Bargaining, voting and lobby power

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Abstract

This paper studies the impact of the competition between lobbies and voters on policy outcomes. Lobbies offer payments to policy makers and citizens offer votes. At the beginning of the game a policy maker is exogeneously put in place. Then government, lobby and voters interact in two stages. First, there is a bargaining stage between the lobby and the government; then there is an election stage. The policy has two dimensions: the type that is non-contractible and the cost that is contractible. We show that the equilibrium of the game depends on the polarization of individual non-contractible preferences on policy types. In a two parties system, when there is a single legislative body, the government accountability is increasing in the polarization of party positions. Finally, for a given level of polarization, the government is more accountable in a legislative procedure with a single legislative body then in a legislative procedure with two legislative bodies.

JEL classification: D72, H11, C78
Key words: bargaininig, lobbying, elections, conflict, party polarization, legislative process

1 Introduction

In democratic systems citizens delegate policy makers the authority to take some economic decisions affecting the well being of the entire community. The appointment of a policy maker typically takes place in an electoral process where citizens cast their vote for one of the candidates. Elections are run periodically. Therefore, at the end of a political mandate, citizens can decide whether to reappoint the same policy maker or to elect another candidate. Hence, voting can be viewed not only as a mechanism to appoint policy makers but also as an instrument to provide *incentives* to governments. On the other hand, citizens can use different instruments than voting to influence the policy maker. For example, payments contingent on policies can be offered to the decision-makers both in the campaign stage preceding elections and during the political mandate. Although in principle every citizen may offer payments in exchange for policy, in reality this kind of incentives is in general provided by particular interest groups that do not represents the entire population. Therefore, "loosely" speaking we can say that organized interest groups and citizens *compete* to influence the policy maker using different instruments: lobbies offer payments, citizens offer votes. What is the effect of this competition on the policy choice? Do lobbies distort policies in their favor? According to a benevolent view of the interests groups, lobbying activity conveys information on individual preferences and therefore it can be seen as an instrument enhancing public decision making. On the other hand, when individuals are heterogeneous in policy preferences, some conflict of interests may arise among different groups. In that case, if only some groups are able to offer payments to policy makers, then policies may be distorted in their favor. Hence, if we consider a democracy where all citizens can vote but the ability to lobby is restricted to some individuals, it is important to ask the following question. Is voting successful in neutralizing the lobbying action or do lobbies distort policies in their favor? This paper takes the view of conflicting interest between some organized lobbies and not organized citizens and tries to shadow lights on the *competition* between *lobbies* and *voters* to explain policy outcomes.

Despite the evidence that organized interest groups exist and participate to some major political events, we still lack a satisfying explanation of the lobby power in a democratic system. On the theoretical side, there is a growing literature that tries to embody interest groups in the political game to understand how these groups can affect the policy making. Lobbies participate to the political game in different ways. Before elections, lobbies may offer political support that very often takes the form of campaign contributions. During the political mandate, interests groups may offer payments contingent on policies. This work follows the literature that introduces lobby contributions at the decision making stage. Dixit, Grossman and Helpman (1996) provide a general theoretical framework to introduce lobby contributions in the decision making process using the *menu auction* approach following Bernheim and Whinston (1986). Besley and Coate (1998) combining the *common agency* approach introduced by Grossman and Helpman (1996) to model the lobby side and the *citizen-candidate* approach (Besley-Coate (1997)) to model the electoral competition, show how citizens, choosing strategically the policy maker, may neutralize the lobby action. In our terms, when lobbies and citizens compete, according to the citizen-candidate model, citizens should be able to *win* this competition, that is they should be able to neutralize the lobby intervention. However, these theoretical findings may be questionable in terms of reality. Unfortunately, studies trying to estimate empirically the lobby impact on the public policies are rare (especially in European countries)[1] and the evidence on the lobby power remains very often purely anecdotal. Nevertheless, this kind of evidence suggests that lobbies do have the *power* to influence policies and the strength of this power is not the same in different countries. Therefore, the aim of this paper is to find an alternative way to model the political game in order to understand where the lobby power comes from. The questions we ask are the following. Why can democratic systems fail to neutralize the lobby intervention and why can they fail to a different extent? As we have already pointed out we assume that lobbies and voters compete to influence the policy maker. This competition takes place inside a democratic system that works according to precise rules that we can define *institutional rules*. Our claim is that the effectiveness of voting (or, equivalently, the effectiveness of lobbying) crucially depends on the institutional features of the democratic system. Therefore our objective is to understand how different institutional rules can influence the competition between lobbies and voters.

The set of rules governing democracies is complex and it goes, for example, from the rules concerning the electoral competition (electoral system, campaign regulation etc.) to the rules regulating the functioning of elected bodies (number of legislative bodies, separation of powers, amendments rights, etc.). In this paper we concentrate on this second class of rules and we analyze the impact of different *legislative procedures* on the policy outcome.

The political game we introduce involves three players: government, voters and one lobby group. We consider a policy that generates a conflict of interest between the lobby and the citizens. We assume that a policy is chosen among a set of different types. Each type of policy implies a benefit (varying according to individual preferences) extended to all the citizens belonging to the community and a special interest (profit) for the lobby group only. There is also a cost of implementing the policy that is shared among the citizens by lump sum taxation. The special private profit arising to the lobby group is increasing in the cost paid by citizens. This implies a conflict of interest between the lobby and the citizens. Examples of policies with these characteristics may be public projects carried on by private firms or reforms like privatization, liberalization etc., generating profits for some particular groups. We assume that the interaction between the government and the two players (vot-

[1]For a collection of case studies on lobbying in the European Community see for example, S. Mazey abd J. Richardson, *Lobbying in the European Community*, Oxford University Press, 1993.

ers and lobby) competing for the policy takes place in different steps. In the first step, we have a *bargaining stage* where the lobby and the government agree on a policy measure and on a payment. In the second step, we have an *election stage.* The candidates running for the elections are selected by exogenously given *ideological parties* where an *ideology* coincides with a *policy type* and we restrict our analysis to a two-parties/two-candidates competition.

During the election stage voters, given the policy chosen in the first step, decide to reelect the incumbent or to replace him with a challenger. The incentives provided to the incumbent by the lobby and voters are different: the lobby group offers the policy maker a monetary reward in exchange for the policy, voters offer the policy maker the right to be the decision-maker after the election stage. In order to understand how incentives work, we have to clarify what are the objectives of the policy maker. We assume that the policy maker enjoys the monetary transfer but is also interested in the type of policy that is implemented. In other words, policy makers are policy motivated actors and choose their most preferred policy type. Therefore the right to be the decision-maker is valued for two reasons: the monetary reward from the lobby and the choice of the most preferred policy type. It is important to stress that in this model the policy is *multidimensional*: one dimension is the *type* of the policy and another is the *cost* of the policy. Policy makers have well defined preferences on the type of the policy and cannot commit to implement a type that is different from their most preferred one; hence the type of the policy is not contractible. On the other hand, the cost of the policy doesn't enter directly the policy maker objective function and is contractible. The existence of an individual non-contractible preference on the policy type limits the power of the lobby to influence the policy choice and opens the possibility for a competition between voters and lobbies. The *power* of the electorate comes from the fear of the incumbent to be replaced by a challenger with individual non-contractible preference far away from his own most preferred one. Therefore, we show that the equilibrium of the game depends on the polarization of individual non-contractible policy preferences. In particular, in a two party system, the more polarized are the parties positions around the median voter, the higher is the power of the electorate to discipline the government. Hence, according to the predictions of this model, we should expect that countries with more polarized party systems will show lower level of lobby distortion or that, in a given country, the accountability of governments may change over time following the evolution of polarization in party positions. Therefore, different degree of party polarization may be an explanation for the different ability of democratic systems to neutralize lobby distortions.

Given these results, the second question we ask in this paper is the following. How does the legislative procedure affect the competition between lobby and voters? We compare a legislative procedure with a single legislator and a legislative procedure with two legislators deciding sequentially on the policy. The legislative procedure may have two effects on the political game. On one hand it may affect the distribution of power in the bargaining game, on the other hand it may change the polarization of selected policies. For simplicity we assume that the legislative bodies share the same preference on the policy types so that increasing the number of legislators has no effect on the polarization of selected policies. Then we show that the two decision-makers procedure decreases the rent captured by the government and hence, for a given level of polarization, it makes the government less accountable. Therefore, comparing countries characterized by different institutional structures, we should expect that the power of lobbies to affect policies should be higher in countries with multiple steps in the legislative procedure. This result contrasts with the view that a more complex legislative process, making the lobbying activity more expensive, increases accountability and shows that the adoption of given rules for the decision making process produces results that are not neutral to the prior distribution of bargaining power among the actors of the game.

To summarize, this paper achieves two main results. First, it shows that in a world where policies are multidimensional and policy-makers are policy-motivated actors on one dimension, voters can solve the accountability problem. However, their power to discipline the government crucially depends on the *polarization* of candidates position with regard to the ideological dimension of the policy. Therefore, elections work as a mechanism to provide incentives only under certain conditions. Second, this paper provides evidence that the power of the electorate to discipline the government also depends on the rules governing the decision making process. In particular it shows that, when lobby payments are the source of the government's misbehavior, then a more complex *legislative procedure* involving two legislators compared to a simpler legislative procedure with a single legislator doesn't help to solve the accountability problem.

2 Related literature

The questions addressed by this paper are common to different streams of literature. The problem of the incentives provided by voters to policy makers relates this work to the *agency* models of political competition (Banks and Sundaram (1997), Persson, Roland and Tabellini (1997), Coate and Morris (1995)). The agency models stress the role of asymmetric information in the political game and deal with the problems of moral hazard and adverse selection in the relationship between the voters and the appointed government. Even though the problem of the incentives provided by voters is important in our work, the focus of this paper is different from the agency model in many respects. First, the problem of the incentives provided by voters is analyzed in a game that implies a competition between voters and lobbies. Banks and Sundaram (1997) and Persson, Roland and Tabellini (1997) do not consider lobbies, while Coate and Morris (1995) introduces special interest as a source of public policy distortion but do not explicitly model lobby contributions to the policy maker. As we can see in our work, modelling the lobby side is important because the voters' problem of controlling a misbehaving self-interested government is very different from the problem of controlling the same government when the reward for the misbehavior is provided by a third player (lobby). Second, agency models concentrate on the role of information in the political game, while this model assumes perfect information. Although the problem of information in political games is relevant, agency models may face the criticism of extremely simplifying political competition due to the absence of heterogeneity in policy preferences. In particular, if we consider the problem of the competition between lobbies and voters, in a world of homogeneous policy preferences, voting becomes a very poor instrument to provide incentives compared to the offer of monetary reward contingent on policies. Therefore the absence of heterogeneity seriously restricts the competition between voters and lobbies. Since the study of the competition between lobbies and voters is the main objective of this work, it seems more appropriate to introduce a theoretical framework that includes heterogeneity in policy preferences and avoid imperfect information issues. In this sense, this paper is related to the models of *representative democracy*, like Besley-Coate (1997) where individuals are heterogeneous in policy preferences and policy makers are policy motivated actors. As we have already pointed out, our criticism against the citizen-candidate model with lobbies is that the accountability problem is entirely solved through the electoral competition. We do believe that this is a model of how an "ideal" democracy should work but we also think that it may fail to explain the evidence. Therefore, with respect to the citizen-candidate model, we consider an "imperfect" democratic process where the power of the electorate is limited by the absence of candidate strategic entry. At the beginning of the game, a policy maker is exogenously put in place and only after one period the voters can intervene deciding whether to reappoint the incumbent or to replace him with a challenger. Therefore, we construct a framework where the electorate and the lobby compete to affect the policy and where the outcome of the game depends on parameters capturing some institutional variables.

