M12
Lagged k	0.958***	0.994***	1.143***	0.440***	1.422***
	(0.0370)	(0.0362)	(0.0933)	(0.108)	(0.140)
Belief	0.276***	0.265***	0.259***	0.194***	-0.555***
	(0.0519)	(0.0573)	(0.0616)	(0.0716)	(0.118)
Terms in Office	0.113	0.175	0.150	-0.241	0.372
	(0.188)	(0.193)	(0.204)	(0.295)	(0.270)
Fiscal Pressure	-0.468***	-0.447***	-0.550***	-0.231**	-0.577***
	(0.0690)	(0.0748)	(0.111)	(0.100)	(0.114)
Unemployment rate	-0.0732	0.102	0.0213	-0.336	0.449
	(0.133)	(0.124)	(0.292)	(0.384)	(0.336)
Regional GDP growth	0.120	0.185*	-0.141	0.807***	0.00413
	(0.0962)	(0.102)	(0.225)	(0.178)	(0.236)
Government party	-0.330	-0.358	0.586	-1.292	-2.377
	(0.481)	(0.485)	(1.755)	(1.361)	(1.535)
Population growth			-3.810	7.278***	-4.098*
			(2.423)	(1.279)	(2.438)
Left wing			3.610	-6.439*	-1.129
			(4.882)	(3.297)	(3.727)
Year before elections	-1.433***	-0.771	1.213	-1.814*	-0.389
	(0.469)	(0.494)	(1.567)	(0.942)	(1.260)
Election year	0.917**	1.891***	6.375**	-5.873***	7.066**
	(0.458)	(0.421)	(3.063)	(1.448)	(2.921)
Year after elections		1.505***	0.964	2.567***	1.451**
		(0.490)	(0.618)	(0.582)	(0.642)
Constant	0.371	-3.411	-8.296**	19.35***	-20.78***
	(2.241)	(2.170)	(4.001)	(5.606)	(6.253)
N	1045	1045	1045	736	309
HansenJ	15.0000	16.0000	16.0000	17.0000	16.0000
HJ_Prob	0.5844	0.3357	0.5687	0.4875	0.8812

Standard errors in parentheses. Significance levels:* p<.1, ** p<.05, *** p<.01

main prediction in proposition 2 which states that optimism bias negatively influences the budget composition towards capital expenditures. The rationale behind these results

is simple. In case of optimistic forecasts, the fiscal year ends up with less resources than expected. Therefore, the governement is constrained to cut some expenses. As current expenditures are difficult to cut down, long term investments are the ones to sacrify. However, in case of pessimistic forecasts, the fiscal year ends up with unexpected additional resources. Policymakers who erroneously expect higher revenues tend to utilize this higher fiscal flexibility by increasing long-term investments. Hence, being conservative in fiscal forecasting reduces the short-term bias.

According to conventional wisdom, one would expect a left-wing government to increase the k-ratio. However, the results indicate that the variable left wing has a negative sign and is less significant. Veiga and Veiga (2007a) did not find either a significant impact of ideology on the level of local investments in Portuguese municipalities.

Results in columns (4) tend to confirm the opportunistic cycle theory. Incumbent presidents of departmental councils reduce the ratio of capital to current expenditure one year before elections, and increase it at the beginning of their term. In fact, the *k-ratio* tends to diminish one year before departmental elections (-1.81%) and to increase just after elections (2.57%). This result is in line with, e.g., Goeminne and Smolders (2013) who find that the timing of elections matters for public infrastructure investments.The negative impact of fiscal pressure is also confirmed. The other control variables lose their significance.

3.6 Conclusion

One of the main predictions of dynamic political economy models is that electoral uncertainty and/or social polarization push governments to follow relatively short-sighted policies. This phenomenon, known as policy myopia, is harmful for investment in public infrastructures and thus, economic growth. This paper explores the role of optimism bias in curbing/exacerbating policy myopia.

The approach put forward in this paper derives from arguments developed in behavioral economics. Using the concept of optimal expectations, I establish a link between the budget structure and an incumbent's beliefs about her reelection chances. I make the

assumption that policymakers are individuals who can be subjected to the same sources of cognitive bias that all individuals face, optimism bias in this case.

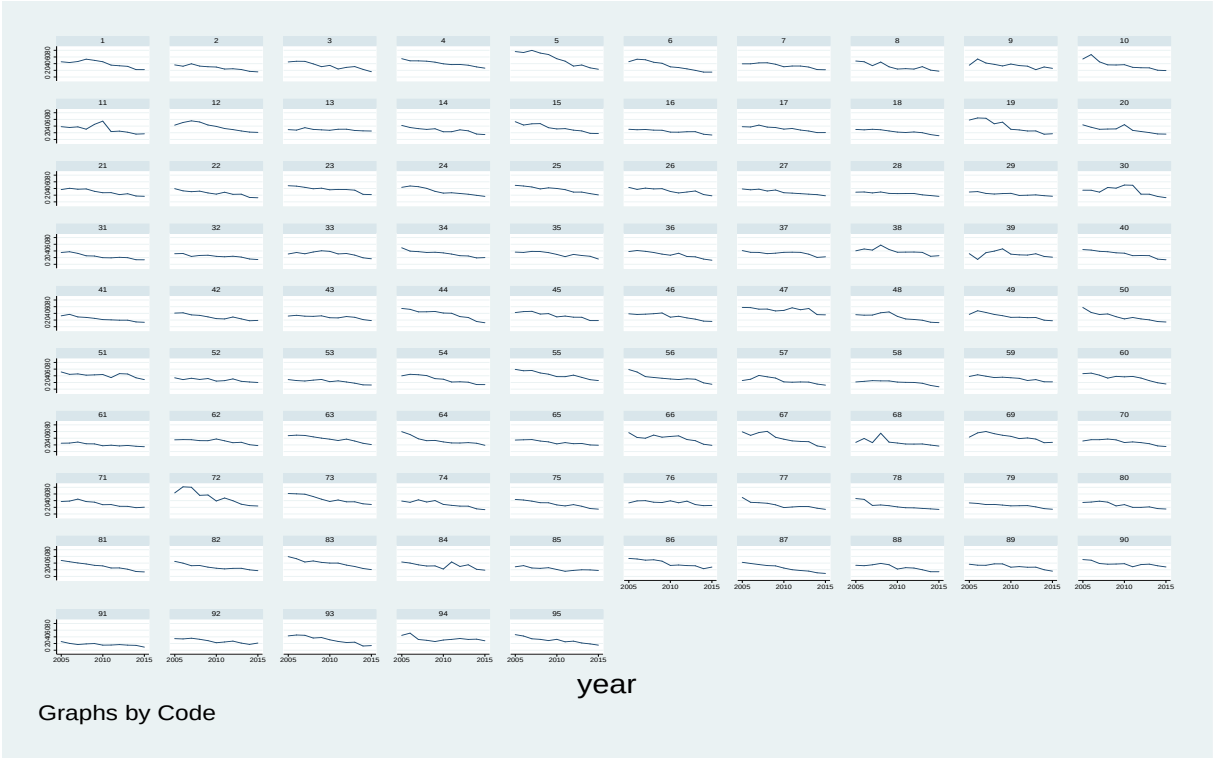
To operationalize the concept of optimism, I consider budget forecast errors. Indeed, that politicians distort fiscal forecasts for electoral reasons is a quite well-established result. Hence, I bring together the literature on behavioral economics and the political economy of fiscal forecasting. I contribute to the literature that expands the concept of optimism into models of political decisions.

Modeling inefficiency as a preference for non-productive activities with short-term benefits and eventually lower capital accumulation, I show that strategic optimism tend to increase this inefficiency. To answer the question in the title, I conclude that, strategic optimism proxied by the revenue forecast errors is detrimental to long term structural investments. This result lends support to the golden rule of fiscal forecasting: be conservative.

The empirical evidence is established using local level (French departments) data. The natural extension of this study will be to test the theoretical implication at the national level.

3.A Capital to Current expenditure ratio

Figure A.1: Capital to Current expenditure ratio (Single department, 2004-2015)



3.B Descriptive statistics

Table B.1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Capital to Current expenditure ratio	1045	31.65	11.39	7.03	81.43
Belief	1045	-3.26	6.29	-29.78	27.68
Year before elections	1045	.18	.39	0	1
Election year	1045	.27	.45	0	1
Year after elections	1045	.27	.45	0	1
Left wing	1045	.53	.5	0	1
Terms in Office	1045	1.37	1.2	0	10
Government party	1045	.43	.5	0	1
Fiscal Pressure	1045	-.34	3.04	-16.95	17.45
Regional GDP growth	1045	1.87	2.44	-5.58	7.69
Unemployment rate	1045	8.91	1.88	4.2	16
Population growth	1045	.68	.95	-1.4	6.31

Sources: Institut National de la Statistique et des Études Économiques (INSEE); Census of Ministery of Finance and Ministry of Internal Affairs.

Chapter 4

"Oh dear! Oh dear! I shall be too late!" Popularity Gains as an Incentive to Legislate Frantically

'Either to catch the attention of public opinion or to respond to the demands of different social groups, political action has taken the form of a legislative gesticulation.'

Renaud Denoix de Saint-Marc, member of the French Constitutional Court, 2001.[2]

4.1 Introduction

A key characteristic in the definition of democracy is a continued responsiveness of the government to the preferences of the people (Dahl, 1971). In order to deliver public goods and services, the government needs to use resources and approve legislation. A basic question is then: what is the relation between legislative outcomes (i.e., the production of legal and regulatory texts) and government approval?

The Political Legislation Cycle theory predicts a peak of legislative production in the pre-electoral period, when the legislator focuses on voters' attention to be reelected (Lagona and Padovano, 2008; Brechler and Geršl, 2013; Padovano and Gavoille, 2017). This would lead to a serie of "last-minute" policy moves from the incumbent politician to

[2]Quoted by Gavoille (2015).

signal its competence to the electorate (as in Manzoni and Penczynski, 2017).[1] However, it is also often assumed that a newly elected politician should act fast enough, to benefit from a "honeymoon" effect to enforce the reforms on which she has built her electoral platform. This is notably the position Alesina et al. (2006) defend. Hence, with short time periods between successive elections (as is typical in OECD countries - see Aidt and Dutta, 2007), politicians would have an incentive to act as frantically as the Lewis Carroll's White Rabbit character quoted in the title, and produce laws as often as they can, although with a concentration around election times. This can be destabilizing because, even if law is an essential element of democracy, its variability can also be detrimental (Cooper, 2017).

But does this activism pay off? In Manzoni and Penczynski (2017)'s framework, this could be the case, especially if the incumbent is a low-quality one and thus has a stronger incentive to skew the debate towards her own agenda. François and Navarro (2017), in an empirical analysis of the prospects for French MPs, show that several parliamentary activities, especially bill-initiation, have a positive effect on their probability of being re-elected. Their result confirms the one obtained, e.g., by Bowler (2010) for UK MPs, or by Däubler et al. (2016) for Belgium. Interestingly, as the latter show that the electoral reward is larger if a bill is initiated closer from the election, it confirms that strategic considerations are present in MPs behavior.

