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Inefficient policies and short term bias: why we need optimism*

Mamadou BOUKARI†

Abstract

Electoral uncertainty and social polarization have been shown to make politicians short-sighted. The consequence could be a decline in the investment to current expenditures ratio (budget structure). Politicians are also depicted to be optimistic, even strategically optimistic. Building on behavioral economics insights, this paper develops a model to capture the impact of optimism bias on the budget structure. The model predicts that optimism affects positively the ratio of capital to current expenditures. This result is backed by the data of French departments under alternative estimations strategies.

JEL Classification: D9; E03; E62; H1

Keywords: Elections, Polarization, Short term bias, Optimism.

1 Introduction

The purpose of this paper is to study the implications of a well-known cognitive bias (optimism) in the behavior of politicians. We focus our attention on the impact of optimism bias on the budget structure. In the context of this paper, the term budget composition refers to the allocation of public resources between capital and current expenditures.

Budgeting has a major role in policy-making. It is a means for politicians to set their priorities in perspective of elections as shown in the literature on Political Budget Cycles (PBCs). Accordingly, the literature on opportunistic theories shows that politicians tend to be short-sighted. For instance, 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).

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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[1] 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 myopa 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).

Although politicians are seen to be short-sighted, some studies (Boylan, 2008; Bischoff and Gohout, 2010; Benito et al., 2013) find that they tend to be optimistic, and even strategically optimistic, something that is puzzling. Moreover, empirical results in experimental psychology confirm what Adam Smith has signaled three centuries ago: people tend to be excessively optimistic and overconfident. That is, they predict that favorable future events are more likely than they actually are, and they believe that they have more precise knowledge about future events than they actually have (Hackbarth, 2008).

Regarding the evidence that politicians can be optimistically biased, a starting point could be a look at some campaign themes. 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"[2]. 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 outcomes,

[1]Elections provide political competition and help governance to be more efficient by alleviating the moral hazard issue (Barro, 1973; Ferejohn, 1986) or by mitigating the adverse selection phenomenon (Rogoff, 1990). Therefore, elections have a disciplining effect which arise from a simple mechanism: weeding out incompetent politicians and giving those in power an incentive to increase the effort.

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

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 in the model we develop.

In this paper, we pursue two goals. First, we want to establish the behavioral implications of optimism in a political economy model. Second, we derive a testable implication of optimism. Using the concept of psychological expected utility (Caplin and Leahy, 2001; Brunnermeier et al., 2007; Gollier and Muermann, 2010), we establish a link between an incumbent's subjective probability of reelection and her choices of budget composition.

The main prediction is that optimistic politicians tend to less distort the budget composition in favor of current expenditures. This prediction is tested using data from French departments. The results are consistent with the theory under alternative definitions of optimism bias and estimation strategies.

This paper contributes to the literature on the impact of individual characteristics on fiscal policy. Indeed, we assume that policymakers personal traits, including rational limitations, have some consequences in political decision-making. As such, we follow a growing literature which understands optimism to be at the root of many economic phenomena. For instance, optimism is important for financial intermediation (Coval and Thakor, 2005); it can affect corporate financial and accounting decisions (Heaton (2002); Shefrin (2005); 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). There is very few contributions about the topic of optimism and political decisions, however. Therefore, we contribute to the literature that expands the concept of optimism bias into models and empirical analysis of political decisions.

In the next section, the theoretical model is laid out to examine the impact of optimism bias on budget composition. Section 3 tests empirically the relationship established between the two concepts. Section 4 concludes.

2 The model

In this section, we present the model underlying the empirical equation to be tested. Following Brunnermeier and Parker (2005), we use a psychological expected utility function

in order to capture the impact of optimal beliefs[3] on budget composition.

2.1 The economic environment

Voters' preferences

We 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, we thus write her utility as:

$$V_t^i = V\left(g_t^i, f_t^i\right) \tag{1}$$

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 1, one has:

$$V\left(1; \frac{g^i}{f^i}\right) = \upsilon(k) \tag{2}$$

Equation 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 paper, 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 expenditures. We note $s = \{r, d\}$, the two states of nature where state r corresponds to reelection and state d, to defeat at election at the first period.

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

$$\upsilon_t^E = \pi_r lnk_{r,t} + \pi_d lnk_{d,t} \tag{3}$$

where π_r is the objective probability of reelection and π_d the objective probability of defeat of the incumbent.