Since we do explicitly model the lobby contribution side during the decision making process, this model also relates to Dixit, Grossman and Helpman (1996) but the approach is different because we do use *bargaining* instead of *menu auction*. The reason for this choice is that bargaining seems more appropriate to the objective of this model that is the study of the competition between lobbies and voters under different institutional settings that change the balance of powers among the actors of the game. As a final remark, this theoretical framework permits to tackle the question of the separation of power and accountability as in Persson, Roland, Tabellini (1997) showing that the introduction of lobby power changes in a non trivial way the incentives provided to policy makers under different institutional settings. However, our main focus is not the separation of powers between executive and legislative bodies, but the comparison between systems with single legislative body and systems with multiple legislative bodies.

3 The Model

3.1 Public policy and private interests: the political game

In a democratic system citizens delegate the government the authority to decide on public policies. We define *policy* an economic variable, denoted P, that is chosen by the government and has an effect on the utility of the private individuals. We assume that the community is composed by N individuals and we denote k the generic individual of the community N. The policy maker himself, denoted $k = j$, is an individual from this community. When individuals are heterogeneous, they do not necessarily receive equal benefit from the policy. The allocation of costs and benefits of some policies very often depends on individual characteristics. For example, if the policy consists in the provision of a public good that is not directly produced by the state, then private firms producing the public good receive an extra-benefit (profit) compared to other citizens. Other examples of public policies creating special private benefits are reforms, like privatization,liberalization etc. We can think of many kinds of policies generating more benefits for some individuals compared to the others. Therefore, in our model we assume that there are some individuals receiving an extra-benefit from the public policy; we define lobby denoted l the group of individuals associated into a special interest group obtaining the extra-benefit denoted $\pi(.)$ from the public policy P. For simplicity we assume that there is only one lobby group composed by a unique individual denoted $k = l$. We assume that the policy is a discrete variable $P \in \{0, 1\}$. We also assume that the policy has a cost $C \in \left\{C^L, C^H\right\}$, with $C^H > C^L$, that is the percapita cost paid by the citizens denoted $k = i$. Hence the extra-benefit for the lobby group is a function $\pi(P, C)$ increasing in both arguments. We assume that the lobby group obtains zero profit if the policy is implemented at the lowest cost, $\pi\left(1, C^L\right) = 0$, and gets positive profits if the policy is implemented at the highest cost, $\pi\left(1, C^H\right) > 0$. Finally, we assume that the public policy has some identity dependent characteristic, denoted a_j, that is a non-contractible dimension of the public policy depending on the preference of the decision-maker. We can think of this characteristic as the "type" of the policy P and, depending on the policy, this can represents different aspects. For example, in the case of the production of a public infrastructure, the "type" could be the location; if we consider a reform, the "type" could be the reforming strategy (timing, sequencing etc.) and so on. Given the policy maker j and the generic individual k of the community N, we define a_{kj} the utility enjoyed by the individual k, when the individual j is choosing the policy and we assume that $a_{jj} = \arg\max_k a_{kj}$.

The public policy is chosen by the policy maker j who interacts with the lobby l and the citizens i in a political game that we describe in the remaining part of this section.

The policy maker indexed j, the lobby indexed l and citizens indexed i are the players of the *political game*. Private individuals, l and i, live t periods where t

belongs to the (finite) set $T = \{0, 1, 2, 3....\}$., while the policy maker j cannot stay in power for more than 2 periods. The identity of the candidates participating to the political race is determined by an exogenous mechanism. We assume that there are political parties, exogenously given, choosing the candidates running for the elections. Political parties are *ideological* where by ideological we mean that they are interested in the implementation of their "ideal" policy. The ideological dimension of the policy corresponds to the individual preference on policy types. In other words, to a policy type a_j is associated a political party with ideology a_j and the political party with ideology a_j selects a candidate with most preferred policy type a_j. The timing of the game is as follows. At the beginning of the game, $t = 0$, a political party with ideology a_j is exogenously given and this party select an individual j belonging to the community N with most preferred policy type a_j to be the legislator. The policy maker j is appointed to chose the policy P, the type of the policy a_j and the cost of the policy C. In every period t there is a new policy (P, C, a_j) to be selected. Before the policy choice, a bargaining takes place between the lobby group l and the policy maker j. Remember that, the policy maker can decide to implement or not the policy, $P \in \{0, 1\}$, and if he decides to implement the policy, $P = 1$, then he has also to decide on the cost, $C \in \left\{C^L, C^H\right\}$. Since the policy (P, C) generates a private profit, $\pi(P, C)$, for the lobby group, the lobby l and the policy maker j can find an agreement to share this profit. Therefore, during the bargaining stage a negotiation takes place between the lobby l and the policy maker j where the two players try to agree on a policy (P, C) and on the sharing of the private profit deriving from the policy. The sharing of the profit is made trough a transfer from the lobby l to the government j that we denoted T_{lj}.

Let's define $V_{kj}(.)$ the payoff of the individual k when the policy maker j is in power, then the payoffs of the citizen i, the lobby l and the policy maker j can be written as follows:

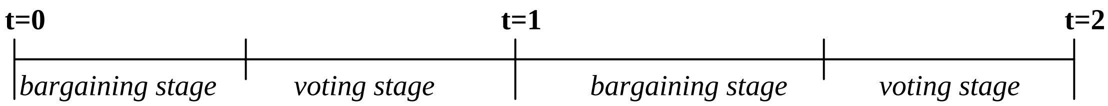
$$V_{ij}(P, C, a_j) = a_{ij}P - C.P \tag{1}$$

$$V_{lj}(P, C, aj, T_{lj}) = a_{lj}P + \pi(P, C) - T_{lj} \tag{2}$$

$$V_{jj}(P, C, aj, T_{lj}) = a_{jj}P + T_{lj} \tag{3}$$

To summarize, the policy maker j decides whether to implement or not a policy, $P \in \{0, 1\}$. If the policy is implemented, $P = 1$, the policy maker also decides on the cost of the policy, $C \in \left\{C^L, C^H\right\}$, and on the type of the policy, a_j. The generic individual k of the community N receives the utility a_{kj} from the policy. When this generic individual is a lobby group, $k = l$, he also receives an extra-benefit from the policy, $\pi(P, C)$ and may pay a transfer T_{lj} to the policy maker j; on the other hand, if the generic individual is a citizen, $k = i$, then he is paying the cost $C \in \left\{C^L, C^H\right\}$ of the policy.

As a consequence of the bargaining, either the two parties reach an agreement (P, C, T_{lj}), which means that a policy (P, C) is selected and a transfer T_{lj} is paid or the agreement is not reached, hence no policy is chosen and no transfer is paid. At the end of each period, after the bargaining stage, the citizen observe the policy choice (P, C, a_j) made by the incumbent j and an election takes place. The candidates for the political race are chosen by ideological political parties. Hence, the incumbent j, candidate of the party with ideology a_j, will face one (or more) challenger(s) j', candidate(s) of the party (parties) with ideology $a_{j'}$. In the election stage, each citizen i decides to reelect the incumbent j or to elect a challenger $j' \neq j$. The candidate receiving the majority of votes wins the electoral competition. After the election the game goes to the subsequent period and again there is a bargaining between the lobby and the candidate who won the election in the previous period, followed by an election stage.



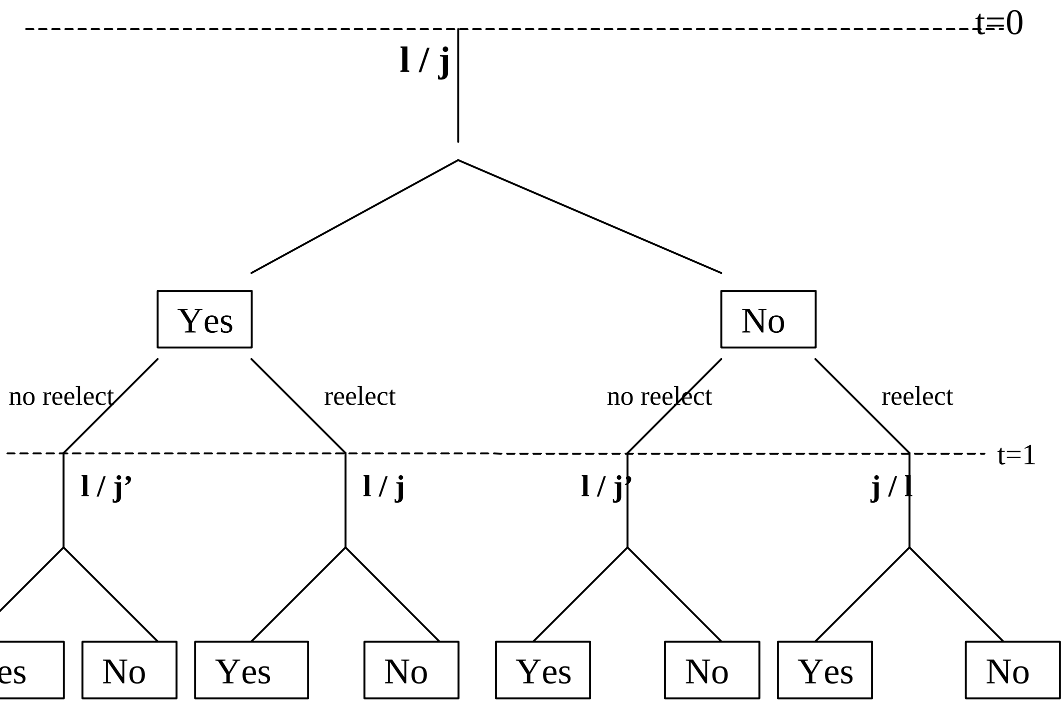
To summarize, the political game includes a bargaining stage followed by an election stage and the same game is repeated in each period t. In what follows we formally describe the *bargaining stage* and the *voting stage* in reverse order.

