DISCUSSION PAPER SERIES

No. 1475

# SEPARATION OF POWERS AND ACCOUNTABILITY: TOWARDS A FORMAL APPROACH TO COMPARATIVE POLITICS

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*INTERNATIONAL MACROECONOMICS*


Centre for Economic Policy Research

ISSN 0265-8003

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Discussion Paper No. 1475
September 1996

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CEPR Discussion Paper No. 1475

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## ABSTRACT

# Separation of Powers and Accountability: Towards a Formal Approach to Comparative Politics*

A political constitution is like an incomplete contract: it spells out a procedure for making decisions and for delegating power, without specifying the contents of those decisions. This creates a problem: appointed policy-makers could use this power for their own benefit against the interests of citizens. In democracies, elections are the primary mechanism for disciplining public officials. But elections are not sufficient. Separation of powers between executive and legislative bodies also helps voters, in two distinct ways. First, it can elicit information held by the appointed officials and not otherwise available to voters. Second, by playing one body against the other, and by aligning the interest of the weaker body with their own, voters can induce the two bodies to discipline each other. Separation of power only works to the voters' advantage if it is appropriately designed, however, and it can be detrimental if it creates a 'common pool' problem. The advantages of separation of powers are present in both presidential and parliamentary democracies. Government appointment rules in parliamentary democracies must be appropriately designed, however, to prevent collusion.

JEL Classification: D72, D82, H11
Keywords: separation of powers, incomplete contracts, legislative organization, information revelation

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*This research is supported by a TMR grant from the European Commission and by the Bank of Sweden Tercenterary Foundation. The present paper grew out of conversations with Roger Myerson at the September 1995 ESF conference in Castel Gandolfo. We are grateful to David Baron, Jean Tirole and participants in the CEPR/ESRC Macroeconomics workshop on 'Fiscal and Monetary Policy in the EU', London, 5 July 1996 for helpful comments and to Christina Lönnblad for editorial and secretarial assistance.

Submitted 26 July 1996

# NON-TECHNICAL SUMMARY

One of the basic constitutional principles of liberal democracies is the separation of powers. Since the writings of Locke and Montesquieu, separation of executive, legislative and judicial powers is deemed essential to avoid usurpation and tyranny by the holder of these powers. These ideas exerted a strong influence on the founding fathers of the American constitution. They were convinced that the separation of powers was a necessary precaution even in a democracy that periodically elects its own rulers.

This principle is so much part of our political culture that we no longer question it. Yet, it is not immediately obvious why the separation of powers is so important, even in a democracy. Why is the threat of losing elections not sufficient to discipline an omnipotent executive or legislature? What do we gain by the separation of powers? What do we lose? How should this separation be designed? Even though all democracies have separation of powers, the relation between the executive, the legislature and citizens varies. Not only is it different in presidential and parliamentary systems, but different constitutions also make the executive more or less powerful relative to the legislature depending on how the legislative process is structured.

The purpose of this paper is to address these basic questions about the separation of powers and comparative politics with the tools of modern economic theory. Naturally, we can only focus on a specific dimension of this difficult and fundamental problem. In the language of economic theory, elections perform at least four distinct functions: 1) they aggregate and represent the voters' conflicting preferences; 2) they aggregate dispersed information about the correct political decisions; 3) they address an adverse selection problem by allowing citizens to select the most competent individuals for public office; and 4) they provide a mechanism to control moral hazard, by holding elected officials accountable to citizens. In this paper, we focus on the last of these roles: the control of moral hazard.

When analysing how well different constitutions help voters control their elected officials, we adopt the same general approach as the principal-agent literature. But the application of this approach to the design of political constitutions must respect certain natural constraints. A political constitution is an incomplete contract: elected politicians are not offered an explicit incentive scheme that associates a well defined pay-off with an action in all states of the world. A political constitution only specifies who has the right to make

decisions, and according to which procedures for which circumstances. But it is hard to tie specific rewards or sanctions to the contents of those decisions. The mechanism for controlling politicians is to deny them the right to make those decisions in the future – that is, to throw them out of office. Naturally, this constrains what the principals (i.e. the voters) can do. In the terminology of Holmström and Tirole, politicians can only be offered implicit incentive schemes. What we study then is how voters can use such implicit incentive schemes to reduce the rents captured by politicians.

What is the source of those rents? One is related to *power:* due to incompleteness of contracts, when citizens elect their leaders, they temporarily delegate the exclusive decision-making authority over policy-making to the holders of public office. The other source of rents is related to *informational asymmetries:* in many cases policy-makers have access to superior information on the relative merits and precise consequences of alternative policies, relative to the population at large. Both the transfer of power and informational asymmetries create scope for potential abuse by holders of office.

To model the distinctive features of different forms of democratic rule in a precise way, we treat the interaction between the executive and the legislature as a simple, but completely specified, extensive-form game. The rules of this legislative bargaining game dictate who can make a legislative proposal over what, whether that proposal can be amended and how, what happens when a proposal or an amendment is rejected, and so on. Our approach is therefore very much related to the rational-choice literature in American politics on structure-induced equilibria, agenda-setting powers, and majoritarian legislative bargaining.

One of the central results of the paper is that separation of powers improves the accountability of elected officials, and thus the utility of voters. The main reason is that under separation of powers, a system of checks and balances can be designed so as to create a conflict of interest between the executive and the legislature, and therefore limit the scope for abuse of power. We model realistic decision-making processes where such results hold. Our theory confirms the old idea that checks and balances are at the heart of the principle of separation of powers. A particularly relevant application relates to the budget process. Decisions on the budget are split in two separate stages, where both policy-makers have to agree at each stage. But one policy-maker (say the executive) has complete agenda-setting power over the size of the budget, while the other policy-maker (the legislature) has complete agenda-setting power over its composition. If this separation is appropriately designed

and can be enforced, it reduces the rents from office of the elected officials and benefits the voters.

We also show that separation of powers enables the voters to elicit the private information held by the elected political officials and hence to remove any informational rents. This finding is reminiscent of results in the mechanism-design literature. By inducing political bodies to compete against each other in an extensive-form game, an uninformed principal can extract information from them. We find that it is the body with the weaker bargaining power which reveals the information. Depending on the rules of the legislative process, one of the bodies derives more political power than the other. By adopting an appropriate voting strategy, the voters can align their own interests with those of the weaker body, thereby giving it appropriate incentives to reveal information.

A third result of the paper relates to a crucial difference between presidential and parliamentary democracies: the procedure for appointing the executive is direct in a presidential system, but indirect, through the legislature, in a parliamentary system. Direct control by the voters keeps the executive more accountable, as it minimizes the danger of collusion between the legislature and the executive over reappointment of the latter. Intuitively, when executive reappointment is decided by the legislature, the voters' control of moral hazard becomes harder. This problem of indirect versus direct control also arises in other situations such as the appointment of judges and administrative officials. The model shows that to break such collusion, the executive must be forced to step down after any legislative elections, a feature observed in every parliamentary democracy.

A fourth set of results concerns the structure of the legislative process. Creating a conflict of interest between the executive and the legislature may not be sufficient to remove their rents. On the contrary, a fully non-cooperative process, where their interests are diametrically opposed, may imply a 'common pool' problem with disastrous consequences for the voters. A key condition to make separation of powers work in favour of voters is that no agent is able to divert resources without being subject to checks and controls by the other.

"If men were angels, no government would be necessary. If angels were to govern men, neither external nor internal controls on government would be necessary. In framing a government which is to be administered by men over men, the great difficulty lies in this: you must first enable the government to control the governed; and in the next place oblige it to control itself. A dependence on the people is, no doubt, the primary control on the government; but experience has taught mankind the necessity of auxiliary precautions.

This policy of supplying, by opposite and rival interests, the defect of better motives, might be traced through the whole system of human affairs, private as well as public. We see it particularly displayed in all the subordinate distributions of power, where the constant aim is to divide and arrange the several offices in such a manner as that each may be a check on the other - that the private interests of every individual may be a sentinel over the public rights. These inventions of prudence cannot be less requisite in the distribution of the supreme powers of the State". (J. Madison, The Federalist, number LI.)

## 1. Introduction

One of the basic constitutional principles of liberal democracies is the separation of powers. Since the writings of Locke and Montesquieu, separation of the legislative, executive and judicial powers is deemed essential to avoid usurpation and tyranny by the holder of these powers. These ideas exerted a strong influence on the founding fathers of the American constitution. They were convinced that separation of powers is a necessary precaution even in a democracy that periodically elects its own rulers.

This principle is so much part of our political culture that we no longer question it. Yet, it is not immediately obvious why separation of powers is so important even in a democracy. Why is the threat of losing the elections not sufficient to discipline an omnipotent executive or legislature? What do we gain by separation of powers? What do we lose? How should this separation be designed? Even though all democracies have separation of powers, the relation between the executive, the legislature and the citizens varies. Not only is it different in presidential and parliamentary systems, but different constitutions also make the executive

more or less powerful relative to the legislature depending on how the legislative process is structured.[1]

The purpose of this paper is to address these basic questions about the separation of powers and comparative politics with the tools of modern economic theory. Naturally, we can only focus on a specific dimension of this difficult and fundamental problem. In the language of economic theory, elections perform at least four distinct functions: 1) they aggregate and represent the voters' conflicting preferences; 2) they aggregate dispersed information about the correct political decisions; 3) they address an adverse selection problem by allowing the citizens to select the most competent individuals for public office; and 4) they provide a mechanism to control moral hazard, by holding elected officials accountable to the citizens. In this paper, we only focus on the last of these roles: the control of moral hazard.

When analyzing how well different constitutions help voters to control their elected officials, we adopt the same general approach as the principal-agent literature. But the application of this approach to the design of political constitutions must respect certain natural constraints. A political constitution is an incomplete contract: elected politicians are not offered an explicit incentive scheme that associates a well defined payoff with an action in all states of the world. A political constitution only specifies who has the right to make decisions, and according to which procedures for which circumstances. But it is hard to tie specific rewards or sanctions to the contents of those decisions. The mechanism to control a politician is to deny him the right to make those decisions in the future — that is, to throw him out of office. Naturally, this constrains what the principals (i.e. the voters) can do. In the terminology of Holmström (1982) and Tirole (1994), politicians can only be offered implicit incentive schemes. What we study then is how the voters can use such implicit incentive schemes to reduce the rents captured by politicians.

What is the source of those rents? One is related to *power:* due to incompleteness of contracts, when citizens elect their leaders, they temporarily delegate the exclusive decision-making authority over policymaking to the holders of public office. The other source of rents is related to *informational asymmetries:* in many cases, policymakers have access to superior information on the relative mer-

[1]Even though there is a huge literature on comparative politics, it is mostly descriptive [see e.g. the comprehensive surveys by Lijphart (1992, 1994) or Gallagher et al.(1994)]. We are not aware of any contribution that provides a formalized treatment of the separation of powers and of its role under various forms of democracy.

its and precise consequences of alternative policies, relative to the population at large. Both the transfer of power and informational asymmetries create scope for potential abuse by holders of office.

To model the distinctive features of different forms of democratic rule in a precise way, we treat the interaction between the executive and the legislature as a simple but completely specified extensive-form game. The rules of this legislative bargaining game dictate who can make a legislative proposal over what, whether that proposal can be amended and how, what happens when a proposal or an amendment is rejected, and so on. Our approach is therefore very much related to the rational-choice literature in American politics on structure-induced equilibria (Shepsle (1979)), agenda-setting powers (Romer and Rosenthal (1979)), and majoritarian legislative bargaining (Baron and Ferejohn (1989)).