However, in a presidential, or semi-presidential, system, it can be legitimately claimed that the legislative agenda is dominated by the Executive. Padovano and Gavoille (2017) show that, in the French case - which is a typical case in point, as Shugart (2005) explains, the legislative production cycle is clearly aligned with the Presidential one, and is even amplified when the two elections (Legislative and Presidential) coincidate. But, does this pay off for the Executive? To our knowledge, this question has not been addressed.

The contribution of the present article is thus to analyze the relations between the legal and regulatory production and the gains for the Executive. We assess these gains

[1]Manzoni and Penczynski (2017) propose a two-period electoral campaign model with two policy issues. In their model, an incumbent competes against a possibly competent challenger. They show that, due to information asymmetry, the incumbent can strategically release her statement early on the campaign trail and signal the importance of her signature isssue to the voters.

in terms of the popularity each member of the Executive (i.e., the President and the Prime Minister) benefits from, taking into account the electoral cycle. The literature on popularity functions is quite extensive,[1] although Kirchgässner (2016) argues that the main results generally confirm what Nannestad and Paldam (1994) noticed some twenty years ago. That is, popularity is strongly influenced by the economic context, although estimated coefficients vary considerably between countries and time periods. Our analysis is thus at the cross-roads of the one on determinants of politicians' popularity and of the one on Political Legislation Cycle, and aims at connecting these two strands of analysis.[2]

A distinct feature of this work is that we make use of a unique database, assembled by the Secrétariat Général du Gouvernement (France's Prime Minister Cabinet), which consists in a precise monthly count of the number of words published in the Journal Officiel every month, and sorted by domains of legislation. This has an advantage, compared with the extant literature, as it not only contains acts (i.e., laws voted by the Parliament, often based on the Executive's initiative), but also decrees and other regulation (with the exception of nominative appointments - related to the promotion of civil servants for example, and thus not necesarily reflecting a real policy decision). In other words, the data used in this study is related to the Executive's decisions (to publish a certain legal text, to explain its enforcement rules, etc.), while the literature generally focuses on legislative (i.e., Parliament) activity.

Using monthly data over the period 1990M7-2010M12 for popularity of the French President and Prime Minister, and for the enacted legal and regulatory production, we confirm that legislative activism is related to the electoral cycle, and show that it benefits more the President than the Prime Minister. However, we also show that a honeymoon effect is present, as beginning-of-term legislation tends to improve the politicians' popularity, but, interestingly, that it differs along the domains that law covers. Finally, if last-minute publication of legal and regulatory texts impacts popularity, it does so with

[1] See Berlemann and Enkelmann (2014) for a review, and Villalobos and Vaughn (2009) for the relation between public opinion and politicians' behavior.

[2] One could also draw a link with the literature on agendas and how governments define their priorities (see Baumgartner and Jones (2009) and Jones and Baumgartner (2005), respectively). However, we here focus more on how the public perceives the outcome of this process than on the process influencing governments' decisions itself.

differentiated effects (the Prime Minister not being impacted, while the President is). Our results also confirm the traditional view, according to which incumbents are always bestowed with favorable ratings when the economic situation is good (Nannestad and Paldam, 1994).

These findings thus indicate that popularity depends on legal and regulatory production, creating reasons to legislate frantically for a politician aiming at reelection and wanting to keep her popularity high enough. They also indicate that the Executive has strong incentives to strategically set the legislative agenda, possibly timing landmark texts during honeymoon periods, and more specific ones in the last months of their term, depending on the tone of the campaign. These results thus give an empirical support to Manzoni and Penczynski (2017)'s theoretical argument.

In order to explain the links between the above theoretical concepts and our operationalization of the various variables, as well as our research design and methodology, we proceed as follows. In the next section, we discuss the literature linking politicians' incentives to produce legislation in a timely manner. In section 4.3, we describe the institutional context and present the data. Section 4.4 presents the empirical model and discusses the results, while Section 4.5 concludes.

4.2 Theory: Time and Legal and Regulatory Production in a Presidential System

For a politician, time is both a constraint and a resource. An agenda-setter may appear in a good position to manage the clock, although she has to deal with the fact that, in a Presidential system, elections intervene at exogenously fixed dates, and will impose a constraint on her too. As a consequence, as stated by Fleischer (2013), time is both an external condition (i.e., a constraint to be dealt with) and an internalized feature of organizational behavior (i.e., a resource to be managed). Several studies have looked at how legislative actors integrate time as a constraint on their behavior (see, e.g., Doring, 1995), but time is more generally considered as a resource for the agenda-setter. That is,

time is part of the strategy deployed by an agenda-setter to select an issue (Jones and Baumgartner, 2005), to which she comes up with an ad-hoc solution. As a consequence, timing is crucial and feeds the dynamics of policy (and, in particular, legal and regulatory) processes.

Schedler and Santiso (1998) also insist on the strategic use of time in democratic processes, citing in particular sequencing and rhythm as "susceptible to strategic calculation", while Gibson (1999) develops a theory of political timing. He argues that the timing of political "events" over which politicians have some discretion is non-random, inducing that politicians do attempt to influence the timing of events in such a way as to maximize the political benefits or minimize the political costs for themselves.[1] Gibson (1999) considers four behavioral hypotheses, which will distinguish the way discretion will be exercised by politicians, and the resulting timing of events. Gibson (1999) labels these behaviors as "packaging, splitting, highlighting, and phasing". In the present study, we will particularly insist on the last one, which best summarizes the strategic use of the legal and regulatory production process by the agenda-setters we will consider (i.e., the President and the Prime Minister in a Presidential system).

Lagona and Padovano (2008) look further at the incentives of politicians, building their case upon the economic theory of legislation. According to the latter, any legal text redistributes property rights, even though it does not apparently touch on economic issues (taxation, spending, etc.). This means that legal and regulatory outcomes will be supported by some parts of the constituency, and opposed by others. Hence, according to this line of thought, politicians will supply pieces of legislation when doing so has the highest political return. As a consequence, time will be an essential part of the politician's reasoning, and the dynamics of the supply of legislation should follow a specific pattern, the one suggested by the political business cycle theory. In other words, the production of laws should be concentrated at the end of the legislature, when voters bring most attention, and where it is most important for a politician to signal herself. Of course, as stated by Lagona and Padovano (2008), several factors will be taken into account by the

[1] In a different context, the issue has been shown to be important by Durante and Zhuravskaya (2017).

agenda-setter, and it appears that the larger the government support in Parliament and the more stable it is, the more legislative production should be located at the end of the (expected) length of the legislature.

Are these effects larger in Presidential systems? Cella et al. (2017) look at how constitutional structures shape politicians' behavior through the different incentive schemes at work, comparing Parliamentary and Presidential systems. They show that the Parliament responds to the incentive scheme better in Presidential systems, due to less uncertainty that legislators face over their term limit. The leeway is thus stronger for the agenda-setter(s) in Presidential systems, and their influence on the legislative process larger. As a consequence, their degree of accountability will be larger for the voters, and their popularity levels more related to the production of laws than in other systems.[1]

All in all, then, several lessons emerge from the literature reviewed. First, time matters in political economy analysis. Second, economic and electoral incentives converge to induce a pattern of legal production that conforms with the political business cycle, i.e., more production should be realized towards the (expected) end of a mandate. Third, this pattern should be even more present in Presidential systems, and voters should take into account the production of legal texts when they vote in favor, or sanction, the President and the Prime Minister.

A potential counter-argument could be that legislators (i.e., deputies or senators) should be the ones considered, and thus sanctioned, by voters, as they are the official producers of laws. However, our dataset of legal texts is larger than only laws produced by legislators, as it makes use of the publication record of legal texts, including laws, decrees and other legal texts necesary to implement and / or enforce any voted law. These texts can be promoted and thus published by the Executive when it suits better her own agenda. It is true that, sometimes, deputies are bill-initiators, an activity that François and Navarro (2017) show as having a positive effect on the respective MPs' probability of running again and staying in office. However, Boelaert et al. (2017) show

[1] Of course, this does not mean that timing is not an issue in Westminster-type systems, as John and Ward (2001), for example, reveal, showing that some transfers can be strategically targeted in a context with endogenous elections.

that the Executive is often acting behind some bills officially promoted by deputies (which, de facto, shows the strong hand of the Executive, and, aside of this, reinforces the role of agencies in the whole legislative process (Villalobos, 2013)). Moreover, as Gavoille (2017) shows that, for French deputies, even "ghost" deputies (i.e., deputies who do not have any official recorded activity over a whole year, in his definition) can be reelected. This also characterizes Italian deputies, who act in a strong Parliamentary system (see, Marino and Diodati, 2017). Hence, it is safe to proceed, and look at how the popularity of Executive leaders is related to the pattern of legal and regulatory production.

4.3 Institutional context and data

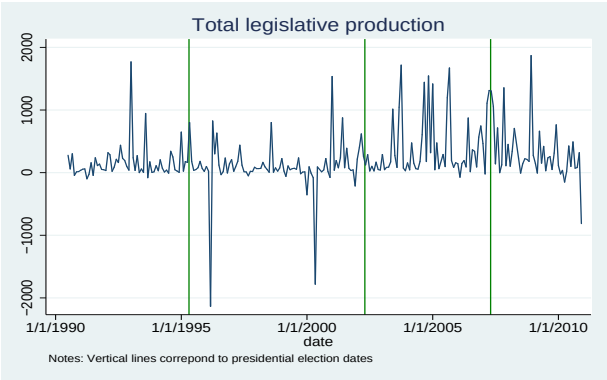
The current political system in France originated in the constitution of Oct 4, 1958. It consists in a semi-Presidential system with two Executive heads, the President and the Prime Minister, and two chambers at the legislative branch, the National Assembly and the Senate (the latter being the upper chamber). The President is the head of the state. The President is the key figure of the political system, even more so since 1962 with the election of the President via direct universal suffrage. Since 2002, he is elected for five years.[1] Unlike in the United States, there is no limit to the number of mandates for the President. He appoints (and, de facto, can dismiss) the Prime Minister, who is accountable before the National Assembly, and leads the government. Modifications of the government can either be related to the firing by the President of a Prime Minister (or to a voluntary dismissal of the latter), or to a change by the Prime Minister in the ministers belonging to the government ("remaniement ministériel"). Finally, the legislative output is a joint production of the government and the two legislative chambers, but the Executive can strongly influence the legislative agenda (Boelaert et al., 2017).

Our data set for the legal and regulatory output is a unique compilation, that has been carried out by the Secrétariat Général du Gouvernement, of the whole set of legal texts produced each month, with observations covering a period that spans from 1990M7 until 2010M12. The compilation was part of a project designed to quantify the production

[1]Previously, the president's term length was of seven years.

and nature of the produced law, in particular to analyze the (destabilizing) effects of the inflation of legal texts. Unfortunately, the project and the collection of the corresponding data have been discontinued after 2010M12. To our knowledge, this dataset has never been used, although it contains unique features: (i) it measures the variation of the number of articles and words in each type of legal text produced by the Government and the National Assembly (i.e., it not only contains the laws but also their "textes d'application" - e.g., decrees, the lower level texts that permit the enforcement of the principles adopted in the law and whose date of publication depends on the Executive's will) and (ii) the texts are attributed to one of the "codes" that compose the French legal arsenal (e.g., the "code rural", "code civil", "code des impôts"). We will make use of the two dimensions in what follows, to assess if the electorate considers only the whole amount of texts, or if some domains of the law attract more attention. One can think, for example, that modifications of the texts surrounding the regulations of a gavage farm (in the "code rural") are less important for the general public than, e.g., modifications of the immigration law, or the tax code, especially if the Executive decides to issue such a text during the electoral campaign, for example. Figure 4.1 displays the total legal and regulatory production over our sample period, from which we deduce the number of monthly legal texts that have been created by merging categories and by computing the monthly production of legal texts during the 246 months that are included in the dataset.