Voting stage: At the beginning of the game the policy maker j is put in place by an exogenously given party with ideology a_j. At the end of each period t, following the bargaining between the policy maker j and the lobby l, the citizens observe the policy[2] chosen by the incumbent and vote. They can decide to reappoint the policy maker j for the period $t+1$ or to replace the incumbent j with a challenger j'. We assume that one (or more) challenger(s) $j' \neq j$, candidate(s) of the party (parties) with ideology $a_{j'}$, always exists. For simplicity, we restrict the political race to a two-parties/two-candidates competition. We also assume a deterministic distribution of the future challenger types over the $t+1$ periods, so that for every period we know who is going to be the challenger. One may suggest to assume a challenger randomly chosen from a given distribution. Since in this model candidates are chosen by ideological parties, we do not think that the deterministic distribution of ideological parties is an unrealistic assumption.

[2] They do not observe the transfer from the lobby to the policy maker.

The voting strategy for the citizen i facing an incumbent j and a challenger $j' \neq j$ consists in a mapping $\sigma_{ij} : (P, C, a_j) \rightarrow \{0, 1\}$, where 1 means reelection of the policy maker j by the citizen i and 0 means that the citizen i replaces the incumbent j with a challenger j'. The policy maker that receives the majority of votes during the election taking place at the end of the period t will be the decision-maker during the period $t+1$. Since the policy has a non-contractible dimension depending on the identity of the policy maker, to avoid problems coming from the multidimensionality we make a simplifying assumption on the distribution of the preferences relative to the non-contractible policy dimension. Let's define $\mid a_{kj} - a_{jj} \mid$ the k's utility loss in terms of policy type when j choose the policy and let's denote $k = m$ the median voter. We assume that $\mid a_{mj} - a_{mm} \mid = \mid a_{mj'} - a_{mm} \mid$ hence the *median voter theorem* applies. This assumption might seem too restrictive. But note that this assumption turns out too be necessary and sufficient condition for the existence of a two-candidates equilibrium in Besley-Coate (1997) with euclidean preferences and no entry costs. Therefore, this assumption is justified in the case of a political competition between two candidates with different "ideal" policies, where there is no convergence toward the median voter. In our setting this assumption is justified because we have a *two-party system* with fixed ideologies choosing their *candidates* for the political race according to their ideologies.

Bargaining stage: to model the relationship between the incumbent and the lobby group we adopt a bargaining model of alternating offers[3].



The lobby l in the period $t = 0$ starts the bargaining game making the policy maker j an offer that specifies a policy (P, C) and a transfer T_{lj} that is meant to share the profit deriving from the policy, $\pi(P, C)$. The government can accept (say Yes) or reject (say No). If the offer is accepted, the bargaining ends; the policy (P, C) will then be chosen and the transfer T_{lj} will be paid. If the offer is rejected, no policy is selected and the bargaining continues. At the end of the period t an election takes place and then the game passes to the period $t+1$. If the incumbent is reelected and he had rejected the previous offer, given the alternating offers structure, in period $t+1$ it is the government's turn to make the offer[4] specifying the policy and the sharing of the profit deriving from the policy. Given the offer made by the policy

[3] The alternating offer structure gives some power to the policy maker. Alternatively, one may suggest to adopt a take-it-or-leave-it structure where the the lobby has the unique right to make the offer. Anyway, as we will see, the main result of the model is robust to this alternative specification.

[4] It may seem unusual to introduce an election stage between alternating offers, forwarding the counter-offer to the period following the election stage. It would seem more "natural" to have a series of offers and counter-offers followed by an election stage and, after the election, a new series of

maker j, the lobby can accept (say Yes) or reject (say No). If the incumbent j is reelected and he had accepted the first period offer, he receives a new offer (P, C, T_{lj}) from the lobby that he can accept or reject. Anyway, whatever the outcome of the bargaining at this stage is, the game ends because the policy maker j cannot stay in power for more than 2 periods. Therefore, at the period $t+2$ a new bargaining starts between the lobby l and a new policy maker $j' \neq j$, following the same procedure of the game already described.

On the other hand, if the incumbent j has been replaced by the challenger j', then the lobby starts a new bargaining with the new policy maker following the procedure we have already described. Therefore, if the policy maker accepts the offer, the bargaining ends, otherwise the bargaining, after the election stage, passes to the subsequent period.

In more formal terms, we define $X = \{(P, C, T_{lj}) : \pi(P, C) - T_{lj} \geq 0\}$ the set of the feasible agreements. Let's denote $x^t \in X$ the offer (P, C, T_{lj}) made in the period t. We define X^t the set of all the sequences of offers $(x^0, x^1, x^2.....x^{t-1})$. A strategy for the player l is a sequence of functions $\Gamma_l = \{\gamma_l^t\}_{t=0}^{\infty}$ which assigns to each history an action from the relevant set. Formally:

$\gamma_l^t : X^t \rightarrow X$ if t is even

$\gamma_l^t : X^{t+1} \rightarrow \{Yes, No\}$ if t is odd and j is reelected

$\gamma_l^t : X^{t+1} \rightarrow X$ if t is odd and *either* j is not reelected *or* j is reelected and x^t had been rejected

Similarly, a strategy for the player j is a sequence of functions $\Gamma_j = \left\{\lambda_j^t\right\}_{t=t}^{t+1}$ where:

$\lambda_j^t : X^t \rightarrow \{Yes, No\}$ if t is even

$\lambda_j^t : X^{t+1} \rightarrow X$ if t is odd and j is reelected

Lobby versus voters: to summarize, we have a bargaining game of alternating offers between two players, a policy maker j and the lobby l . One player (the lobby) plays every period, the other (the policy maker) plays at most two periods and the presence of the player j in the second period depends on the voting decision of a third player (voters) in the first period. The three players use their strategies to obtain their preferred outcome. The strategies for the two players involved in the bargaining game consist in a proposal of agreement, (P, C, T_{lj}) , for the player making the offer and in a (Yes or No) decision for the player replying to the offer. The voting strategy for the citizen i facing an incumbent j and a challenger $j' \neq j$ consists in a mapping $\sigma_{ij} : (P, C, a_j) \rightarrow \{0, 1\}$, where 1 means reelection of j and 0 means election of j'. Note that, the strategy space for the voter i is somehow restricted compared to the lobby one, because the citizen can just decide to reelect or not reelect the policy maker (discrete choice), while the lobby can use a transfer (continuous variable). The reward

offers and counter-offers. The reason for our setting is that we want to have the simplest bargaining structure that keeps the model tractable when we will introduce a second decision maker in the bargaining process. Anyway, controlling for a different timing of the election in the bargaining, the main result of the model is still valid.

the citizen offers the policy maker is the reelection, which means the possibility to be the decision-maker during the successive period. Being the decision-maker is valued because this allows the policy maker to choose his most preferred policy type and to enjoy transfers from the lobby. Given the incumbent j, there is always a challenger $j' \neq j$ that competes with j to obtain this reward. Therefore, the citizen has to decide which policy maker to assign the reward. Note that, for a given a_{kj} the lobby's and citizens' preference ordering over the policies is as follows:

$$V_{ij}\left(1, C^H, a_j\right) < V_{ij}\left(1, C^L, a_j\right) \tag{4}$$

$$V_{lj}\left(1, C^H, a_j, T_{lj}\right) > V_{lj}\left(1, C^L, a_j, T_{lj}\right) \tag{5}$$

which means that the citizen i and the lobby group l have opposite interest on the policy. From the assumptions expressed in the equation 4 we can see that, the best policy for the citizen i is $(1, C^L)$. Hence, the problem of the citizens is to find the voting rule that induces the policy maker to choose their most preferred policy, given the existence of a bargaining stage between the lobby and the policy maker. On the other hand, the worst policy option for the citizen, $(1, C^H)$, is the best policy option for the lobby. Therefore the lobby's problem is to find the minimum transfer T_{lj} that can induce the policy maker to chose $\left(1, C^H\right)$, given the citizens' voting rule. In what follows we study the competition between the lobby group and the citizens.

3.2 Solving the model under alternative institutional rules

The objective of this section is to find the equilibrium of the model under alternative institutional rules in order to understand the effect of the institutional structure on the competition between voters and lobby group. We first define the concept of equilibrium we want to use and then we study the equilibrium in our model.

We have a two-stage game that is repeated over t periods. The first stage is the bargaining stage, where the lobby l and the policy maker j try to reach an agreement looking at the voters' reaction in the second stage. In the voting stage the electorate, given the agreement reached in the bargaining stage, decide to reappoint or not the policy maker j. To write the payoffs of the repeated game, we introduce here some notation. We have already defined $V_{kj}(.)$ as the utility of the individual k when the policy maker j is in power. Let's index now each policy maker with the first period he is in power. Hence, j^t is denoting the policy maker j in power for the first time in the period t, j^{t+1} is the policy maker j in power for the first time in the period $t+1$ and so on. Let δ be the intertemporal discount rate, $\sigma_{j^t}(P, C)$ the voters' reappointment decision of policy maker j^t for the period $t+1$ and $(1 - \sigma_{j^t}(P, C))$ the voters' replacement decision of the incumbent j^t by a challenger $j' \neq j$.

Let $V_{kj^t}(P, C)$ be the utility enjoyed by the individual k when the policy maker j^t is in power, then given the reappointment decision $\sigma_{j^t}(P, C)$, we can write the life time utilities of the citizen i, the lobby l and the policy maker j as follows:

$$V_{ij^t}\left(P,C,a_{j^t},\sigma_{j^t}(.)\right)|_{t\in\{0,1,2....\}} = a_{ij^0}P-C.P+\delta\left[\sum_{t=1}^{\infty}\sigma_{j^{t-1}}(P,C)\left(a_{ij^{t-1}}P-C.P\right)\right]+ +\delta\left[\sum_{t=1}^{\infty}\left(1-\sigma_{j^{t-1}}(P,C)\right)\left(a_{ij'^t}P-C.P\right)\right] \quad (6)$$

$$V_{lj^t}\left(P,C,a_{j^t},T_{lj^t},\sigma_{j^t}(.)\right)|_{t\in\{0,1,2....\}} = a_{lj^0}P+\pi(.)-T_{lj^0}+\delta\{\sum_{t=1}^{\infty}[\,\sigma_{j^{t-1}}(P,C)\left(a_{lj^{t-1}}P+ +\pi(.)-T_{lj^{t-1}}\right)+\left(1-\sigma_{j^{t-1}}(P,C)\right)\left(a_{ij'^t}P+\pi(.)-T_{lj'^t}\right)] \quad (7$$

$$V_{j^0j^t}\left(P,C,a_{j^t},T_{lj^t},\sigma_{j^t}(.)\right)|_{t\in\{0,1,2....\}} = a_{j^0j^0}P+T_{lj^0}+\delta\left[\sigma_{j^0}(P,C)\left(a_{j^0j^0}P+T_{lj^0}\right)\right]+ +\delta\left[\sum_{t=1}^{\infty}\left(1-\sigma_{j^{t-1}}(P,C)\right)\left(a_{j^0j'^t}P-C.P\right)\right] \quad (8)$$