One of the central results of the paper is that separation of powers improves the accountability of elected officials, and thus the utility of voters. The main reason is that under separation of powers, a system of checks and balances can be designed so as to create a conflict of interest between the executive and the legislature, and therefore limit the scope for abuse of power. We model realistic decision-making processes where such results hold. Our theory confirms the old idea that checks and balances are at the heart of the principle of separation of powers. A particularly relevant application relates to the budget process. Decisions over the budget are split in two separate stages, where both policy-makers have to agree at each stage. But one policymaker (say the executive) has complete agenda setting power over the size of the budget, while the other policymaker (the legislature) has complete agenda setting power over its composition. If this separation is appropriately designed and can be enforced, it reduces the rents from office of the elected officials and benefits the voters.

We also show that separation of powers enables the voters to elicit the private information held by the elected political officials and hence to remove any informational rents. This finding is reminiscent of results in the mechanism-design literature. By inducing political bodies to compete against each other in an extensive-form game, an uninformed principal can extract information from them (Moore and Repullo (1988)). We find that it is the body with the weaker bargaining power who reveals the information. Depending on the rules of the legislative process, one of the bodies derives more political power than the other. By adopting an appropriate voting strategy, the voters can align their own interests with those of the weaker body, and thereby giving it appropriate incentives to reveal information.

A third result of the paper relates to a crucial difference between Presidential and Parliamentary democracies: the procedure for appointing the executive is direct in a presidential system, but indirect, through the legislature, in a Parliamentary system. Direct control by the voters keeps the executive more accountable, as it minimizes the danger of collusion between the legislature and the executive over reappointment of the latter. Intuitively, when executive reappointment is decided by the legislature, the voters' control of moral hazard becomes harder. This problem of indirect versus direct control also arises in other situations such as the appointment of judges and administrative officials. The model shows that to break such collusion, the executive must be forced to step down after any legislative elections, a feature observed in every parliamentary democracy.

A fourth set of results concerns the structure of the legislative process. Creating a conflict of interest between the executive and the legislature may not be sufficient to remove their rents. On the contrary, a fully non-cooperative process, where their interests are diametrically opposed, may imply a "common pool" problem with disastrous consequences for the voters. A key condition to make separation of powers work in favor of voters is that no agent be able to divert resources without being subject to checks and controls by the other.

In Section 2, we introduce the moral hazard problem by considering how voters can control a single elected body with executive powers: a "pure" presidential system. In Section 3 a second elected body, the legislature, interacts with the executive. We show how the separation of powers between the executive and the legislature allows the voters to extract full information, eliminate all informational rents, and therefore reach a higher utility, under different assumptions about the legislative bargaining game. In Section 4, we study the conditions for information revelation in parliamentary systems and to what extent our results are robust to collusion between the executive and legislature. In Section 5 we study the appropriate sequence in the legislative bargaining process. We show that an appropriate sequence of decision making introduces checks and balances such that both the executive and the legislature are deprived of all their rents from holding power. Section 6 concludes with suggestions for further research.

## 2. A "Pure" Presidential System

This section sets out our general model. Our purpose is to show how voters can partially control a moral hazard problem by threatening to oust the incumbent if observed performance is not satisfactory. Incomplete information limits the

voters' control, and leaves informational rents to the incumbent. Throughout this section we assume that there is only one elected official referred to as the executive. For this reason, we call this political system a pure presidential system. The issue of separation of powers is studied in the following sections of the paper.

The model in this section is closely related to that in Ferejohn (1986), where an appointed agent exerts "effort" to please the principals (the voters), and derives exogenous utility from being in office.[2] The main difference is that here the agent has an opportunity to divert resources from public to private use. What Ferejohn calls effort, we identify as abstaining from such diversion. Moreover, there is no value of holding office *per se*, aside from the possibility of appropriating resources. Thus, the appointed agent is disciplined by the voters through an intertemporal trade-off: if he diverts too much today, he is removed from office, and will not be able to appropriate resources tomorrow. This more cynical view of political behavior implies that the benefits from being reappointed in office are entirely endogenous, whereas in Ferejohn (1986) they are partly exogenous.

### 2.1. The Model

A large number of identical and infinitely lived voters maximize jointly the following expected utility function:

$$E\sum_{t=0}^{\infty}\beta^t c_t, \tag{2.1}$$

where $0 < \beta < 1$ , and where $E$ is the expectations operator. The voters' consumption $c_t$ is defined by:

$$c_t = \theta_t(1 - x_t). \tag{2.2}$$

The parameter $\theta_t$ is a non-negative random variable, serially uncorrelated and identically distributed over time. It can be thought of as a productivity parameter translating budgetary resources in goods publicly provided to the consumers. At some points in the paper, we will use a specific example, where we assume that $\theta_t$ is uniformly distributed over the interval $\left[0, \bar{\theta}\right]$. We will refer to $\theta_t$ as the state of nature.

The variable $x_t$ is the policy chosen by the executive: we can think of $x$ as representing a decision related to the government budget. If $x_t > 0$, then the executive is diverting resources that otherwise would benefit the voters. If on the

[2]Ferejohn, in turn, built on earlier work by Barro (1973).

other hand $x_t < 0$, then the executive adds resources for the voters' benefit (i.e., $x_t < 0$ can be interpreted as effort). Implicit in (2.2) together with $c_t \geq 0$ is a resource constraint that limits the maximum amount that can be appropriated by the executive in each period, namely $x_t \leq 1$. The executive values resources and dislikes effort according to the expected utility function

$$E \sum_{t=0}^{\infty} \delta^t v(x_t), \tag{2.3}$$

where $0 < \delta < 1$ , and where $v(0) = 0, v_x(x_t) > 0, v_{xx}(x_t) \leq 0$ for all $x_t$. At some points below, we will use the special case $v(x_t) = x_t$.

The sequence of events is as follows. At the start of each period t,[3] the realization of $\theta$ is observed by the executive, who then chooses the action $x(\theta)$. After that, the voters observe what they get to consume during that period, $c$, and, depending on whether there is full information or not, they may also observe the realization of $\theta$. Based on their observation the voters decide whether or not to reappoint the executive. An executive thrown out of office is never reappointed. In this case an opponent is elected. There is always one available opponent, identical in all respects to the incumbent. The only role of the opponent is to provide a costless alternative.

Throughout the paper, we restrict our attention to Markov-perfect equilibria in pure strategies. Thus, the voters condition their reappointment decision on the outcome of the game in the current period; not in any previous period. This simple retrospective voting strategy is not implausible, and can be thought of as a simple convention adopted by the voters, and suggested by a social norm. Since it is an equilibrium, it is self enforcing. Naturally, multiple equilibria based on alternative voting rules exist in such an infinite horizon game. We neglect the problem of how to select among these equilibria. Since our analysis will pick the best possible equilibrium from the voters' point of view, it can be seen as an analysis of the *scope* for efficient outcomes under alternative institutions.

### 2.2. Full Information

If the voters have full information about the state of nature $\theta$, by (2.2) they can observe the amount diverted by the executive. The executive can then be disciplined quite tightly: if he diverts too much, he is thrown out of office. Nevertheless, he must be allowed to appropriate at least some resources. The reason

[3]Henceforth, we omit time subscripts wherever they are unnecessary.

is that, if the gains from holding office are too small, then he would prefer to take as much as possible today, knowing that he will not be reappointed tomorrow. This subsection computes the best voting rule, i.e. the maximum amount that the executive can be allowed to appropriate in equilibrium.

The main result can be summarized as follows:

**Proposition 1**

*In equilibrium, the executive diverts* $x^F \equiv v^{-1}\left[(1-\delta)v(1)\right], 0 < x^F < 1$. *The voters adopt the voting rule: Reappoint the executive if and only if* $c(\theta) \geq c^F(\theta) \equiv \theta(1-x^F)$. *The executive is reappointed, for all realizations of* $\theta$.

To prove this proposition, consider the proposed equilibrium voting rule. By (2.2), it implies that unless the executive diverts less than $x^F$, he is thrown out of office. Let $V(\theta')$ be the equilibrium continuation value for the executive if he is reappointed under this voting rule tomorrow and the state of nature is $\theta'$. The executive is indifferent between $x^F$ today with reappointment and 1 (the maximum diversion) today but with loss of office, if $x^F$ satisfies:

$$v(1) = v(x^F) + \delta EV(\theta'). \tag{2.4}$$

The voters cannot reduce diversion below $x^F$, because if they tried to do so, the executive would prefer to divert everything he could today and be thrown out. Conversely, voters have no interest in letting the executive appropriate more than $x^F$. Thus, $x^F$ denotes the minimum amount that the executive must be guaranteed.

Equation (2.4) implies that, for all $\theta'$, the value of being re-elected is:

$$V(\theta') = \frac{1}{1-\delta} v(x^F). \tag{2.5}$$

Combining (2.4) and (2.5), we get the equilibrium amount $x^F$ defined in Proposition 1. Finally, by (2.2), the voters can hold the executive accountable to this behavior by adopting the voting strategy described in the Proposition.

The equilibrium is illustrated in Figure 1. In the case of linear executive utility $v(x) = x$, the equilibrium expressions for $x^F$ and $c^F(\theta)$ simplify to: $x^F = 1-\delta$ and $c^F(\theta) = \delta\theta$.

### 2.3. Incomplete Information

Suppose now that the voters only observe $c$, but not the state of nature, $\theta$. Thus, the voters cannot discriminate between a small realization of $\theta$ and the executive deciding a budget with a high $x$. This case is analogous to that studied by Ferejohn (1986). Here, the reappointment rule cannot be conditional on $\theta$ since it is unobserved. Voters are thus forced to rely on a simple cut-off rule: if they observe $c \geq c^*$, then they reappoint the executive. But if $c < c^*$, they throw him out of office.

Faced with this voting rule, the executive seeks reappointment only if the state of nature is sufficiently favorable. In this case, he gives the voters just enough to reach the minimum threshold, $c^*$. If , on the other hand, the realization of $\theta$ is too small pleasing the voters is too hard for the executive, who may even be called upon to exert effort to reach the required threshold for $c$ (i.e. he may be required to set $x < 0$). Thus, for low values of $\theta$, the executive takes as much as possible today, knowing that he will not be reappointed.

The equilibrium under incomplete information can be described as follows:

**Proposition 2**

*If $\theta < \theta^*$, then $x(\theta) = 1$ , $c = 0$, and the executive is thrown out of office. If $\theta \geq \theta^*$, then $x(\theta) = 1 - c^*/\theta$ , $c = c^*$, and the executive is reappointed.*

The appendix contains the proof, and shows that in the special case of linear utility and a uniform distribution $\left[0, \bar{\theta}\right]$the threshold levels of $\theta$ and $c$ simplify to $\theta^* = \bar{\theta}/2$ and $c^* = \frac{\bar{\theta}}{2}\frac{\delta}{1-(1-\log(.5))\delta/2}$. This equilibrium is illustrated in Figure 2.

Clearly, the voters are hurt by the incomplete information, while the executive captures some informational rents. The expected value of holding office for the executive is higher than under full information, because the executive appropriates a larger share of the surplus at high realizations of $\theta$. When $c^*$is optimally set by voters, at the threshold value $\theta = \theta^*$ , the executive must appropriate less than in the full information equilibrium: $x(\theta^*) < x^F$. Finally, and quite intuitively, the voters are better off — with full as well as with incomplete information — the more far-sighted is the incumbent (i.e., the closer is $\delta$ to 1): if the future is not heavily discounted, the value of holding office increases, and this induces the incumbent to more self-restraint while in office.

## 3. Separation of Powers in a Presidential System

In this section we modify the previous model by adding a second policymaker directly appointed by the voters. This second policymaker can be thought of as the Congress in a Presidential system like the US, and it is this terminology we will use in this section. The model can also be interpreted differently, however. We continue to consider public policy a budgetary decision that allows policymakers resources to be diverted from the voters. With two policymakers, however, the budget must be agreed upon by the two elected officials. The policy must be implemented through a formal process that can either result in agreement on the proposed budget or in no agreement, in which case a status quo policy is maintained. Voters do not observe who is diverting resources from them, and may or may not observe the overall resources diverted (depending on whether they observe the realization of $\theta$). They know the rules of the game, however. For the sake of realism, they can observe whether or not Congress and the Executive made a formal agreement, but this is not important for our argument. In keeping with the rules of real-world presidential systems, both policymakers are directly appointed by the voters.