Figure 4.1: Legislative production



More precisely, in the empirical analysis, we consider first the global monthly variation of articles in the legal texts and, second, the monthly variation of articles for several legal

codes (economy, budget, pensions, defense, internal affairs, labor/employment, justice, health, agriculture and environment). Some codes could not be considered due to a very small number of observations (i.e., very few changes), and have thus been regrouped with others, related, to form larger relevant domains. For example, we have grouped social security and military pensions, to form a larger category of legal texts, designed as pensions. Our regroupment is described in the Appendix. It has to be noted that the measurement of the legal texts changes is the changes in the number of articles for each legal text in each category. As a consequence, this variable can take negative values, in particular in cases of a repeal of the law (deletion of some articles).

Since we aim at assessing the impact of legal and regulatory production on the government heads' degree of approval, and since the government can act opportunistically, the indicator to be chosen as measuring this independent variable should exhibit two properties: first, it must give information about the magnitude of the distortion, and second, since the governments differ in their time in office, it must wash out potential size effects. We thus compute the following indicators:

$$PLP_{x,t} = \frac{\mid Sample\,Mean - Monthly\,Production_{x,t} \mid}{\sum_{t=0}^{T} Monthly\,Production_t} \tag{4.1}$$

where PLP is the Percent deviation of Legal texts Production, per month and per Prime Minister; x is the legal domain considered, and T the duration of the government. The sample mean is computed over the whole sample period for the total legislative production (and for specific domains when these are considered). We also create a dummy variable, *Repeal,* which takes the value 1 in case of a repeal of the law (that is, a negative number of changes), and 0 otherwise. In addition, we compute an interaction variable as follows:

$$Unknit_{x,t} = PLP_{x,t} * Repeal_{x,t} \tag{4.2}$$

$Unknit_{x,t}$ is a variable designed to capture the fact that the electorate's attention could be influenced by the decision by the President or the Prime Minister to undo decisions taken by previous governments.

Then, in order to assess if the timing of legal and regulatory production has an impact, we differentiate the honeymoon period from the "last-minute" period. We thus interact the monthly legislative production with, first, a count variable H (for "honeymoon") defined over the first three months of a Prime Minister and President's term and that attributes a decreasing weight to each of the first three months. In other words, the variable takes the value of 3 in the first month of each term, 2 in the second, and 1 in the third month, receiving a value of 0 thereafter.[1] Concerning the last minute effects, they are captured by a discrete variable, named *last_ month*s, attributing a decreasing weight to each of the last twelve months before presidential elections for the President, and an increasing weight to each of the last three months before the dismissal of a Prime Minister. Hence, *last_ month*s receives a value equal to 12, twelve months before the presidential election, and 3 before the dismissal of a Prime Minister, and then declines by one unit each month up to the end of the period, and takes a value 0 during the other periods. Note that the asymmetry between the honeymoon and last-minute effects is due to the importance attributed to the "100 days" at the beginning of a politician's term, and to account for the electoral campaign period. Moreover, Presidents and Prime Ministers do not have the same horizon for the last-minute effect variable, reflecting the greater uncertainty in a Prime Minister's mandate (as the President's decides when to fire a Prime Minister).

We analyze the link between the legislative outcomes and the popularity of the two heads of the Executive branch. The dependent variables we consider are thus the President and the Prime Minister approval rates. These were obtained from Kantar Sofres.[2] We calculate the popularity index for each of the two heads of the Executive, where the index is a ratio of the percentages approving the Executive to the sum of the percentages disapproving and the undecided.[3] A plot of the popularity index series and the evolution of the unemployment rate and GDP growth, two of economic variables found to affect

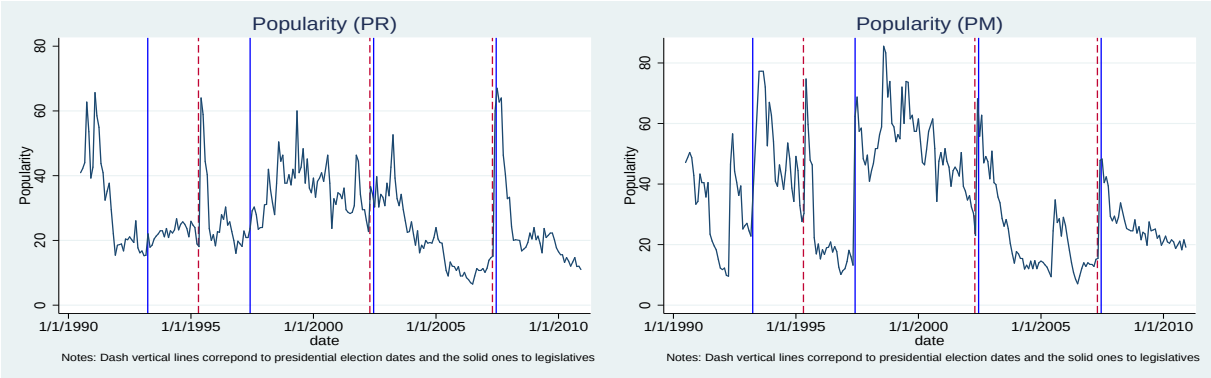
[1] For an exemple of the use of this type of discrete variable, see, e.g., Veiga and Veiga (2004).

[2] In about the last four decades, the Kantar Sofres has periodically asked respondents whether they approve or disapprove of the incumbent Executive's handling of its job. http://www.tns-sofres.com/cotes-de-popularites#field_accordeondataviz-president.

[3] Including the undecided in the denominator is a way to account for the fact that the number of respondents declaring they neither approve nor disapprove tend to decrease over time. Not considering them does not change the thrust of our results, as the series are strongly correlated.

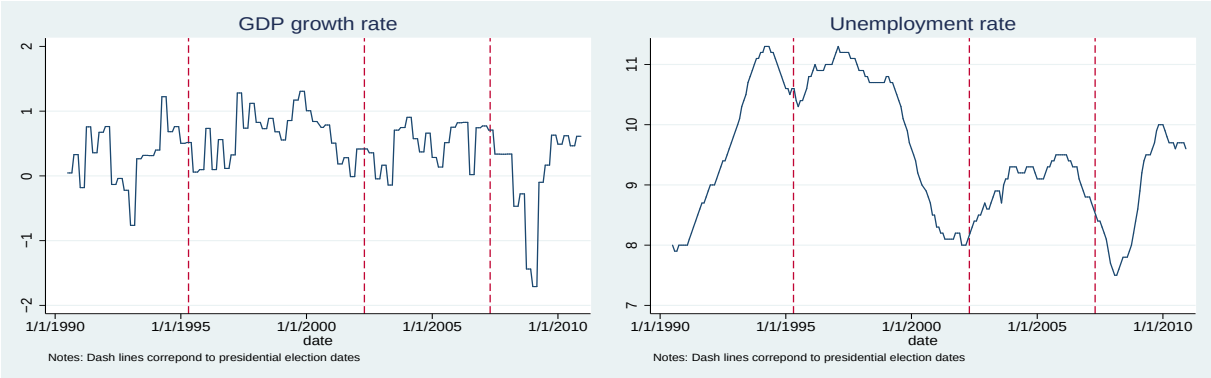
the popularity of executives in the literature, is presented in Figure 4.2 and Figure 4.3. It appears from Figure 4.2 that approval ratings tend to decrease during the first years of the term before increasing a few months before the electoral deadline. This is in line with the conventional wisdom, which recognizes the existence of (un)popularity cycles. In order to avoid spurious regressions, we run unit root test on these variables. The results of this test (see Table 4.1) indicate that the series are stationary in level.

Figure 4.2: Popularity indexes



Source:Authors' calculations based on Kantar Sofres

Figure 4.3: GDP growth and Unemployment rate



Source: INSEE and ministry of Internal Affairs

Table 4.1: Augmented DF stationarity test results

Variables	Empirical t-value	Critical t-value	Number of lags	With		Decision
				Intercept	Intercept and Trend	
Popularity(PM)	-14.99	-2.87	1	Yes	No	I(0)
Popularity(PR)	-15.11	-2.87	1	No	Yes	I(0)
GDP growth	-15.71	-2.87	1	No	Yes	I(0)
Unemployment rate	-12.59	-2.87	1	No	Yes	I(0)

Source: Authors' calculations

CHAPTER 4. "OH DEAR! OH DEAR! I SHALL BE TOO LATE!" POPULARITY GAINS AS AN INCENTIVE TO LEGISLATE FRANTICALLY

The Prime Minister is under the authority of the President. However, France has known several episodes during which the President has faced a Prime Minister coming from another side of the political spectrum. Such episodes are called "cohabitation", and are de facto periods of divided government. They arise when there is a discrepancy between the presidential election and the deputies' one, if legislative elections are won by a party belonging to the opposite side of the political spectrum than the President's. If his party loses the legislative elections, the President must select a Prime Minister of the winning party (or one able to form a governing majority). In such occasions, the Prime Minister becomes the principal head of the Executive. As for periods of divided governments in the United States, one can expect that such periods slow the legislative process, and production of legal texts (Rogers, 2005), as the internal fighting inside the Executive branch conducts to a gridlock (see, e.g., Alesina and Rosenthal, 1995, Coleman, 1999, or Bowling and Ferguson, 2001).[1] This is taken into account by the dummy variable "cohabitation" (equal to 1 in such periods, 0 otherwise). This specification helps us to test the responsibility hypothesis. For instance, it will allow checking whether the President is held partially or totally responsible for the economic situation during cohabitation.

Another important variable of our dataset is the support each Prime Minister can benefit from inside the National Assembly. If the Prime Minister only holds a short majority, or is a minority leader, the production of legal texts could be slowed. We thus use, for each legislature (i.e., for the length of a deputy's mandate), a measure of support using the deputies' names and the party to which they belong. Data comes from the Assemblée nationale website.[2] Five legislatures took place during our period of study (the ninth - part of-, tenth, eleventh, twelfth and thirteenth - part of -). We create a variable that measures the length of the term of each of these legislatures. The following figure displays the different political parties for each of these terms and points out the different majority of parties who run the Assembly, and can support the government's

[1] Krehbiel's (1998) view of the gridlock, that it is generated by internal feudings inside the Congress, does not depend on the presence of a divided governement. Such a view is famously contested by Cox and McCubbins (2005). The debate is not yet settled but, compared to the French case, both views tend to put political parties (not the Executive) at the forefront of the agenda-setting game.

[2] $http://www.assemblee-nationale.fr/$.

legal agenda.

Figure 4.4: Parties and Majority description in French Legislature, from June 1990 to December 2010.

