Special Interests and Political Business Cycles*

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Abstract

In this paper we try to bridge the gap between special interest politics and political business cycle literature. We build a framework where the interplay between the lobby power of special interest groups and the voting power of the majority of the population leads to political business cycles.

1 Introduction

Over the last decade, there has been a great improvement on the understanding of the mechanisms by which special interest politics affect economic outcomes (Grossman and Helpman 1994, 1996, 2001). In this literature special interest politics and elections are linked through campaign contributions. Those are offered to policymakers by lobbies in exchange for a tilted economic policy in favor of the interests they represent. The distorted policy do not please voters, but it tends to be compensated by a favorable ideological bias induced by the campaign contributions.

Another older strand of the political economy literature, the political business cycle literature, relates electoral cycles on macroeconomic variable to either partisan (classical references are Hibbs 1977, and Alesina 1987) or opportunistic motives (e.g. Nordhaus 1975, Lindbeck 1976, Cukierman and Meltzer 1986, Rogoff and Sibert 1988, Persson and Tabelini 1990, and Rogoff 1990), both unrelated to special interest politics.

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On the one hand, special interest politics is often associated with microeconomic policy, and its macroeconomic impact is thought to be negligible. On the other hand, political business cycle models explain cycles on aggregate macroeconomic variables. In this paper we try to bridge the gap between special interest politics and political business cycle literatures. In our framework, the influence of special interest groups impact macroeconomic variables which have distributive effect in society, generating electoral cycles in those variables.

In the simple model we propose, opposite interests divide the entire society in two groups: one with the lobby power, and the other with the majority of votes. Government policy may affect the distribution of resources in the society between those two groups. This setup may have several applications.

One application is on the distribution of resources in an unequal society between the poor and the rich. One may think that public expenditures are mostly beneficial to the poor, while its tax burden relies heavily on the rich. In this context the poor would like more government spending, which would lead to higher taxes. Those policies are detrimental to the interests of the rich. According to our model, lobbying by the rich may generate government expenditures electoral cycles.

There is widespread evidence on political business cycles involving fiscal instruments (Shi and Svensson 2002a,b, Persson and Tabellini 2002)\textsuperscript{1}. The political budget cycle in aggregate variables has been interpreted as caused by the signalling of an opportunistic government in a model where there is asymmetric information with respect to the incumbent’s competency (Rogoff 1990, and Rogoff and Silbert 1988). Our model provides an alternative explanation for the political budget cycles.

However, recent empirical studies have emphasized the importance of electoral cycles on composition of the fiscal budget (on US, see Peltzman 1992; on Canada, see Kneebone and McKenzieon 2001; on Mexico, see Gonzalez 2004; on Colombia, see Drazen and Eslava 2005a). Our framework may also generate such cycles. Assuming that public expenditures are specific to different groups in society, with one group with lobbying power and the other with voting power, we are able to generate electoral cycles in the composition of government expenditures.

Another application is on exchange rate policy. There is some recent evidence of real exchange rate cycles around elections in Latin America, with more

\textsuperscript{1}According to Brender and Drazen (2004), the evidence on aggregate data is mainly due to the political budget cycles in “new democracies”.
appreciated exchange rates before than after elections (Frieden and Stein 2001, and Ghezzi, Stein and Streb 2004). A more appreciated exchange rate benefits most of the population, while there is often lobby by the tradable sector for more devalued rates. Hence our framework can be applied to explain these exchange rate cycles (see also Bonomo and Terra 2005, for a related explanation).

In our proposed framework, electoral cycles are generated by the interplay between political influence of a special interest group and the voting power of the majority of the population. The mechanism behind the cycle is engendered by the captured incumbent trying to conceal her proximity to the lobby by attenuating her policy bias before election, and fully implementing it only after election.

The policymaker may choose to benefit a special interest group through her policy choice in exchange of part of the group’s net gain with it. Keeping in mind that there can be no formal contract to enforce the deal, it is realistic to assume that it may fail to be implemented. That is, with some probability the deal is implemented and the policymaker receives the agreed amount, but there is some probability the deal falls apart, resulting on an adverse outcome for the policymaker, who does not like being deceived. The probability that the deal will be successful depends on factors such as how well the lobby and the policymaker know each other, how much they trust each other, what other relations and connections they have between them. The policymaker may prefer not to set the deal, if the probability of a loss resulting from the deal is too high.

The voters do not observe the probability of a successful deal between the lobby and the incumbent because they are not aware of all connections between them. Neither they observe whether a deal between them was set. They can not perfectly infer that information either, for we assume economic policy is observed with noise. This assumption is consistent with Downs (1957) analysis, according to which voters do not spend all the resources necessary to get fully informed, since they cannot affect the election results.

The voters would like to pick the politician with less connections with the lobby, since it will be more likely that she will not set a deal with the lobby after election. To increase her reelection probability, in the period before election, the policymaker close to the lobby has an incentive to disguise her proximity. She does so by choosing a policy less favorable to the special interests group than the one she would choose if there were no reelection concerns. Analogously, the policymaker far from the lobby, on her turn, will tilt her policy in favor of the majority group to signal her larger distance. This behavior generates policy
variables cycles around election.

The model generates an additional cycle, which is a “contracting” cycle around elections. Since reelection concerns induce the policymaker to favor less the special interest group, the mutual net gains from a deal between the incumbent and the lobby are reduced before elections. Therefore, it is less likely that the policymaker will make a deal with the lobby before elections than after elections.

Our model has some novel features. First, its key tension is on the distribution of resources between two groups in society: one with the lobby power, and the other with the voting power. This allows us to generate cycles not only in the level of macroeconomic variables that have distributive impact, but also in directly distributive variables.