The central result of this section is that the appointment of a second policymaker improves the voters' welfare, as more information is revealed in the course of the policy debate. In particular, the voters can enforce a full information equilibrium similar to that described in the previous section, even if they do not observe the state of nature $\theta$.

### 3.1. A president and a weak congress (closed rule)

The voters are described as in (2.1) above. But the budget constraint is now written as:

$$c = \theta(1 - x - l), \tag{3.1}$$

where $x$ still is the amount appropriated by the executive $X$, while $l$ is the amount appropriated by Congress $L$ (for Legislature). Executive preferences still satisfy equation (2.3) and $L$ has a similar expected utility function:

$$E\sum_{t=0}^{\infty}\delta^t u\left(l_t\right), \tag{3.2}$$

where $u(\cdot)$, like $v(\cdot)$, is a well behaved concave utility function. Finally, the random variable $\theta$ is distributed as in Section 2, including the special case of a uniform distribution function over the interval $\left[0,\bar{\theta}\right]$.

The sequence of events is illustrated in Figure 3. Nature chooses a realization of $\theta$, which is observed by the two policymakers. In the full information case (Fig 3a), the voters also observe $\theta$. When there is incomplete information (Fig 3b), $L$ must make an announcement $\theta^L$ of the state of nature. Then, the executive (the agenda setter) makes a budget proposal to Congress, specifying the amounts $(x, l)$. This proposal must satisfy the constraint (3.1) and $c \geq 0$. The contents of this proposal is not understood by voters, who only observe that a budget proposal is made. The important thing is that the diversion of resources $(x, l)$ necessitates acceptance of the budget proposal. Congress cannot make any amendments, but must either accept or reject the proposal; we have a *closed rule* to use the jargon of the legislative bargaining literature. If Congress accepts, the proposal is implemented. If Congress rejects, a status quo policy is implemented where both policymakers obtain a predetermined amount:

$$x = x^S,\ l = l^S,\ \textit{where } x^S < \delta \textit{ and } l^S < 1 - \delta, \tag{3.3}$$

This implies that $c = \theta(1 - x^S - l^S)$

Finally, at the end of each period, the voters decide whether or not to reappoint any of the two policymakers. They only know the amount they themselves consume, $c$, whether the executive proposal is accepted or rejected[4], and possibly the initial announcement $\theta^L$.

This sequence of events and the assumptions about what is observed by the voters capture some key aspects of the legislative process of a modern Presidential democracy, like the US. The announcement stage can be thought of as a preliminary public debate, in the course of which Congress makes some assessment of exogenous circumstances or of the policy consequences. The legislative stage involves a sequence of offers and counteroffers by the agenda setter and the legislature, that eventually results in a budget and a policy outcome. Our assumed budget process is very stylized, but still captures the idea that the executive is typically an agenda setter, while the main role of Congress is to approve or reject a proposal. Below we consider an alternative process, which is closer to the real US situation, where Congress can make amendments and the executive has veto power. Finally, the assumptions about what the voters observe seem realistic. The details of the political process are often so complex and behind the scene that the voters do not have an informed opinion. What the voters ultimately know is how well off they are, who is responsible for making a proposal, and whether

[4]Assuming that voters can not observe whether the executive proposal is accepted or rejected by Congress would not change the results.

that proposal was accepted. Moreover, the voters also see an unstructured public debate about the policy consequences, typically through the media, where the parties involved take some definite position.

The analysis is developed in two steps. We first analyze the equilibrium under full information when $\theta$ is known by voters. We then show how information can be revealed under separation of powers.

### 3.2. Equilibrium under full information

As voters know $\theta$ they know $c$, and thus the overall amount diverted. What is the maximum that voters can expect to get in each period, for a given $\theta$ ?

Under the closed rule we have assumed the executive has maximal power in the legislative bargaining game. We may therefore conjecture that in equilibrium, the executive gets all the rents, while Congress is always nailed to its status quo payoff: $l = l^S$. Based on this conjecture, we derive the equilibrium of the game by considering the incentives of the players at each stage. We start from the end, i.e. from the voting rule. Given that the voters know $\theta$, they must let the executive appropriate the minimum amount at which he prefers to be reappointed rather than grab as much as possible today and then be thrown out. Let $x^F$ denote this minimum amount (a precise definition of $x^F$ is given below). By (3.1), the maximum amount the voters can expect to get is thus:

$$c^F(\theta) = \theta(1 - x^F - l^S). \tag{3.4}$$

To achieve this consumption level, voters must discipline Congress and the executive through an appropriate voting rule. It is natural to consider a reappointment rule similar to the one in the previous section, namely:

*Reappoint the executive and Congress if and only if* $c \geq c^F(\theta)$ (R1)

Consider the choices of the executive. Under voting rule (R1), the executive has two options. One option is to seek reappointment. To do so, it can present the Congress with the budget $\left(x^F, l^S\right)$. Under (R1), this offer is accepted by Congress, and both policymakers are reappointed. Congress would reject any other budget that maintained $l = l^S$ and attributed $x > x^F$ to the executive to avoid losing office. The second option is to convince Congress to enjoy the short run benefits and accept the loss of office. To achieve this, the executive must offer Congress more than $l^S$. Define $l^A$ as:

$$u(l^A) = u(l^S) + \delta EU(\theta'), \tag{3.5}$$

where $U(\theta')$ is the continuation value of the game for Congress, when holding office in state $\theta'$. The offer $l^A$ is a budget deal such that Congress is just indifferent between diverting $l^A$ and being sacked by the voters or rejecting the offer, getting the status quo $l^S$ and being reappointed. If presented with an offer infinitesimally higher than $l^A$, Congress would take it no matter what, whereas it would accept an offer smaller than (or equal to) $l^A$ only if that did not prejudice reappointment, under the equilibrium voting rule. Solving equation (3.5) for $l^A$, we get:

$$l^A = u^{-1}\left[\frac{u(l^S)}{1-\delta}\right], \tag{3.6}$$

which reduces to $l^A = \frac{l^S}{1-\delta}$ when $u(\cdot)$ is a linear function. Being forced to give Congress $l^A$, under the assumption that both will be ousted, reduces what the executive can divert for himself, and lowers the short-run benefits relative to the long run benefits of retaining office. Let $x^F$ be defined implicitly by the following condition:

$$v(1-l^A) = v(x^F) + \delta EV(\theta'). \tag{3.7}$$

The left-hand side measures the short run payoff for the executive of grabbing everything left, after a minimum acceptable offer to Congress, knowing that this would result in loss of office. The right-hand side measures the payoff of diverting $x^F$ only and being reappointed next period. To prevent the executive from bribing Congress, he must be allowed to divert at least $x^F$ every period. Combining (3.6) and (3.7), we get

$$\begin{aligned} x^F &= v^{-1}\left[(1-\delta)v(1-l^A)\right] = \\ &= v^{-1}\left[(1-\delta)v(1-u^{-1}\left[\frac{u(l^S)}{1-\delta}\right])\right], \end{aligned} \tag{3.8}$$

which for linear utility functions $u(\cdot)$ and $v(\cdot)$ simplifies to: $x^F = (1-\delta-l^S)$.

We are now ready to state the main result of this subsection:

**Proposition 3**

*There is an equilibrium with full information over $\theta$, where the executive proposes the budget $(x^F, l^S)$, with $x^F$ defined by* (3.8)*. This proposal is accepted by Congress and implemented. The equilibrium is supported by the voting rule* (R1)*, according to which both policymakers are reappointed.*

To verify that this is indeed an equilibrium, consider the payoffs from unilateral deviations. Faced with a budget from the executive satisfying the voters, i.e. diverting $x^F + l^S$, Congress has nothing to gain from a rejection, since he would be reappointed either way.[5] To induce Congress to accept a more diversive budget than in the proposed equilibrium, the executive would have to offer $l > l^A$. But by definition of $x^F$, the executive has no incentive to make such an offer. Thus, neither policymaker stands to gain from unilateral deviations. Given that the voters know $\theta$, policy-makers would not gain from a joint deviation. The equilibrium of proposition 3 can thus also be sustained if no restriction is imposed on the deals the two policymakers can make among themselves. Thus, under full information over $\theta$, the equilibrium is collusion proof. Finally, the voters can in no way improve on this equilibrium. They would then have to try and reduce the executive's rents below $x^F$, since Congress is already nailed to the status quo. But this would be counterproductive, because the executive would then have an incentive to bribe Congress with an offer that could not be refused.

Note that with linear utility functions $u(\cdot)$ and $v(\cdot)$, (3.4) and (3.8) imply $c^F(\theta) = \delta\theta$, which is the same expression we obtained under full information in the pure presidential system. Having appointed two policymakers rather than one thus entails no relevant difference for the voters. Even though there is no way to observe who is diverting resources, the voters can hold both policymakers accountable just as much as a single policymaker. In this model, there is only one reason why a policymaker would refrain from excessive diversion of resources today: to be able to continue holding office and diverting some resources tomorrow. This basic intertemporal trade-off is not substantially altered by the presence of a second policymaker, and with linear utility it is not altered at all.

When the voters do not have full information about $\theta$, however, the appointment of a second policymaker can make a crucial difference. This is the topic of the next subsection.

### 3.3. Information revelation

Suppose now that the voters cannot observe $\theta$, while both policymakers can. The game is on the form given in Figure 3b. Can the voters exploit the conflict of interest between Congress and the executive to extract information about $\theta$ ? The answer is positive, provided that we limit their opportunities of collusion.

[5] Congress indifference implies that there may be other equilibria besides the one considered in Proposition 3.

The voters can gain information by exploiting the announcement stage, where Congress announces $\theta^L$. Redefine the threshold level of consumption defined in (3.4) as

$$c^F(\theta^L) = \theta^L(1 - x^F - l^S), \tag{3.9}$$

and let the voters reappointment rule (R1) refer to this new threshold. If $\theta^L = \theta$, the equilibrium is identical to the full information equilibrium described in Section 3.2. In such an equilibrium, the amount appropriated by Congress is always $l^S$, irrespective of its announcement. Thus, Congress has no incentive to lie and announcing the true state of the world $\theta$ is an equilibrium (though not the only one). If Congress were to lie, and announce $\theta^L < \theta$ , the executive could propose a budget more favorable to himself, while leaving Congress at the status quo payoff. With closed rule legislative bargaining, Congress would have no incentive to reject such a proposal. Hence, all the benefits from a false announcement would be appropriated by the executive. We summarize this discussion as follows:

**Proposition 4**

*When $\theta$ is not observed by the voters, the full information equilibrium can still be attained, by conditioning the reappointment rule on Congress announcement, $\theta^L$, according to* (R1) *and* (3.9). *Under this voting rule, Congress makes a truthful equilibrium announcement: $\theta^L = \theta$.*

By appointing a second policymaker who interacts with the executive under the assumed political rules, the voters are thus strictly better off because the political announcement of the weaker political agent reveals additional information. Why? The legislative game gives most power to the executive, who becomes the "residual claimant" on informational rents. By an appropriate choice of voting rule, the conflicting interests of Congress can then be naturally aligned with those of the voters. This is why Congress reveals the information.

If separation of powers allows to reveal information, could one not achieve the same objective by having an independent agency monitor the executive and gather information on $\theta$? Press independence already plays this role to a certain extent. We would however argue that, instead of making separation of powers redundant, independent media would strengthen its usefulness. First, we think that the executive and the legislature typically have privileged access to information, if only through their exercise of power and their official functions. It would thus be very costly for an independent agency to acquire the same amount of information.