Equation 6 says that the citizens i in the period $t=0$ obtains the payoff $(a_{ij^0}P-C.P)$ when the policy (P,C) is selected by the policy maker j^0. In the period $t=1$, the citizen i obtain the same payoff of the period $t=0$ if j^0 is reappointed, on the other hand, the payoff becomes $(a_{ij'^1}P-C.P)$ if j^0 is replaced by j'^1 and so for all the subsequent periods. In general, if t represents the current period, then in every future period $t+1$ the utility of the citizen i is $(a_{ij^t}P-C.P)$ if j^t is reelected and $\left(a_{ij'^{t+1}}P-C.P\right)$ if j^t is replaced by j'^{t+1}. Similarly, the equation 7 says that the lobby l obtains in the period t the payoff $a_{lj^t}P+\pi(P,C)-T_{lj^t}$. During the period $t+1$, the payoff is the same of the previous period if j^t is reelected, otherwise it becomes $\left(a_{ij'^{t+1}}P+\pi(P,C)-T_{lj'^{t+1}}\right)$. Finally[5], equation 8 says that the policy maker j^t in the period t obtains the payoff $a_{j^tj^t}P+T_{lj}$. In the subsequent period, the payoff doesn't change if j^t is reappointed, in the case of no reelection j^t becomes an ordinary citizen obtaining the payoff $(a_{j^tj'^{t+1}}P-C.P)$ from $t+1$ onwards.

We can now define the equilibrium of the game. We require the equilibrium to be subgame perfect. The problem of the policy maker j^t and of the lobby l is to find a sequence of functions $\Gamma_l=\{\gamma_l^t\}_{t=0}^{\infty}$ and $\Lambda_j=\left\{\lambda_j^t\right\}_{t=t}^{t+1}$ that, given a voting rule $\sigma_{ij^t}(P,C)$, satisfies the definition of subgame perfect equilibrium:

Definition 1 (Equilibrium of the bargaining game)

A strategy pair (Γ_l,Λ_j) is a subgame perfect equilibrium of the bargaining game of alternating offers if, the strategy pair it induces in every subgame is a Nash equilibrium of that subgame, given the voting strategy $\sigma_{ij^t}(P,C,a_{j^t})$.

[5] For those objective functions to be coherent, we need to assume that every individual $k\neq j$ estimates that his probability to be the decision maker tomorrow is zero.

Concerning the electorate, we require that voters chose a voting rule optimally, given the strategies adopted by the lobby and the policy maker:

Definition 2 (Equilibrium of the voting game)
The equilibrium of the voting game is a vector $\Sigma^*_{jt}(P, C, a_{j^t})$ *of individual voting decision* $\sigma^*_{ij^t}(P, C, a_{j^t})$ *such that, given* (Γ_l, Λ_j)*:*
$V_{ij^t}\left(P, C, a_{j^t}, \Sigma^*_{j^t}(.)\right)|_{t\in\{0,1,2....\}} \geq V_{ij^t}(P, C, a_{j^t}, \Sigma_{j^t}(.))|_{t\in\{0,1,2....\}} \quad \forall \Sigma_{j^t}(P, C, a_{j^t}) \neq \Sigma^*_{j^t}(P, C, a_{j^t})$

Political equilibrium
Definition 3
A political equilibrium is a pair of strategies $\left(\Gamma^*_l, \Lambda^*_j\right)$ *for the lobby* l *and the government* j^t *and a vector of voting decision* $\Sigma^*_{jt}(P, C, a_{j^t})$ *such that:*
(i) $\left(\Gamma^*_l, \Lambda^*_j\right)$ *is a subgame perfect equilibrium of the bargaining game, given the vector of voting decision* $\Sigma^*_{jt}(P, C, a_{j^t})$;
(ii) $\Sigma^*_{jt}(P, C, a_{j^t})$ *is an equilibrium of the voting game.*

3.3 Political equilibrium with a single legislator

We start our analysis with the simplest institutional structure: a single legislator deciding on the policy. Following the definition of political equilibrium, we have to identify a pair of strategies $\left(\Gamma^*_l, \Lambda^*_j\right)$ and a vector of voting decisions $\Sigma^*_{jt}(P, C, a_{j^t})$ satisfying the conditions $(i) - (ii)$.

We have a two-stage game repeated over time, hence we can solve it backward[6].We consider the simplest version of the game repeated over a finite number of periods, that is the two-period game. Hence, the policy maker and the private individuals have the same time horizon and their intertemporal payoffs can be written as follows:

$$V_{ij^t}(P, C, a_{j^t}, \sigma_{j^t}(.))|_{t\in\{0,1\}} = a_{ij^0}P - C.P + \delta\left[\sigma_{j^0}(P, C)(a_{ij0}P - C.P)\right] + +\delta\left[(1 - \sigma_{j^0}(P, C))(a_{ij'^1}P - C.P)\right] \quad (9)$$

$$V_{lj^t}\left(P, C, a_{j^t}, T^t_{lj^t}, \sigma_{j^t}(.)\right)|_{t\in\{0,1\}} = a_{lj^0}P + \pi(P, C) - T_{lj^0} + \delta\left[\sigma_{j^0}(P, C)(a_{lj^0}P + \pi(P, C) - T_{l_j}\right. +\delta\left[(1 - \sigma_{j^0}(P, C))(a_{ij'^1}P + \pi(P, C) - T_{lj'^1})\right]$$

[6]Note that, if instead of a finite game we would like to consider a game infinitely repeated over time, the solution would not be straightforward. The difficulty to solve the game comes from the fact that the identity of the player j changes over time because of the term limits to the political mandate and because of the elections. Anyway, in appendix we show that a political equilibrium of the stage game (2 period game) is a political equilibrium of the infinitely repeated game.

$$V_{j^0 j^t}\left(P,C,a_{j^t},T_{lj^t},\sigma_{j^t}(.)\right)|_{t\in\{0,1\}} = a_{j^0 j^0}P + T_{lj^0} + \delta\left[\sigma_{j^0}(P,C)\left(a_{j^0 j^0}P + T_{lj^0}\right)\right] + \\ +\delta\left[\left(1-\sigma_{j^0}(P,C)\right)\left(a_{j^0 j'^1}P - C.P\right)\right] \quad (11)$$

Given the definition of political equilibrium we have the following result:

Proposition 1

A political equilibrium of the finite game exists.

Proof.

To find the political equilibrium, for every citizen we conjecture a voting strategy $\sigma^*_{ij^t}(P,C,a_{j^t})$ and we find a pair of strategies $\left(\Gamma^*_l,\Lambda^*_j\right)$ satisfying the condition (i) (*Lemma 1*). Then we prove that the conjectured vector, $\Sigma^*_{j^t}(P,C,a_{j^t})$ of individual voting decisions,$\sigma^*_{ij^t}(P,C,a_{j^t})$, also satisfies the condition (ii) (*Lemma 2*). Therefore, from *Lemma 1* and *Lemma 2*, we conclude that $\left(\Gamma^*_l,\Lambda^*_j,\Sigma^*_{j^t}(P,C,a_{j^t})\right)$ is a political equilibrium. ■

Once we have proved the existence of the political equilibrium, our main interest is to understand the characteristics of the policy outcome at the equilibrium. The following proposition summarizes the main property of the political equilibrium:

Proposition 2

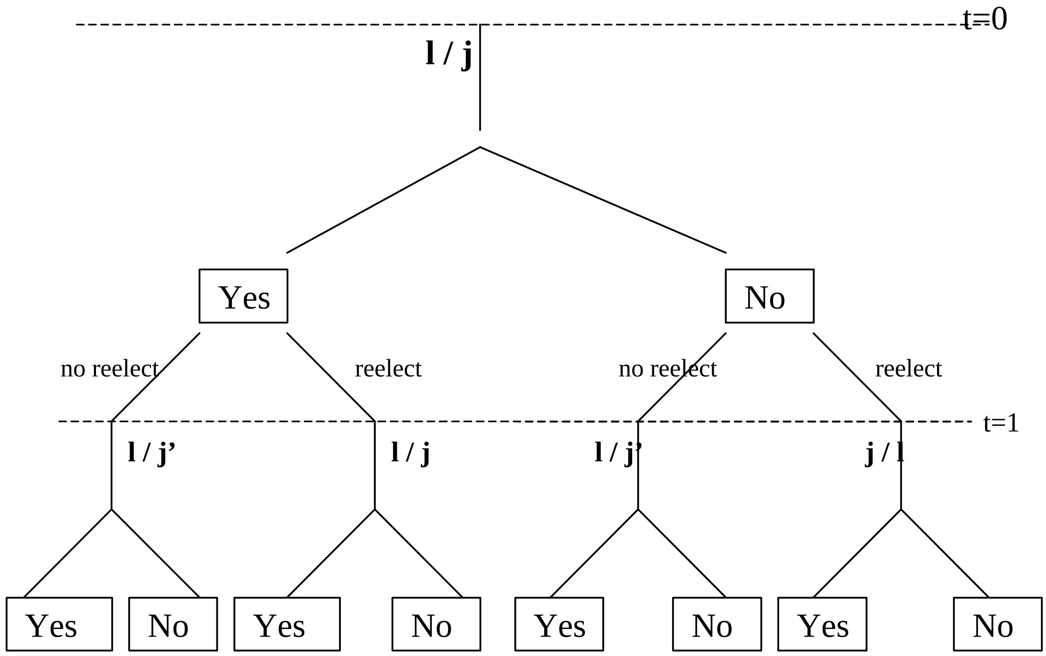
$C^H > a_{jj'}$ is necessary and sufficient condition for $(P=0,C=0)$ or $\left(P=1,C=C^L\right)$ to be an equilibrium policy outcome of the game.

the proof of the proposition 2 follows from lemma 1.

The statement and explanation of lemma 1 and lemma 2 are provided in the remaining part of this section.

Bargaining stage

The game starts with the lobby l making the proposal (P,C,T_{lj}) that the policy maker j either accepts (Yes) or rejects (No). If the offer is accepted the bargaining ends, if the offer is rejected the bargaining passes to the second period. Before passing to the second period, voters observe the policy choice (P,C,a_{j^t}) and vote. If the incumbent j is reelected and the lobby's offer in the previous period was rejected, then in the second period it will be the incumbent's turn to make the offer, (P,C,T_{lj}). The lobby can accept (Yes) or reject (No) and the game ends. If the incumbent, having accepted the first period offer, is reelected, then a new bargaining starts with the lobby making an offer (P,C,T_{lj}) that the policy maker either accepts or rejects and the game ends. Finally, if the incumbent j is replaced by the challenger j', the lobby l makes again a proposal $(1, C, T_{lj})$. The policy maker j' accepts $(Yes_{j'})$ or rejects $(No_{j'})$ and the game ends.