Second, since policy is observed with noise, voters can not perfectly infer the incumbent’s type, even in an equilibrium where different types choose different policies. This feature has some important implications. One advantage of a noisy signal is that a large range of results is consistent with the equilibrium strategies, each one leading to a different belief on the incumbent’s type. Then, the equilibrium does not depend on the arbitrary specification of out of equilibrium beliefs, which is common in signaling models. Moreover, every type has always an incentive to distort policy to improve his reelection probability, as they are never perfectly inferred by the voters. This tends to generate more cycles on average than in the usual signalling models. Finally, we do not need to assume an exogenous popularity or ‘looks’ shock to make the election result uncertain.

Third, we provide the incumbent with an endogenous rent from being in office, instead of resorting to exogenous ‘ego rents’. Those rents depend on the policy choice of the government, and are generated by the possibility of setting a deal with the lobby after elections.

Other models relate to this paper in generating cycles in distribution of resources. In Bonomo and Terra (2005) an exchange rate cycle distributes income between tradable and nontradable sectors. Voters are unsure about the weight given to their group in the policymaker’s preference, and observe policy with a noise. Exchange rate cycles around elections are thus generated. In Drazen and Eslava (2005b), voters suffer from the same information asymmetry with respect to the incumbent’s preferences but are also uncertain about how sen-

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2In the usual signalling models one of the incumbent types does not distort his policy choice before elections. Hence, there is no cycle when she is reelected.
sitive is their group’s voting behavior to government expenditures. The result is a cycle in expenditure composition. Another alternative model of cycle in the expenditure composition is provided by Drazen and Eslava (2005a), where policymakers preferences are formulated in terms of types of expenditures.

We start by developing a simple but general framework where government chooses a policy level which affects the two groups of society in opposite ways. We denote those two groups by people and the lobby, since people decide election and lobby is able to affect policy through a deal with the policymaker. We then provide three applications. In the first one, presented in more detail, government chooses the composition of expenditure between the two groups. In another variation, expenditures benefit the people and taxes are paid only by the lobby group. Finally, we have an exchange rate application, where the tradable sector is associated with the lobby while the nontradable sector is associated with the majority of the population, and the policymaker chooses the real exchange rate level.

The paper is organized as follows. In the next section we set up the basics of the general framework. In section three we solve the optimal policy problem under possible lobby influence in a one period setting. The dynamic problem is studied in section four. Section five provides three examples of how this set up may be used to explain electoral cycles in government expenditure composition, aggregate expenditures and real exchange rates, respectively. The last section concludes.

2 Model Set up

Society is divided in two groups. One group, which we call people, is the majority (proportion \( n \) of the population, \( n > 0.5 \)), and defines the elections outcome. The other group is organized and is effective in lobbying for policies that favor their interests.

Government chooses a policy, by convenience modeled as a strictly positive variable \( g \), which affects utility of the two groups in opposite direction. Let \( v_i (g) \) be the indirect utility function of a citizen of group \( i \) when the policymaker implements policy level \( g \). Without loss of generality we assume \( v_p' (.) > 0 \) and \( v_l' (.) < 0 \), where \( p \) and \( l \) stand for the people and the lobby groups, respectively. We also assume \( v_i (.) \) to be concave, that is, \( v_i'' (.) < 0 \).

We assume that the welfare function of a benevolent policymaker is utilitar-
\[ U(g) = n v_p(g) + (1 - n) v_l(g). \] (1)

The benevolent policymaker would optimally choose:

\[ g^* \equiv U'^{-1}(0), \] (2)

Now we will include the possibility that policymakers receive transfers from the lobby in exchange of a policy choice favoring this group. Let \( \tilde{c} \) be the transfer the lobby makes to the policymaker, which implies lower private consumption. We argue later that \( \tilde{c} \) is random. The lobby group utility function becomes:

\[ E[v_l(g, \tilde{c})] = v_l(g) - E(\tilde{c}) \]

Policymakers like to see the people happy. But they also like to receive personal benefits \( \tilde{c} \) and dislike being deceived (which is represented by a loss \( \tilde{X} \) of utility). We capture this notion by assuming that the policymaker utility depends on those three factors. We also assume that preferences with respect to uncertain outcomes can be represented by expected utility:

\[ \hat{W}(g, \tilde{c}, \tilde{X}) = E[n v_p(g) + (1 - n) v_l(g, \tilde{c}) + \theta \tilde{c} - \tilde{X}], \]

where \( \theta \) is the relative weight the policymaker gives to receiving personal benefits vis-a-vis citizens’ utility. We assume that \( \theta > 1 \), so that the policymaker has a net benefit from receiving transfers from the lobby group.

The policymaker can receive personal benefits if she distorts policy in favor of the lobby group. In that way she creates a net gain to this group and can appropriate part of it, depending on her bargaining power.

We will assume that the policymaker is able to take hold of a portion \( B \) from the net gain she creates by distorting policy in favor of the lobby group:

\[ c(g) = B (1 - n) [v_l(g) - v_l(g^*)]. \] (3)

This can be interpreted as being a result of a Nash bargain, where \( B \) will depend on the bargaining power of the policymaker vis-a-vis the lobby group.

There is a probability that something goes wrong and the policymaker does not receive the contribution. This amounts to a reduction in her utility of \( \tilde{X} \) for being deceived, instead of an increase of \( c(g) \). The probability of things going
wrong depends on the distance between the policymaker and the lobbyist. The policymakers chooses ex-ante whether to distort policy and enter a bargain with the lobby group or not, maximizing her utility function, which in this particular situation can be represented by:

\[
W(g, I, \pi) = n v_p (g) + (1 - n) \{ v_l (g) - I \pi B \{ v_l (g) - v_l (g^*) \} \} + \\
+ I \{ \theta \pi B (1 - n) \{ v_l (g) - v_l (g^*) \} - (1 - \pi) X \},
\]

where \( I \) is an indicator function that equals 1 when the policymaker bargains with the lobby group and zero otherwise, \( \pi \) is the probability of a successful bargain. The equation can be written as:

\[
W(g, I, \pi) = U(g) + I \{ \pi b [ v_l (g) - v_l (g^*) \} - (1 - \pi) X \}, \tag{4}
\]

where \( b = (1 - n) (\theta - 1) B \).