Moreover, information that leaks to the press typically comes from the arcanes of power. However, it is not unreasonable to assume that part of this information can indeed be gathered independently. If, at the announcement stage in our model, we introduced a positive (however small) probability that the true $\theta$ is announced to the general public, and if voters punish $L$ by ousting it for lying, then $L$ is strictly better off by announcing the truth. This would clearly eliminate non-truth-telling equilibria.

That separation of powers induces revelation of information is quite a general idea. The exact outcome might, however, vary with the specific structure of the political process, as is shown in the next section.

### 3.4. A president and a strong congress (open rule)

Consider now a political system where the relative political powers of the legislature and the executive have been reversed. The sequence of moves is identical to that in the previous game apart from the legislative bargaining stage. After the initial proposal of the executive, the legislature can now either accept or *amend* the proposal: in the latter case the legislature effectively proposes a new budget $(x, l)$. If an amendment has been made, the executive can either accept or veto the bill, in which case the status quo budget $\left(x^S, l^S\right)$ is implemented. The timing in this open-rule game, when voters do not have full information about $\theta$, is illustrated in Figure 4.

In this setting, there is still scope for the voters to extract full information and give up minimum rents to the political bodies. This time, however, it will be the executive that reveals the information in equilibrium. The same kind of argument as in the previous subsections goes through, except for the fact that we now replace $l^A$ and $x^F$ by $x^A$ and $l^F$ where:

$$v\left(x^A\right) = v\left(x^S\right) + \delta EV(\theta') \tag{3.10}$$

and

$$u\left(1 - x^A\right) = u\left(l^F\right) + \delta EU\left(\theta'\right). \tag{3.11}$$

Then define the retrospective voting strategy:

*Reappoint the executive and Congress if* $c \geq c\left(\theta^X\right) = \theta^X\left(1 - x^S - l^F\right)$. (R2)

The results of this Section are summarized by:

**Proposition 5**

*There is an equilibrium when either the executive or Congress proposes the budget* $\left(x^S, l^F\right)$ *with* $l^F$ *defined by* (3.11)*, and the other party accepts the proposal. The equilibrium is supported by the voting rule* (R2) *and truthful announcements by the executive:* $\theta^X = \theta$.

The proof, given in the appendix, is analogous to the proof of proposition 4 except for the fact that the amendment power of $L$ allows it to become the residual claimant on resources and nail down $X$ to $x^S$. In this open rule case, too, it is the less powerful actor in the political process, namely the executive, that reveals the information to the voters. As before, this is because its interests are properly aligned with the voters' interests.

Again, voters can implement a full information equilibrium. Whether this equilibrium is better or worse for the voters than the one under closed rule legislative bargaining, depends in a predictable way on the status quo points $x^S$ and $l^S$ and the utility functions $u(\cdot)$ and $v(\cdot)$. Under the neutral assumption that $x^S = l^S$ and $u(\cdot) = v(\cdot)$, the equilibria are equivalent (To see this, compare (3.5) and (3.7) with (3.10) and (3.11).

The general result that emerges from this section is thus that separation of powers is good for efficiency because it induces revelation of information. The less powerful political body reveals the information, and the details of the legislative process determines who is less powerful.

## 4. Parliamentary Systems

A central aspect of the Presidential systems described in the previous section is that both policymakers are directly accountable to the voters. This direct accountability is lost in a Parliamentary system, where the executive is directly accountable to the legislature, and only indirectly to the voters. What are the relative gains, or losses, of such an indirect appointment procedure, compared to the direct procedure in a Presidential system ? And how should the appointment rules be designed, to minimize the danger of collusion between the two political agents ? These questions are addressed in this section.

We first show that a Parliamentary and a Presidential system are equivalent under appropriate appointment rules: information revelation by the weak political party is a feature of both systems; and the opportunities for collusion are the same and concern the announcement stage. The informational equivalence is not

very surprising. In the context of this paper, where we discuss the control of moral hazard, separation of power is essential to the revelation of information, and this separation can be achieved in both political systems. It remains to be investigated whether this informational equivalence generalizes to other contexts, like the selection of the most competent incumbent (i.e., to the control of adverse selection).

The second kind of equivalence, concerning the opportunities for collusion, is more delicate. It rests on a central institutional feature observed in virtually every Parliamentary system, namely that the executive is forced to step down at any Parliamentary election. As we shall see, it is this feature that prevents collusion between Parliament and the executive over the appointment decision.

### 4.1. A Parliamentary Democracy

We now adapt the model and sequence of events in subsection 3.1, to a Parliamentary system. We shall refer to the legislature (still denoted by $L$) as Parliament rather than Congress. The sequence of events is similar until Parliament has accepted or rejected the executive offer and the policy has been implemented. After this, Parliament votes on a motion of confidence to the executive. Upon observing the outcome of Parliament's decision, Parliamentary elections are held. If the executive is ousted by Parliament, then it is excluded for ever. Parliament can be reappointed or not, at the voters' discretion. But if the motion of confidence is won, the executive can only be reappointed if Parliament is also reappointed. That is, if the incumbent legislature loses the elections, its decision to reappoint the executive is void, and neither the previous executive nor the incumbent legislature can ever be reappointed. The sequence of events (with full information) is illustrated in Figure 5.

Note that the executive offer only concerns the allocation $(x, l)$, and *not* the reappointment decision by Parliament. The latter is taken sequentially, after the policy is implemented. Thus, we do not allow collusion over the reappointment decision. This assumption plays an important role in the next subsection.

Even though this assumed sequence of events does not correspond exactly to the formal rules of Parliamentary democracies, it nevertheless captures their fundamental features. In most Parliamentary democracies, the legislature has the option of bringing down the government at any point in time. Moreover, an incumbent legislature may appoint its candidate for prime minister just before the elections, but if the elections are lost, it is denied the right of appointing the

government in the subsequent legislature. Stated otherwise, a Parliament cannot appoint a government to last beyond itself, and any government is forced to resign at the end of a legislature. This constraint is natural in the context of government appointment, but perhaps not in other instances of delegated appointment. Subsection 4.2 investigates the consequences of relaxing this constraint. Finally, we are implicitly assuming that, if a legislative majority has designated a candidate for prime minister before legislative elections, it does indeed appoint the designated candidate if the elections are won. This assumption is also plausible.

As before, we start with the assumption that the realization of $\theta$ is observed by the voters. Thus, at the time of Parliamentary elections, the voters can infer the overall amount diverted, by observing $c$ and using (3.1). They do not observe who appropriated what (even though in equilibrium they can guess it correctly). No assumption of whether the voters also observe the outcome of Parliament's decision concerning the executive reappointment, or Parliament reply to the executive offer is required. It is most realistic to assume that both decisions by Parliament are observed.

A natural extension of voting rule (R1) to this new setting is:

*Reappoint Parliament if and only if* $c \geq c^F(\theta)$. (R3)

It is easy to show that:

**Proposition 6**

*Under voting rule* (R3), *the equilibrium is identical to that described in Proposition 3.*

As in section 3.2, the executive has all the bargaining power, but Parliament has strong incentives to reject budget proposals that would lead to its removal. In particular, any executive proposal with $x > x^F$ and $l \leq l^A$ would be rejected by Parliament to avoid being ousted by the voters. Hence, the executive would never make such a proposal, since it would lead to the status quo outcome (recall that $x^F > x^S$). If $x > x^F$ and $l > l^A$ are proposed by the executive, it would be accepted by Parliament. But then, under voting rule (R3), Parliament loses the elections. In this case, by assumption, the executive is also removed from office. By definition of $x^F$, however, the executive does not want to make such an offer; it prefers instead to appropriate just $x^F$ and remain in office.

It is important to stress that, under the stated assumptions, there is no scope for collusion between Parliament and the executive over executive reappointment.

Even if the executive could make an offer to Parliament conditional on being reappointed, the voters would still be able to oust the executive by voting Parliament out of office. Indeed, the voting rule (R3) only conditions on the voters payoffs, and not on Parliamentary decisions. This point is further elaborated in the next subsection.

Finally, by repeating the argument in Section 3.3, it is easy to show that this equilibrium allocation can also be achieved if the voters do not observe $\theta$ but instead condition their vote on the truthful announcement $\theta^L$.

### 4.2. Collusion over executive reappointment

The previous equilibrium relied on a critical feature of the appointment rules: if Parliament is ousted by the voters, the executive is also forced to step down. To better understand the role of this feature, and the consequences of abandoning it, we now consider a political appointment procedure where this constraint is not imposed.

The model is identical to that of the previous subsection, with one exception: the Parliament's decision to reappoint or not reappoint the executive to one more period in office remains valid notwithstanding the outcome of Parliamentary elections. Since incomplete information is not essential to the argument, we assume that the voters observe the realization of $\theta$.

Let us start with the same no-collusion assumption as in the previous subsection. Thus, the executive policy offer is not conditioned on a reappointment decision by Parliament. This implies that the outcome of the appointment decision must be *ex post* optimal for Parliament. Under this assumption, the results of Proposition 6 above continue to hold, under the same voting rule (R3). The argument is as follows: To induce Parliament to accept a more diversive budget than in the proposed equilibrium, and be sacked by the voters, the executive must offer Parliament $l > l^A$. By definition of $x^F$, the executive is willing to make such an offer only if it is sure of being reappointed next period. But, accepting the executive offer of $l > l^A$, Parliament has no incentive to reappoint the executive. Indeed, Parliament is indifferent between calling a vote of non confidence or not, since it will be sacked by the voters anyway. Hence, there is an equilibrium (though not the only one) in which Parliament always sacks the executive if it expects to be ousted by the voters. Expecting this strategy, the executive is not willing to present Parliament with an offer $l > l^A$, and the equilibrium of the subsection 4.1. is sustained.

This is a very fragile equilibrium, however, that can easily be broken if the executive and Parliament collude and make deals conditional on the executive reappointment. Suppose the executive makes a budget proposal $(x, l)$ conditional on a binding promise of reappointment by Parliament. Then, the equilibrium described in Propositions 3 and 6 cannot be sustained under any voting rule. The executive would propose Parliament a budget with $x > x^F$ and $l > l^A$, in exchange for a binding promise of reappointment.[6] Parliament would accept. And the executive would be reappointed, even if Parliament was sacked. To prevent this collusive behavior, the voters would have to let the executive divert more, as stated in the following:

**Proposition 7**

*To prevent collusion over reappointment, the executive must be allowed to appropriate the amount* $x^C = 1 - l^A$

To prove this, note that the executive would always be able to induce Parliament to reappoint him, by offering him an amount infinitesimally higher than $l^A$. Having a reappointment promise, he would then appropriate everything left (i.e., $1 - l^A$) and bear no punishments. To discipline the executive, voters must let him divert at least $x^C$. Thus, the threshold value for consumption now becomes:

$$c^C(\theta) = \theta(1 - x^C - l^S) \equiv \theta(l^A - l^S) \tag{4.1}$$

and the voting rule that supports the equilibrium is:

*Reappoint Parliament if and only if* $c \geq c^C(\theta)$. (R4)

Faced with this voting rule, the executive has no further incentive to bribe Parliament and the latter is left to consume its status quo payoff $l^S$. Naturally, in this equilibrium, both policymakers are always reappointed.

Compared to the equilibrium without collusion opportunities voters are clearly worse off: $c^C(\theta) = \theta\left(1 - x^C - l^S\right) < c^F(\theta) = \theta\left(1 - x^F - l^S\right)$, since $x^C > x^S$. How much worse off depends on parameters and functional forms. In the case of linear utilities, it is easy to show that

$$c^C(\theta) = \theta l^S \delta/(1 - \delta) < \delta\theta = c^F(\theta), \tag{4.2}$$

[6]Since by assumption $l^S < 1 - \delta$, this offer does not violate the budget constraint.

where the inequality follows from the assumption that $l^S < (1 - \delta)$. Quite intuitively, the voters are made worse off by the absence of the constraint that a resigning legislature cannot appoint a government for a new term of office. This constraint, which exists in virtually all parliamentary democracies, can thus be given a strong efficiency rationale. This result is an example of a general point made by Tirole (1992), namely that what is interesting about collusion is not necessarily that it takes place in equilibrium, but that an organization is likely to adapt to the possibility that it may occur.