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

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.[4] $\alpha = 1/2$ 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 order to investigate the impact of the optimism bias on budget structure, we embed the incumbent's problem into the optimal expectations framework. Following Brunnermeier and Parker (2005), 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:

$$(1-\alpha)\, k_{r,t} + \alpha k_{d,t} \leq T_t \tag{4}$$

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

Solution to the politician's problem

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*

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

utility) given her subjective belief of winning the upcoming election:

$$\upsilon_1 = \hat{\pi}_r \ln k_r + \hat{\pi}_d \ln k_d \tag{5}$$

subject to equation (4).

Given the properties of the υ function, it is easy to see that this problem has close 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 says that the optimal budget composition positively depends on the subjective perception of reelection and negatively on the polarization index. That is optimism increases capital/investment expenditure.

The interesting point that remains is to know what are the incumbent's optimal beliefs?

2.2 Optimal beliefs

In this subsection, we discuss how the presence of optimism bias might influence behavior, and therefore the decisions of policymakers following Gollier and Muermann (2010). Therefore, it is important to characterize optimal beliefs.

As stated above, the incumbent faces uncertainty about her reelection. She may form beliefs 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, we 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:

$$\max W = \hat{\pi}_r ln k_r^*\left(\hat{\pi}_r\right) + \hat{\pi}_d ln k_d^*\left(\hat{\pi}_d\right) + \pi_r ln k_r^*\left(\hat{\pi}_r\right) + \pi_d ln k_d^*\left(\hat{\pi}_d\right) \tag{6}$$

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

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

$$\mathcal{L} = \hat{\pi}_r ln k_r^*(\hat{\pi}_r) + \hat{\pi}_d ln k_d^*(\hat{\pi}_d) + \pi_r ln k_r^*(\hat{\pi}_r) + \pi_d ln k_d^*(\hat{\pi}_d) + \mu(1 - \hat{\pi}_r - \hat{\pi}_d) \tag{7}$$

The first order conditions are:

$$\frac{\partial \mathcal{L}}{\partial \hat{\pi}_r} = \ln\left(\frac{\hat{\pi}_r}{1-\alpha}\right) + 1 + \frac{\pi_1}{\hat{\pi}_r} - \mu = 0 \tag{8a}$$

$$\frac{\partial \mathcal{L}}{\partial \hat{\pi}_d} = \ln\left(\frac{\hat{\pi}_d}{\alpha}\right) + 1 + \frac{\pi_d}{\hat{\pi}_d} - \mu = 0 \tag{8b}$$

The combination of equations 8a and 8b yields:

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

With $k = \frac{1-\alpha}{\alpha}$, it follows that:

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

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 (9).

$$k^* = \exp\left(\frac{\pi_r - \hat{\pi}_r}{\hat{\pi}_r(1-\hat{\pi}_r)}\right) + \frac{\hat{\pi}_r}{\hat{\pi}_d} \tag{9}$$

Equation 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 $\varepsilon \equiv \pi_r - \hat{\pi}_r$ and $\varpi \equiv \frac{\hat{\pi}_r}{\hat{\pi}_d}$. Then the following definition can be given:

$$If \begin{cases} \varepsilon < 0 \\ \varepsilon = 0 \\ \varepsilon > 0 \end{cases} \iff the\, beliefs\, are \begin{cases} optimistic \\ rational \\ pessimistic \end{cases} \tag{10a}$$

Similarly, if :

$$\begin{cases} \varpi > 1 \\ \varpi = 1 \\ \varpi < 1 \end{cases} \iff the\, beliefs\, are \begin{cases} optimistic \\ rational \\ pessimistic \end{cases} \tag{10b}$$

On the basis of these notations, we write the proposition 2 in the following way:

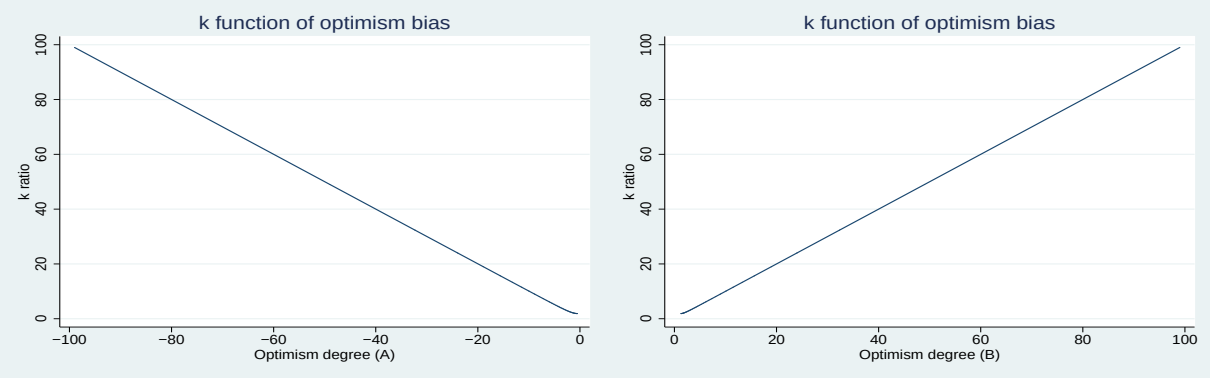
Proposition 2 *There is a positive link between optimal beliefs and the budget composition measured by the ratio k.*

$$\begin{cases} \frac{\partial k}{\partial \varepsilon} < 0 \\ \frac{\partial k}{\partial \varpi} > 0 \end{cases}$$

Proposition 2 states the core result of the paper. When the incumbent is optimistic, she will tend to increase the ratio of capital to current expenditure. The intuition behind this result is straightforward. Optimism acts as a factor that guarantees political stability, because the incumbent hopes remaining in power. As such, optimism makes the incumbent valuing more the future. The more desirable the future, the higher the bias towards capital expenditure.

In order to ease the understanding of the statement in proposition 2, we represent graphically the relationship between k and the degree of optimism (Figure 1). For simplicity the x-axis variable (degree of optimism) is measured by $A = \frac{\varepsilon}{\hat{\pi}_r(1-\hat{\pi}_r)}$ and $B = \frac{\hat{\pi}_r}{\hat{\pi}_d} - 1 \simeq -\varepsilon$. Therefore, in Figure 1a the lower the value of the optimism degree (A), the higher the k-ratio. In figure 1b, the greater the value of B, the higher the bias in favor of capital expenditure (g).

Figure 1: k ratio and degree of optimism



(a) (b)

3 Empirical evidence

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

3.1 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, as shown in paper 2, budget forecasts have been optimistic as regards total revenue. 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:

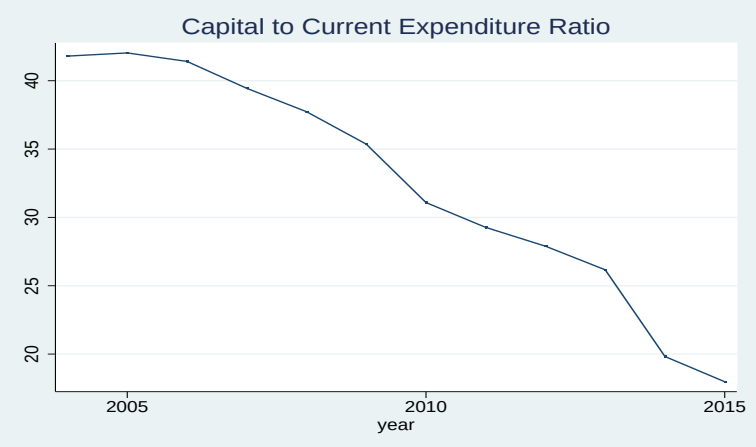
$$k = m(\varepsilon, X) \tag{11}$$

where ε is an indicator of optimism bias and X is a vector of other determinants of budget composition. Proposition 2 suggests that the k-ratio is a quasi-linear function of the optimism bias. For instance, one can write $k = \exp\left(\frac{\varepsilon}{\hat{\pi}_1(1-\hat{\pi}_1)}\right) + 1 - \varepsilon$. Optimism bias corresponds to negative values of ε. Hence the reduced form of k can be written as:

$$\lim_{\varepsilon \to -\infty} k = 1 - \varepsilon \tag{12}$$

The budget composition index measured as the ratio of capital to current expenditures is used as the dependent variable in the regression. Figure 2 displays the evolution of the mean of the capital to current expenditure ratio. It clearly shows a downward-sloping trend of this budget composition index in French departments over the sample period.