Let's conjecture that for every citizen i the voting strategy is as follows:

$$\sigma_{ij}^{*}\left(1, C^{H}\right) = 0$$

$$\sigma_{ij}^{*}\left(1, C^{L}\right) = 1$$

$$\sigma_{ij}^{*}\left(0, 0\right) = 1$$

Since the game is finite, we can solve it backward. Under the conjectured voting strategy we prove the following result[7]:

[7] Formal proof in appendix.

Lemma 1

If $\begin{matrix} a_{jj} > \pi\left(1, C^H\right) \\ C^H > a_{jj'} \end{matrix}$ *, then* l *proposes* $\left(1, C^L, T_{lj} = 0\right)$, j *accepts and is reelected. In the second period* l *proposes* $\left(1, C^H, T_{lj} = 0\right)$ *and* j *accepts.*

If $\begin{matrix} a_{jj} < \pi\left(1, C^H\right) \\ C^H < a_{jj'} \end{matrix}$ *, then* l *proposes* $\left(1, C^H, T^*_{lj} = \pi\left(.\right) + C^H - a_{jj'}\right)$, j *accepts and is not reelected. In the second period,* l *proposes* $\left(1, C^H, T_{lj} = 0\right)$ *to* j' *that accepts.*

If $\begin{matrix} a_{jj} > \pi\left(1, C^H\right) \\ C^H < a_{jj'} \end{matrix}$ *, then we have two cases. When* $(a_{lj'} - a_{lj}) \geq T^*$, l *proposes* $\left(1, C^H, T^*_{lj} = \pi\left(.\right) + C^H - a_{jj'}\right)$, j *accepts and is not reelected. In the second period,* l *proposes* $\left(1, C^H, T_{lj} = 0\right)$ *to* j' *that accepts. When* $(a_{lj'} - a_{lj}) < T^*$, l *proposes* $\left(1, C^L, T_{lj} = 0\right)$, j *accepts and is reelected. In the second period* l *proposes* $\left(1, C^H, T_{lj} = 0\right)$ *and* j *accepts.*

If $\begin{matrix} a_{jj} < \pi\left(1, C^H\right) \\ C^H > a_{jj'} \end{matrix}$ *, then* l *proposes either* $\left(1, C^L, T_{lj} = 0\right)$ *or* $\left(1, C^L, T_{lj} < \pi\left(.\right) + C^H - a_{jj'}\right)$ *and* j *rejects any proposal. In the second period,* j *proposes* $\left(1, C^H, T_{lj} = \pi\left(.\right)\right)$ *and* l *accepts.*

Explanation:

The equilibrium of the bargaining game depends on the parameters a_{jj}, $a_{jj'}$, C^H and $\pi\left(1, C^H\right)$. Note that, from the lobby perspective, the best outcome is $\left(1, C^H, T_{lj} = T^*_{lj}\right)$ accepted in the first period, unless the utility variation due to the change in the policy maker identity, $(a_{lj'} - a_{lj})$, doesn't compensate for the transfer the lobby pays to obtains such policies. If we exclude this last case, for the lobby it is never worth to go to the second period bargaining because in the second period the policy maker captures the entire profit. When $C^H < a_{jj'}$, the lobby knows that offering $\left(1, C^H, T_{lj} = T^*_{lj}\right)$ to the policy maker, the offer will be accepted. The reason for this is the following. The parameter $a_{jj'}$ represents the utility the incumbent j will obtain in the future if he is replaced by a challenger j'. If this utility is high enough, that is if $a_{jj'} > C^H$, then the incumbent doesn't loose too much from not being in power in the second period. Hence, he is available to accept the lobby proposal in the first period forsaking the possibility to be in power in the second period. In fact, when $a_{jj'} > C^H$, even if the decision-maker is j', the former policy maker j is still gaining from the policy. Therefore, j prefers the policy implemented by j' to zero policy. In other words, the incumbent prefers to obtain a transfer $T^*_{lj} < \pi\left(1, C^H\right)$

and get the policy implemented in both periods, instead of obtaining $T_{lj}^{*} = \pi\left(1, C^H\right)$ and the policy implemented only in one period. On the other hand, if the policy preferences of the challenger are such that $a_{jj'} < C^H$ then it doesn't exist a feasible transfer from the lobby to the incumbent that can compensate the incumbent for the loss he would incur if he will be replaced by the challenger j'. Therefore, in this case if the lobby offers $\left(1, C^H, T_{lj} < T_{lj}^{*}\right)$ the offer will be rejected and the bargaining will go to the second period where the policy maker will capture the entire surplus. To avoid this result, for the lobby it might be better to propose $\left(1, C^L, T_{lj} = 0\right)$ instead of $\left(1, C^H, T_{lj} < T_{lj}^{*}\right)$. If the proposal $\left(1, C^L, T_{lj} = 0\right)$ is accepted, the lobby still doesn't get any positive profit as in the case where $\left(1, C^H, T_{lj} < T_{lj}^{*}\right)$ is offered, but at least the lobby obtains the utility a_{lj} from the policy implemented in both periods. Then the question arises: when is $\left(1, C^L, T_{lj} = 0\right)$ accepted by j? The proposal is accepted if the gain from implementing the policy in the first period is higher than the gain from postponing the policy choice to the second period. The gain from postponing the policy choice is $\pi\left(1, C^H\right)$, the loss is a_{jj}. Therefore, if $a_{jj} > \pi\left(1, C^H\right)$, then the proposal $\left(1, C^L, T_{lj} = 0\right)$ is accepted.

To summarize, the equilibrium of the game depends on the cost of the policy, C^H, the profit $\pi\left(1, C^H\right)$, and the policy types, a_{jj} and $a_{jj'}$. Our major result is that the distribution of the selected policy type plays a crucial role in the determination of the equilibrium of the game. In particular, we can see that the *polarization* of policy types increases the power of the electorate vis-ā-vis the lobby. When the incumbent expects the challenger to chose a policy far away from his most preferred one, then he is not willing to accept in the first period the lobby proposal $(1, C^H, T_{lj})$. This implies that either $\left(1, C^L\right)$ or $(0, 0)$ will be selected. In the first case, the electorate will obtain his most preferred policy option at least in the first period; in the second case the voters will limit the implementation of their worst policy option to the second period. Note that, for the voters to obtain $\left(1, C^L\right)$ in the first period, we need not only that the policy maker looses "too much" from being replaced by the challenger ($C^H > a_{jj'}$) but also that the policy maker doesn't gain from postponing the policy choice to the second period ($a_{jj} > \pi\left(1, C^H\right)$). If there is a gain to postpone the policy choice ($a_{jj} < \pi\left(1, C^H\right)$), then the best result the voters can obtain is the policy $\left(1, C^H\right)$ implemented only in the second period.

Voting stage

Each citizen i observes the policy (P, C, a_j), chosen by the policy maker j and decide to reappoint or not j for the successive period. From the assumptions expressed in the equation 4 we know that, the best policy for the citizen i is $(1, C^L)$. Therefore, given the policy type a_j associated to the policy maker j, we know the preference ordering of the citizen i over the possible policies. Hence, the problem of the citizens is to find the voting rule that induces the policy maker to choose their most preferred policy, given the existence of a bargaining stage between the lobby and the policy maker.

We want to prove that the voting strategy conjectured by the policy maker in the bargaining stage is indeed an equilibrium strategy of the voting game. Since the median voter result applies, we concentrate on the optimal voting rule of the median voter and we obtain the following result[8]:

Lemma 2
$\sigma^*_{mj}\left(1, C^H\right) = 0, \sigma^*_{mj}\left(0,0\right) = 1, \sigma^*_{mj}\left(1, C^L\right) = 1$ *is an equilibrium of the voting game*

3.4 Political equilibrium with two legislators

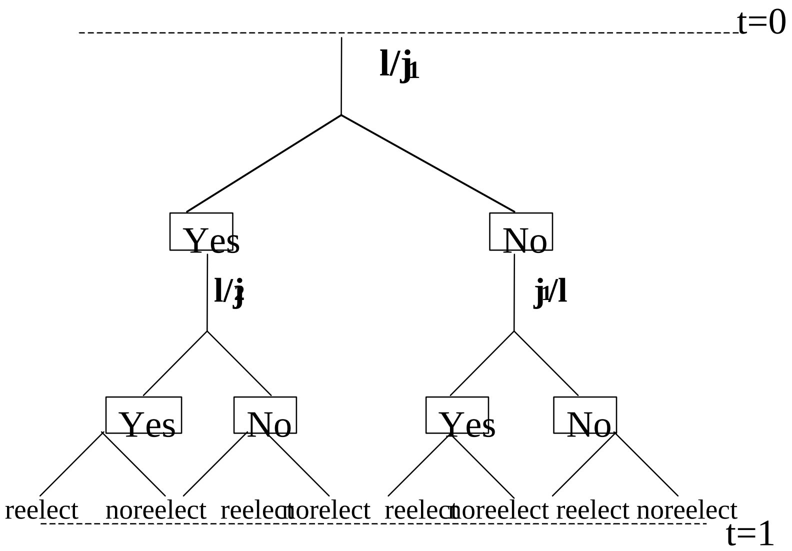
Let's assume now that the policy choice involves two legislators, denoted j_1 and j_2. The two decision-makers decide sequentially on the policy and the legislative process consists of two steps: in the first step the policy maker j_1 proposes a policy in the second step the policy maker j_2 decides to pass or not the j_1's proposal. The contractible dimension of the policy, (P, C), is chosen in the bargaining process between the lobby group and the two policy-makers. Regarding the non-contractible dimension, a_j, it is chosen by the two decision-makers according to their preferences. They have most preferred policy types a_{j_1} and a_{j_2} and, for simplicity, we do assume that $a_{j_1} = a_{j_2}$. This assumption simplifies both the decision making process and the electoral process. Regarding the policy choice, the two policy makers agree on the same policy type; concerning the electoral process, an ideological party just puts forward two candidates sharing the party ideology [9].

Given the *policy type* determined by the policy maker preferences, we can concentrate on the *policy cost* that is determined in the *bargaining* process between the lobby l and the legislators j_1 and j_2. The two policy makers decide sequentially on the policy. Given the sequential nature of the decision making process, we have a sequential bargaining between the three players: first there is a bargaining between the lobby and the first policy-maker, j_1, then there is a bargaining between the lobby and the second policy maker, j_2. We consider a legislative process without amendment rights (closed rule) and a legislative process where the second policy maker has amendments rights (open rule). In the first case policy maker j_2 can just decide to pass or not j_1 policy maker's proposal. In the second case, the policy maker j_2 can change the first policy maker's proposal. Given the legislative process characteristics,

[8] Formal proof in appendix.