Indirect appointment procedures are, however, not only common in the political system of Western democracies when it comes to other appointments. For instance, judges of the Supreme Court are often appointed by the president or by the legislature. Similarly, the board of directors of public enterprises or of independent public agencies, are generally not appointed by voters. Instead, this appointment is delegated to political appointees. In the case of these indirect appointments there is often no constraint that requires the appointee to step down with the incumbent legislature or government. The above results suggest that these procedures may invite collusion, at the expense of the voters, between the appointees and the political body that appoints them. To further investigate this possibility is an interesting topic for further research.[7]

What can we say about other forms of collusion between the executive and the legislature? As we saw in Section 3.2, the equilibrium is robust to collusion between the executive and legislature over any decisions in the legislative bargaining stage (since the voters' strategy was not contingent on any decision in that stage other than the joint diversion of the legislature and the executive). What about collusion in the announcement stage? Such collusion would clearly break the truth-telling equilibrium. If a *binding* agreement could be made over the announcements and the budget, the powerful political actor would have obvious incentives to compensate the other body for not telling the truth with a sweet budget proposal ($l > l^S$ or $x > x^S$). With such agreements possible, we would essentially be back in the situation in Section 2 with one political body.

How plausible is such collusion over the announcements? We would argue that a binding agreement over the announcements would be considerably more difficult than collusion over the reappointment decision, or the possible acceptance of the budget. Whereas the latter are well-specified, observable and verifiable events — announcements are more difficult to enforce since they could be made

[7]Interestingly, direct elections of public officials seem more common in the US than in European democracies.

implicitly in the context of the political debate or could be the result of informal discussions with the media. Even if promises on announcements could be enforced, an agreement where the politically powerful body gave up some informational rents in exchange for a false announcement would *not* be ex post optimal. Once the announcements were made the strong political body would gain from deviating and holding the weak body down to its status quo payoff.

## 5. Separation of power and budgetary procedures

The conflict of interest between the two appointed agents is the key to the revelation of information discussed in the previous sections. Can this conflict of interest be more effectively exploited by the voters under some legislative procedures than others ? In particular, can better design of the legislative procedure enable the voters to discipline the agents even more than in the full information equilibria discussed above ? These questions are addressed in this section. We only discuss a presidential system with Congress and the President, as in Section 3 above. All the results of this section carry over to a parliamentary democracy, under the reappointment rule discussed in Section 4.1.

The main result is that appropriate separation of powers in the budgetary decision making process, can indeed make the voters better off than in a pure presidential system. This does not happen because of revelation of information: throughout this section we assume that the voters have full information over $\theta$. It happens because, by appointing two agents rather than one and appropriately separating their decision making power over two separate stages of the budgetary process, the voters can pit one agent against the other and exploit the resulting conflict of interest.

Creating a conflict of interest is not enough, however. If the budget process is so arranged that in equilibrium both agents are residual claimants of any surplus, separation of powers does not lead to any improvement compared to a pure presidential system, nor to any additional information revelation. In other words, not only must there be a conflict of interests among the agents, but these interests must be (weakly) aligned with those of the voters.

Finally, under some budgetary procedures, creating a conflict of interests among the two appointed agents could even be counterproductive for the voters. This happens if the budgetary process creates a "common pool" problem: that is, if each agent can unilaterally determine how much resources to appropriate, without the consent of the other party. Thus, the design of the legislative

process is a crucial step in an appropriate separation of powers.[8]

### 5.1. Two-stage budgeting.

Consider the following two-stage budgetary procedure under a presidential system as depicted in Figure 6. In the first stage, the *executive* proposes to the legislature the *size* of the budget, say $g$ . The latter can either approve it or reject it, in which case a status quo of $g^S$ prevails. In the second stage, the *legislature* proposes the *allocation* of the budget implying a division of resources $(x, l)$ between the two bodies. The budget size cannot be renegotiated at this stage. We thus have $x + l = g$ or $g^S$, depending on whether $g$ was approved or not in the first stage. The executive can either approve or reject the proposal over $(x, l)$. In case of rejection, both get the status quo allocation $(x^S, l^S)$, with $x^S + l^S = g^S$.

The key idea here is that the decisions on the overall size of the budget and on its composition require the consent of both bodies, but the agenda setting power over each decision rests with a different body. This creates a conflict of interest that favors the voters. More precisely, in the last stage of the budgetary process, Congress makes a take it or leave it offer that nails the President to its status quo payoff. Anticipating this outcome, in the first stage the President has a strong incentive to propose a budget size that pleases the voters enough to promise him reappointment. Increasing the budget size above what is desired by the voters would enable Congress to appropriate more resources, but the President would only stand to lose, since he would not be reappointed.

To state our results more precisely, we need some new notation. Let $x^R$ and $l^R$ be the amounts that leave the President and Congress indifferent between receiving these amounts for ever, and grabbing the status quo payoffs once and accepting electoral defeat:

$$x^R = v^{-1}\left[(1-\delta)\, v\left(x^S\right)\right] \tag{5.1}$$

$$l^R = u^{-1}\left[(1-\delta)\, u\left(l^S\right)\right].$$

Clearly, these amounts are strictly smaller than the status quo payoffs, $x^S$ and $l^S$, and hence also smaller than the amounts appropriated in the full information equilibria described in Sections 3 and 4. Consider a voting rule that promises

[8] Von Hagen and Harden (1995) and Alesina and Perotti (1996) contrast the budgetary procedures of different countries, paying particular attention to the "common pool" problem.

reappointment if and only if Congress and the President do not appropriate more resources than these. Specifically:

*Reappoint the executive and Congress if and only if* $c \geq c^R(\theta) = \theta(1 - x^R - l^R)$. (R5)

We then have:

**Proposition 8**

*In equilibrium* X *proposes* $g^R \equiv x^R + l^R$ , L *proposes* $(x^R, l^R)$, *and both proposals are accepted. Voters follow rule* (R5) *and are made strictly better off than under a pure presidential system.*

The proof is straightforward. For a given $g > g^R$ agreed upon in the first stage, both agents lose office under voting rule (R5). Hence, it is always in the interest of $L$ to propose $l = g - x^S$ , since $X$ would veto any offer to him smaller than $x^S$, and would accept anything at least as large as $x^S$. Thus, by proposing $g > g^R$, $X$ loses office and gains at most the status quo payoff $x^S$ for one period, irrespective of whether or not his offer is accepted by $L$ (remember that if $L$ rejects, then $g = g^S > g^R$). If instead $g = g^R$ is agreed upon in the first stage, then $X$ either receives $x^S$ and is then sacked by the voters (if in the second stage $L$ makes an unacceptable offer to $X$), or receives $x^R$ forever (if in the second stage $L$ plays according to the conjectured equilibrium). By definition of $x^R$ and $l^R$, both agents weakly prefer the conjectured equilibrium. Hence, having agreed to $g^R$ in the first stage, the two agents get $x^R$ and $l^R$ in the equilibrium continuation of the second stage. Finally, if presented with an offer $g = g^R$ in the first stage, L is indifferent between accepting it and rejecting it, again by definition of $l^R$. Hence, $X$ weakly prefers to make such an offer and then be reappointed by the voters, rather than to propose a larger budget, obtain $x^S$ and lose office immediately thereafter. Thus, neither the President nor Congress gain by unilaterally deviating from the proposed equilibrium. Finally, by (5.1), $x^R$ and $l^R$ are both strictly smaller than the status quo payoffs, which are in turn smaller than the amounts appropriated in the full information equilibria of the previous sections. In the case of linear utilities, the voters get to consume $c^R(\theta) = \theta(1 - (1 - \delta)(x^S + l^S)) > \theta\delta \equiv c^F(\theta)$ since $x^S + l^S < 1$.

The important insight that emerges from proposition 8 is that the budget decisions should be separated in two stages, so as to split the bargaining powers of the two agents. Congress should have all the agenda setting power over one

stage, the President should have it over the other stage; and the consent of both agents should be needed to approve both stages. Since Congress has all the bargaining power over the composition of the budget, the President's interest is aligned with the voters'. The voters can then rely on the President to discipline Congress by proposing a small budget.

It is instructive to compare this two-stage budgetary procedure with that discussed in the previous sections. There, the strong party could make a take it or leave it offer concerning simultaneously the *size* and the *composition* of the budget to the other party. Here, by imposing a sequential procedure, we are instead making it impossible for Congress (who has the agenda setting power in the allocative stage) to promise the President a favorable composition, in return for a large budget in the first stage. Such a promise would not be credible under the assumptions of this game, because once the size of the budget is approved, the legislature would renege on its promise and exploit its agenda setting power to implement its preferred allocation.[9]

Finally, it is easy to show that these results extend to the case with incomplete information, including the previous result that the President (i.e. the weak party in the allocation stage) has no incentive to lie to the voters.

### 5.2. Sharing rules

The result of proposition 8 relies on *only one* of the two bodies (Congress in that example) being the residual claimant of a larger budget. This in turn occurs because the status quo payoff for the other party (the President), $x^S$, is independent of the budget size, $g$. Suppose instead that, if disagreement is reached in the second stage of the game in Figure 6, then the policymakers share the budget according to some predetermined sharing rule. Specifically, suppose that the status quo payoffs in the second stage are defined as $x^S = \gamma g$ (or $\gamma g^S$,depending on the outcome of the first stage) and $l^S = (1-\gamma)g$ (or $(1-\gamma)g^S$), for some given parameter $0 < \gamma < 1$. Then, separation of power does not serve any purposes: the equilibrium is equivalent to that of a pure presidential system, under the same informational assumptions.

[9]This suggests that it is essential for the voters to be able to enforce a two stage procedure to discipline both policymakers. Naturally, with incomplete information, this could be more problematic. This in turn is an argument in favor of transparent procedures that minimize the scope for breaking the sequential nature of the budgetary process. See Alesina and Perotti (1996) for a discussion of budget transparency.

To see this, assume that voting rule (R5) is followed and Congress and the President are both ousted whenever $c < \theta(1 - g^R)$. Suppose for the moment that the President's offers are accepted by Congress (we verify below that this is true about the President's optimal offer). The President could either propose $g = 1$, receive $x^S = \gamma$ in the second stage and be ousted jointly, or propose $g^R$, receive $\gamma g^R$ in the second stage and be reelected. In order to prefer the latter strategy, it must be that:

$$v(\gamma) < \frac{v(\gamma g^R)}{1 - \delta}. \tag{5.2}$$

With linear utility this implies $1 - \delta < g^R$, which contradicts the previous definition of $g^R$. Hence, the President prefers proposing $g = 1$. One can apply the same argument to show that Congress also prefers to accept rather than to refuse the proposal of the President. For any $\gamma > 0$, the voting rule (R5) could thus not discipline both policymakers. Voters would have to concede a joint per period rent of $1 - \delta$, as in voting rule (R1). Thus, by appointing a second policymaker, they cannot improve upon the pure presidential system.

The reason is that when the status quo payoffs are proportional to the approved size of the budget, both agents become residual claimants. The prerogative of Congress to propose a share of the budget in the second stage then loses significance and deprives Congress of some of its power over the allocation: the President can secure at least a share $\gamma$ of the budget in any case. When, on the other hand, the status quo $x^S$ is independent of the size of the approved budget, a bigger budget size is fully appropriated by Congress. This is why, the President then has no incentive to propose a bigger budget.