3 One period problem

In this section we study the policy choice problem in a one period setting.

Let \( G(I, \pi) \) be the optimal policy level chosen by the government.

In this one period setting the optimal policy choice when there is no deal with the lobby is that of the benevolent policymaker, that is, \( G(0, \pi) = g^* \).

The optimal policy level when there is a deal between the policymaker and the lobby is defined by:

\[
G(1, \pi) = \arg \max W(g, 1, \pi).
\]

The first order condition for the maximization of the policymaker’s problem is given by:

\[
W_g(g', 1, \pi) = U'(g') + \pi b v_l'(g') = 0, \tag{5}
\]

where \( g' \equiv G(1, \pi) \).

Proposition 1 The level of policy chosen under a deal with the lobby favors more the lobby group to the detriment of the people when compared to the utilitarian policy, that is, \( g' < g^* \). Furthermore, the policymaker will favor more the lobby group under a deal the higher its probability of success, that is, \( \frac{dg'}{d\pi} < 0 \).
**Proof.** Using equation (2), we have that \(W_g(g^*, 1, \pi) = \pi bv'(g^*) < 0\). Since \(W(.)\) is concave in \(g\), \(gt < g^*\). Using the implicity function theorem in the first order condition (5), we have that \(\frac{dg_0}{d\pi} = -\frac{bv'(g^*)}{U''(g^*) + \pi bv''(g^*)} < 0\).

The incumbent will choose to distort policy and to bargain with the lobby if her welfare under the deal is higher than the one when there is no deal, that is, she will accept distort policy and set a deal with the lobby whenever:

\[W(G(1, \pi), 1, \pi) \geq W(g^*, \pi, 0)\]

Hence, the equation:

\[W(G(1, \pi), 1, \pi) = W(g^*, 0, \pi)\]  
(6)

defines the probability \(\pi\) for which the incumbent is indifferent between setting or not a deal with the lobby.

It is easy to see that the left hand side of equation (6) is increasing in \(\pi\), while the right hand side is independent of \(\pi\). Thus, \(\pi\) is a cutoff level such that the government sets the deal with the lobby whenever \(\pi \geq \pi\).

We can summarize the results above in the following proposition.

**Proposition 2** For given values of \(n\), \(X\) and \(b\), there is a cutoff probability \(\pi\), 0 < \(\pi\) < 1, defined implicitly in equation (6), such that the incumbent will set a deal with the lobby if, and only if, \(\pi \geq \pi\).

- If \(\pi < \pi\), then \(g = g^*\).
- If \(\pi \leq \pi\), then \(g = g' < g^*\), where \(g'\) is defined implicitly in equation (5).

**4 The dynamic problem**

In this section we solve a two-period problem, where there is an election between the first and the second period.

We assume for simplicity that the distance \(\pi\) is randomly assigned to the politician in the period between elections from a Bernoulli distribution, where:

\[\pi_t \in \{\pi_c, \pi_f\}\]

with \(\Pr(\pi = \pi_f) = p\) and \(\Pr(\pi = \pi_c) = 1-p\). We assume that 0 ≤ \(\pi_f < \pi_c \leq 1\).
4.1 After election (t+1) problem

After election there is no signaling component in the government’s policy decision. Then, the proposition 2 for the static problem still applies.

Thus, the after election optimal policy is given by:

\[
\begin{cases}
(G^*_j, I^*_j) & \text{if } \pi_j \geq \pi \\
(g^*, 0) & \text{otherwise}
\end{cases}
\] (8)

where \(G^*_j\) and \(I^*_j\) are, respectively, the after election optimal expenditure and decision of having a deal with the lobby or not. \(\pi\) is defined implicitly in equation (6), and \(g^*\) in equation (5). Since \(\pi_c > \pi_f\), we have \(G^*_c \geq G^*_f \geq g^*\).

4.2 Pre-election problem

4.2.1 The voter’s problem

We assume that government policy is observed with noise. Specifically, we assume that the people observe \(\hat{g}\), which is given by:

\[
\hat{g} = ge^\nu,
\]

where \(\nu\) is a Gaussian shock with mean zero and variance \(\sigma^2\). This may justified as resulting from rational inattention on the part of consumers (see Sims, 2003)\(^3\).

We also assume that the people do not observe the policymaker’s type \(\pi_t\). Hence, voters will try to infer \(\pi_t\), given the observed policy. There will be a signalling game between the incumbent and the voters.

The median voter, not belonging to the lobby group, would like to vote for the policymaker who will choose a policy more favorable to the people after elections. It is clear from proposition (1) that this will be the policymaker farthest from the lobby. Since there is no information about the opposition, it is assumed that the probability of it being far from the lobbyist is equal to the unconditional probability.

The median voter chooses her candidate by comparing the (updated) probability of the incumbent being of type \(\pi_f\) to that of the opponent. As the opponent is not in power, it is assumed that the probability that she is of type \(\pi_f\) is equal to the unconditional probability \(p\). Thus, if the updated probability

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\(^3\)Since citizens have limited information capacity and they have several other decision problems to solve that depend on information, it is reasonable to assume that, as a result, they will be imperfectly informed about most of the relevant variables.
about the incumbent’s type is larger than \( p \), people will vote for the incumbent, and she will be reelected. Otherwise the opponent will win the election. If the updated probability is equal to the unconditional probability, we assume that the incumbent is reelected with probability \( \frac{1}{2} \). Let \( \rho \) be the median voter’s conjecture that the incumbent is far from the lobby, and \( v_o \) his vote. Then:

\[
\begin{align*}
  v_o &= \begin{cases} 
    \text{inc}, & \text{if } \rho > p \\
    \text{opp}, & \text{if } \rho < p \\
    \text{inc} \text{ with probability } \frac{1}{2} & \text{if } \rho = p
  \end{cases}.
\end{align*}
\]