Legislatures	IX	Elections	X	Elections	XI	Elections	XII	Elections	XIII
Dates		.03/93		.05-06/97		.06/02		.06/07	
	S		RPR		S		UDF		UMP
	UDC		UDF		RCV		UMP		NC
	C		C		C		S		GDR
	RPR		S		DL		C		SRC
	UDF		NI		RPR		NI		NI
	NI				UDF-Alliance				
					NI				

The pink specifies a left-side coalition with majority in the Assembly.
The blue specifies a right-side coalition with majority in the Assembly.

C	Communistes	**RCV**	Radical Citoyen Vert
CR	Centre Républicain	**RPR**	Rassemblement Pour la République
DL	Démocratie Libérale	**S**	Socialistes
FN	Front National	**SRC**	Socialiste Radical et Citoyen
GDR	Gauche Démocrate et Républicaine	**UDC**	Union Du Centre
NC	Nouveau Centre	**UDF**	Union pour la Démocratie Française
NI	If they are not registered in any group	**UMP**	Union pour un Mouvement Populaire

Source: Assemblée Nationale

4.4 Empirical evidence

4.4.1 Method

In this subsection, we describe the specifications of the equations used to explain approval ratings. According to the existing literature, popularity is modelled as a function of economic, political and personal characteristics. Therefore, our initial specifications are:

$$\begin{cases} Pop\_PM_t = \alpha_0 + \alpha_1 conf_{PM,t-1} + \alpha_2 seats1st + \alpha_3 cohab_t + \alpha_4 unemp_{t-1} \\ \qquad\qquad + \alpha_5 tcpib_{t-1} + \alpha_6 PLP_{t-1} + \alpha_7 H_t + \alpha_8 lastmonths\_PM_t + \varepsilon_t \\ Pop\_PR_t = \beta_0 + \beta_1 conf_{PR,t-1} + \beta_2 seats1st + \beta_3 cohab_t + \beta_4 unemp_{t-1} \\ \qquad\qquad + \beta_5 tcpib_{t-1} + \beta_6 PLP_{t-1} + \beta_7 H_t + \beta_8 lastmonths_t + \upsilon_t \end{cases} \tag{4.3}$$

where Pop_PR is the popularity index of the President and Pop_PM the one of the Prime Minister. In both equations, we introduce the lagged approval rate in order to take into account the degree of opinion persistence.

The variable *seats1st* is the parliamentary seat share of the Prime Minister's party. For an executive to act, it first needs to pass laws in the assembly. Thus, this variable is used to assess the willingness of the electorate to deliver a majority to the government. Nonetheless, the executive heads are differently evaluated in case of cohabitation. Thus, the sign of the variables *seats1st* and *cohabitation* are not fully known ex-ante. Therefore, the sign of α_2 and α_3 (respectively β_2 and β_3) has to be settled empirically.

According to the conventional wisdom, the main channel trough which politicians obtain popular support is by delivering (or being considered as responsible for) economic performance. This link relies on the reward-punishment hypothesis proposed by Goodhart and Bhansali (1970). According to this assumption, voters examine the economic record of the incumbent, essentially relying on two major indicators of economic performance: unemployment and inflation. They then reward (or punish) the incumbent in direct proportion of her success in keeping either or both of these economic undesirables at relatively low levels. In short, it is hypothesized that governing parties gain support as unemployment and inflation fall, and lose support as they rise. In other words, there should be a negative relationship between government support, on the one hand, and unemployment and inflation, on the other hand ($\alpha_4 < 0$; $\beta_4 < 0$). However, as inflation has been kept under control, and was essentially stable at a very low level (2% or less) during our sample period in France, we do not include it in our regressions. Instead, we include the unemployment rate and the GDP growth rate. As voters tend to reward incumbents when the economy is in a good shape, we expect economic growth to have a positive impact on the executive appraisal ($\alpha_5 > 0$; $\beta_5 > 0$).[1]

Regarding the legal and regulatory production (PLP), we hypothesize that the executive's likelihood of appealing to the public should be positively correlated with the popularity of her policy proposal. As stated above, this makes the agenda setting more important for a rational policymaker. In what follows, we consider specifications which add a number of interaction variables between the percent legislative production, the honeymoon effect, and the last months variable in both equations, and separate the anal-

[1]Needless to say, we use instantaneous, not revised, data in our estimates.

ysis, looking first at the whole production of legal texts, and then at the production by sub-domains. As such, we control for the issue salience, which may differ from period to period along the political cycle.

We now turn to our estimation strategy. Besides the stationarity analysis (see Table 4.1), it is also important to study the time series structure, testing if our dependent variables follow an ARIMA process. Since our variables are stationary, then they can only follow ARMA processes. We apply the Box-Jenkins methodology for model selection. Autocorrelations and partial correlations of popularity indexes suggest autoregressive processes of order one, AR(1). From figure B.1, the correlation at lag 1 is significant and positive, and the PACF shows a sharper "cutoff" than the ACF. In particular, the PACF has only one significant spike, while the ACF has 8.

Our analysis relies on a two-equation system (see equation 3), which could be estimated by the seemingly unrelated regression (SUR) method with AR components. Several previous studies of popularity functions also make use of the SUR methodology (see, e.g., Veiga and Veiga 2004; Auberger 2011; Fox 2009). This is relevant, as one can expect that any unexpected disturbance in a particular month will simultaneously affect the President and the Prime Minister. Thus, the error terms in the two equations will be contemporaneously correlated. However, we here face a potential problem of endogeneity as regards the independent variable *PLP*. In order to cope with this problem, we use the Generalized Method of Moments estimator. GMM estimation is based upon the assumption that the disturbances in the equations are uncorrelated with a set of instrumental variables. In our estimations, the set of instrumental variables of each equation includes all exogenous right-hand side variables of both equations and two-period lag values of *PLP*. The Hansen test of over-identifying restrictions allowed us to accept the validity of these variables as instruments.

The residual correlation coefficient at the bottom of results' tables indicates that there is non negligible correlation between the error terms of the estimations for the Prime Minister and the President. Thus, it was appropriate to estimate the equation as a system.

Tables 4.2 and table 4.3 display the econometric results. In table 4.2, we present different specifications using total legislation production. In model 1, we consider standard economic determinants of popularity controling for honeymoon effects. In model 2, we add last months of terms instead of honeymoon periods. Honeymoon and last months indicators are simultaneously introduced in column 3. From columns 4 to 8, we add to the preceding our variable of interest (the legislative production) and its interactions with honeymoon and last months indicators. Precisely, column 6 contains interactions with honeymoon indicators while column 7 contains interactions with last months. The complete model is presented in column 8. In addition, we run the complete model over specific legislation as shown in Table 4.3.

Table 4.2: Determinants of Executive's popularity (All domains)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	M1	M2	M3	M4	M5	M6	M7	M8
Equation: Prime Minister								
Popularity lagged (PM)	0.244***	0.278***	0.225***	0.225***	0.226***	0.210***	0.207***	0.227***
	(0.0780)	(0.0765)	(0.0768)	(0.0765)	(0.0766)	(0.0764)	(0.0764)	(0.0758)
Share of PM's deputies	-0.214	-0.314*	-0.199	-0.168	-0.155	-0.162	-0.123	-0.133
	(0.178)	(0.171)	(0.190)	(0.190)	(0.188)	(0.173)	(0.172)	(0.168)
Cohabitation	19.97***	18.05***	21.15***	21.72***	21.88***	21.43***	22.22***	20.83***
	(4.467)	(4.065)	(4.658)	(4.674)	(4.639)	(4.140)	(4.096)	(3.994)
Unemployment rate	-0.586	-0.830	-0.280	-0.312	-0.380	-0.685	-0.524	-0.664
	(0.980)	(0.979)	(0.988)	(0.987)	(0.978)	(0.900)	(0.909)	(0.884)
GDP growth	-2.187	-1.117	-2.977	-3.027	-2.788	-3.181	-3.611	-3.361
	(2.658)	(2.079)	(2.654)	(2.660)	(2.631)	(2.240)	(2.239)	(2.188)
Honeymoon_PM	6.668**		6.464*	6.614**	6.352*	6.045*	6.562**	6.286**
	(3.086)		(3.299)	(3.313)	(3.294)	(3.086)	(3.108)	(3.177)
Last months (PM)		-8.043***	-7.585***	-8.093***	-8.069***	-7.372***	-7.327***	-7.754***
		(2.001)	(2.114)	(2.017)	(2.036)	(1.941)	(1.934)	(1.860)
Percent legis production				0.195	0.195	0.122	1.320***	-3.480***
				(0.174)	(0.173)	(0.125)	(0.327)	(1.142)
Honeymoon_PM*						1.274**		4.408***
Percent legis production						(0.639)		(1.143)
Last month (PM)*							-1.162***	3.612***
Percent legis production							(0.379)	(1.148)
Repeal					-4.759**	-3.984*	-3.748	-4.454*
					(2.300)	(2.337)	(2.340)	(2.387)
Unknit					57.36**	52.68*	50.59*	55.96**
					(25.09)	(27.34)	(27.16)	(28.44)
_cons	36.45**	44.73***	34.51**	32.98*	32.89**	36.70**	32.98**	34.89**

	(16.13)	(15.47)	(16.82)	(16.84)	(16.58)	(15.17)	(15.22)	(14.83)
Equation: President								
Popularity lagged (PR)	0.0254	0.0393	0.0789	0.0754	0.0732	0.0713	0.0704	0.0727
	(0.0515)	(0.0623)	(0.0521)	(0.0526)	(0.0528)	(0.0531)	(0.0517)	(0.0541)
Share of PM's deputies	-0.741***	-0.733***	-0.668***	-0.657***	-0.629***	-0.641***	-0.674***	-0.642***
	(0.134)	(0.148)	(0.137)	(0.137)	(0.136)	(0.137)	(0.135)	(0.136)
Cohabitation	1.653	3.987*	4.592**	4.756**	4.955***	4.246**	3.875**	4.018**
	(1.692)	(2.064)	(1.914)	(1.897)	(1.888)	(1.784)	(1.756)	(1.750)
Unemployment rate	-5.067***	-5.141***	-4.755***	-4.779***	-4.718***	-5.175***	-5.234***	-5.151***
	(0.740)	(0.773)	(0.750)	(0.743)	(0.729)	(0.695)	(0.736)	(0.719)
GDP growth	3.764***	2.959***	3.297***	3.329***	3.236***	3.103***	3.151***	2.942***
	(0.961)	(1.058)	(1.028)	(1.024)	(1.017)	(0.986)	(0.982)	(0.971)
Honeymoon_PR	13.84***		12.23***	12.18***	12.57***	11.70**	14.55***	10.49*
	(4.638)		(4.335)	(4.339)	(4.270)	(5.514)	(4.441)	(5.560)
Last months to presid elec		-0.851***	-0.889***	-0.885***	-0.872***	-0.830***	-0.902**	-0.873**
		(0.209)	(0.190)	(0.191)	(0.193)	(0.203)	(0.360)	(0.357)
Percent legis production				0.107	0.114	0.0736	0.0867	0.0669
				(0.134)	(0.135)	(0.101)	(0.113)	(0.0975)
Honeymoon_PR*						0.954**		1.037**
Percent legis production						(0.414)		(0.423)
Last month to presid elec*							1.460	1.165
Percent legis production							(6.049)	(5.988)
Repeal					1.470	2.010	2.029	1.603
					(2.845)	(2.913)	(2.899)	(2.864)
Unknit					18.22	19.28	18.68	19.72
					(38.40)	(37.49)	(37.01)	(36.84)
_cons	110.3***	110.4***	101.8***	101.4***	99.09***	104.4***	106.7***	104.3***
	(13.00)	(13.13)	(13.33)	(13.37)	(13.05)	(12.72)	(13.05)	(12.85)
Sample Size	225	225	215	215	215	215	215	215
J-stat	4.34	7.39	3.31	3.40	3.35	3.99	6.62	5.69
Hansen P	0.23	0.12	0.35	0.33	0.34	0.26	0.25	0.34
Residual Correlation	0.45	0.45	0.42	0.44	0.44	0.44	0.42	0.44