Figure 2: Evolution of the k-ratio



Three sets of the independent variables are used in the regression: a behavioral determinant, political determinants and economic and demographic determinants. The behavioral factor is the incumbent's subjective probability of reelection ($Belief$). This variable is introduced to capture the impact of optimism bias on the budget composition. 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, the incumbent's beliefs can be written as:

$$Belief_{i,t} = -\varepsilon = \frac{(F_{i,t} - A_{i,t}) * 100}{A_{i,t}} \tag{13}$$

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, we consider this variable as an indicator of optimism bias.

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 B.1 in the appendix provides descriptive statistics on different variables in the model and data sources. Political variables include dummies to account for the electoral cycle (the before, after and election year), terms in office, same party and left. 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 at least one term.

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

3.2 Model specification

The estimated panel data model has the following structure:

$$k_{i,t} = \beta_0 + \beta_1 k_{i,t-1} + \beta_2 Belief_{i,t} + \gamma X + \xi_i + \lambda_t + \varepsilon_{i,t} \tag{14}$$

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 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.

3.3 Results

Table 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 on 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, we consider a time trend in columns (3), (5), and (6). Further, the lagged dependent variable is included in the specifications in columns (3) to (6). In order to cope with the Nickell(1981) bias, we use the bias-corrected least-squares dummy variable (LSDVC) estimator developed by Bruno (2005) and designed for dynamic panel data models.[5]

Regarding the variable of interest (*Incumbent's Belief*), we note that the optimism bias tends to increase capital expenditures relative to current ones. This contradicts the tendency of decreased investment due to policy myopa. Hence, there is a support for the main hypothesis which presents the optimism bias as a factor susceptible to reduce

[5]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 (2005) for further details).

Table 1: Main regression results

	(1) FE	(2) FE	(3) FE	(4) BC-LSDV	(5) BC-LSDV	(6) BC-LSDV
Lagged k			0.439***	0.786***	0.626***	0.637***
			(0.0452)	(0.0195)	(0.0252)	(0.0251)
Incumbent's Belief	0.313***	0.322***	0.220***	0.227***	0.230***	0.221***
	(0.0690)	(0.0666)	(0.0482)	(0.0392)	(0.0388)	(0.0390)
Terms in Office	-0.00842	-0.189	0.229	0.0383	0.173	0.239
	(0.283)	(0.279)	(0.185)	(0.196)	(0.195)	(0.194)
Budget Stress	-0.156**	-0.0678	-0.133**	-0.255***	-0.126**	-0.144**
	(0.0769)	(0.0819)	(0.0547)	(0.0595)	(0.0603)	(0.0610)
Unemployment rate	-6.418***	-6.063***	-0.383	-1.881***	-0.445	-0.312
	(0.394)	(0.403)	(0.327)	(0.197)	(0.327)	(0.328)
Regional GDP growth	1.282***	1.278***	-0.00623	0.411***	0.0285	0.0173
	(0.0995)	(0.0982)	(0.0872)	(0.0756)	(0.0933)	(0.103)
Government party	0.145	-0.201	-0.614	-0.201	-0.504	-0.465
	(0.804)	(0.761)	(0.440)	(0.467)	(0.486)	(0.479)
Population density	-0.0188***	-0.0151***	0.00498**	-0.00594	0.00241	0.00277
	(0.00321)	(0.00301)	(0.00200)	(0.00450)	(0.00440)	(0.00431)
Population growth	0.508**	1.300***	-0.154	-0.0104	-0.0884	-0.223
	(0.215)	(0.273)	(0.230)	(0.177)	(0.182)	(0.222)
Left wing	-1.027	-1.946	-0.485	-0.692	-0.569	-0.383
	(1.706)	(1.698)	(1.176)	(0.926)	(0.929)	(0.907)
Year before elections		0.231	-0.750*			-0.622
		(0.555)	(0.444)			(0.491)
Election year		-3.863***	0.381			0.899*
		(0.446)	(0.400)			(0.542)
Year after elections		-0.205	-0.103			0.214
		(0.435)	(0.441)			(0.430)
Time Trend			-1.376***		-0.940***	-0.984***
			(0.122)		(0.108)	(0.115)
Observations	1045	1045	1045	1045	1045	1045
Adjusted R^2	0.578	0.603	0.781			

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.

policy myopa. In terms of impact, a one percentage increase in the incumbent's degree of optimism tend to raise the capital to current expenditure ratio by 0.22 to 0.32%.