How do voters form their belief \( \rho \)? Given the the lognormality assumption for the noise, it is clear that any level of observed policy could result from a given policy, and that is true for any actual policy level chosen. Then, every positive level for the observed policy is in the equilibrium path. As a consequence, the median voter’s belief is generated by the updating of his prior belief over the incumbent’s type using Bayes’s rule. Thus, the updated probability may be represented by:

\[
\rho = \Pr(\pi_t = \pi_f | \hat{g}_t = \hat{g}) = \frac{p \times f(\hat{g}_t = \hat{g} | \pi_t = \pi_f)}{p \times f(\hat{g}_t = \hat{g} | \pi_t = \pi_f) + (1 - p) \times f(\hat{g}_t = \hat{g} | \pi_t = \pi_c)},
\]

where \( \hat{g} \) is the observed policy level, and \( f(\cdot | \cdot) \) is the conditional density function of \( \hat{g} \) given the policymaker’s type. It is clear that the voter will vote for the incumbent with probability 1, that is \( \rho > p \), if and only if:

\[
f(\hat{g}_t = \hat{g} | \pi_t = \pi_f) > f(\hat{g}_t = \hat{g} | \pi_t = \pi_c) \quad (10)
\]

This rule is intuitive. The voter revises upwards his prior that the government is of the distant type if, and only if, the observed policy level is more likely under the distant type’s policy than under the policy chosen by the type closer to the lobbies.

### 4.2.2 Reelection probability

Now we can calculate the incumbent’s reelection probability as a function of the chosen policy level. To do so, it is necessary to specify the incumbent’s actions prescribed by equilibrium strategy in the period before election \( \{G^l, G^c\} \), which will be used by the voter to update his beliefs.
A chosen expenditure level $g$ and a noise $v$ will determine the observed policy level, $\hat{\sigma}_r = ge^v$. Therefore, the conditional density function of $\hat{\sigma}_r$ given the policymaker’s type $f(.|.)$ is equal to the density function of the noise $v$ that would yield $\hat{\sigma}_r$ when the policy level is the one chosen by this type in equilibrium. That is,

$$f(\hat{\sigma}_r = \hat{\sigma} | \pi_t = \pi_i) = \phi \left( \frac{\ln \hat{\sigma} - \ln G^i}{\sigma} \right)$$  \hspace{1cm} (11)

where $\phi$ is the density of the standard normal distribution. Figure 1 illustrates the density function of the observed policy, for a given policy chosen.

![Observed policy density function](image)

Then, we can write the conditions for reelection in equation (10) as:

$$\phi \left( \frac{\ln \hat{\sigma} - \ln G^f}{\sigma} \right) > \phi \left( \frac{\ln \hat{\sigma} - \ln G^c}{\sigma} \right).$$ \hspace{1cm} (12)

In the case of a separating equilibrium, with $G^f > G^c$, the policy has a cutoff level $\bar{y}$, such that, whenever the observed policy level is larger than $\bar{y}$ ($\hat{\sigma} > \bar{y}$), the median voter reelects the incumbent. This policy cutoff level is implicitly defined by:

$$\phi \left( \frac{\ln \bar{y} - \ln G^f}{\sigma} \right) = \phi \left( \frac{\ln \bar{y} - \ln G^c}{\sigma} \right)$$

which, due to the symmetry of the normal distribution, is easily seen to be given
Figure 2: Policy Cutoff Level

![Figure 2: Policy Cutoff Level](image)

by:

$$\bar{g} = \exp \left[ \frac{\ln G^f + \ln G^c}{2} \right].$$

Figure 2 depicts the density functions of the observed policy when the policy level is the one chosen by each type of incumbent in equilibrium, $\pi^f$ and $\pi^c$. The figure also shows the cutoff level of the observed policy $\bar{g}$. Note that condition 12 is satisfied for $\hat{g} \geq \bar{g}$.

For a chosen policy $g$, the reelection probability is the probability of the observed policy, $\hat{g}$, exceeding the cutoff point, $\bar{g}$, hence:

$$q(g, G^f, G^c) = \Pr[\hat{g} > \bar{g}] = \Pr[g^{e^\nu} > \bar{g}] = \Pr[v > \ln \bar{g} - \ln g]$$

Thus, the probability of reelection as a function of the policy level and equilibrium strategy can be written as:

$$q(g, G^f, G^c) = 1 - \Phi \left( \frac{\ln \bar{g} - \ln g}{\sigma} \right),$$

\[4\text{More precisely, the probability of reelection is equal to sum of the probability of the observed expenditure being strictly greater than the the cutoff level with half the probability of the observed expenditure coinciding exactly with the cutoff level. However, under our continuous distribution assumption, the latter probability is zero.}\]
where $\Phi(.)$ is the normal cumulative distribution function. The reelection probability is increasing in $g$, and is greater than $\frac{1}{2}$ if, and only if, $g > \bar{g}$. Figure 3 illustrates the probability of reelection, for a chosen policy level $g$ and equilibrium strategies for the two types of incumbent, $G^f$ and $G^c$, which determine $\bar{g}$.

It will also be possible that the policymaker closer to the lobby will have a greater incentive to be reelected, as we will see in the next section. Suppose that there is a separating equilibrium with $G^c > G^f$ (we will see later that this equilibrium is not possible). Then, since voting is prospective, the median voter will still prefer the policymaker further away from the lobby, although she will choose a lower policy level. As a consequence, the inference problem is reversed, and the probability of reelection as a function of policy level and equilibrium strategy will become:

$$q(g, G^f, G^c) = \Phi \left( \frac{\ln \bar{g} - \ln g}{\sigma} \right),$$

Now $q$ is decreasing in $g$, since a lower $g$ increases the probability that the incumbent is of the distant type.

Finally, in the case of a pooling equilibrium, we have always $\rho = p$, since all of possible policy levels are in the equilibrium support. Thus, the probability of reelection is $\frac{1}{2}$ and will not be affected by any deviation from equilibrium
strategy.