Standard errors in parentheses. Significance levels:* p<.1, ** p<.05, *** p<.01
The legislative production considered is relative to all domains

4.4.2 Standard determinants of Executive popularity

As can be seen from Table 4.2, a first result suggests that the Prime Minister's approval rating is relatively persistent over time. The coefficient regarding the first lag is about 0.23 and is strongly statistically significant (at the 1% level). However, this is not the case for the President's approval rating, as the lagged level of popularity is not significant. Another

important difference between the two heads of the French Executive is that, with respect to the standard economic variables that influence popularity, only the President's popularity is influenced by unemployment and GDP growth (respectively) in our framework. As can be inferred from Table 4.2, an increase by 1 percentage point of the unemployment rate reduces the approval rating of the President by 5.23 percentage points (Model 7). Although this result differs from the ones obtained by, e.g., Lewis-Beck (1980) (who shows a significant and negative influence of unemployment figures on both the President's and Prime Minister's popularity over the 1960-1978 period), it stands in line with the most recent estimates provided by Gerstlé and François (2011) - who show a significant negative influence of unemployment on the President's popularity (over the 2007-2010 period, i.e., the end of our the period under review here).

An important political variable is the share of support the political agenda of the Executive can benefit from inside the Assembly. On this point, it can be noticed that the share of MPs belonging to the Prime Minister's majority negatively influences the popularity of both Executive heads. However, although the coefficient is not significant for the Prime Minister, it is strongly significant in the President's popularity equation. This result confirms the semi-presidential nature of the regime, and the point made by Cella et al. (2017) about the nature of responsibility in this type of regime. The result thus stands in line with the responsibility hypothesis, as it means that voters penalize the President, whom they consider as accountable in this type of regime: voters gave the President a majority to run his programme, and he is even more considered accountable as the size of the majority is large.[1]

Our estimates also reveal that cohabitation periods benefit to both heads of the Executive, but they clearly are more beneficial to the Prime Minister than to the President. This result is interesting because, although the Prime Minister de facto can be considered as leading the agenda, which could induce the electorate to scapegoate her (this is the perspective adopted, for example, by Auberger (2011)), it is also often recognized that exercising power with a President who is a declared opponent is a more complex exercise,

[1] We ran regressions using a dummy variable "majority" instead of the share of MPs. The results are qualitatively similar and are available upon request.

acknowledged by voters. Hence, our estimates tend to favor the second interpretation, with the Prime Minister benefiting, in terms of popularity, from cohabitation episodes, a result that confirms the one obtained by Padovano and Gavoille (2017). As for the size of the effects, it appears that, everything being equal, cohabitation increases by about 4% the President's popularity, and about 20% for the Prime Minister's one (see Model 8 in Table 4.2). All in all, then, this first set of redults reveals that the degree of accountability is higher for the President than for the Prime Minister.

The literature on executives' popularity highlights the existence of a pattern: during the first months of their term, heads of state or government tend to benefit from a relatively high level of approval before the "honeymoon" ends and their popular appeal begins to wane (Mueller, 1973). In the French institutional context, given that the President nominates (and thus, if only sometimes implicitly, can dismiss) the Prime Minister, discrepancies are generated between their respective terms. Hence, as described above, we introduce two "honeymoon" variables, one for the President and the other for the Prime Minister, defined with regard to each of their respective beginning of term. The results, as can be seen in Table 4.2 , indicate that the honeymoon effect benefits both the Prime Minister and the President, with a higher weight for the latter. This probably reflects the strong personalization effect of the President's office in France, elected by universal suffrage, while the Prime Minister is appointed by the President. Finally, for both, the last months of their mandates weigh negatively on the popularity levels, revealing a "fatigue" from the electorate that translates into an erosion of both political capital.

4.4.3 When (and who) does it pay to legislate?

We now turn to our main variable of interest, namely the legal and regulatory production. As Table 4.2 shows, the variable itself (defined as the Percent deviation of Legislative Production per month and per Prime Minister) does not influence the two approval ratings we consider by itself. Hence, it seems that legislating, by itself, does nothing to improve popularity (although the coefficient is positive, it is not significant). However, when considered in interaction with the timing of the political cycle, in particular during the

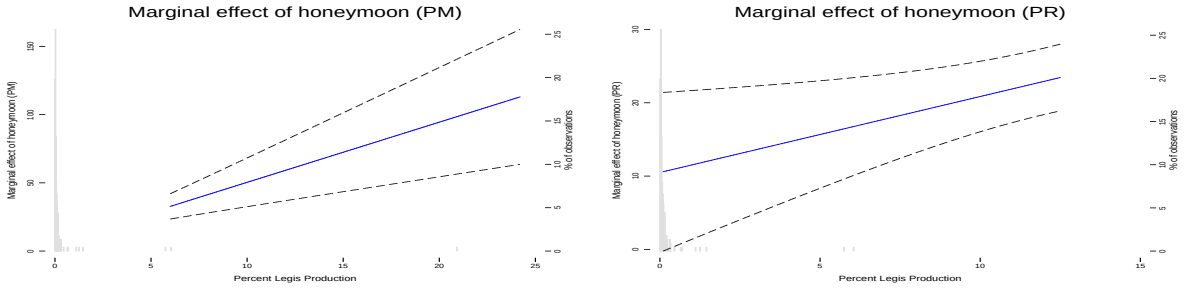
beginning of the terms, there is a significant and positive effect. In model 6, for instance, a 1 percent increase in legislative output during the honeymoon period tends to increase the popularity of the Prime Minister and the President by, approximately 1% on average. As the average popularity level stands below 50% (see Table 1), such a gain is not to be neglected. This is even more so for the President, as the coefficient related to the interaction of the two variables is smaller in his case with, on average, a lower popularity (see Table 1 and Figure 4.2). Hence, if legal activism pays off, it mostly does so in the beginning of a mandate and is more beneficial to the Prime Minister.

The pattern is less obvious when we look at last-minute policies. As models 7 and 8 show, the coefficient on the interaction between the legal and regulatory production and the last-months of a mandate is not significant in the case of the President, but changes sign in the case of the Prime Minister (compare model 7 to model 8 in 4.2). Looking at the marginal effects, however, allows clarifying the results.[1] The right side panel of Figure 4.6 confirms the non-significance of the "last-minute" production of legal texts on a President's popularity. However, the left side panel illustrates how the last-minute's marginal effect is increasing with legal production in the case of the Prime Minister. Hence, while the honeymoon effect has a similar - positive - impact for both heads of the French Executive (see Figure 4.5), the pattern is clearly different for the last-minute measures (Figure 4.6). On average, the Prime Minister does benefit from a late production of legal texts (although the marginal impact is inferior to the honeymoon period). It thus appears from our results that the electorate does not punish late-activism. Acting late may be considered as a signal of competence, or as a bold-headed attempt to enforce one's agenda,[2] and is rewarded by the public.

[1] To be precise, we plot the marginal effects of honeymoon (Figure 4.5) and of last months effects (figure 4.6) both for the Prime Minister and the President, on the basis of the results presented in column 8 of Table 4.2.

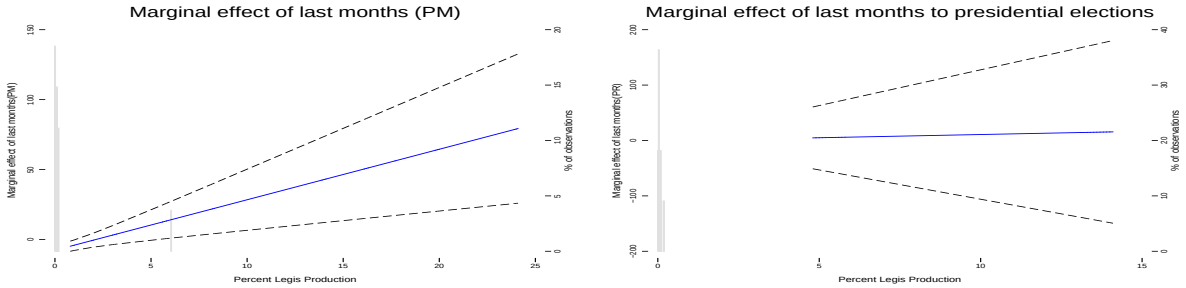
[2] Unfortunately, our data forbids exploring further these possibilities, to disentangle which interpretation should be favored, and we thus have to leave this as a future research avenue.

Figure 4.5: Honeymoon marginal effects (All domains)



Source:Authors' calculations

Figure 4.6: Last minute policies (All domains)



Source:Authors' calculations

According to the Political Legislation Cycle theory, a peak of legislative production is to be expected in the pre-electoral period, when politicians want to send fresh signals to the electorate. Our results show that voters are not unaware of these incentives, and tend to reward a politician that acts early on, while late policies do not help a lagging politician to improve her popularity records. The nuance we bring is that, in the French case, i.e., a semi-Presidential regime with a strong President and a (relatively) weak Prime Minister, the latter will be rewarded if she implements late-minute policies. The difference comes from the built-in fragility of the Prime Minister in this type of regime, who can be fired by the President at will, and whose last-minute decisions can be considered as signaling some "valence", a move that can be appreciated positively by voters (Gouret and Rossignol, 2016).