Results in columns (3) and (6) 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 during election year. This result is in line with Goeminne and Smolders (2013) who find that the timing of elections matters for public infrastructure investments.

According to conventional wisdom, one would expect a left-wing government to in-

crease the k-ratio. However, the results indicate that the variable left wing has a negative sign and is less significant. Veiga and Veiga (2007) did not find either a significant impact of ideology on the level of local investments in Portuguese municipalities.

With respect to the other variables, fiscal pressure, unemployment rate and population density tend to increase the composition bias towards current expenditures. The negative effect of fiscal pressure means that the lower the deficit, the more degree of freedom the incumbent has. As it is generally difficult to cut current expenditures, then the capital ones are sacrificed in case of tight fiscal situation. Conversely, population growth has a positive impact on the bias towards capital expenditures. The rationale behind this positive effect is that the increase of the number of inhabitants creates needs for infrastructures. Thus, the department has to invest to satisfy these needs, something that raises the share of capital expenditures and in turn the k-ratio.

The time trend is negatively related to the dependent variable, confirming the decreasing tendency observed in Figures 2 and A.1. The coefficient of the lagged dependent variable is positive and highly significant. This indicates the persistence of budget composition over time.

3.4 Robustness check

We first refine the indicator of incumbent's beliefs in the following way: we regress the PFE on its determinants and gather the residuals (see table C.2 in the appendix). Then we consider these residuals as part of PFE which can be ascribed to cognitive biases and use them as reduced form of optimism. Hence, we re-run the regressions in table 1 using this reduced form of optimism instead of PFE as incumbent's beliefs. The results presented in table D.3 in the appendix also give support to our main hypothesis. For instance, the coefficient attached to the variable Incumbent's beliefs is positive and statistically significant.

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. Therefore, we tackle this problem using the win margin of victory in the previous election as instrument in GMM estimation. The results are presented in Table 2.
Moreover, we use the reduced form of optimism in columns 4 and 5 of table 2 as incumbent's beliefs. 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 the optimism degree, its coefficient is still positive and significant. Interestingly, the coefficient of the optimism bias indicator increases when we consider the residuals of the PFE. For instance, in columns 4 and 5 of table 2,

a one percent increase in the subjective probability of reelection could raise the budget composition ratio by about 0.39%. This comforts the main hypothesis which states that optimism bias positively influences the budget composition towards capital expenditures. This means that optimistic incumbents relatively value more the future and tend to pay more attention to long term policies. In other words, they are less short-sighted.

Table 2: Robustness check (GMM estimation)

	(1) M9	(2) M10	(3) M11	(4) M12	(5) M13
Lagged k	0.642***	0.722***	0.728***	0.726***	0.701***
	(0.0954)	(0.111)	(0.108)	(0.102)	(0.0668)
Incumbent's Belief	0.244***	0.247***	0.285***	0.395***	0.390***
	(0.0495)	(0.0507)	(0.0972)	(0.0638)	(0.0614)
Year before elections	-0.786	-0.521	1.363	-1.310**	-0.665
	(0.481)	(0.473)	(1.775)	(0.506)	(0.581)
Election year	0.703*	1.278***	5.334	0.744**	1.854*
	(0.386)	(0.370)	(3.510)	(0.360)	(0.941)
Year after elections		0.779*	-0.142		0.505
		(0.459)	(0.838)		(0.410)
Terms in Office	0.111	0.115	0.302	0.102	0.132
	(0.161)	(0.167)	(0.351)	(0.131)	(0.181)
Budget Stress	-0.355***	-0.367***	-0.460***	-0.363***	-0.342***
	(0.0644)	(0.0659)	(0.108)	(0.0708)	(0.0649)
Unemployment rate	-0.387**	-0.264	-0.540	-0.350**	-0.267
	(0.179)	(0.202)	(0.488)	(0.162)	(0.253)
Regional GDP growth	0.0224	0.0763	-0.354	0.125	0.0891
	(0.0827)	(0.0929)	(0.360)	(0.0859)	(0.110)
Government party	0.128	0.0356	2.079	-0.229	-1.225
	(0.438)	(0.449)	(2.821)	(0.389)	(1.150)
Time Trend	-0.821***	-0.645***	-0.970***	-0.764***	-0.916***
	(0.193)	(0.227)	(0.333)	(0.202)	(0.130)
Population density			0.00482		-0.00170
			(0.00682)		(0.00257)
Population growth			-3.354		-0.699
			(2.643)		(0.764)
Left wing			5.488		-2.083
			(6.958)		(2.352)
Constant	19.48***	13.96**	14.86*	15.16**	18.32***
	(5.748)	(6.985)	(7.523)	(5.985)	(3.897)
N	1045	1045	1045	1045	1045
HansenJ	16.0000	17.0000	17.0000	16.0000	17.0000
HJ_Prob	0.8641	0.6893	0.8782	0.8763	0.3166