Then, we can summarize the dependence of the probability of reelection function on the various types of equilibrium as follows:

\[
q(g, G_f, G_c) = \begin{cases} 
1 - \Phi \left( \frac{\ln g - \ln \tilde{g}}{\sigma} \right), & \text{if } G_f > G_c \\
\Phi \left( \frac{\ln \tilde{g} - \ln g}{\sigma} \right), & \text{if } G_f < G_c \\
\frac{1}{2}, & \text{if } G_f = G_c
\end{cases}
\]  

(13)

where \( \tilde{g} = \exp \left[ \frac{\ln G_f + \ln G_c}{2} \right] \).

4.2.3 The Incumbent’s Strategy

The policy chosen by the incumbent policymaker not only affects her contemporaneous utility, but may also affect the reelection probability. The policymaker will be better off being reelected if she is close enough to the lobby to get rents from being in power, or if the election of another policymaker close to the lobby could lead to an inferior policy. Remember that in our model rents are generated if there is a deal between the policymaker in power and the lobby. Since those rents will depend on the policy implemented, they are endogenous.

Let \( FW(\pi_i) \) be the expected after election utility of the type \( \pi_i \) government, when reelected:

\[
FW(\pi_i) = W(G_{i+1}^i, \pi_i, I_{i+1}^i)
\]

where \( G_{i+1}^i \) is the expenditure and \( I_{i+1}^i \) is the decision of setting or not a deal with the lobby, optimally chosen after elections by the reelected incumbent of type \( \pi_i \). It is clear that

\[
FW(\pi_i) \geq U(g^*)
\]

(14)

since it is always possible to the policymaker not to make a deal with the lobby and to choose policy level \( g^* \).

When the incumbent is not reelected her utility will be the benevolent one, since we assumed that there is no additional source of personal income or loss of reputation when the policymaker is not in office. Let \( FU \) be the expected after election utility of the incumbent, when she is not reelected:

\[
FU = pU(G_{i+1}^f) + (1 - p)U(G_{i+1}^c).
\]

Since the policymaker will have no rents when she is not reelected, the best
outcome for her is to have the new incumbent setting policy level $g^*$. Thus,

$$FU \leq U(g^*).$$

(15)

Putting 14 and 15 together, we have:

$$FU \leq U(g^*) \leq FW(\pi_i)$$

(16)

This last inequality implies that the policymaker always prefers (although not strictly) to be reelected. The equality will happen only when both types do not make a deal with the lobby after election.

In equilibrium, the two decisions - the policy level and to set a deal or not with the lobby - will be chosen to solve:

$$\max_{g,I} \{ V(g, \pi_i, I, G^f, G^c) \}$$

s.t. $g > 0$,

(17)

where:

$$V(g, \pi_i, I, G^f, G^c) = W(g, \pi_i, I) +$$

$$+ \beta \left[ q(g, G^f, G^c) FW(\pi_i) + (1 - q(g, G^f, G^c)) FU \right]$$

and where $\beta$ is the incumbent’s discount rate and the function $q$ is given by 13.

Equation (18) can be rewritten as:

$$V(g, \pi_i, I, G^f, G^c) =$$

$$W(g, \pi_i) + \beta q(g, G^f, G^c) [FW(\pi_i) - FU] + \beta FU$$

(19)

which makes clear that a higher reelection probability increases the utility of the incumbent whenever it is advantageous for one of the types to set a deal with the lobby after election.

It is intuitive that, whenever reelection increase utility, the incumbent policymaker will choose a policy which will depart from the static optimal level - the one that maximizes $W(g, \pi_i, I)$. We will show below that the only type of equilibrium consistent with this possibility is $G^f > G^c$. This makes $q$ increas-

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5 Notice that a strict inequality is possible when one of the opposition types choose to set a deal with the lobby.
ing in \( g \), and the optimal level of \( g \) higher than the static one for both types. Therefore there will be policy cycles around elections, with policy favoring more the people before elections than after elections.

4.3 Equilibrium

An equilibrium requires a fixed point in the solution of the incumbent problem 17. That is:

\[
G^c = \arg \max_{g,I} \left\{ V(g, \pi_c, I, G^f, G^c) \right\} \quad (20)
\]

s.t. \( g > 0 \),

and:

\[
G^f = \arg \max_{g,I} \left\{ V(g, \pi_f, I, G^f, G^c) \right\} \quad (21)
\]

s.t. \( g > 0 \),

We can sum up the conditions for an equilibrium, when it exists, as follows. A perfect Bayesian equilibrium in pure strategies, when it exists, should satisfy the following conditions:

1. after election an incumbent of type \( j \) will choose to make a deal with the lobby whenever its type \( \pi_j < \bar{\pi} \), where \( \bar{\pi} \) is defined implicitly by equation (6) and sets policy level \( g' \) if she has a deal with the lobby and \( g^* \) otherwise;

2. before election an incumbent chooses to set a deal or not with the lobby and the policy level to maximize her expected intertemporal utility function, that is, to solve problem (17), where the probability of reelection function \( q(g, G^c, G^f) \) is given by expression (13);

3. the policy level for each type is a fixed point, that solves problems (20) and (21) respectively.

There are two features of the equilibrium that are noteworthy. The first is that there will be policy cycles around elections, that is, policy favors more the people before elections than after. More precisely, whenever is advantageous to one of the policymaker types to make a deal with the lobby after elections,
there will be electoral incentives that stimulate a higher policy for the poor before election than after for each policymaker type.

The second feature is that a deal between the policymaker and the lobby is more likely to happen after election than before. More specifically, whenever an incumbent of a certain type makes a deal with the lobby before election, she will also do it after election, but the converse is not true. A deal with the lobby is profitable for the incumbent only if the policy favors substantially this group. However, elections induce the policymaker to set a policy more favorable to the people, reducing the gain of an agreement with the lobby. Therefore an agreement with the lobby is less likely before elections.

4.3.1 The possibility of no pure strategies equilibrium

Although it is plausible that a pure strategies equilibrium exists, there is no guarantee. The model may not have an equilibrium if the type closer to the lobby benefits marginally from a deal with the lobby after election. The argument is outlined below.

