Special Interests and Political Business Cycles

Marco Bonomo and Cristina Terra
EPGE/FGV
Preliminary and Incomplete

September 30, 2004

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 lobby groups in exchange for a tilted economic policy in their favor. The distorted policy do not please voters, but it tends to be compensated by a favorable ideological bias induced by the campaign contributions.

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.

One example is provided by 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. Another example is exchange rate policy. A more valued exchange rate benefits most of the population, while there is often lobby by the tradable sector for more devalued rates. Another often cited conflict of interests is between the financial and productive sector, regarding policies affecting the interest rate level.

There is widespread evidence on political business cycles involving fiscal instruments. According to Brender and Drazen (2004), the evidence on aggregate data (Shi and Svensson 2002a,b, Persson and Tabellini 2002) is mainly due to

1

the political budget cycles in "new democracies". 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). The evidence of electoral cycles is stronger for composition effects on 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 2004b).

We will argue that both kinds of cycle may be generated by the interplay between political influence of a special interest group and the voting power of the majority of the population. The incumbent captured by the lobbying group will try to conceal her proximity to this group by attenuating her policy bias before election, and only fully implementing it after elections.

By the same token, the evidence on real exchange rate cycle around elections in Latin America (Frieden and Stein 2001) can alternatively be interpreted as opportunistism driven (Ghezzi, Stein and Streb 2000) or as resulting from the distributive conflict between the tradable and nontradable sectors (Bonomo and Terra 2004).

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 policymaker may choose to benefit a lobbying group through her policy choice in exchange of part of the lobby'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. The outcome may be a loss of reputation for the policymaker, if, for instance, the existence of such a deal becomes public, or even a "moral" loss resulting from an intentional default on the part of the lobby. The probability 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, in sum, how close they are to each other. 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 neither the distance between the lobby and the incumbent nor whether a deal between them was set. Neither can they perfectly infer that information, for economic policy is observed with a noise. The voters would like to pick the politician most distant from 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 lobbist has an incentive to disguise her proximity. She does so by choosing a policy less favorable to the special interests 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

2

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 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 apply this general idea to the specific problem of dividing the government spending between two groups in society, which we denote the people and the lobby. The policy election cycle is characterized by the people receiving a larger share of expenditures before elections than after.

Our model has some novel features. First, the key tension in the model is 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, but also in 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. Furthermore, 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[1]. Finally, we do not need to assume an exogenous '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 (2004) an exchange rate cycle distributes income between tradable and nontradable sectors. Voters are unsure about the weight of their group in the policymaker's preference and observe policy with a noise. In Drazen and Eslava (2004a), voters suffer from the same information asymmetry with respect to the incumbent's preference but also are uncertain about how sensitive is their group's voting behavior to government expenditures. The result is a cycle in expenditure composition. Another alternative model, where policymakers preferences are formulated in terms of types of expenditures, is provided by Drazen and Eslava (2004b).

The paper is organized as follows. In the next section we set up the basics of

---

[1] In the usual signalling models one of the incumbent type does not distort his policy choice before elections. Hence, there is no cycle when he is reelected.

the model. In section three we solve the lobby problem in a one period setting. The dynamic problem is studied in section four. 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.

In the simple formulation we choose, taxes are fixed and there are two types of public goods, specific to each of the two groups.

A citizen of group i utility function u_i is represented by:

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

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.

Taxes are constant, and can be used to finance both types of public goods. The government budget constraint is represented by:

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

where τ, 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:

$$g_l = \frac{\tau - n g_p}{1 - n}.$$

Given that $c_i = y_i - \tau$, indirect utility functions may be written as:

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

$$U_p\left(g\right) = y_p - \tau + \log g, \tag{2}$$

where we use $g = g_p$ for simplicity.