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

Incumbents tend to behave opportunistically, timing capital expenditures at the be-

ginning of their term. In fact, the k-ratio tend to diminish one year before departmental elections (-1.31%) and to increase just after elections (0.74%). The negative impact of fiscal pressure is also confirmed. The other control variables lose their significance.

The unemployment tend to increase the bias towards current expenditures. The rationale of this effect can be found in the competence of French departments which are responsible of many social expenditures.

4 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 myopa, is harmful for investment in public infrastructures and thus, economic growth. This paper explores the role of optimism bias in curbing such negative consequences. It is shown that optimist policymakers tend to be less prone to policy myopa. This paper provides an empirical support to this idea.

The approach put forward in this paper derives from arguments developed in behavioral economics. Policymakers are individuals who can be subjected to the same sources of cognitive bias that all individuals face.

Using this premise, we contribute to the literature that expands the concept of optimal expectations into models of political decisions. Modeling inefficiency as a preference for non-productive activities with short-term benefits and eventually lower capital accumulation, we show that optimism bias helps reducing this inefficiency. To answer the opening question, we conclude that, without optimism, things could be worse.

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.

References

Alesina, A. and Ferrara, E. L. (2005). Ethnic diversity and economic performance. *Journal of Economic Literature*, 43(3):762–800.

Ashton, R. H. and Roberts, M. L. (2011). Effects of dispositional motivation on knowledge and performance in tax issue identification and research. *The Journal of the American Taxation Association*, 33(1):25–50.

Barberis, N., Shleifer, A., and Vishny, R. (1998). A model of investor sentiment. *Journal of Financial Economics*, 49(3):307–343.

Barro, R. (1973). The control of politicians: an economic model. *Public Choice*, 14(1):19–42.

Benito, B., Bastida, F., and Vicente, C. (2013). Creating room for manoeuvre: a strategy to generate political budget cycles under fiscal rules. *Kyklos*, 66(4):467–496.

Bischoff, I. and Gohout, W. (2010). The political economy of tax projections. *International Tax and Public Finance*, 17(2):133–150.

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

Bohn, F. (2007). Polarisation, uncertainty and public investment failure. *European Journal of Political Economy*, 23(4):1077–1087.

Bonfiglioli, A. and Gancia, G. (2013). Uncertainty, electoral incentives and political myopia. *The Economic Journal*, 123(568):373–400.

Boylan, R. (2008). Political distortions in state forecasts. *Public Choice*, 136:411–427.

Brunnermeier, M. and Parker, J. (2005). Optimal expectations. *American Economic Review*, 95(4):1092–1118.

Brunnermeier, M. K., Gollier, C., and Parker, J. A. (2007). Optimal beliefs, asset prices, and the preference for skewed returns. *American Economic Review*, 97(2):159–165.

Bruno, G. S. (2005). XTLSDVC: Stata module to estimate bias corrected LSDV dynamic panel data models. *Statistical Software Components, Boston College Department of Economics*.

Caplin, A. and Leahy, J. (2001). Psychological expected utility theory and anticipatory feelings. *Quarterly Journal of Economics*, 116(1):55– 79.

Chen, J., Hong, H., and Stein, J. C. (2003). Breadth of ownership and stock returns. *Journal of Financial Economics*, 66(2-3):171–205.

Coval, J. D. and Thakor, A. V. (2005). Financial intermediation as a beliefs-bridge between optimists and pessimists. *Journal of Financial Economics*, 75(3):535–569.

Ferejohn, J. (1986). Incumbent performance and electoral control. *Public Choice*, 50(1):5–25.

Goeminne, S. and Smolders, C. (2013). Politics and public infrastructure investments in local governments: Empirical evidence from flemish municipalities (1996–2009). *Local Government Studies*, 40(2):182–202.