Let the parameters be such that the policymaker of type $\pi_c$ opt for a contract after election but for no contract before. As we will argue, this happens when $0 < \pi_c - \bar{\pi} < \varepsilon$, for a sufficiently small positive $\varepsilon$, where $\bar{\pi}$ is the probability cutoff level defined by equation (27). In this case the incumbent of type $\pi_c$ chooses to make a deal with the lobby after election and distorts policy. Thus, $FW(\pi_c) > FU$ for both incumbent types, that is, they strictly prefer to be reelected. For this reason, both incumbent types have an incentive to distort policy to increase their reelection probability. Assume that, in equilibrium, $G^f > G^c$, so that the reelection probability is increasing in $g$ (by equation (13)). The policymaker of type $\pi_c$ will face a conflict of incentives between a policy which leads to a higher probability of reelection - a higher $g$ - and a policy which will lead to higher personal benefits - a lower $g$. However, for a sufficiently low $\varepsilon$ the deal with the lobby after elections is only marginally advantageous to her, so that the additional electoral incentive makes a deal with the lobby before election not advantageous. It is clear that the incumbent of type $\pi_f$ will have even less incentives to set a deal with the lobby before elections, since she faces a higher probability of a bad outcome. Hence, neither incumbent types set a deal with the lobby before election. Their different incentives in the pre-election policy choice comes from their different electoral incentives. Since $FW(\pi_c) - FU > FW(\pi_f) - FU$, the policymaker of type $\pi_c$ will have a
higher reelection gain, therefore she will make a higher effort to be reelected by choosing a higher $g$. That is, $G^f < G^c$, which contradicts our initial assumption that $G^f > G^c$.

An equilibrium with $G^f < G^c$ is not possible either, since in this case the probability function will be decreasing in $g$ and the type $\pi_c$ will choose a lower policy level. Then, the only remaining possibility is a pooling equilibrium, with both types choosing policy level $g^*$. However, this cannot be an optimal choice for type $\pi_c$, since in this case the incentives the policymaker faces before election are the same she does after election, when she chooses to have a deal with the lobby.

A specification which leads to no equilibrium is not plausible in the context of the present model. The model relies on the possibility of deals between the policymaker and the lobby, and on non-observable comparative advantages of certain types to benefit from those deals. Thus, it is plausible to assume that those deals benefit substantially (not marginally) the type most attracted to them - $\pi_c$ - under the most favorable conditions to them - after elections.

\section{Applications}

\subsection{Government expenditure cycles}

\subsubsection{Expenditure composition cycles}

There is evidence of electoral cycles for composition effects on the fiscal budget in several countries (on US, see Peltzman 1992; on Canada, see Kneebone and McKenzieon 2001; on Mexico, see Gonzalez 2004; on Colombia, see Drazen and Eslava 2005). We now show how the framework developed above can be applied to generate electoral expenditures composition cycles.

In the simple formulation we choose, taxes are fixed and there are two types of public goods, specific to each of the two groups. The government budget constraint is represented by:

$$\tau = (1 - n) g_l + n g_p,$$

where $\tau$, $g_l$ and $g_p$ are taxes, expenditures for the lobby group and expenditures for the people, respectively (all per capita). It can be rearranged as:

$$g_l = \frac{\tau - n g_p}{1 - n}.$$
A citizen of group $i$ utility function $u_i$ is represented by:

$$u_i (c_i, g_i) = c_i + \log g_i, \text{ for } i = p, l, \alpha > 1,$$

where $c_i$ is her private consumption, $g_i$ is the amount of the public available to her group, and $p$ and $l$ stand for the people and the lobby groups, respectively. Given that $c_i = y_i - \tau$, indirect utility functions may be written as:

$$v_l (g) = y_l - \tau + \log \left( \frac{\tau - ng}{1 - n} \right), \text{ and }$$

$$v_p (g) = y_p - \tau + \log g,$$

where we use $g = g_p$ for simplicity.

Substituting equations (22) and (23) into the utilitarian welfare function of a benevolent policymaker, represented by equation (1), we get:

$$U (g) = y - \tau + n \log g + (1 - n) \log \left( \frac{\tau - ng}{1 - n} \right),$$

where $y = ny_p + (1 - n)y_l$ is the average per capita income. The benevolent policymaker would optimally choose:

$$g^* = \tau = g_l,$$

that is, all citizens would receive the same spending level.

The optimal spending level under a deal is given by:

$$g' = \frac{\tau}{1 + \pi b}.$$

Note that in this application we have an explicit solution for the spending level. It is easy to check Proposition 1: $g' < g^*$ and $g'$ is decreasing in $\pi$.

The cutoff probability $\pi$ defined by equation (6) now becomes implicitly defined by:

$$(1 - n + \pi b) \log \frac{1 - n + \pi b}{(1 - n)} - (1 + \pi b) \log (1 + \pi b) = X (1 - \pi).$$

Following the setup above, we are able to show that there will be an electoral cycle in the expenditures composition, with more spending for the people before

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Note that in this case it is economically reasonable to impose an upper bound for $g$ ($0 < g \leq \frac{\tau}{n}$) to prevent a negative value for $g_l$. However, this new restriction is never binding.
than after election. We provide a numerical example to illustrate the model’s ability to generate electoral cycles.

**Numerical example** The Table 1 presents examples of the three possible equilibrium types. The examples differ in the value of the loss $X$ due to an unsuccessful deal with lobby, while the other parameter values are set constant at: $\pi_f = 0.25, \pi_c = 0.75, n = 0.7, b = 0.5, \sigma = 0.25, p = 0.5, \text{ and } \beta = 0.9$. The first line presents the results for a relatively small value for $X$, 0.01, which makes a deal with the lobby always advantageous to both types before and after elections. We observe that there is an expenditures cycle for both incumbent types, with higher expenditures for the people before elections.