4.4.4 Splitting legal production by domains

Table 4.3: Determinants of Prime Minister's popularity (specific domains)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
	Pensions	Immig	Justice	Int_Aff	Defense	Agri	Env	Eco	Labor	Tax
Equation: Prime Minister										
Popularity lagged (PM)	0.17**	0.24***	0.17**	0.19**	0.19**	0.16**	0.19**	0.19**	0.19**	0.18**
	(0.08)	(0.08)	(0.08)	(0.07)	(0.07)	(0.08)	(0.08)	(0.07)	(0.07)	(0.07)
Share of PM's deputies	-0.02	-0.21	0.00	-0.01	-0.01	0.04	-0.02	-0.00	-0.03	0.01
	(0.17)	(0.22)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)	(0.17)
Cohabitation	26.00***	18.43***	25.81***	26.43***	25.77***	27.19***	25.37***	25.72***	25.24***	25.86***
	(3.85)	(4.70)	(3.79)	(4.00)	(3.89)	(3.89)	(3.95)	(3.94)	(3.88)	(3.90)
Unemployment rate	-0.75	-1.08	-0.58	-0.53	-0.59	-0.97	-0.68	-0.60	-0.71	-0.55
	(0.89)	(0.98)	(0.91)	(0.90)	(0.89)	(0.92)	(0.89)	(0.89)	(0.87)	(0.89)
GDP growth	-5.07**	-2.18	-4.64**	-5.13**	-4.87**	-4.76**	-4.70**	-4.79**	-4.51**	-4.80**
	(2.08)	(2.73)	(2.05)	(2.07)	(2.07)	(2.06)	(2.14)	(2.13)	(1.97)	(2.06)
Honeymoon_PM	7.22***	4.90	7.21***	7.53***	7.22***	7.24***	7.20***	7.13***	7.10***	7.20***
	(2.56)	(3.35)	(2.73)	(2.56)	(2.63)	(2.62)	(2.68)	(2.55)	(2.57)	(2.53)
Last months (PM)	-7.51***	-10.58**	-7.46***	-8.44***	-8.04***	-8.13***	-8.02***	-8.02***	-7.86***	-7.88***
	(1.87)	(4.55)	(1.91)	(1.91)	(1.91)	(1.77)	(1.86)	(1.90)	(1.86)	(1.85)
Percent legis production	0.10	-1.04**	6.52	0.87	2.21	14.71*	1.52	1.39	2.95	0.69
	(0.07)	(0.43)	(4.60)	(0.82)	(1.73)	(8.60)	(1.21)	(0.96)	(7.27)	(0.45)
Honeymoon_PM*	0.04	0.78	0.22	1.48***	2.16**	-2.65	1.63**	0.33	3.94	0.24
Percent legis prod	(0.03)	(1.59)	(2.55)	(0.34)	(0.87)	(5.02)	(0.65)	(0.53)	(3.69)	(0.23)
Last month (PM)*	0.01	0.07*	-0.04	0.07	0.05	-0.10	0.05	-0.03	0.06	0.01
Percent legis production	(0.08)	(0.04)	(0.11)	(0.05)	(0.06)	(0.13)	(0.05)	(0.08)	(0.07)	(0.07)
Repeal	-3.76	14.67	-4.35	-0.12	-4.07	1.55	-0.32	1.66	1.93	-7.68**
	(2.78)	(105.05)	(3.15)	(4.56)	(5.67)	(4.60)	(4.18)	(2.69)	(3.85)	(3.03)
Unknit	1.68		27.61	13.70	59.11	-291.90*	79.55	1.02*	0.21	67.07**
	(1.50)		(35.29)	(51.92)	(57.09)	(173.05)	(57.11)	(0.53)	(3.70)	(34.17)

_cons	29.64*	44.24***	26.23*	26.51*	27.19*	29.05*	28.26*	26.77*	29.26*	25.98*
	(15.43)	(16.60)	(15.62)	(15.47)	(15.24)	(15.61)	(15.31)	(15.28)	(15.04)	(15.28)
Equation: President										
Popularity lagged (PR)	0.05	0.08	0.05	0.06	0.06	0.06	0.06	0.06	0.07	0.06
	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)	(0.05)
Share of PM's deputies	-0.65***	-0.72***	-0.56***	-0.55***	-0.55***	-0.60***	-0.59***	-0.58***	-0.57***	-0.55***
	(0.14)	(0.17)	(0.13)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)	(0.14)
Cohabitation	6.58***	3.12*	6.36***	7.60***	7.13***	7.00***	6.64***	6.69***	6.78***	6.62***
	(1.66)	(1.78)	(1.68)	(1.74)	(1.70)	(1.68)	(1.68)	(1.69)	(1.73)	(1.70)
Unemployment rate	-5.72***	-5.15***	-5.59***	-5.31***	-5.47***	-5.91***	-5.56***	-5.60***	-5.55***	-5.55***
	(0.80)	(0.71)	(0.82)	(0.80)	(0.81)	(0.81)	(0.80)	(0.80)	(0.80)	(0.79)
GDP growth	2.65***	3.01**	3.01***	2.33***	2.83***	2.84***	3.12***	2.59***	2.66***	2.50***
	(0.86)	(1.45)	(0.88)	(0.89)	(0.89)	(0.90)	(0.98)	(0.94)	(0.95)	(0.90)
Honeymoon_PR	11.31*	10.22	10.75*	11.44*	9.86*	12.05*	11.56**	11.20*	11.26*	11.26*
	(6.14)	(6.38)	(6.04)	(5.85)	(5.58)	(6.29)	(5.89)	(5.98)	(5.89)	(5.87)
Last months to presid elec	-1.33***	-0.92***	0.30	-1.45***	-2.38***	-2.00***	13.50**	-0.22	-2.77***	32.10***
	(0.31)	(0.20)	(0.35)	(0.34)	(0.73)	(0.67)	(5.54)	(0.20)	(0.87)	(11.58)
Percent legis production	0.08***	-0.69*	3.99***	1.67***	3.04***	4.61**	2.22***	0.81*	3.86	0.58***
	(0.03)	(0.38)	(1.28)	(0.62)	(1.04)	(1.91)	(0.77)	(0.42)	(2.49)	(0.20)
Honeymoon_PR*	0.02	2.67*	0.56	0.48	0.95	1.51	0.46	0.36	1.44	0.13
Percent legis prod	(0.04)	(1.59)	(1.55)	(0.78)	(1.27)	(2.59)	(0.97)	(0.48)	(2.25)	(0.25)
Last month to presid elec*	0.13		-8.53***	7.69***	27.41**	18.47**	-155.73**	-12.27***	265.95**	-226.25***
Percent legis production	(0.08)		(3.15)	(2.88)	(11.33)	(8.96)	(61.09)	(4.53)	(106.28)	(80.16)
Repeal	-3.32	2.84	-10.98***	6.75**	-9.43***	5.32	6.61	-1.66	1.43	-3.00
	(2.34)	(96.10)	(2.91)	(3.42)	(3.05)	(4.19)	(5.36)	(2.44)	(2.92)	(5.55)
Unknit	3.10***		61.50**	-82.98***	111.28*	-364.23***	-52.36	0.75*	2.17	65.73
	(0.92)		(25.80)	(24.69)	(59.43)	(137.68)	(78.14)	(0.45)	(2.18)	(55.04)

_cons	109.22***	109.77***	103.70***	99.82***	101.28***	109.08***	104.49***	104.62***	103.36***	102.25***
	(13.98)	(13.07)	(14.19)	(14.04)	(14.20)	(14.08)	(14.14)	(14.03)	(14.08)	(13.78)
Sample Size	215	215	215	215	215	215	215	215	215	215
J-stat	11.68	8.76	9.85	9.18	10.91	10.22	9.93	11.33	10.96	9.92
Hansen P	0.23	0.07	0.36	0.42	0.28	0.33	0.36	0.25	0.28	0.36
Residual Correlation	0.42	0.41	0.42	0.43	0.42	0.41	0.42	0.42	0.42	0.42

Standard errors in parentheses. Significance levels:* p<.1, ** p<.05, *** p<.01

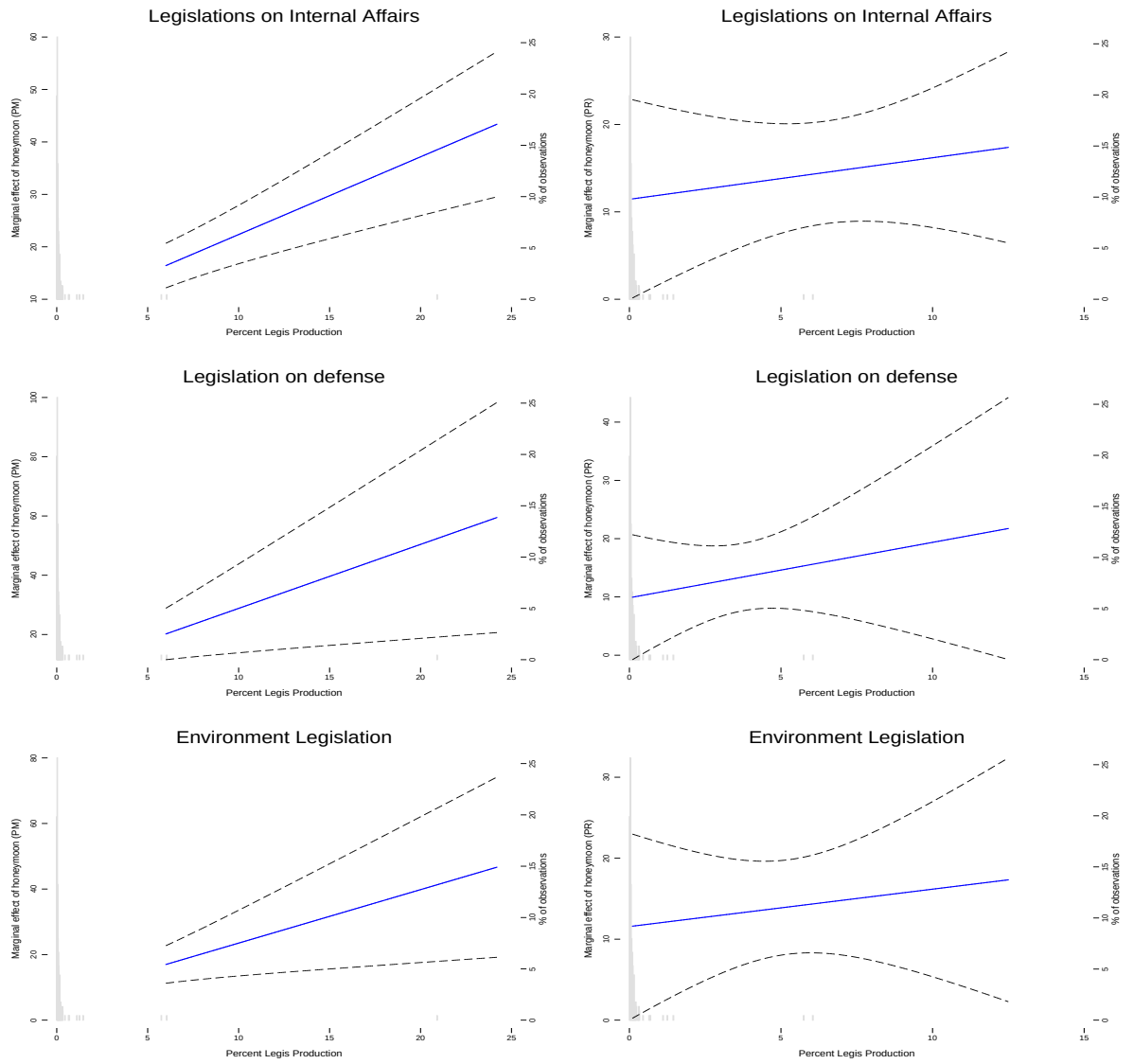
Individuals can be assumed to prefer (and thus to give higher approval ratings to) Executive whose stances on important issues are in accordance with their own. We can here explore this dimension because, as explained above, our dataset is classified by specific codes of law. This allows analyzing if popularity ratings vary according to the dimension along which policymakers legislate, and especially if the time pattern perceived above differs by domain. Given that some domains have been barely touched upon during the period under review, we regroup some legal codes in larger domains, as explained in the Appendix. The specific domains we consider are the following: pensions, immigration, justice, internal affairs, defense, agriculture, environment, economy, taxation and labor. Even with these groupings, however, it has to be signalled that some domains remain characterized by a smaller number of legal production (as can be inferred from Table 1), which may induce less precise estimates. Keeping this in mind, as the results in Table 4.3 reveal, separating out the different domains does not modify the results related to the standard determinants of popularity. In particular, they provide strong support in favor of the reward-punishment hypothesis, with unemployment having a larger negative impact on the President's approval rating, while GDP growth only affects the Prime Minister's.