Gollier, C. and Muermann, A. (2010). Optimal choice and beliefs with ex ante savoring and ex post disappointment. *Management Science*, 56(8):1272–1284.

Gupta, S., Liu, E. X., and Mulas-Granados, C. (2016). Now or later? the political economy of public investment in democracies. *European Journal of Political Economy*.

Hackbarth, D. (2008). Managerial traits and capital structure decisions. *Journal of Financial and Quantitative Analysis*, 43(04):843.

Heaton, J. B. (2002). Managerial optimism and corporate finance. *Financial Management*, 31(2):33–45.

Katsimi, M. and Sarantides, V. (2012). Do elections affect the composition of fiscal policy in developed, established democracies? *Public Choice*, 151(1-2):325–362.

Malhotra, N. and Margalit, Y. (2014). Expectation setting and retrospective voting. *Journal of Politics*, 76(4):1000–1016.

Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica*, 49:1417–1426.

Persson, T. and Svensson, L. E. O. (1989). Why a stubborn conservative would run a deficit: Policy with time- inconsistent preferences. *Quarterly Journal of Economics*, 104(2):325–345.

Rogoff, K. (1990). Equilibrium political budget cycles. *American Economic Review*, 80:21–36.

Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *The Stata Journal*, 9(1):86–136.

Shefrin, H. (2005). *A Behavioral Approach to Asset Pricing Theory*. Elsevier North-Holland, Amsterdam.

Stolberg, S. G. (2011). And now, the cheerleader in chief. *New York Times (January 30, 2011)*.

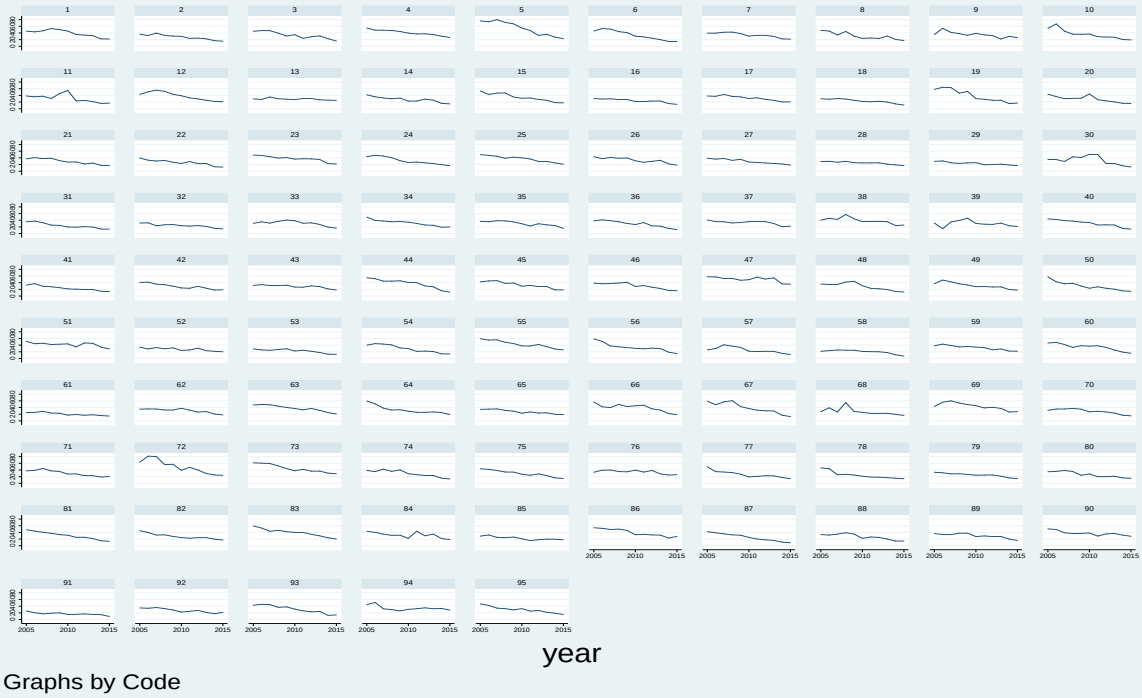
Tabellini, G. and Alesina, A. (1990). Voting on the budget deficit. *American Economic Review*, 80(1):37–49.