The government takes the total level of taxes as given and chooses the expenditures composition between the two groups of citizens. Without loss of generality, we state the government's problem in terms of his choice of spending level for the people. (From now on, 'spending level' will always refer to the spending level for the people.) We assume that the welfare function of a benevolent policymaker is utilitarian:

$$U\left(g\right) = nU_p\left(g\right) + \left(1 - n\right) U_l\left(g\right). \tag{3}$$

Substituting equations (1) and (2) into equation (3), we get:

$$U\left(g\right) = y - \tau + n \log g + \left(1 - n\right) \log\left(\frac{\tau - ng}{1 - n}\right), \tag{4}$$

4

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

$$g = g_l = \tau \equiv g^*, \tag{5}$$

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

Policymakers like to see the people happy. But they also like to receive personal benefits $\widetilde{c}$ and dislike to have their reputation damaged (which is represented by a loss 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:

$$\widetilde{W} (g, \widetilde{c}, X) = E [U (g) + \widetilde{c} - X] .$$

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:

$$c (g) = b [U_l (g) - U_l (\tau)] . \tag{6}$$

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 and looses some reputation. This amounts to a reduction in her utility of X, instead of an increase of $c (g)$. The probability of things going wrong depends on the distance between the policymaker and the lobbyist. The policymaker 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:

$$W (g, \pi, I) = U (g) + I \{\pi b [U_l (g) - U_l (\tau)] - (1 - \pi) X\} , \tag{7}$$

where I is a indicator function that equals 1 when the policymaker bargains with the lobby group and zero otherwise, π is the probability of a successful bargain.

3 One period problem

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

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

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

The optimal spending level chosen by the government under a deal is defined by:

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

Substituting equations (4) and (1) into equation (7), we get:

$$W\left(g,\pi,1\right) = y - \tau + n\log g + (1-n)\log\left(\frac{\tau - ng}{1-n}\right) +$$
$$+\pi b\left[\log\left(\frac{\tau - ng}{1-n}\right) - \log\tau\right] - (1-\pi)X.$$

From the first order condition for the maximization of the policymaker's problem, we find that the optimal spending level under a deal is given by:

$$G\left(\pi,1\right) = \frac{\tau}{1+\pi b}. \tag{8}$$

Notice that G is decreasing in π, that is, the higher probability of receiving a contribution from the lobby makes him distort more the expenditures in their favor. This happens because the expected marginal revenue of a reduction in G is proportional to πb. Hence, it also happens that the function $G\left(.,1\right)$ is shifted downwards for a higher value of b.

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:

$$W\left(G\left(\pi,1\right),\pi,1\right) \geq W\left(\tau,\pi,0\right).$$

Hence, the equation:

$$W\left(G\left(\overline{\pi},1\right),\overline{\pi},1\right) = W\left(\tau,\overline{\pi},0\right) \tag{9}$$

defines the probability $\overline{\pi}$ for which the incumbent is indiferent between setting or not a deal with the lobby.

It is easy to see that the left hand side of equation (9) is increasing in π, while the right hand side is independent of π. Thus, $\overline{\pi}$ is a cutoff level such that the government sets the deal with the lobby whenever $\pi \geq \overline{\pi}$.

Substituting for the functional form of the welfare function, equation (9) can be written as:

$$n\log\left(\frac{g}{\tau}\right) + (1 - n + \overline{\pi}b)\log\left(\frac{g_l}{\tau}\right) = X\left(1 - \overline{\pi}\right). \tag{10}$$

Substituting for the equilibrium value for $G\left(\pi,1\right)$ given by equation (8), equation (10) becomes:

$$(1 - n + \overline{\pi}b)\log\frac{1 - n + \overline{\pi}b}{(1-n)} - (1 + \overline{\pi}b)\log\left(1 + \overline{\pi}b\right) = X\left(1 - \overline{\pi}\right) \tag{11}$$

We can summarize the results above in the following proposition.