An interesting result emerging here is that, for the Prime Minister, splitting the analysis by domains reveals that the variable $Unknit_{x,t}$ (designed to capture the decisions to undo decisions taken by previous governments by repealing part(s) of the legal apparatus) is now significant and positive, but only for the domain covering Taxation issues (see 4.3, column 10). Here again, the data does not allow disentangling the potential competing explanations for the result, which may be due to the signal of valence we signalled above, or to the fact that French voters are fiscal conservatives (Peltzman, 1992)[1] that reward any simplification of the tax code. For the President, $Unknit_{x,t}$ is also sometimes significant, with a negative impact on popularity in the domains of Internal Affairs and Agriculture, and a positive one for Pensions and Justice. Here, the interpretation we would favor is

[1]The positive impact of the repeal of tax laws is in line with Geys and Vermeir (2008) who hypothesize that tax policy should have dual and significant effects insofar as both the level and structure of the tax burden will impact upon presidential approval. They determine, based on data from 1959 through 2006, that presidential approval declines in response to increases in both the deficit and tax burden; moreover, 'turbulence' in the structure of taxation exerts an 'independent and negative effect'.

that, by his position in the French institutional system, the President is the warrant of Justice, which could explain both the positive coefficient in this domain and, also, the negative one for Internal Affairs, as the latter may be taken as trying to exert an influence in the judicial area which is negatively considered by the electorate).

Figure 4.7: Honeymoon effects (Specific domains)

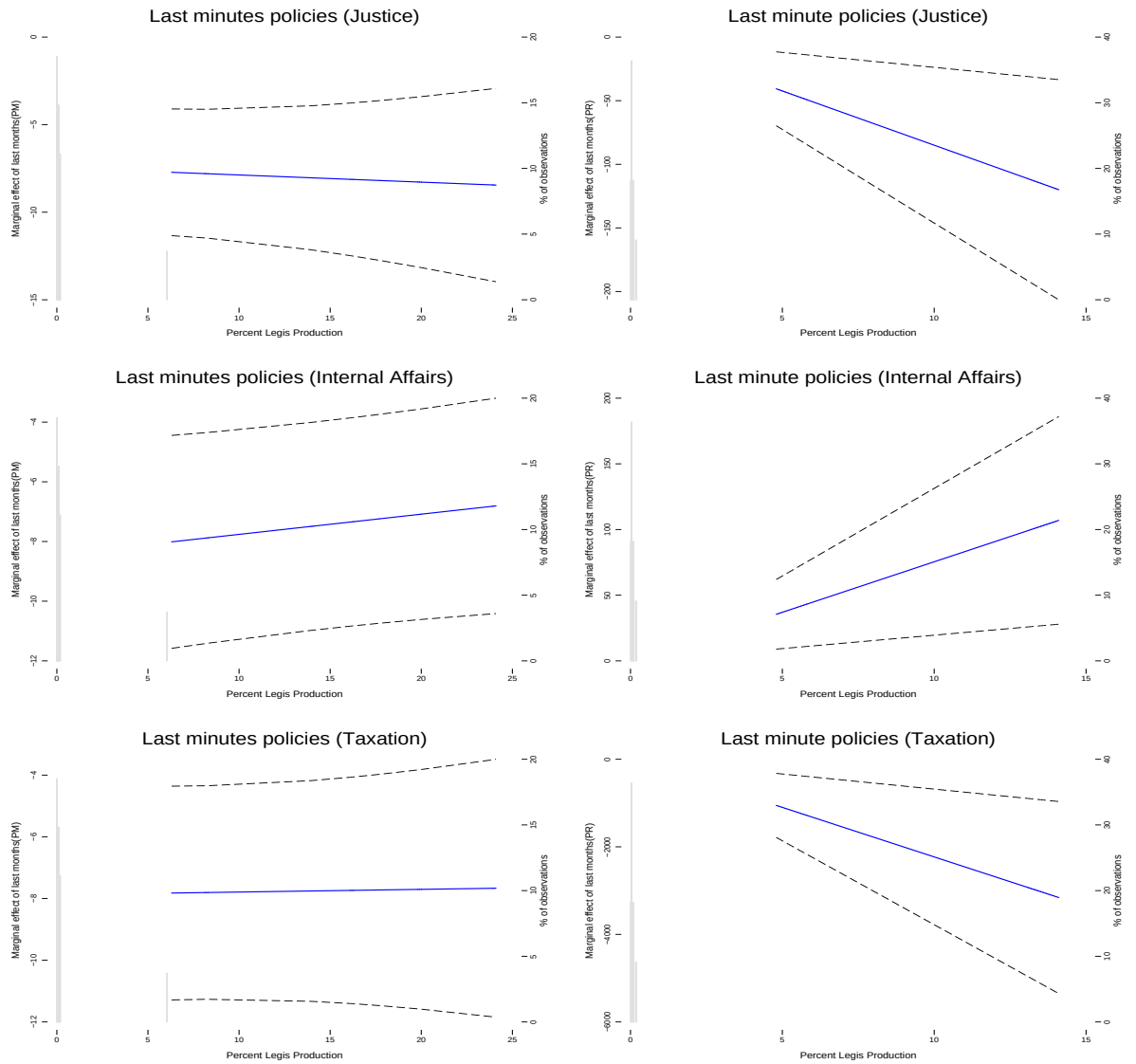


Source:Authors' calculations

Otherwise, looking at timing effects, they are apparently less clear. Looking at the marginal effetcs, however, permits to have a clearer view. Figure 4.7 displays the marginal effects for both heads of the Executive, and its inspection confirms that early legal and regulatory production globally tends to increase their popularity. This is not the case for last-minute policies, the effects of which by domain are illustrated in figure 4.8, with the

solid sloping line indicating that legal texts, when produced during the last months before elections, generally tend to reduce the approval ratings of both leaders.

Figure 4.8: Last minute policies (Specific domains)



Source:Authors' calculations

This set of results also points to a better understanding of the erosion of the political capital a politician suffers from during her mandate: if the newly appointed benefits from some sympathy from the electorate, by acting, the policymaker can only create winners and losers from changes in the law, or reveal his way of acting, and this can explain the fall in popularity. The last-minute effect can appear as some window-dressing, and its impact is reduced, compared to the beginning of mandate actions.

4.5 Conclusion

Few studies have analyzed the effects of noneconomic conditions on executive approval in France. We contribute to the literature by bringing together two literatures: the ones on legislative political cycles and economic voting, as well as the one related to timing management of issues by agenda setters. In this chapter, we model French Executive approval as a function of economic performance and of the timing of a politician's action (here defined as the production of legal texts). Empirically, we have jointly estimated equations explaining French Executive heads (i.e., the President and the Prime Minister) approval ratings. Our results confirm long held notions about the role of the economic situation, particularly as regards the negative impact of unemployment on popularity, although this is particularly true of the President's popularity, compared to the Prime Minister's.

We also assess the impact of the production of legal texts on the popularity of the French President and Prime Minister. We find that this production positively influences the Executive approval, on average. Then, this effect is contrasted according to the timing of issuance of these texts. While the literature on legislative political cycles (LPC) indicates that higher legislative activism should be expected when an election looms, our results allow going further and deeper in the analysis of the timing of the production of legal texts, revealing its impact on popularity. The landscape brought about by our results is one where policymakers' incentives are supportive of the LPC, as there is a popularity premium in legislating. However, the premium is even stronger when legal production is combined to the honeymoon effect, rather than to a "last-minute policy" effect. We also show that the domain of activism is not indifferent, and in particular that a President should refrain from modifying the legal texts in the domain of justice, as this may be considered as interferring.

4.A List of categories of laws included

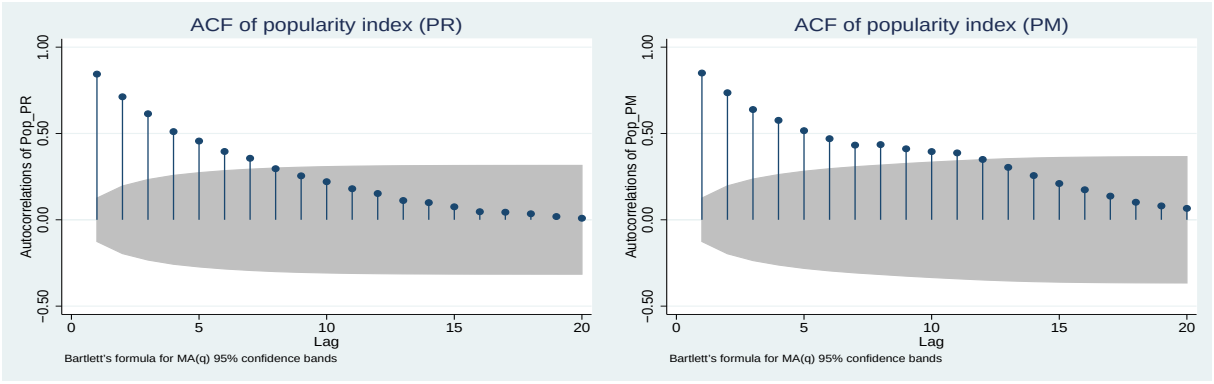
Table A.1: List of categories of laws included

Code	Domain
Code de la sécurité sociale	Pensions
Code des pensions civiles, militaires et retraite	
Code des pensions et retraite des marins français	
Code de l'emploi	Labor
Code du travail	
Code des impôts	Taxation
Code de justice militaire	Defense
Code de défense	
Code de l'environnement	Environment
Code la construction et de l'habitation	
Code de l'urbanisme	
Code de l'intérieur	Internal Affairs
Code électoral	
Code des communes	
Code de la santé	Health
Code la famille et de l'aide sociale	
Code la mutualité	
Code pénal	Justice
Code civil	
Code du commerce	
Code disciplinaire et pénal de la marine marchande	
Code de justice administrative	
Code de procédure civile	
Code de procédure pénale	
Code rural et de la pêche maritime	Agriculture
Code forestier	
Code Economie	Economy
Code d'entrée, sejour des étrangers et droit d'asile	Immigration
Code de la jeunesse et des sports	
Code de la culture	Culture
Code de l'éducation	Education