<table>
<thead>
<tr>
<th>$X$</th>
<th>$G^f_I$</th>
<th>$G^c_I$</th>
<th>$G^{f+1}_I$</th>
<th>$G^{c+1}_I$</th>
<th>$I^f_I$</th>
<th>$I^c_I$</th>
<th>$I^{f+1}_I$</th>
<th>$I^{c+1}_I$</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.01</td>
<td>0.9219</td>
<td>0.8206</td>
<td>0.8889</td>
<td>0.7273</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0.02</td>
<td>1.0237</td>
<td>0.8122</td>
<td>0.8889</td>
<td>0.7273</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>0.2</td>
<td>1.0195</td>
<td>0.7832</td>
<td>1</td>
<td>0.7273</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>

Parameter values: $n = 0.7, \beta = 0.9, b = 0.5, \pi_f = 0.25, \pi_c = 0.75, \sigma = 0.25$

When we increase $X$ to 0.02, we generate additionally a lobby activity electoral cycle. Before the election, a deal with the lobby becomes not advantageous to the type less connected with the lobby, despite being advantageous after election. In order to increase her re-election probability, the policymaker of this type prefers to increase her expenditure to a level above the optimal one, distorting expenditure in a direction opposed to the lobby interests.

Increasing the damage of an unsuccessful deal further, to $X = 0.2$, will make even an after election agreement with the lobby not beneficial to the distant type policymaker. However, the close type, having a higher probability of success in the deal with the lobby, is still able to profit from the agreement, before and after elections. We still have an expenditure cycle, with the close type choosing to set a deal with the lobby before and after election, and the distant type not setting the deal at any time.

Finally, an increase of $X$ to the point that prevents any deal with the lobby (not presented in the table) will result in an not very interesting type of equilibrium. Both types choose to spend $\tau$ for both types of citizens, before and after elections.
5.1.2 Aggregate expenditure cycles

Electoral cycles in aggregate expenditures can be generated by a simple change in the model described above. Suppose that the people are not taxed and receive the only public good.

\[ v_l(g) = y_l - r, \quad \text{and} \]
\[ v_p(g) = y_p + \log g. \]  

(28)

(29)

We still assume a balance budget: \( g = r \).

An utilitarian policymaker without lobby influence and electoral incentives will choose:

\[ g^* = \frac{n}{1-n}. \]

If the policymaker chooses to spend \( g < g^* \), she can increase the lobby group utility by \( g - g^* \) and get a share \( B(g - g^*) \). Then if she has a deal with the lobby, she would choose:

\[ g' = \frac{n}{1-n + \pi b} = \frac{g^*}{1 + \frac{\pi \pi b}{n}}, \]

(30)

where, as before, \( b \equiv \vartheta - (1 - n) \) \( B \).

With information asymmetry about the two different policymaker types, \( \pi_e \) and \( \pi_f \), as before, the model generates electoral cycles in aggregate expenditures. This result is in line with the empirical evidence, as in Brender and Drazen (2004), Shi and Svensson (2002a,b), and Persson and Tabellini (2002).

5.2 Exchange rate cycles

There is empirical evidence of exchange rate electoral cycles for Latin American countries (cross-country evidence for Latin America is provided by Frieden, Ghezzi and Stein, 2001, and Ghezzi, Stein and Streb, 2004, for Brazil, see Bonomo and Terra, 2001, Grier and Hernández-Trillo, 2004 for Mexico, and Pascó-Fonte and Ghezzi, 2001, for Peru). Bonomo and Terra (2005) presents

\footnote{Note that the balanced budget assumption also generates a counterfactual electoral tax cycle. In a more complex version of the model, we could assume, instead, that taxes are hard to change and that any eventual budget imbalances could be financed by government debt. This setting would generate an intertemporally balanced budget equilibrium with expenditures and budget deficits electoral cycles.}
a model that generates real exchange rate electoral cycles, in a setting with informational asymmetry over the policymaker’s preferences. Here we derive the same result in a simpler model based on the special interests politics proposed in this paper.

Consider a endowment economy with two sectors: a tradable a nontradable sector. The nontradable sector has the majority of the population, while the tradable sector has the lobby power. All consumers are assumed to have the same CES utility function:

\[ u(N_i, T_i) = \left( N_i^{\frac{1}{1+r}} + T_i^{\frac{1}{1+r}} \right)^{\frac{1}{1+r}}, \tag{31} \]

where \( N_i \) and \( T_i \) are the amount consumed of nontradable and tradable goods, respectively, and \( r > 1 \). Now let \( e \) be the tradable good relative price, which is the real exchange rate. Define \( g \equiv \frac{1}{e} \). As expected, the indirect utility function is decreasing in the real exchange rate for a citizen in the nontradable sector, and increasing for the tradable sector:

\[
\begin{align*}
  v_N(e) &= (1 + g^{-r})^{-\frac{1}{r}} E^N, \quad \text{and} \\
  v_T(e) &= (1 + g^r)^{\frac{1}{r}} E^T,
\end{align*}
\]

where \( E^N \) and \( E^T \) are the per capita endowment for the nontradable and tradable sectors, respectively.

A benevolent (utilitarian) policymaker would choose to set the exchange rate at a level\(^8\):

\[ g^* = \left( \frac{n E^N}{(1-n) E^T} \right)^{\frac{1}{r-1}} \tag{34} \]

The policymaker may choose to set a more depreciated exchange rate, \( g < g^* \) (which means \( e > e^* \equiv \frac{1}{g^*} \)) in order to favor the tradable sector and get a share of its gain. Proceeding as before, we find that when there is an agreement with

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\(^8\)We implicitly assume that the government manipulate its expenditure level in nontradable goods to make the chosen exchange rate consistent with equilibrium in both nontradable and tradable goods markets. The government budget can be balanced intertemporally by a fixed lump sum tax on each citizen. Cyclical government budget imbalances are financed by foreign investors. For an example of a model where the relation between fiscal policy and exchange rate is explicitly taken into account, see Bonomo and Terra (2004).
the tradable sector the chosen exchange rate is given by:

\[
g'_0 = \frac{nE^N}{(1 - n)E^T + \pi bE^T} \quad (35)
\]

\[
g'_1 = \frac{1 - n}{1 - n + \pi b} \quad (36)
\]

By assuming that there are two types of policymakers, \(\pi_c\) and \(\pi_f\), information asymmetry engenders a mechanism by which exchange rate electoral cycles are generated. The policymaker will choose a more appreciated exchange rate before than after election.