Proposition 1 *For given values of n, X and b, there is a cutoff probability $\overline{\pi}$, $0 < \overline{\pi} < 1$, defined implicitly in equation (11), such that the incumbent will set a deal with the lobby if, and only if, $\pi \geq \overline{\pi}$.*
If $\pi < \overline{\pi}$, then $g = \tau$.
If $\overline{\pi} \leq \pi$, then $g < \tau$, where g is given by:

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

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 π is randomly assigned to the politician in the period between elections from a Bernoulli distribution, where:

$$\pi_t \in \{\pi_c, \pi_f\}, \tag{12}$$

with $\Pr(\pi = \pi_f) = p$ and $\Pr(\pi = \pi_c) = 1 - p$. We assume that $0 \leq \pi_f < \pi_c \leq 1$.

4.1 After election (t+1) problem

After election there is no signaling component in the government's policy decision. Then, the proposition 1 for the static problem still applies.

Thus, the after election optimal policy is given by:

$$\left(G_{+1}^j, I_{+1}^j \right) = \left\{ \begin{array}{ll} \left(\frac{\tau}{1+\pi_j b}, 1 \right) & \text{if } \pi_j \geq \overline{\pi} \\ (\tau, 0) & \text{otherwise} \end{array} \right. \tag{13}$$

where G_{+1}^j and I_{+1}^j are, respectively, the after election optimal expenditure and decision of having a deal with the lobby or not, and $\overline{\pi}$ is defined implicitly by 11. Since $\pi_c > \pi_f$, we have $G_{+1}^c \geq G_{+1}^f \geq \tau$.

4.2 Pre-election problem

4.2.1 The voter's problem

We assume that government policy is observed with noise. The public knows the amount of total taxes to be spent in both sectors, but the distribution of expenditures between sectors is observed with a noise, such that:

$$\widehat{g} = ge^\upsilon,$$

where υ is a Gaussian shock with mean zero and variance σ^2. This may justified as resulting from rational innatention on the part of consumers (see Sims, 2003)[2].

We assume that the voters observe expenditures and the distance between the government and the policymaker with a lag. Then, voters will try to infer π_t, given the observed policy. There will be a signalling game between the incumbent and the voters. There are two possible types of incumbent, corresponding to the distance.

The median voter, not belonging to the lobby group, would like to vote for the policymaker who will choose higher expenditures after elections. It is clear from equation (8) that this will be the policymaker farthest from the lobby. Since

---

[2] The total amount of tax is fixed. But the level of each type of public expenditures vary. Since consumers 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.

there is no information about the opposition, it is assumed that the probability of it being far from the lobbist is equal to the unconditional probability.

Since the people observe the policy with noise, they are not able to infer perfectly whether the government is of type π_c or π_f. They compare the (updated) probability of the incumbent being of type π_f to that of the opponent. As the opponent is not in power, it is assumed that the probability that he is of type π_f is equal to the unconditional probability p. Thus, if the updated probability 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 ρ be the median voter's conjecture that the incumbent is far from the lobby, and vo his vote. Then:

$$vo = \left\{ \begin{array}{cl} inc, & if \ \rho > p \\ opp, & if \ \rho < p \\ inc \ \text{with probability} \ \frac{1}{2} \ \text{if} \ \rho = p \end{array} \right. .$$

How do voters form their belief ρ? Given the the lognormality assumption for the noise, it is clear that any level of observed expenditures could result from a given policy, and that is true for any actual expenditure level chosen. Then, every positive level for the observed expenditure 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:

$$\rho = \Pr\left(\pi_t = \pi_f \,|\, \widehat{g}_t = \widehat{g}\right) = \tag{14}$$

$$= \frac{p \times f(\widehat{g}_t = \widehat{g} \,|\, \pi_t = \pi_f)}{p \times f(\widehat{g}_t = \widehat{g} \,|\, \pi_t = \pi_f) + (1-p) \times f(\widehat{g}_t = \widehat{g} \,|\, \pi_t = \pi_c)},$$

where $\widehat{g}$ is the observed spending level for the people, and $f(.\,|.)$ is the conditional density function of $\widehat{g}$ 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:

$$f(\widehat{g}_t = \widehat{g} \,|\, \pi_t = \pi_f) > f(\widehat{g}_t = \widehat{g} \,|\, \pi_t = \pi_c) \tag{15}$$

This rule is intuitive. The voter revises upwards his prior that the government is of the distant type if, and only if, the observed expenditure 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 expenditure level in favor of the people. To do so, it is necessary to specify the incumbent's actions prescribed by equilibrium strategy in the period before election $\left\{G^f, G^c\right\}$, which will be used by the voter to update his beliefs.