[9] Introducing heterogeneity in policy types implies two complications. For the decision making process, we should specify a mechanism of agreement between the two decision makers . Concerning the electoral process, we would need to model the parties selection of heterogeneous candidates in a more complex way. We think that this can be an interesting extension of the model, in particular if we want to focus more on the link between electoral systems and policy choice.

the bargaining between the lobby and the two decision-makers can be represented as follows:



We denote $\bar{a}_{j_1 j'}$ and $\bar{a}_{j_2 j'}$ the utility the current incumbents, j_1 and j_2, will receive in the future if the challengers $j_1^{'}$ and $j_2^{'}$ defeat them in the election. A political equilibrium of this game exists[10] and the main property of the political equilibrium with two decision-makers is summarized by the following proposition:

Proposition 3

If j_1 and j_2 decide sequentially on the policy (P, C), the condition $(C^H > \bar{a}_{j_1 j'}, C^H > \bar{a}_{j_2 j'})$ is necessary but not sufficient for $(P = 0, C = 0)$ or $\left(P = 1, C = C^L\right)$ to be an equilibrium policy outcome of the sequential bargaining game between the lobby l and the policy makers j_1 and j_2 in $t = 0$ and $t = 1$.

This proposition is proved using the two following lemmas characterizing the equilibrium of the bargaining game in the first and second political mandate.

During the second political mandate the following result holds:

Lemma 3

In $t = 2$ and $t = 3$, l proposes $\left(1, C^H, T_{lj_1} = 0\right)$ to $j_1/\ j_1'$, $\left(1, C^H, T_{lj_2} = 0\right)$ to j_2/j_2' and $j_1/j_1'$and j_2/j_2' accept.

Given the equilibrium in the second mandate, solving backward we can characterize the equilibrium in the first mandate:

[10] see proposition1 for the proof

Lemma 4

In $t = 0$ and $t = 1$ the equilibrium of the bargaining game is the following:

If $C^H < \bar{a}_{j_1 j'}$ and $C^H < \bar{a}_{j_2 j'}$ then l proposes $\left(1, C^H, T_{lj_1} = 0\right)$ to j_1 , $\left(1, C^H, T_{lj_2} = 0\right)$ to j_2 and j_1 and j_2 accept.

If $C^H > \bar{a}_{j_1 j'}$, $C^H > \bar{a}_{j_2 j'}$ and $2C^H < \bar{a}_{j_1 j'} + \bar{a}_{j_2 j'} + \pi$, then l proposes $\left(1, C^H, T_{lj_1} = C^H - \bar{a}_{j_1 j'}\right)$ to j_1 that accepts and $\left(1, C^H, T_{lj_2} = C^H - \bar{a}_{j_2 j'}\right)$ to j_2 that accepts.

If $C^H > \bar{a}_{j_1 j'}$, $C^H > \bar{a}_{j_2 j'}$ and $2C^H > \bar{a}_{j_1 j'} + \bar{a}_{j_2 j'} + \pi$, then l proposes $\left(1, C^L, T_{lj_1} = 0\right)$ to j_1 that accepts and $\left(1, C^L, T_{lj_2} = 0\right)$ to j_2 that accepts

Explanation:

As in the one policy maker case, the equilibrium of the bargaining game depends on the parameters $\bar{a}_{j_1 j'}, \bar{a}_{j_2 j'}, C^H$ and π. When $C^H < \bar{a}_{j_1 j'}$ and $C^H < \bar{a}_{j_2 j'}$ the two decision-makers j_1 and j_2 do not incur in any utility loss from being replaced by j_1' and j_2' , therefore the lobby can obtain the policy $\left(1, C^H\right)$ paying zero transfers. On the other hand, if $C^H > \bar{a}_{j_1 j'}$ and $C^H > \bar{a}_{j_2 j'}$, both j_1 and j_2 need to be compensated for the loss they would incur if replaced by the opponents. In this case, if the profits are high enough to pay the two policy-makers, $2C^H < \bar{a}_{j_1 j'} + \bar{a}_{j_2 j'} + \pi$, then the lobby will obtain the policy $\left(1, C^H\right)$ otherwise the policy $\left(1, C^L\right)$ will be selected.

3.4.1 Legislative process and accountability

In the previous section we have characterized the political equilibrium in the case of a legislative process with two decision-makers. The reason for this analysis is that in the real world legislative processes often show the feature of multiple sequential steps involving a different decision-maker in each step. Therefore, it is important to understand how the complexity of a decision making process interacts with our stylized political game, or in other words how the legislative procedure affects the competition between lobby and voters. The advocates of complex legislative processes suggest that this complexity, making the lobbying activity more difficult, should increase the accountability of governments. If this view was correct, in our model we should expect that increasing the number decision-makers will decrease the ability of the lobby group to distort the policy choice. However, this seems not to be the case. The introduction of a second policy maker doesn't change the bargaining game in a way that is detrimental to the lobby. On the contrary, since in the second period the lobby captures the all surplus, there is more scope for the decision-makers to accept the lobby proposal in the first period. This explains the statement of proposition 3, where it is clear that the polarization of policy types may not be anymore a sufficient incentive for the government to forsake the lobby payment. On the other hand, since both the policy makers need to be compensated to forsake their reelection, then the total payment may not be feasible. This is coherent with the common view that introducing more institutional bodies increase the number of decision-makers the lobby needs to pay in order to obtain his most preferred policy, but this doesn't imply that the lobby power to distort policy decreases. To summarize, we could say that a more complex legislative process has two effects; on one side it could make the lobbying more difficult increasing the number of policy makers that needs to be paid, on the other side it could make voting less effective because the threat of an opponent choosing a policy type different from the incumbent may be counterbalanced by the impossibility to extract any rent in the future. Our analysis shows that this second effect dominates the first making the government less accountable. As a final remark, this analysis on the legislative procedure and the accountability problem is somehow related to the question of separation of power and accountability. Our work may suggests that when the source of the accountability problem are lobby payments, then it is not obvious that diving the power among different decision-makers is sufficient to increase their accountability. Anyway, to be fair we are not really questioning the separation of powers but just stating that it is important to pay attention to the distribution of bargaining power when institutional rules are settled. The main focus of this model in fact is not the separation of executive and legislative powers but the duplication of legislative tasks trough the introduction of multiple legislative bodies and it is precisely to this problem that our main result should be applied.

4 Summary of results and conclusion

The purpose of this paper was to provide a theoretical framework to analyze the competition between voters and one lobby group having opposite interests on a public policy. The public policy is chosen by a policy maker interacting with the lobby and the voters in different periods. At the beginning of the game the policy maker is exogenously put in place; then, before the policy choice, the lobby interacts with the government offering a payment. Voters interact with the government after the policy choice offering votes that are necessary for the government to be reappointed. The policy has two dimensions: the *cost* and the *type*. Individuals have policy type preferences and, if they become policy makers, they cannot commit to implement policy types different from their most preferred one. Hence, policy types are not contractible. On the other hand, the policy cost (paid by the citizens and benefiting the lobby through the positive relationship with the profit) is contractible. Therefore, given the policy type (depending on the policy maker identity only), voters and lobby compete to obtain their most preferred cost (low cost for voters, high cost for lobby). The main result of the model is that in equilibrium the choice of the cost depends on the polarization of policy type preferences of the incumbent and the challenger. The more polarized are candidates preferences on the policy type, the higher is the power of the electorate to obtain the policy implemented at a low cost. The reason for this result is that decision-makers are policy motivated and the lobby has to offer payments sufficient to compensate the policy maker for the utility loss he would incur when replaced by a challenger. The higher the distance between the incumbent's and the challenger's most preferred policy type, the higher the lobby payment has to be. Since the lobby payment is limited by the profit arising from the policy, for high polarization, the payment necessary to compensate the policy maker may not be feasible and voters may *win* against lobby. The polarization result is robust to alternative specifications of the bargaining game. For example, if we change the timing of the election allowing for a lobby offer and a government counter-offer before the election, the result on polarization is still valid. Similarly, if we give only the lobby the power to make offers, again the polarization result is valid. Clearly, the level of polarization necessary to the voters to keep the government accountable in this case will be higher than in the alternating offer structure where the government can capture rent in the future.

We conclude that the polarization of candidates' policy type preferences and the ability to capture rent are the major determinants of the policy outcomes. These results are reinforced by the analysis of a legislative process with two legislators deciding sequentially on the policy. Adding a second policy-maker to the legislative process alters the bargaining power in favor of the lobby; when the legislative process becomes longer the government loses his possibility to be the last player making the counter-offer and hence cannot capture any rent in the future. This implies that the government is more available to accept the lobby offer in the current period and forsake the possibility to be decision-maker in the future. Hence, for the government to stay accountable, in the two legislators case the level of polarization needs to be higher. Therefore, even tough an increase in the number of legislators implies that the lobby has to pay more policy makers, lobbying becomes easier because adding more steps to the legislative procedure increases the power of the lobby group. We conclude that to provide the right incentives to the policy makers it is important to pay a particular attention to the interaction between the institutional rules and the distribution of bargaining power.

References

[1] B. D. Bernheim and M.D. Whinston, "Menu Auctions, Resource Allocation, and Economic Influence", *Quarterly Journal of Economics*; 101(1), February 1986, pages 1-31.

[2] J.S. Banks and R.K. Sundaram, Optimal Retention in Agency Problems, *Journal of Economic Theory*; 82(2), October 1998, pages 293-323

[3] G. Becker, "Public Policies, Pressure Groups and Dead Weight Costs", *Journal of Public Economics*; 28(3), December 1985, pages 329-47.

[4] T. Besley and A. Case, "Incumbent Behaviour: Vote-Seeking, Tax-Setting, and Yardstick Competition", *The American Economic Review*; 85(1), March1995, pages 25-45.

[5] ________________________, "Does Electoral Accountability Affect Economic Policy Choices? Evidence from Gubernatorial Term Limits", *Quarterly Journal of Economics*; 110(3), August 1995, pages 769-98.

[6] T. Besley and S. Coate, "An Economic Model of Representative Democracy" - *Quarterly Journal of Economics*; 112(1), February 1997, pages 85-114.

[7] _____________________ "Sources Of Inefficiency in a Representative Democracy: A Dynamic Analysis" - *The American Economic Review*; 88(1), March 1998, pages 139-56.

[8] _____________________ Lobbying and Welfare in a Representative Democracy - *Review of Economic Studies*, forthcoming

[9] _____________________ "Political Competition and Welfare", *Review of Economic Studies Lecture given at the Royal Economic Society Conference*, University of Warwick, March 31st 1998.

[10] S. Coate and S. Morris, "On the Form of Transfers to Special Interests", *Journal of Political Economy*; 103(6), December 1995, pages 1210-35.