The general implication of this analysis is that the budgetary procedure should be designed so as avoid both bodies being residual claimants over the budget. One can then discipline both policymakers by structuring the decision-making process so that the body who is not residual claimant acts in the interests of voters. Giving full agenda setting power to one body and making sure that he can nail the other decision-maker to a given status quo payoff is in the voters' interest . Whereas a more cooperative environment, resulting in a sharing rule as a default alternative, deprives the voters of the benefits of competition among the appointed policymakers.[10]

[10]Romer and Roshental (1983) present a different but related argument about the optimality of giving full agenda setting power to a self selected policymaker.

### 5.3. The common pool problem

The previous subsection demonstrated that separation of powers does not automatically lead to better outcomes. We now show that it can even lead to worse outcomes. A key feature of the budgetary procedures discussed above is that it forces Congress and the President to agree on a final outcome: approval of the other party is necessary to divert resources. If, however, each party can unilaterally appropriate resources without the approval of the other, then the conflict of interest between the elected bodies plays to the detriment of voters. This the so-called "common pool" problem in budgetary procedures.

Consider the following decision-making process under a presidential system depicted in Figure 7. Both the executive and the legislature bid for an amount of resources, denoted by $\widetilde{x}$ and $\widetilde{l}$. If $\widetilde{x}+\widetilde{l} \leq 1$, they get $x = \widetilde{x}$ and $l = \widetilde{l}$. If however $\widetilde{x}+\widetilde{l} > 1$, they get $x = \frac{\widetilde{x}}{\widetilde{x}+\widetilde{l}}$ and $l = \frac{\widetilde{l}}{\widetilde{x}+\widetilde{l}}$. Here the only limit to appropriability of resources by each party is the total amount of resources available (1 in this case), not the existence of checks and controls from the other party. For simplicity, we only consider the case of full information and linear utilities, but the argument generalizes to the other cases as well. We then have:

**Proposition 9**

*In a common pool situation, voters are worse off than under a pure presidential system.*

To prove this, consider the following voting rule: reappoint both agents if and only if $c \geq \theta\lambda$. It is straightforward to see that there is always a disastrous equilibrium, where for any $\lambda > 0$, both agents bid $\widetilde{x} = \widetilde{l} = \infty$ and get $x = l = 1/2$, which implies $c = 0$. What about the equilibrium most favorable to the voters ? Consider an equilibrium where both make symmetric bids $\widetilde{x} = \widetilde{l} = .5(1-\lambda)$ — it is shown below that the equilibrium must indeed be symmetric. For this to be an equilibrium, $\lambda$ must be such that if one party, say $L$, bids $.5(1-\lambda)$, $X$ must be indifferent between bidding $.5(1-\lambda)$ and bidding $\widetilde{x} = \infty$, thereby getting 1. With linear utilities, we must have: $1 = \frac{.5(1-\lambda)}{1-\delta}$. This implies $\lambda = 2\delta - 1$. Note that bids must be symmetric to support this equilibrium. If $L$ would bid $.6(1-\lambda)$, for example then $X$ would be strictly better off bidding $\widetilde{x} = \infty$; moreover, no party has an interest in bidding less than $.5(1-\lambda)$. As $\delta < 1$, $\lambda = 2\delta - 1$ implies that $\lambda < \delta$ so that $c = \lambda\theta < \delta\theta$. Recall that in a pure presidential system with full information and linear utilities, equilibrium consumption for the voters is:

$c^F(\theta) = \delta\theta$. Thus, even in the best equilibrium, voters are strictly worse off in a "common pool" situation than in a pure presidential system.

This result is robust to alternative assumptions how to split the budget when the two bids exceed unity. Suppose that, if $\tilde{x}+ \tilde{l} > 1$, $x = l = 1/2$. Then, we would continue to have bad equilibria. Moreover, even in the good equilibrium, one can show that the voters are worse off than in a pure presidential system. This is not surprising; the "common pool" problem is a form of the "tragedy of the commons". A conflict of interest between the two appointed agents does not reduce their equilibrium rents by itself. On the contrary, the inefficiency created by the "common pool" situation, gives them incentives to outbid each other and this makes it harder for the voters to discipline them. Separation of powers helps the voters only if there is a system of checks and balances. The executive and the legislature must be forced to agree to a common policy; only then can a conflict of interest among them play in the hands of the voters.

## 6. Concluding remarks

There are obvious and relevant extensions of our analysis in several directions. Within the confines of the existing model it would be desirable to study the role of self-enforcing (as opposed to enforceable) collusion between the executive and the legislature over $x$ and $l$. It would also be desirable to study milder forms of asymmetric information: for instance, the executive and the legislature could both receive a noisy signal of $\theta$, possibly at a cost. A more demanding but interesting extension would be to formally analyze the role of outside monitoring activities, say, by the media. Given the incentives for collusion between the politicians and the media, an important issue would then be what type of political structure would be more likely to preserve the independence of the media.

The principle of checks and balances, as a device for controlling moral hazard, was analyzed in the context of separation of powers between the legislature and the executive. This general principle can however be applied to other forms of separation of power. One alternative example could be to require approval of the opposition parties (i.e. unanimity or qualified majority) for the total size of the budget and to let the majority coalition decide on the composition of the budget.

A clear direction we also would like to take is to include other roles for elections than control of moral hazard. If voters and their representatives are heterogenous, elections and subsequent legislative decisions also have to aggregate conflicting interests into public policy. Broadly speaking, this is likely to weaken

the disciplining role of elections, as voters would have to trade off their individual preferences against efficiency in any disciplining voting strategy. It would also be natural to consider the control of adverse selection, arising from different executive candidates (as in Rogoff (1990)) having different competency in delivering efficient outcomes for the voters. This would potentially give rise to an interesting trade off between presidential and parliamentary systems. Specifically, the indirect accountability of the executive in a parliamentary system, would allow for more timely removal of an incompetent executive, but that possibility may also lower the effective discount factor for the executive, which in turn could distort policy decisions with longer-term costs and benefits. There is clearly considerable scope for a comparative analysis of parliamentary and presidential systems.

Finally, even though this paper is about "grand politics", related issues arise in other contexts as well. We already mentioned how the indirect appointments of other holders of public office by political appointees gives scope for collusion. Studying the interplay between implicit incentive schemes given to legislators and to the heads of public agencies, appointed by these legislators to regulate private industry, would be an interesting extension of the recent literature on the political economy of regulatory capture (Laffont and Tirole (1993)). Clearly, more research should follow.

## APPENDIX

**Proof of proposition 2:** The value $\theta^*$ is defined as the level of $\theta$ at which the executive is indifferent between diverting 1 and being ousted or diverting $1 - \frac{c^*}{\theta^*}$ and being reappointed. We thus have:

$$v(1) = v\left(1 - \frac{c^*}{\theta^*}\right) + \delta EV(\theta').$$

In other words,

$$\theta^* = \frac{c^*}{1 - v^{-1}\left[v(1) - \delta EV(\theta')\right]}.$$

Below $\theta^*$, the executive is better off choosing $x = 1$ (so that $c$=0) and above $\theta^*$, he strictly prefers choosing $x(\theta) = 1 - \frac{c^*}{\theta}$ so as to reach $c = c^*$. Voters thus choose $c^*$ so as to maximize

$$\frac{1}{1-\beta}c^*(1 - F(\theta^*) = \frac{c^*}{1-\beta}\left[1 - F\left(\frac{c^*}{1 - v^{-1}\left[v(1) - \delta EV(\theta')\right]}\right)\right].$$

Differentiating this expression with respect to $c^*$ yields:

$$c^* = \frac{1 - F(\theta^*)}{f(\theta^*)}\left[1 - v^{-1}\left(v(1) - \delta EV(\theta')\right)\right],$$

which together with the expression for $\theta^*$ implies:

$$\theta^* = \frac{1 - F(\theta^*)}{f(\theta^*)}.$$

For a uniform distribution of $\theta$, this yields $\theta^* = \frac{\bar{\theta}}{2}$. Assuming also linear utility, we have that

$$EV(\theta') = F(\theta^*) + \int_{\theta^*}^{\bar{\theta}}\left(1 - \frac{c^*}{\theta}\right)dF(\theta) + (1 - F(\theta^*))\delta EV(\theta').$$

Taking into account that $F(\theta^*) = 1/2$ and that $(1 - \delta\,(1 - F(\theta^*))) = 1 - \delta/2$, we have that

$$EV(\theta') = \frac{1}{2-\delta} + \frac{2}{2-\delta}\int_{\theta^*}^{\overline{\theta}} \left(1 - \frac{c^*}{\theta}\right) dF(\theta).$$

Using the fact that $c^* = \theta^* \delta EV(\theta') = \frac{\overline{\theta}}{2}\delta EV(\theta')$, we have

$$\begin{aligned} EV(\theta') &= \frac{1}{2-\delta} + \frac{2}{2-\delta}\left(1 - F(\theta^*) - \frac{\overline{\theta}}{2}\delta EV(\theta')\int_{\theta^*}^{\overline{\theta}} \frac{dF(\theta)}{\theta}\right) \\ &= \frac{1}{2-\delta} + \frac{2}{2-\delta}\left(\frac{1}{2} - \frac{\delta}{2}EV(\theta')\log\frac{1}{2}\right) \\ &= \frac{1}{1 - \frac{\delta}{2}\left(1 - \log\frac{1}{2}\right)}. \end{aligned}$$

Note that $EV(\theta') > 1$ so that the executive gets informational rents from the asymmetry of information. It is then immediate to get

$$c^* = \frac{\overline{\theta}}{2}\frac{\delta}{1 - \frac{\delta}{2}\left(1 - \log\frac{1}{2}\right)}.$$

**Proof of proposition 5.** Assume first that the executive indeed made a truthful announcement and that voters stick to the strategy (R2). Are there then profitable deviations that would lead to reappointment of Congress ($L$) and the executive ($X$)? Due to its veto power, the executive can always ensure itself $x^S$ and reelection at the last stage of legislative bargaining. But $L$ has no incentive to offer $x > x^S$ at the amendment stage, since giving $x^S$ and keeping $l^F = 1 - c^F(\theta)/\theta - x^S$ is enough to secure reelection. Similarly, $L$ would accept $l > l^F$ and reelection, but $X$ has no incentive to make that offer since that would mean getting $x < x^S$.

Are there profitable deviations that would lead to rejection of $X$ and $L$? $X$ would only accept $x > x^A$. But that would give $l < 1 - x^A$ to $L$, which by (3.11) would be dominated by the budget $\left(l^F, x^S\right)$. $L$ would only accept $l > 1 - x^A$, but that would give only $x < x^A$ to $X$, which by (3.10) is dominated by $x^S$.

Given $\theta^X = \theta$, the voters can also not profitably deviate since both $X$ and $L$ are held at their reservation payoffs. How about the announcement stage, finally? Note that now $L$ can appropriate all the rents from false announcements by offering $X$, $x^S$ at the amendment stage and keeping the rents for himself. Thus $L$ has a strong incentive to announce $\theta^L < \theta$. But since $L$ will be capturing all the rents, $X$ has no incentive to make false announcements: $\theta^X = \theta$ is thus an equilibrium.