A chosen expenditure level g and a noise v will determine the observed expenditure level, $\widehat{g} = ge^v$. Therefore, the conditional density function of $\widehat{g}$

given the policymaker's type $f(.\,|.)$ is equal to the density function of the noise υ that would yield $\widehat{g}$ when the expenditure level is the one chosen by this type in equilibrium. That is,

$$f(\widehat{g}_t = \widehat{g} \,|\, \pi_t = \pi_i) = \phi\left(\frac{\ln \widehat{g} - \ln G^i}{\sigma}\right)$$

where ϕ is the density of the standard normal distribution.

Then, we can write the conditions for reelection in equation (15) as:

$$\phi\left(\frac{\ln \widehat{g} - \ln G^f}{\sigma}\right) > \phi\left(\frac{\ln \widehat{g} - \ln G^c}{\sigma}\right). \tag{16}$$

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

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

which, due to the symmetry of the normal distribution, is easily seen to be given by:

$$\overline{g} = \frac{G^f + G^c}{2}.$$

For a chosen expenditure g, the reelection probability is the probability of the observed expenditure, $\widehat{g}$, exceeding the cutoff point, $\overline{g}$[3], hence:

$$
\begin{aligned}
q\left(g, G^f, G^c\right) &\equiv \Pr\left[\widehat{g} > \overline{g}\right] = \Pr\left[g e^\upsilon > \overline{g}\right] = \\
&= \Pr\left[\upsilon > \ln \overline{g} - \ln g\right]
\end{aligned}
$$

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

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

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, $g > \overline{g} = \frac{G^f + G^c}{2}$.

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

---

[3] 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.

will still prefer the policymaker further away from the lobby, although she will choose a lower expenditure level. As a consequence, the inference problem is reversed, and the probability of reelection as a function of expenditure level and equilibrium strategy will become:

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

where $\overline{g} = \frac{G^f + G^c}{2}$, as before. 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 expenditure levels are in the equilibrium suport. 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:

$$q\left(g, G^f, G^c\right) = \begin{cases} 1 - \Phi\left(\frac{\ln \overline{g} - \ln g}{\sigma}\right), & \text{if } G^f > G^c \\ \Phi\left(\frac{\ln g - \ln \overline{g}}{\sigma}\right), & \text{if } G^f < G^c \\ \frac{1}{2} & \text{if } G^f = G^c \end{cases} \tag{17}$$

where $\overline{g} = \frac{G^f + G^c}{2}$.

4.2.3 The Incumbent's Strategy

The expenditures composition 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 $FW\left(\pi_i\right)$ be the expected after election utility of the type π_i government, when reelected:

$$FW\left(\pi_i\right) = W\left(G^i_{+1}, \pi_i, I^i_{+1}\right)$$

where G^i_{+1} is the expenditure and I^i_{+1} is the decision of setting or not a deal with the lobby, optimally chosen after elections by the reelected incumbent of type π_i. It is clear that

$$FW\left(\pi_i\right) \geq U\left(\tau\right) \tag{18}$$

since it is always possible to the policymaker not to make a deal with the lobby and to choose expenditure level τ.