[11] I. Budge, D. Robertson and D. Hearl, *Ideology, Strategy and Party Change: Spatial Analysis of Post-war Election Programs in 19 Democracies*, Cambridge University Press, 1987.

[12] M. Dewatripont and G. Roland, "The Virtues of Gradualism and the Legitimacy in the Transition to a Market Economy" - *Economic Journal*; 102(411). March 1992, pages 291-300.

[13] ______________________________ "Economic Reform and Dynamic Political Constraints" - *Review of Economic studies*; 59(4), October 1992, pages 703-30.

[14] Dixit and J. Londregan, "Redistributive Politics and Economic Efficiency", *American Political Science Review*; 89(4), December 1995, pages 856-66.

[15] A.Dixit, E.Helpman, G.Grossman, "Common Agency and Coordination: General Theory and Application to Tax Policy", - *Journal of Political Economy*; 105(4), August 1997, pages 752-69.

[16] M. Duverger, *Political parties*, Unversity Press, Cambridge, 1954.

[17] M. Fotia, *Le lobbies in Italia, gruppi di pressione e di potere*, Edizioni Dedalo, 1997.

[18] G. Grossman and E. Helpman, "Protection for Sale", *The American Economic Review*; 84(4), September 1994, pages 833-50.

[19] G. Grossman and E. Helpman, "Electoral Competition and Special Interest Politics", *Review of Economic Studies*;63(2), April 1996, pages 265-86.

[20] P. Jehiel and B. Moldovanu, Cyclical Delay in Bargaining with Externalities, *Review of Economic Studies*, 1995, 62, pages 619-637.

[21] S. Mazey and J. Richardson, *Lobbying in European Community*, Oxford University Press, 1993.

[22] D. Mueller, *Public Choice II*, Cambridge University Press.

[23] M. Olson, *The logic of Collective Action, Public Goods and the Theory of the Groups*, Oxford University Press, 1965.

[24] M.J. Osborne and A. Rubinstein, *Bargaining and Markets*, Academic Press, 1990.

[25] M.J. Osborne and A Slivinski, "A Model of Political Competition with Citizen Candidates", *Quarterly Journal of Economics*; 111(1), February 1996, pages 65-96.

[26] T. Persson, G. Roland and G. Tabellini, "Separation of powers and political accountability", *Quarterly Journal of Economics*;112(4), November 1997, pages 1163-1202.

[27] T. Persson and G. Tabellini, "The Size and Scope of Government: Comparative Politics with Rational Politicians", *1998 Alfred Marshall Lecture*, September 5, EEA Congress in Berlin.

[28] K. Roberts, "Voting over Income Tax Schedules", *Journal of Public Economics*; 8(3), December 1977, pages 329-40.

[29] M. Robertson, *Committees in Legislatures: a Comparative Analysis*, J. D. Lees and M. Shaw eds., Duke University Press, 1979.

[30] A. Rubinstein, Perfect Equilibrium in Bargaining Model, *Econometrica*, 50, (1981), pages 97-110.

[31] A. Shaked and J. Sutton, Involuntary Unemployment as a Perfect Equilibrium in Bargaining Model, *Econometrica*, vol.52, N. 6, November 1984

Appendix

1. Finite Game

Lemma 1

Proof.

For the sake of simplicity, we introduce here some notation that we are going to use only in the proof.

We index the action by the player that is undertaking it. Hence, $(P, C, T_{lj})_k$ means that the individual $k \in \{l, j\}$ is making the offer (P, C, T_{lj}) and Yes_k or NO_k means that the individual $k \in \{l, j\}$ is saying Yes or No. Concerning the payoffs, we denote V_k/Yes_k the payoff of the individual k when he is accepting the offer made by the other player and V_k/No_k the k's payoff when he is rejecting the offer made by the other player.

Let's conjecture that for every citizen i the voting strategy is as follows:

$$\sigma_{ij}^* \left(1, C^H\right) = 0$$

$$\sigma_{ij}^* \left(1, C^L\right) = 1$$

$$\sigma_{ij}^* (0, 0) = 1$$

Since the game is finite, we can solve it backward. Let's consider the tree after Yes_j followed by *no reelection*. In this case j' is the last player to accept or reject. Since we denote $V_{j'}/Yes_{j'}$ the payoff of j' if he says Yes , and $V_{j'}/No_{j'}$ his payoff following No, then:

$V_{j'}/Yes_{j'} = a_{j'j'} + T_{j'l}$

$V_{j'}/No_{j'} = 0$

It is clear that $Yes_{j'}$ is dominant strategy for j'. Let's turn now to the lobby l to see which offer is going to make. The lobby can offer either $\left(1, C^L, T_{lj}\right)$ or $\left(1, C^H, T_{lj}\right)$. Because of the feasibility constraint, when $C = C^L$ the transfer has to be $T_{lj} = \pi\left(1, C^L\right) \equiv 0$. On the other hand, if $C = C^H$, then any $T \leq \pi\left(1, C^H\right)$ is feasible. Since the lobby knows that the government will always accepts his offer, then the lobby l can make a take-it-or-leave-it offer to the policy maker j', $\left(1, C^H, T_{lj'} = 0\right)$, capturing the entire surplus. Therefore we conclude, that in equilibrium the lobby offers $\left(1, C^H, T_{lj'} = 0\right)$ and the policy maker accepts. If we repeat the analysis considering the tree after No_j followed by *no reelection* , we obtain the same result. Similarly, if we consider the game after No_j followed by *reelection*, we obtain that the agreement $\left(1, C^H, T_{lj} = \pi\left(1, C^H\right)\right)_j$ is accepted by the lobby l, hence the player capturing the entire profit, $\pi\left(1, C^H\right)$, is the policy maker j.

We can now compute the payoff of j following his Yes or No decision in the first period.

If the policy maker j receives the offer $\left(1, C^H, T_{lj}\right)_l$, given the conjectured voting strategies, $\sigma_{ij}^*\left(1, C^H\right) = 0$ and $\sigma_{ij}^*(0,0) = 1$, then the payoffs following his Yes or No decision are the following:

$V_j/Yes_j = a_{jj} + T_{lj} + \delta\left(a_{jj'} - C^H\right)$

$V_j/No_j = \delta\left(a_{jj} + \pi\left(1, C^H\right)\right)$

Let's assume that $\delta = 1$. Then Yes_j is better then No_j if and only if the following is true:

$$T_{lj} \geq \pi\left(1, C^H\right) + C^H - a_{jj'} \tag{12}$$

Therefore, at the equilibrium[11] the lobby l offers $T_{lj}^* = \pi\left(1, C^H\right) + C^H - a_{jj'}$, the policy maker accepts and the policy $\left(1, C^H\right)$ is implemented, provided that $\left(1, C^H, T_{lj}^*\right)$ belongs to the set of the feasible agreements $X = \{(P, C, T_{lj}) : \pi(P, C) - T_{lj^t} \geq 0\}$. It is immediate to see that the feasibility of T_{lj}^* depends on the parameters C^H and $a_{jj'}$:

$$\pi(P, C) - T_{lj^t}^* \geq 0 \Leftrightarrow C^H \leq a_{jj'} \tag{13}$$

Let's consider now the case where j receives the offer $\left(1, C^L, T_{lj} = 0\right)_l$; again, given the conjectured voting strategies, $\sigma_{ij}^*\left(1, C^L\right) = 1$ and $\sigma_{ij}^*(0,0) = 1$, we can write the payoffs following his Yes or No decision as follows:

$V_j/No_j = \delta\left(a_{jj} + \pi\left(1, C^H\right)\right)$

$V_j/Yes_j = a_{jj} + \delta a_{jj}$

Let's assume again that $\delta = 1$. Then, we can see that Yes_j is better than No_j if and only if the following is true:

$$a_{jj} > \pi\left(1, C^H\right)$$

To summarize, depending on the parameters of the model, we obtain the following results:

[11] When $\delta < 1$ the equilibrium transfer is $T_{lj}^\circ = \delta\pi\left(1, C^H\right) - \delta\left(a_{jj'} - C^H\right) - (1-\delta)\, a_{jj}$. Since $T_{lj}^\circ < T_{lj}^*$, if the transfer with $\delta = 1$ is feasible, then the transfer with $\delta < 1$ is also feasible, while the opposite is not true.

$a_{jj} > \pi\left(1, C^H\right)$ $C^H > a_{jj'}$	if l proposing $\left(1, C^L\right)$, j accepts if l proposing $\left(1, C^H\right)$, j rejects
$a_{jj} < \pi\left(1, C^H\right)$ $C^H < a_{jj'}$	if l proposing $\left(1, C^L\right)$, j rejects if l proposing $\left(1, C^H\right)$, j accepts
$a_{jj} > \pi\left(1, C^H\right)$ $C^H < a_{jj'}$	if l proposing $\left(1, C^L\right)$, j accepts if l proposing $\left(1, C^H\right)$, j accepts
$a_{jj} < \pi\left(1, C^H\right)$ $C^H > a_{jj'}$	if l proposing $\left(1, C^L\right)$, j rejects if l proposing $\left(1, C^H\right)$, j rejects

Given j's reply to the l's proposal we can find the optimal proposal for l. We write down the lobby payoffs associated to the policy proposals $\left(1, C^L\right)$ and $\left(1, C^H\right)$ and we compare the payoffs:

$a_{jj} > \pi\left(1, C^H\right)$ $C^H > a_{jj'}$	$V_l\left(1, C^L\right) = 2a_{lj} + \pi(.)$ $V_l\left(1, C^H\right) = a_{lj}$	$V_l\left(1, C^L\right) > V_l\left(1, C^H\right)$
$a_{jj} < \pi\left(1, C^H\right)$ $C^H < a_{jj'}$	$V_l\left(1, C^L\right) = a_{lj}$ $V_l\left(1, C^H\right) = a_{lj} - C^H + a_{jj'} + a_{lj} + \pi(.)$	$V_l\left(1, C^L\right) < V_l\left(1, C^H\right)$ [12]
$a_{jj} > \pi\left(1, C^H\right)$ $C^H < a_{jj'}$	$V_l\left(1, C^L\right) = 2a_{lj} + \pi(.)$ $V_l\left(1, C^H\right) = a_{lj} - T^* + a_{lj'} + \pi(.)$	if $(a_{lj'} - a_{lj}) > T^*$ $V_l\left(1, C^H\right) > V_l\left(1, C^L\right)$
$a_{jj} < \pi\left(1, C^H\right)$ $C^H > a_{jj'}$	$V_l\left(1, C^L\right) = a_{lj}$ $V_l\left(1, C^H\right) = a_{lj}$	$V_l\left(1, C^L\right) = V_l\left(1, C^H\right)$

Therefore, solving backward the bargaining game, we prove the results stated in *lemma 1.* ■

Lemma 2

Proof.