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Figure 1

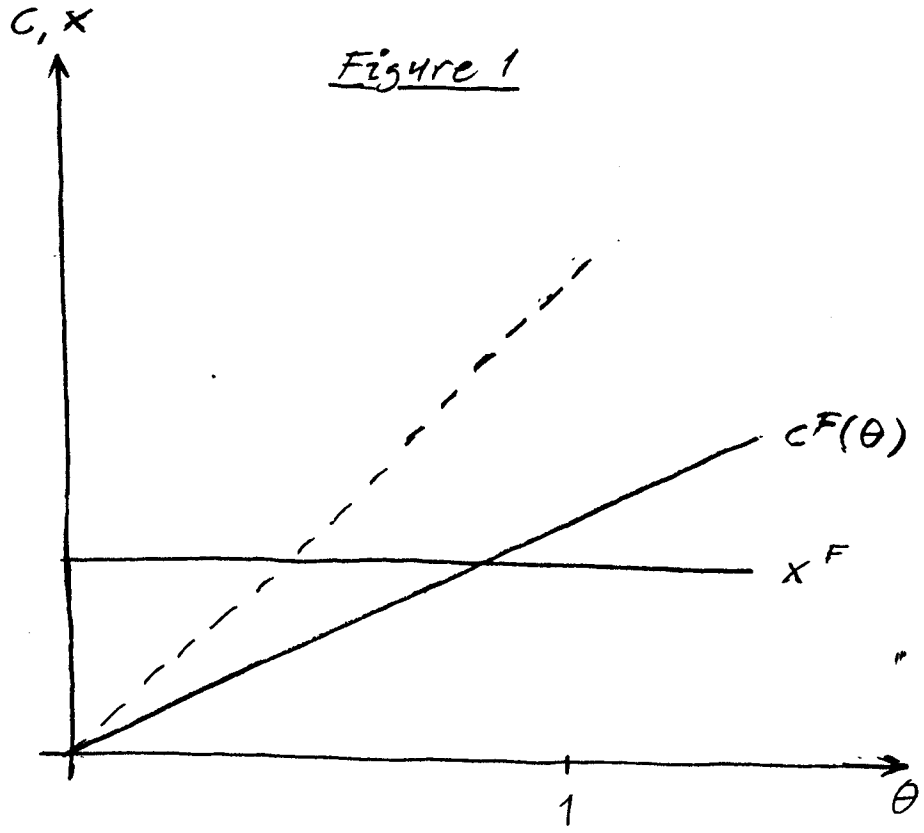
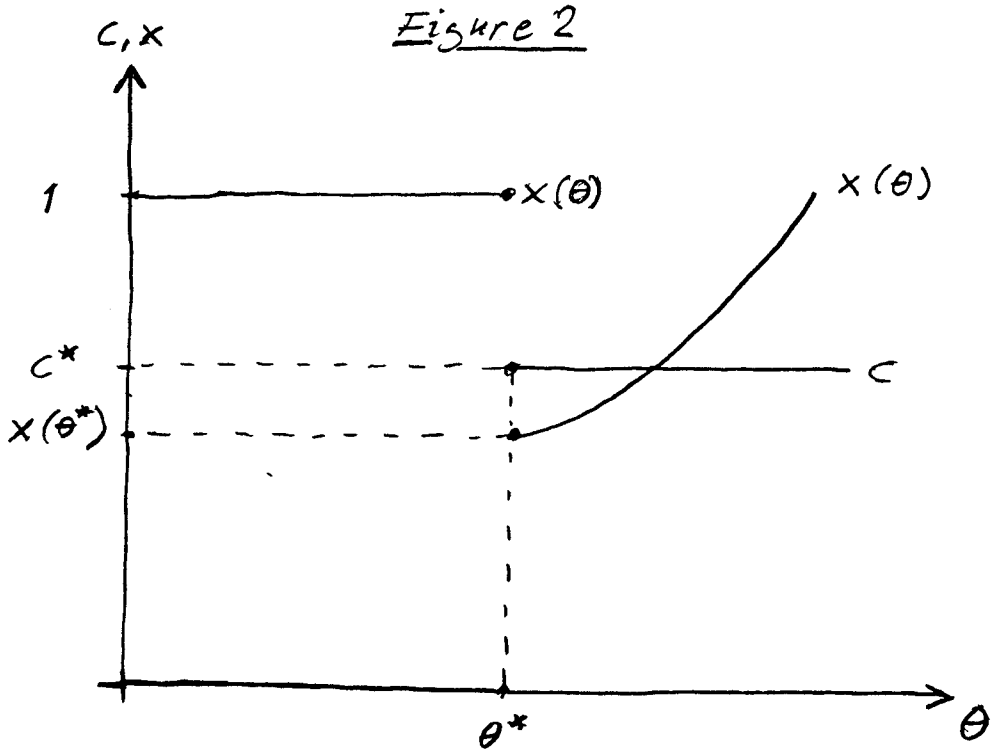
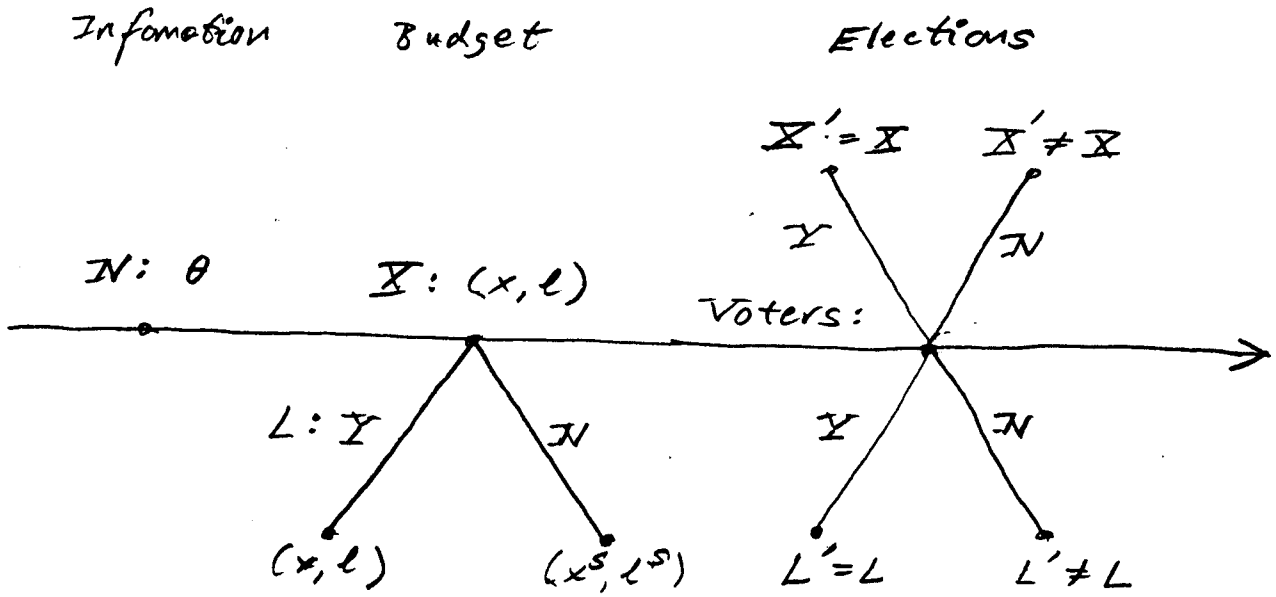