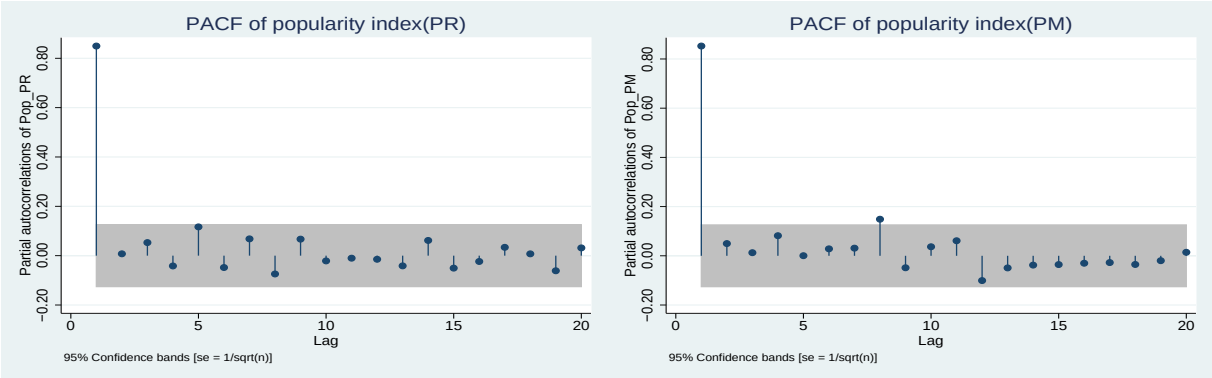
4.B Autocorrelation test of dependent variables

Figure B.1: Autocorrelations and partial autocorrelations of popularity indexes

(a) (b)



(c) (d)



Source:Autho

calculations

4.C Descriptive statistics of dependent and standard variables

Table C.2: Descriptve statistics of dependent and standard variables

Variable	Obs	Mean	Std. Dev.	Min	Max
PM	215	46.835	13.496	17	73
PR	215	42.037	10.531	16	65
Share of PM's deputies	215	51.571	7.658	44.541	63.258
Cohabitation	215	.363	.482	0	1
Unemployment rate	215	9.508	1.092	7.5	11.3
GDP growth	215	.417	.521	-1.71	1.307

4.D Descriptive statistics of percent legislative production

Table D.3: Descriptive statistics of the percent legislative production

Variable	Obs	Mean	Std. Dev.	Min	Max
Percent legis production (Total)	215	.488	2.942	.001	27.304
Percent legis production (Pensions)	215	.06	.281	.002	1.872
Percent legis production (Immig)	215	.013	.021	0	.065
Percent legis production (Justice)	215	.222	.66	.012	4.475
Percent legis production (IntAff)	215	.279	1.296	.013	8.651
Percent legis production (Defense)	215	.183	.775	.003	5.185
Percent legis production (Agri)	215	.107	.414	.005	2.765
Percent legis production (Env)	215	.211	1.04	0	6.932
Percent legis production (Eco)	215	.425	2.235	.011	14.87
Percent legis production (Labor)	215	.08	.448	.004	2.978
Percent legis production (Tax)	215	.789	4.079	.007	27.156

4.E Descriptive statistics of repeal and unknit

Table E.4: Descriptve statistics of the variables Repeal and Unknit

Variable	Obs	Mean	Std. Dev.	Min	Max
Repeal (All)	215	.107	.31	0	1
Repeal (Economy)	215	.093	.291	0	1
Repeal (Taxation)	215	.07	.255	0	1
Repeal (Labor)	215	.074	.263	0	1
Repeal (Health)	215	.107	.31	0	1
Repeal (Pensions)	215	.102	.304	0	1
Repeal (Immigration)	215	.005	.068	0	1
Repeal (Justice)	215	.065	.247	0	1
Repeal (Internal Affairs)	215	.144	.352	0	1
Repeal (Defense)	215	.042	.201	0	1
Repeal (Agriculture)	215	.093	.291	0	1
Repeal (Environment)	215	.051	.221	0	1
Unknit (All)	215	.007	.033	0	.338
Unknit (Economy)	215	.076	1.014	0	14.87
Unknit (Taxation)	215	.009	.036	0	.198
Unknit (Labor)	215	.028	.286	0	2.978
Unknit (Health)	215	.004	.017	0	.125
Unknit (Pensions)	215	.21	.804	0	5.432
Unknit (Immigration)	215	.007	.098	0	1.444
Unknit (Justice)	215	.009	.036	0	.186
Unknit (Internal Affairs)	215	.01	.031	0	.133
Unknit (Defense)	215	.003	.018	0	.128
Unknit (Agriculture)	215	.002	.008	0	.043
Unknit (Environment)	215	.002	.01	0	.095

General conclusion

In general, the essays of this thesis are linked thematically on the basis of political cycles. Seminal articles have linked policy making to electoral (opportunistic) and ideological (partisan) incentives. Opportunistic motives reflect the incumbent party's desire to win the elections and stay in office for as long as possible, while the partisan motives arise from assuming that voters have different preferences (e.g. over public goods), which leads to different policy platforms adopted by political parties that target the welfare of their constituency.

Armed with one or both of the above motives, politicians can use different policy tools they have in their hands to achieve their goals. Moreover, the literature finds that the political cycles are mainly context-conditional and have many consequences, in particular, economic and financial or political ones. While our understanding of instances of political cycles has increased, it is clear that much work remains to be done. Important questions that have received little attention until recently concern alternative ways to generate political cycles and the role of politicians' beliefs. This thesis attempts to contribute to these lines of Political Economy literature.

In chapter 1, we examine the interplay between the manipulation of municipal expenditures and the electoral results in France through the period running from 2000 to 2015. We bring an empirical evidence to the integrated approach developed by Aidt et al. (2011) who first suggest to use a system of equations to address the reverse causality between the size of the political budget cycle and the win margin of victory. We depart from Aidt et al. (2011) by addressing two questions searching for non-linearities. First, we investigate how the win margin of victory affects the size of the political cycle. Second,

is there any non-linear effect of duration in office on the win margin?

We find that voters tend to reward pre-electoral increases in municipal expenditures and that incumbent mayors tend to behave more opportunistically when they face a fierce electoral competition. Our results indicate that the effects of time in office on the win margin is Bell-shaped. This implies that as time passes, voters tend to express some kind of "fatigue effect" although they are attached to their mayors. Overall, French voters seem to be less fiscal conservative as regards public spending.

The chapter 1 confirm the budget channel of opportunistic political cycles. A natural extension of this chapter will be to check whether local politics verify power (zipf) laws. Specifically, one could address at least three questions. Are bigger cities attracting more popular mayors? or larger win margins? or longer spells in office? If yes, then there could be another regularity to explain. But, if the answer to these questions is no, then this could mean that politics is different.

The second essay deals with the political economy of budget forecast errors. Despite the lack of a complete theory of fiscal forecasts, we build on the public choice insights and derive testable hypotheses. Specifically, we examine whether local executives behave opportunistically when it comes to draw up budgets (*hypothesis 1*). For instance, politicians have an incentive to overestimate tax revenues so as to demonstrate their fiscal competence. This competence can be shown at two stages of the budgetary process. First, overestimated tax revenues might support the politician's fiscal competence in the budget's drafting and planning stages. If forecasted taxes are high, planned expenditures can be high(er), too, or estimated deficits can be low(er). Thus, the politician appears to be exhibiting fiscal competence for the next budgetary period. Second, overestimated tax revenues might support the politician's fiscal competence in the budget's implementation phase. If forecasted taxes are high, realized expenditures during the entire fiscal year can be high(er), too (Jochimsen and Lehmann, 2017). Therefore, incumbents can time budget forecasts in order to increase their reelection odds, overstating the budget for election years.

As far as institutional factors are concerned, , we investigate the role of fiscal autonomy

on the magnitude of budget forecast errors. We postulate that more fiscal autonomy should induce more conservatism in budget forecasting (*hypothesis 2*). The reason is that under high fiscal autonomy, deficits are expected to raise taxes in the future. Hence, as deficits are likely associated with electoral costs for politicians, they should refrain from opportunistic forecasting. Conversely, when voters can be seen as fiscal liberals, the incentive to produce biased forecasts increases.

We test also the partisan theory. According to the conventional wisdom, left-wing governments are more prone to run expansionary policies. Therefore, they will tend to produce either optimistic revenue forecasts or pessimistic expenditure forecasts (*hypothesis 3*).

In chapter 2, we first characterize the statistical properties of budget forecast errors. Then, we test the above mentioned hypotheses identifying the determinants of these budget forecast errors. It is noteworthy to recognize that we conduct this analysis using a comparative approach. For instance, we provide a unique comparison between French and Portuguese local governments with respect to budget forecast errors. The results show that forecasting biases are driven by electoral motivations and by institutional characteristics. While opportunistic forecasting is more prevalent where governments enjoy greater margin of maneuver (Portuguese municipalities), forecasts are more conservative where fiscal autonomy is greater (French departments). Hence, these results confirm the role of institutions in shaping political behavior. Besides using a comparative approach, this chapter contribute to the literature by looking at different revenue and expenditure categories. Indeed, the study of electoral forecast cycles on specific categories of local governments' budgets is scarce.

Changes in the level and composition of government spending can have a significant impact on the economy. Moreover, depending on the composition of voters, democracies are more prone to pressures for immediate consumption that could hamper long-run investments. Chapter 3 demonstrates that optimism bias can exacerbate/reduce such inefficiencies. Indeed, existing studies on political budget cycles suggest that electoral uncertainty induces short term bias, which in turn, leads to low fiscal outcomes. Hence,

chapter 3 contributes to the Behavioral Political Economy (BPE) by considering the impact of optimism bias on budgetary decisions. We first build a theoretical model in which agents cannot precisely assess the true propability of nature. Implicitely, we ask whether behavioral biases in expectations can be useful building blocks for the theory of political budget cycles. The empirical application is run using French departments data.

Furthermore, we distinguish the incentive for incumbent policymakers to engage in short-term policies under political uncertainty from that under social polarization of preferences. We show that these two are separate and distinct forces driving fiscal dynamics.

More generally, the main result of chapter 3 is part of a great debate involving cognitive biases issues. Do people have sophisticated beliefs and long term horizon, or are they rather naive and myopic? Are individual choices consistent or subject to biases and heuristics? Existing studies consider that voters are the ones more susceptible to be prone to cognitive limitations. But, we argue here that politicians are subject to the same biases as all human beings.

To operationalize the concept of optimism, we take advantage of results in chapter 2. However, we distinguish strategic optimism from a pure cognitive limitation. In the empirical approximation, we use the Percent forecast error from chapter 2 as a measure of strategic optimism. Future researches will address the measurement of politicians' dispositional optimism. Textual statistical analyses of politicians' discourses could be a first attempt. Further, theoretical and empirical analyses in the behavioral finance literature show that managers' cognitive biases play an important role to explain the capital structure choice (Hackbarth, 2008; Glaser et al., 2008). This suggests that there are potential bridges to build between this literature and political economy.

In the fourth and last essay, we bring together the literature on legislative political cycles and the literature on popularity functions. Popularity of politicians is genrally modelled as a function of economic and noneconomic factors. However, the study of noneconomic determinants of popularity is scarce. Therefore, chapter 4 attempts to bring an empirical evidence to this topic. More specifically, we investigate the impact of legislative outcomes on the popularity of the French President and Prime Minister. A noticeable

innovation here is the use of monthly data. This helps to seize the contemporaneous responsiveness of the Executive to the public opinion.

The findings indicate that the Executive's popularity depends on legislative activism, creating reasons to legislate frantically, but also that the Executive has strong incentives to strategically set the legislative agenda, possibly timing landmark laws during honeymoon periods, and more specific laws in the last months of their term, depending on the tone of the campaign. Our results also confirm the traditional view, according to which incumbents are always bestowed with favorable ratings when the economic situation is good. A possible avenue for future research could be to examine the impact of partisan preferences on legislative production.

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