Veiga, L. and Veiga, F. (2007). Political business cycles at the municipal level. *Public Choice*, 131(1):45–64.

Zullow, H. M. and Seligman, M. E. P. (1990). Pessimistic rumination predicts defeat of presidential candidates, 1900 to 1984. *Psychological Inquiry*, 1(1):52–61.

1 Capital to Current expenditure ratio

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



2 Descriptive statistics

Table B.1: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Capital to current expenditures ratio	1045	31.65	11.39	7.03	81.43
Incumbent's 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
Terms in Office	1045	1.37	1.2	0	10
Government party	1045	.43	.5	0	1
Budget Stress	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 density	1045	333.3	1203.82	14.2	9033.85
Population growth	1045	.68	.95	-1.4	6.31

3 Alternative measure of optimism degree

Table C.2: Determinants of Percent Forecast Errors

	(1) PFE
PFE_lagged	0.873***
	(0.281)
Year before elections	-0.769
	(0.564)
Election year	2.158**
	(0.889)
Left wing	-0.482
	(0.716)
Autonomy	-0.330***
	(0.0712)
Majority	1.550
	(0.943)
Run for reelection	-0.328
	(0.435)
Terms in Office	0.205
	(0.138)
Government party	-0.490
	(0.410)
Unemployment rate	-0.168*
	(0.101)
Regional GDP growth	-0.277***
	(0.0891)
Crisis	-0.657
	(1.051)
Population growth	-0.229
	(0.256)
Budget Stress	0.763***
	(0.237)
Time Trend	-0.630***
	(0.0854)
_cons	15.94***
	(2.616)
N	1045
HansenJ	17.0000
HJ_Prob	0.9140

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

4 Impact of the alternative measure of optimism degree on the k-ratio

Table D.3: Robustness check using PFE residuals as optimism degree

	(1) FE	(2) FE	(3) FE	(4) BC-LSDV	(5) BC-LSDV	(6) BC-LSDV
Lagged k			0.528***	0.854***	0.699***	0.719***
			(0.0408)	(0.0174)	(0.0231)	(0.0229)
Incumbent's Belief	0.104**	0.112***	0.282***	0.349***	0.314***	0.321***
	(0.0411)	(0.0396)	(0.0467)	(0.0319)	(0.0316)	(0.0310)
Terms in Office	0.118	-0.0462	0.329*	0.0834	0.210	0.309*
	(0.276)	(0.269)	(0.175)	(0.189)	(0.187)	(0.185)
Budget Stress	-0.164*	-0.0716	-0.129**	-0.230***	-0.112*	-0.128**
	(0.0872)	(0.0930)	(0.0565)	(0.0564)	(0.0577)	(0.0577)
Unemployment rate	-6.983***	-6.594***	-0.328	-1.724***	-0.464	-0.195
	(0.391)	(0.410)	(0.313)	(0.177)	(0.304)	(0.308)
Regional GDP growth	1.381***	1.395***	0.0715	0.446***	0.101	0.112
	(0.102)	(0.102)	(0.0856)	(0.0713)	(0.0887)	(0.0973)
Government party	0.0738	-0.265	-0.703*	-0.349	-0.601	-0.536
	(0.808)	(0.757)	(0.412)	(0.446)	(0.465)	(0.454)
Population density	-0.0232***	-0.0194***	0.00277	-0.00729*	0.000122	0.00110
	(0.00273)	(0.00268)	(0.00174)	(0.00428)	(0.00421)	(0.00409)
Population growth	0.469**	1.271***	-0.225	-0.0699	-0.141	-0.277
	(0.219)	(0.271)	(0.218)	(0.170)	(0.175)	(0.209)
Left wing	-0.846	-1.725	-0.219	-0.486	-0.412	-0.140
	(1.668)	(1.648)	(1.093)	(0.876)	(0.880)	(0.849)
Year before elections		0.242	-0.928**			-0.900*
		(0.589)	(0.465)			(0.472)
Election year		-3.715***	0.770**			1.232**
		(0.463)	(0.387)			(0.512)
Year after elections		0.104	0.340			0.699*
		(0.440)	(0.417)			(0.399)
Time Trend			-1.290***		-0.868***	-0.914***
			(0.120)		(0.105)	(0.110)
Observations	1045	1045	1045	1045	1045	1045
Adjusted R^2	0.555	0.579	0.788			

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