6 Conclusion

Special interest politics is often associated with microeconomic policy, and its macroeconomic impact is thought to be negligible. Here we are concerned with opposite interests which divide the entire society in two groups: one with the lobby power, and the other with the majority of votes. Government policy may affect the distribution of resources in the society between those two groups.

In this paper we propose a link between special interest politics and political business cycles. We build a framework where the lobby power of a special interest group interacts with the voting power of the majority of the population, leading to political business cycles. The model generates an additional cycle, which is a “contracting” cycle around elections. Since reelection concerns induce the policymaker to favor less the lobby group, the mutual net gains from a deal between the incumbent and the lobby are reduced before elections. Therefore, it is less likely that the policymaker will make a deal with the lobby group before elections than after elections.

We showed that those same ideas could be applied to generate cycles around election in other economic variables, such as government expenditures level, and the real exchange rate.

The mechanism we propose in this paper does not exclude the operation of traditional political business cycle channels, as proposed by the opportunistic and partisan literature. The relative importance of our proposed channel in explaining the electoral cycle in different variables should be investigated in future research.
References


7 Appendix

In this appendix we drop the assumption that the incumbent incurs an exogenous utility loss when her deal with the lobby is not successful. We assume, instead, that an unsuccessful deal is revealed to the public.

The policymaker preferences are now represented by:

\[ \tilde{W}(g, \hat{c}, \hat{X}) = E \left[ n v_p(g) + (1 - n) \tau v_l(g, \hat{c}) + \theta \hat{c} \right], \]

which implies the following indirect utility function:

\[ W'(g, I, \pi) = U(g) + I \pi b [v_l(g) - v_l(g^*)], \quad (37) \]

where \( b \equiv (1 - n)(\theta - 1)B \).

In this model, both types of incumbent will choose to make a deal with the lobby after election, and the optimal policy chosen is also implicitly defined by equation (5).

Before election, the incumbent will take into account the effect of the chosen policy on her reelection probability. Here we will restrict our analysis to the case in which there exists an equilibrium where, before election, the incumbent closer to the lobby chooses to make a deal, while the other type does not.

Now the voter observes, not only the policy (with noise), but also whether there was an unsuccessful deal. Let \( \rho_j \) be the voter’s updated belief that the incumbent is of type \( \pi_j \), after observing \( \hat{g} \) and whether an unsuccessful deal occurred or not \( (I_x = j \) with \( j = 1 \) when the deal is unsuccessful and 0 otherwise). Formally:
\[ \rho_j = \Pr (\pi_t = \pi_f \mid \hat{g}_t = \hat{g}, I_x = j) \]

If an unsuccessful deal occurs, the voter will infer that the policymaker type is \( \pi_f \). Therefore \( \rho_1 = 0 \). In this case the incumbent will not be reelected.

The updated belief when the voter receives no signal of an unsuccessful deal is:

\[
\rho_0 = \frac{p \times h(\hat{g}_t = \hat{g}, I_x = 0 \mid \pi_t = \pi_f)}{p \times h(\hat{g}_t = \hat{g}, I_x = 0 \mid \pi_t = \pi_f) + (1 - p) \times h(\hat{g}_t = \hat{g}, I_x = 0 \mid \pi_t = \pi_c)},
\]

where \( h(\hat{g}_t = \hat{g}, I_x = 0 \mid \pi_t = \pi_i) \) is the joint density of observing a policy signal \( \hat{g} \) and receiving no information about an unsuccessful deal, given the the incumbent type is \( \pi_i \).

It is clear that:

\[
h(\hat{g}_t = \hat{g}, I_x = 0 \mid \pi_t = \pi_c) = \pi_c \times f(\hat{g}_t = \hat{g} \mid \pi_t = \pi_c), \quad \text{and} \quad \frac{1}{\ln \epsilon_G G_f + \ln \epsilon_G G_c} \ln \pi_c
\]

\[= f(\hat{g}_t = \hat{g} \mid \pi_t = \pi_f), \]

since the success of the deal is assumed to be independent of the policy chosen by the incumbent when the incumbent makes a deal with the lobby.

When the voters receive no information about an unsuccessful deal, the incumbent will be reelected if \( \rho_0 > p \), which, after substituting equation (39) into (38), can be seen to be equivalent to:

\[
f(\hat{g}_t = \hat{g} \mid \pi_t = \pi_f) > \pi_c \times f(\hat{g}_t = \hat{g} \mid \pi_t = \pi_c).
\]

Given the assumed lognormal distribution for the noise, the cutoff for the observed policy signal \( \tilde{g} \) will be given by:

\[
\ln \tilde{g} = \frac{\ln G_f + \ln G_c}{2} + \ln \pi_c\
\]

The reelection probability for an incumbent which chooses a policy \( g \) and whether to set a deal \( I \) can easily be shown to be given by:

\[
q'(g, I, G_f, G_c) = \left[ 1 - I (1 - \pi_i) \right] \left[ 1 - \Phi \left( \frac{\ln \tilde{g} - \ln g}{\sigma} \right) \right].
\]

Note that the reelection probability decreases when the incumbent chooses
to make a deal with the lobby.

The intertemporal utility function of the incumbent becomes:

$$V^0(g, I, \pi, G^I, G^c) =$$

W'(g, I, \pi_i) + \beta q'(g, I, G^I, G^c) [FW(\pi_i) - FU] + \beta FU.

Observe that, when I = 0, V'(.) becomes the same function as in the original problem. However, this does not mean that G^I will be the same as before, since it depends on G^c. The closer type faces a different objective function, as the re-election probability is a different function of g.