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:

$$FU = pU\left(G_{+1}^f\right) + (1-p)U\left(G_{+1}^c\right).$$

Since the policymaker will have no rents when she is not reelected, the best outcome for her is to have the new incumbent setting expenditure level τ. Thus[4],

$$FU \leq U\left(\tau\right). \tag{19}$$

Putting 18 and 19 together, we have:

$$FU \leq U\left(\tau\right) \leq FW\left(\pi_i\right) \tag{20}$$

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 expenditure level and to set a deal or not with the lobby - will be chosen to solve:

$$\max_{g,I}\left\{V\left(g,\pi_i,I,G^f,G^c\right)\right\} \tag{21}$$
$$\text{s.t. } 0 \leq g \leq \frac{\tau}{n},$$

where:

$$V\left(g,\pi_i,I,G^f,G^c\right) = W(g,\pi_i,I) + \tag{22}$$
$$+\beta\left[q\left(g,G^f,G^c\right)FW\left(\pi_i\right) + \left(1 - q\left(g,G^f,G^c\right)\right)FU\right]$$

and where β is the incumbent's discount rate and the function q is given by 17.

Equation (22) can be rewritten as:

$$V\left(g,\pi_i,I,G^f,G^c\right) = \tag{23}$$
$$W(g,\pi_i,I) + \beta q\left(g,G^f,G^c\right)\left[FW\left(\pi_i\right) - FU\right] + \beta FU$$

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 increasing in g, and the optimal level of g higher than the static one for both types. Therefore there will be expenditure cycles around elections, with higher average expenditures in public goods for the poor before elections than after elections.

---

[4]Notice that a strict inequality is possible when one of the opposition types choose to set a deal with the lobby.

4.3 Equilibrium

An equilibrium requires a fixed point in the solution of the incumbent problem 21. That is:

$$G^c = \underset{g,I}{\arg\max} \left\{ V\left(g, \pi_c, I, G^f, G^c\right) \right\} \qquad (24)$$

$$\text{s.t. } 0 \leq g \leq \frac{\tau}{n},$$

and:

$$G^f = \underset{g,I}{\arg\max} \left\{ V\left(g, \pi_f, I, G^f, G^c\right) \right\} \qquad (25)$$

$$\text{s.t. } 0 \leq g \leq \frac{\tau}{n},$$

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 $\pi_j < \overline{\pi}$, where $\overline{\pi}$ is defined implicitly by equation (11) and sets expenditure level $\frac{\tau}{1+\pi_j b}$ if she has a deal with the lobby and τ otherwise;

2. before election an incumbent chooses to set a deal or not with the lobby and the expenditure level to maximize her expected intertemporal utility function, that is, to solve problem (21), where the probability of reelection function $q(g, G^c, G^f)$ is given by expression (17);

3. the expenditure level for each type is a fixed point, that solves problems (24) and (25) respectively.

There are two features of the equilibrium that are noteworthy. The first is that there will be expenditure cycles around elections, that is, expenditures for the poor tend to be higher 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 expenditure 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 expenditures in favor of its group is increased, and expenditures for the poor reduced. However, elections incentivate the policymaker to set a higher level of expenditure for the poor, reducing the gain of an aggrement with the lobby. Therefore an agreement with the lobby is less likely before elections.

We illustrate below those features with numerical examples.

4.3.1 Examples

The table below presents examples of the three possible equilibrium types. The examples differ in the value of the loss X due to an unsucessful deal with lobby, while the other parameter values are set constant at: $\pi_f = 0.25$, $\pi_c = 0.75$, $n = 0.7$, $b = 0.5$, $\sigma = 0.25$, $p = 0.5$, 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.

X	$\frac{G^f}{\tau}$	$\frac{G^c}{\tau}$	$\frac{G^f_{+1}}{\tau}$	$\frac{G^c_{+1}}{\tau}$	I^f	I^c	I^f_{+1}	I^c_{+1}
0.01	0.9219	0.8206	0.8889	0.7273	1	1	1	1
0.02	1.0237	0.8122	0.8889	0.7273	0	1	1	1
0.2	1.0195	0.7832	1	0.7273	0	1	0	1

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 reelection 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 aggreement 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 τ for both types of citizens, before and after elections.

4.3.2 Comparative dynamics

[missing]

4.3.3 The possibility of no equilibrium

Although it is plausible that an equilibrium exist, 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.