• *Conjecture:* $\sigma^*_{mj}\left(1, C^H\right) = 0$

Let's assume that this is not the optimal strategy. Hence, we have to prove that $\sigma_{mj}\left(1, C^H\right) = 1$ is better then $\sigma^*_{mj}\left(1, C^H\right) = 0$. If this is not true, than we can conclude that $\sigma^*_{mj}\left(1, C^H\right) = 0$ is the optimal strategy.

If $\sigma_{mj}\left(1, C^H\right) = 1$, then choosing $\left(1, C^H\right)$ in the first period, the policy maker j remains in power in the second period. Under this voting rule, if the lobby proposes

[12] $V_l\left(1, C^H\right) > V_l\left(1, C^L\right)$if and only if $a_{jj'} - C^H + a_{lj} + \pi(.) > 0$, which is true under the parameters we are considering

$\left(1, C^H, T_{lj}\right)$, the policy maker in the first period will never reply No to the agreement proposed by the lobby (under this voting rule Yes is dominant strategy because there is no loss of reward associated to Yes). Then the lobby in equilibrium proposes $\left(1, C^H, T_{lj}\right)$ and j accepts. In the second period the lobby proposes $\left(1, C^H, T_{lj} = 0\right)$ and j accepts. Therefore, the median voter in both periods obtains the policy $(1, C^H)$. On the other hand, if $\sigma^*_{mj}\left(1, C^H\right) = 0$, creating a cost for the incumbent (loss of reward), depending on the parameters of the model, the voter can support No to $\left(1, C^H\right)$ as an equilibrium strategy, obtaining in the first period either the policy $(0, 0)$ or $\left(1, C^L\right)$. In the second period the policy remains $\left(1, C^H\right)$. Note that, if $C^H < a_{jj'}$, the voter obtains the same pay-off under the two alternative voting strategies, hence he is indifferent between, $\sigma^*_{mj}\left(1, C^H\right) = 0$ and $\sigma_{mj}\left(1, C^H\right) = 1$. On the other hand, if $C^H > a_{jj'}$, then the payoff under the voting strategy $\sigma^*_{mj}\left(1, C^H\right) = 0$ is higher then the payoff under the voting strategy $\sigma_{mj}\left(1, C^H\right) = 1$, because when $C^H > a_{jj}$ he might get either $(0, 0)$ or $\left(1, C^L\right)$ that are both preferred to the policy $\left(1, C^H\right)$.

Therefore, we conclude that:

$$V_{mj}\left[1, C^H, a_j, \left(\sigma_{mj}\left(1, C^H\right)\right) = 1\right] \leq V_{mj}\left[1, C^H, a_j, \sigma^*_{mj}\left(1, C^H\right) = 0\right]$$

since the condition (ii) is satisfied, then $\sigma^*_{mj}\left(1, C^H\right) = 0$ is an equilibrium strategy.

- *Conjecture:* $\sigma^*_{mj}(0, 0) = 1$

Following the previous proof, again we compare $\sigma^*_{mj}(0, 0) = 1$ and $\sigma_{mj}(0, 0) = 0$. If $\sigma_{mj}(0, 0) = 0$, following the first period policy $(0, 0)$, the second period decision-maker is the challenger who choose $\left(1, C^H\right)$. Under the voting rule $\sigma_{mj}(0, 0) = 0$, if the incumbent receives the offer $\left(1, C^H, T_{lj}\right)$ he will reply Yes. This insures that the lobby in equilibrium proposes $\left(1, C^H, T_{lj}\right)$. Therefore, the voter gets the policy $\left(1, C^H\right)$ in both periods. On the other hand, using the strategy $\sigma^*_{mj}(0, 0) = 1$, depending on the parameters of the model, the voter can obtain either $(0, 0)$ or $\left(1, C^L\right)$ or $\left(1, C^H\right)$ in the first period and $\left(1, C^H\right)$ in the second period.

Under the parameter $C^H > a_{jj'}$, the utility obtained from the voting strategy $\sigma^*_{mj}(0, 0) = 1$ is higher then the utility obtained from $\sigma_{mj}(0, 0) = 0$. Under the parameter $C^H < a_{jj'}$, the pay-off from $\sigma^*_{mj}(0, 0) = 1$, compared to the payoff from $\sigma_{mj}(0, 0) = 0$, can be equal or higher. Therefore again the condition (ii) is satisfied.

- *Conjecture:* $\sigma^*_{mj}\left(1, C^L\right) = 1$

Once again, let's compare the payoffs the median voter obtains under $\sigma^*_{mj}\left(1, C^L\right) = 1$ and $\sigma_{mj}\left(1, C^L\right) = 0$.

Given the voting rule $\sigma_{mj}\left(1, C^L\right) = 0$, if the policy maker receives the offer $\left(1, C^L, T_{lj} = 0\right)$, then he rejects the offer because $V_j/Yes_j = a_{jj} + a_{jj'} - C^H$ that is lower then $V_j/No_j = 0 + a_{jj} + \pi\left(1, C^H\right)$. On the other hand, if j receives the offer $\left(1, C^H, T_{lj}\right)$, then he accepts if $C^H < a_{jj'}$ and rejects if $C^H > a_{jj'}$. Remember that the lobby doesn't want to go to the second round; hence the lobby will not offer $\left(1, C^L, T_{lj} = 0\right)$that is rejected for sure and will offer $\left(1, C^H, T_{lj}\right)$, that can be accepted or rejected. Therefore the policy in the first period will be either $(0,0)$ or $\left(1, C^H\right)$. On the other hand, under the voting rule $\sigma^*_{mj}\left(1, C^L\right) = 1$, the policy outcome can be $(0,0)$ or $\left(1, C^L\right)$ or $\left(1, C^H\right)$. Since $\left(1, C^L\right)$ is the most preferred policy for the voter, then it is clear that $V_{mj}\left[1, C^L, a_j, (\sigma^*_{mj}\left(1, C^L\right)) = 1\right] \geq V_{mj}\left[1, C^L, a_j, \sigma_{mj}\left(1, C^L\right) = 0\right]$, and therefore $\sigma^*_{mj}\left(1, C^L\right)) = 1$ is an equilibrium strategy according to the condition (ii).

■

2. Infinite game

We proved that in the case of the finite game a political equilibrium exists and we characterized this equilibrium. Here we prove the existence of the equilibrium when the game is infinitely repeated over time. Since the identity of the player j changes over time, it is not immediate to show that the equilibrium of the stage game represents the equilibrium of the repeated game. In what follows we prove the following result:

Proposition 4

A political equilibrium of the stage-game is a political equilibrium of the infinitely repeated game.

From the characterization of the equilibrium of the finite game we know that the equilibrium depends on the type of the incumbent and on the incumbent's expectation on the type the challenger. In particular, the incumbent incentive to reject the lobby proposal that implies no reelection comes from the fear the challenger will chose a policy type very different from the most preferred incumbent's policy type. The same kind of argument applies in the infinite game. The difference between the stage-game and the infinitely repeated game is that in the stage game the incumbent knows for sure that the challenger will accept the lobby proposal $\left(1, C^H, T_{lj}\right)$ because the game ends, while in the infinitely repeated game the challenger optimal strategy might be to reject the lobby proposal. In what follows we show that the expectation on the challenger behavior in the infinitely repeated game doesn't change the equilibrium with respect to the stage game.

Lemma 5

If $a_{j^t j^{t+1}}$ is such that replying Yes_{j^t} to $\left(1, C^H, T_{lj^t}\right)_l$ to is an equilibrium strategy for j^t in the stage-game, then Yes_{j^t} is an equilibrium strategy in the infinitely repeated game.

Proof.

This lemma refers to the case where $a_{j^t j^{t+1}} > C^H$. The proof of the result is straightforward. In the finite game, the incumbent knows for sure that the challenger will reply Yes to any lobby proposal and hence the most preferred policy type of the challenger will be chosen. This is the worst policy change for the incumbent. If the game is repeated, then the challenger, given the expectation on the future policy maker, might reply to the lobby either Yes or No. Therefore, if Yes_{j^t} is optimal against $Yes_{j'^{t+1}}$, then Yes_{j^t} is optimal against $\{Yes_{j'^{t+1}}, No_{j'^{t+1}}\}$. ■

Lemma 6

If $a_{j^t j^{t+1}}$ *is such that replying* No_{j^t} *to the proposal* $\left(1, C^H, T_{lj^t}\right)_l$ *is an equilibrium strategy for* j^t *in the stage-game, then* No_{j^t} *is an equilibrium strategy in the infinitely repeated game.*

Proof.

We are considering the case where $a_{j^t j^{t+1}} < C^H$. When $a_{j^t j^{t+1}}$ is such that No_{j^t} is the optimal response of j^t to the proposal $\left(1, C^H, T\right)$, then, following the proposal $\left(1, C^H, T_{lj^t}\right)$, the sequence of strategies we obtain in the equilibrium of the stage-game is (No_{j^t}, Yes_l). Which means that the policy maker j^t in the first period rejects the lobby offer and being reelected forgoes the implementation of his best policy type to the subsequent period. Note that the policy sequence associated to this sequence of strategy is $(0,0)$ in the first period and $\left(1, C^H\right)$ in the second period; the transfer received by the policy maker is zero in the first period and $T = \pi\left(1, C^H\right)$ in the second period. Let's consider now the sequence of strategies $(Yes_{j^t}, No_{j'^{t+1}})$. In this case the sequence of policies is $\left(1, C^H\right)$ in the first period and $(0,0)$ in the second period and the transfer is $T_{lj} = \delta\pi\left(1, C^H\right) - \delta\left(a_{jj'} - C^H\right) - (1-\delta)\, a_{jj}$ in the first period and zero in the second period. Since the future is discounted, the sequence of strategies $(Yes_{j^t}, No_{j'^{t+1}})$ is preferred to the sequence (No_{j^t}, Yes_l). This means that No_{j^t} is optimal when j^t expects j'^{t+1} to say Yes (that always happens in the 2-periods game) but is not optimal when j^t expects j'^{t+1} to say No (that happens in the infinitely repeated game under the parameters we are considering). Hence, it is not obvious that the equilibrium strategies of the stage-game are also the equilibrium of the repeated game.

Is the deviation from No_{j^t} to Yes_{j^t} profitable in equilibrium? If every j^t, expecting j^{t+1} to chose No, is choosing Yes, then the sequence of strategies we will obtain in equilibrium will be $\{Yes_{j^{t+n}}\}_{n=0}^{\infty}$. Since all the parameters from t onwards are known, j^t is able to anticipate that if he is choosing Yes expecting j^{t+1} choosing No, then j^{t+1} will do the same expecting j^{t+2} saying No and so on. Therefore, deviation in equilibrium is not profitable. ■

From *lemma 5* and *lemma 6* it follows that *proposition 2* is true.