Figure 2

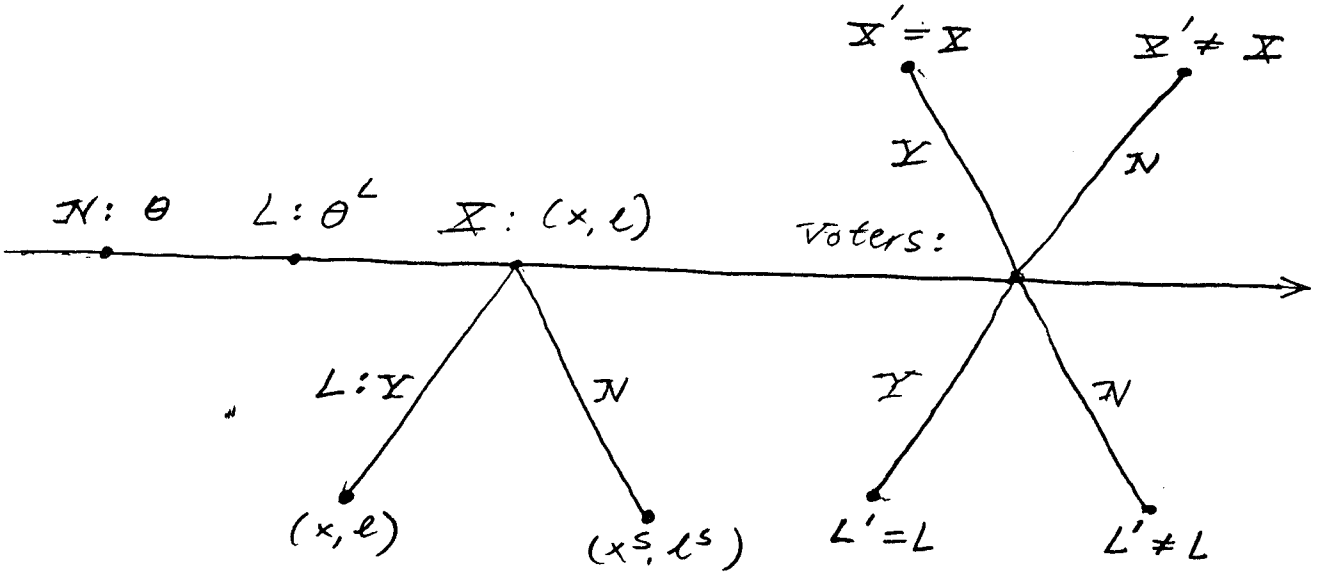


# Figure 3

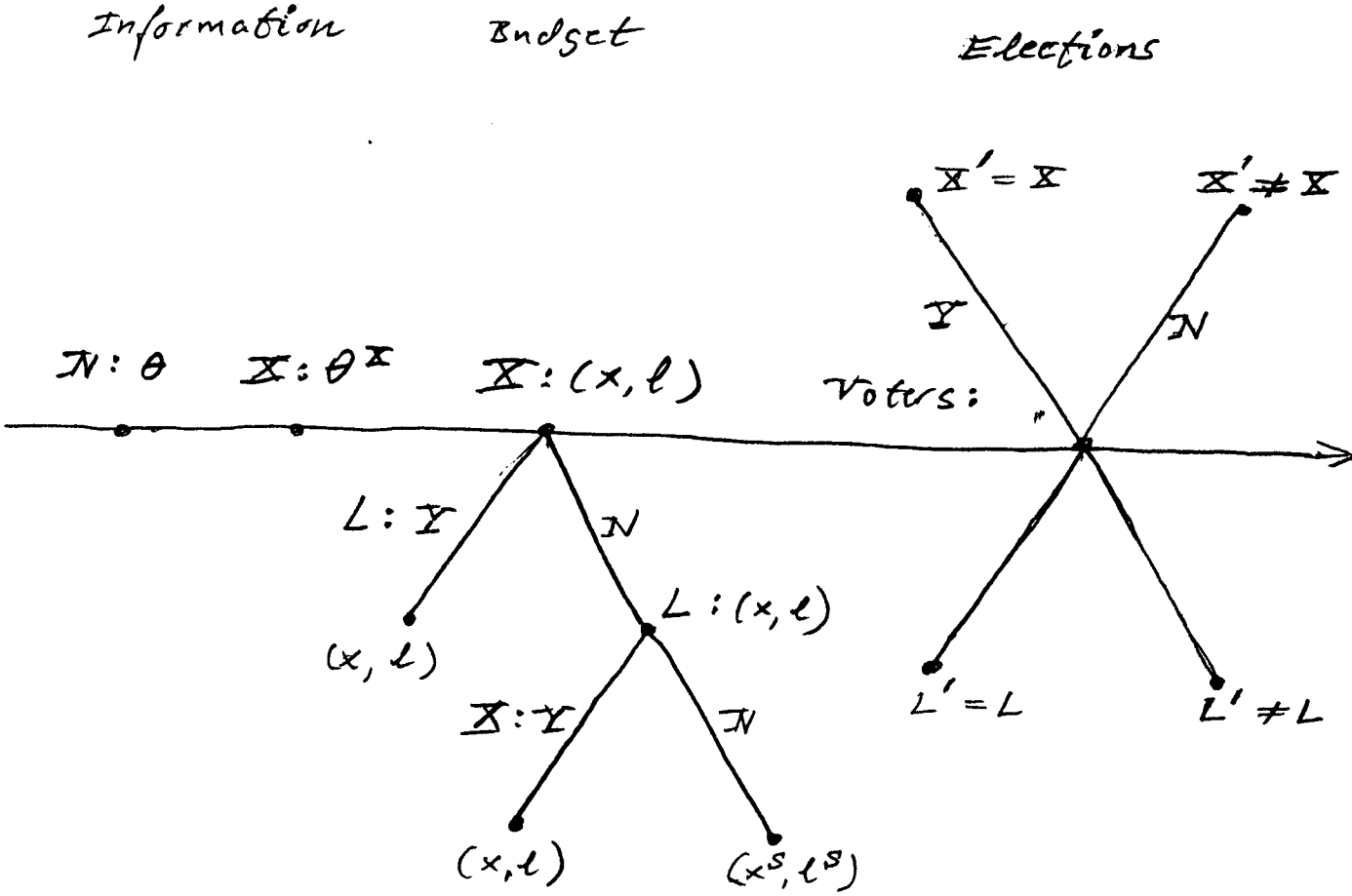
## a) full information



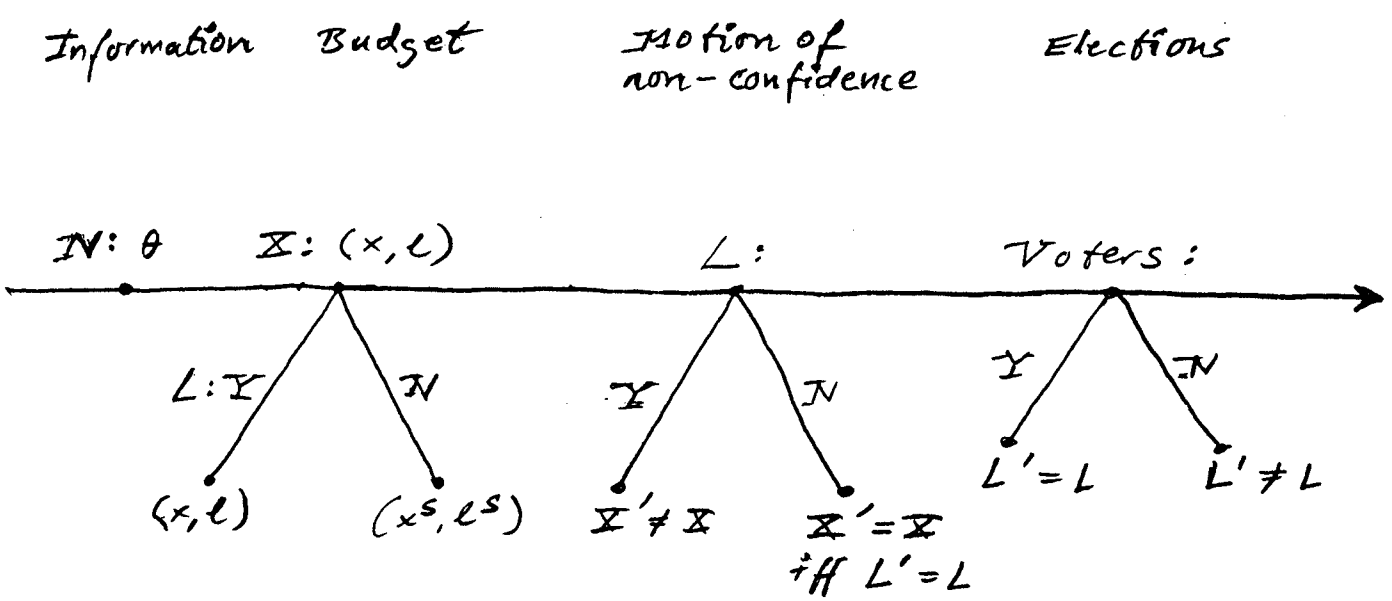

## b) incomplete information



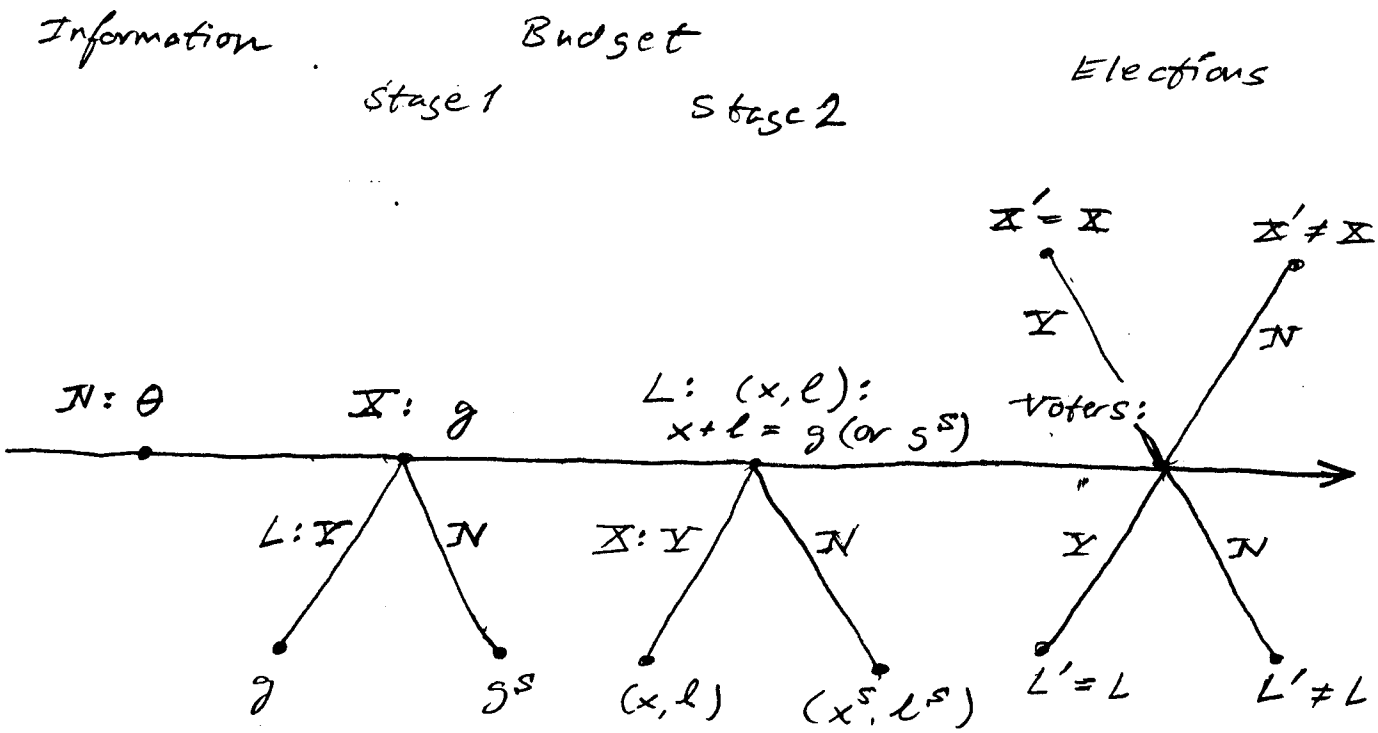
# Figure 4


Information
Budget
Elections
N : θ
X : θ^X
X : (x, ℓ)
Voters:
X' = X
X' ≠ X
Y
N
L : Y
N
(x, ℓ)
L : (x, ℓ)
X : Y
N
(x, ℓ)
(x^S, ℓ^S)
L' = L
L' ≠ L

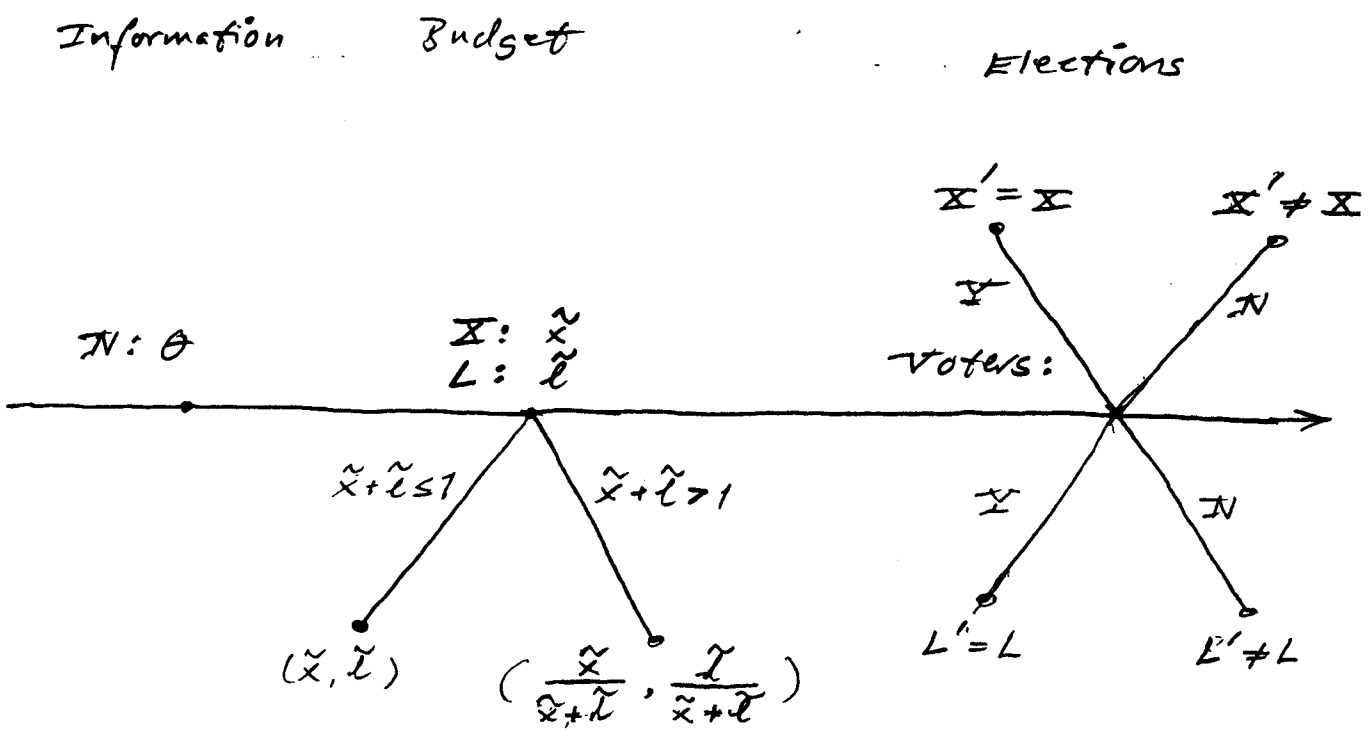
# Figure 5


Information
Budget
Motion of non-confidence
Elections
N: θ
X: (x, ℓ)
L:
Voters:
L: Y
N
Y
N
Y
N
(x, ℓ)
(x^S, ℓ^S)
X' ≠ X
X' = X iff L' = L
L' = L
L' ≠ L

# Figure 6


Information
Budget
Elections
Stage 1
Stage 2
N: θ
X: g
L: (x, ℓ):
x + ℓ = g (or s^S)
Voters:
X' = X
X' ≠ X
Y
N
L: Y
N
X: Y
N
Y
N
g
s^S
(x, ℓ)
(x^S, ℓ^S)
L' = L
L' ≠ L

# Figure 7


Information
Budget
Elections
N: θ
X: x̃
L: l̃
x̃ + l̃ ≤ 1
x̃ + l̃ > 1
(x̃, l̃)
(x̃/(x̃+l̃), l̃/(x̃+l̃))
X' = X
X' ≠ X
Y
N
Voters:
Y
N
L' = L
L' ≠ L