- Suppose that $0 < \pi_c - \overline{\pi} < \varepsilon$, for a small enough positive ε, where $\overline{\pi}$ is the probability cutoff level defined by 11. In this case the incumbent of type π_c chooses to make a deal with the lobby after election and distorts

expenditures. Thus, $FW(\pi_j) > FU$ 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 17). The policymaker of type π_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, since after elections the deal with the lobby was *marginally* advantageous to her (because $\pi_c - \overline{\pi} < \varepsilon$), the additional electoral incentive makes a deal with the lobby before election not advantageous. It is clear that the incumbent of type π_f will have even further incentives to also prefer not to have a deal with the lobby before elections, since she faces a higher probability of a bad outcome. However, when both types do not have a deal with the lobby before elections, since the electoral incentive is stronger for the policymaker of type π_c (for $FW(\pi_c) - FU > FW(\pi^f) - FU$), she will choose necessarily a higher g. Therefore, there can be no equilibrium with $G^f > G^c$. 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 π_c will choose a lower expenditure level. Then, the only remaining possibility is a pooling equilibrium, with both types choosing expenditure level τ. However, this cannot be an optimal choice for type π_c, since after elections in the same situation she chooses to have a deal with the lobby. Therefore, it is possible that there is no equilibrium if the parameters are such that the policymaker of type π_c opt for a contract after election but for no contract before.

A configuration of parameters 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 are benefit substantially (not marginally) the type most attracted to them - π^c - under the most favorable conditions to them - after elections.

5 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.

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

References

[1] Bonomo, M. and C. Terra (2004). "Elections and Exchange Rate Policy Cycles," *Economics and Politics*, forthcoming.

[2] Brender, A. and A. Drazen (2004), "Political Budget Cycles in New Versus Established Democracies," NBER Working Paper 10539.

[3] Drazen, A. and M. Eslava (2004a), "Political Budget Cycles When Politicians Have Favorites," mimeo, University of Maryland.

[4] Drazen, A. and M. Eslava (2004b), "Political Budget Cycles Without Deficits," mimeo, University of Maryland.

[5] Gonzalez, Maria de los A. (2004), "Do Changes in Democracy Affect the Political Budget Cycle?," *Review of Development Economics,* forthcoming.

[6] Grossman, Gene and Elhanan Helpman (1994), "Protection for Sale," *American Economic Review* 84: 833-50.

[7] Grossman, Gene and Elhanan Helpman (1996), "Electoral Competition and Special Interest Politics," *Review of Economic Studies* 63: 265-286.

[8] Grossman, Gene and Elhanan Helpman (2001), *Special Interest Politics*, MIT Press.

[9] Frieden, J. and E. Stein (2001), *The Currency Game: Exchange Rate Politics in Latin America*, IDB, Washington.

[10] Ghezzi, P., E. Stein and J. Streb (2000), "Real Exchange Rate Cycles around Elections," mimeo IDB.

[11] Kneebone, R. and K. McKenzie (2001), "Electoral and Partisan Cycles in Fiscal Policy: an Examination of Canadian Provinces," *International Tax and Public Finance* 8: 753-774.

[12] Peltzman, S. (1992), "Voters as Fiscal Conservatives," *Quarterly Journal of Economics* 107, 327-361.

[13] Persson, T. and G. Tabellini (2002), "Do Electoral Cycles Differ Across Political Systems?" working paper.

[14] Rogoff, K. (1990), "Equilibrium Political Budget Cycles," *American Economic Review* 80: 21-36.

[15] Rogoff, K. and A. Silbert (1988), "Elections and Macroeconomic Policy Cycles," *Review of Economic Studies* 55: 1-16.

[16] Shi, E. and J. Svensson (2002a), "Conditional Political Business Cycles," CEPR Discussion Paper #3352.

[17] Shi, E. and J. Svensson (2002b), "Political Business Cycles in Developed and Developing Countries," mimeo.