Time-Inconsistent Candidates vs. Time-Inconsistent Voters: Imperfect Policy Commitment in Political Equilibrium*

Marco Pani
International Monetary Fund

and

Carlo Perroni
University of Warwick

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ABSTRACT

This paper examines whether policy commitment mechanisms, when available, will be used by the elected policymaker in a political-economy equilibrium. We describe a two-period repeated voting model where second-period outcomes depend on commitment choices made by an elected policymaker in the first period, and where elected candidates may choose to deviate from their preferred level of commitment, retaining discretionary control of policy variables, in order to secure a favourable second-period political outcome. The implications of different political tenure systems for the candidates who are elected, the policy targets that are selected, the degree of commitment to their implementation, and the policies that are actually implemented in the model are examined.

KEY WORDS: Dynamically Consistent Choices, Policy Commitment, Voting.

JEL CLASSIFICATION: H1, D7, D9.

Correspondence should be addressed to: Carlo Perroni, Department of Economics, University of Warwick, Coventry CV4 7AL, United Kingdom, e-mail: C.Perroni@warwick.ac.uk

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1 Introduction

The literature on the political-economy dimensions of policy commitment choices has pointed out that an incumbent may choose to strategically deviate from the efficient level of commitment in order to affect the outcome of future elections. This deviation can take the form of an excessive degree of commitment to future policy choices in response to dynamically-inconsistent behaviour on the part of voters, an issue discussed by Persson and Svensson (1989) and Alesina and Tabellini (1990): since voters cannot commit to re-elect the incumbent (or to elect any other candidates who support specific policy choices), the incumbent can attempt to constrain future decisionmakers to specific choices which they, and the majority who will elect them, may not favour. Thus, strategically motivated policy choices by the incumbent can impose inefficiently strong constraints over future policy choices. However, the opposite phenomenon—an inefficiently low degree of commitment—could be observed for analogous reasons: commitment may be forgone by an incumbent if it adversely affects her relative standing in future elections, a point made by Milesi-Ferretti (1995) with reference to the choice between different exchange-rate systems.[1] Thus, dynamic inconsistency in policy choices could arise as the result of dynamically inconsistent voting choices.

A question naturally arising from the above argument is whether such behaviour should ever be observed in equilibrium. With repeated elections, if voters anticipate that a certain candidate will strategically choose not to commit if elected, such a candidate may never be elected in the first place. In other words, strategic non-commitment on the part of the incumbent may only be a relevant choice "off the equilibrium path". Furthermore, if strategic non-commitment by elected candidates in anticipation of future elections is undesirable to a majority of citizens, then the same majority may be able to bring about a change in the political system which reduces the scope for such behaviour. Yet, we observe that policymakers are *de facto* given the option to retain discretionary control over policy instruments even when

[1]This possibility is also mentioned in Persson and Svensson (1989). The strategic manipulation of a state variable by an incumbent in order to alter her relative popularity has also been addressed by Aghion and Bolton (1990) and by Milesi-Ferretti and Spolaore (1994).

means of credible commitment are in fact available. During their eighteen years in power in the UK, for example, Conservative governments did not grant the Bank of England independence over monetary policy, which would have strengthened its commitment to low inflation, although this option was available (and was implemented without delay by the new Labour government).

This paper develops a two-period model of political competition in order to investigate whether available commitment mechanisms may remain unexploited by the policymakers that are elected in a political equilibrium. We examine a situation where elected candidates make choices along two distinct policy dimensions. For the first of these, the optimal choice of policy is not credible unless it is supported by precommitment, but a technology exists that would enable an incumbent government to credibly commit to any target. Voting decisions and political equilibria in the model are modelled along the lines developed by the "citizen-candidate" approach of Osborne and Slivinski (1996) and Besley and Coate (1997), in the sense that individuals vote for citizen-candidates who cannot credibly commit to choose any policy combination other than that which maximizes their own utility after being elected. But here, unlike in the citizen-candidate model, the political system is modelled simply as a sequence of pairwise majority voting contests.[2]

In the model, the subgame-imperfection of optimal choice paths along the first policy dimension would support restrictions on the discretionary power of governments in the second period. Setting a target from which future governments are not allowed to deviate, however, may in some cases restrict an incumbent's ability to induce the voters and future governments to adopt the incumbent's preferred policy along the second dimension. Since voters cannot commit to re-elect the incumbent—or, more accurately, a policymaker whose policy preferences are close to the incumbent's—the incumbent may prefer to retain inefficient discretionary control of policy variables, thus leaving a larger margin of discretion to future governments on the issues where it enjoys broad political support, in order to secure a more favorable second-period

[2]This is a simplifying assumption that weakens the requirements that ensure the existence and uniqueness of an equilibrium, and rules out any strategic behaviour on the part of both candidates (concerning entry) and voters.

electoral outcome. Thus, imperfect commitment can arise in equilibrium as the result of time-inconsistent voting choices.

This strategic behaviour on the part of elected candidates, however, will be anticipated by voters and thus reflected in the outcome of first-period elections. We show that two outcomes are possible, depending on the overall combinations of policy choices that the different candidates directly implement in the first period and indirectly induce in future periods. Voters will either elect first-period candidates who, other things being equal, are more ready to adopt a credible commitment to a future policy target, even if their position on remaining issues is farther from the one they favour; or, they may elect a candidate who is unwilling to commit. The former outcome may involve electing a candidate whose preferences concerning the very policy issue on which commitment is undertaken are either nearer or farther from those of the majority in comparison with the candidates who are unwilling to commit. The latter outcome is more likely the higher is the rate at which citizens discount the future, and the smaller is the cost of dynamic inconsistency in policy choices.

The comparison of these alternatives on the part of voters does not simply reflect a tradeoff between the cost of deviating from favoured first-period policies and the cost of non-commitment. Indeed, we show that given the choice between a single-period tenure, repeated-voting system and a two-period tenure system—where no strategic deviation from optimal commitment choices can occur—a majority may still favour the former. This is because under repeated elections and policy commitment by first-period candidates, policy combinations can be supported which could not be achieved through any single available candidate under a two-period tenure system. What is relevant to the comparison between the two systems is therefore the *combined* effect of commitment choices, both with respect to their deviation from the optimal target, and with respect to their implications for the combination of first- and second-period choices—along the different policy dimensions—that can be supported under repeated elections through commitment by first-period policymakers.

Our work is related to earlier studies of the relationship between long-term policy choices and political equilibrium in a democracy (Persson and Svensson, 1989; Alesina and Tabellini, 1990; Aghion and Bolton, 1990; Milesi-Ferretti and Spolaore, 1994; Milesi-Ferretti, 1995). The political game that we formalize bears methodological similarities with the model of Besley and Coate (1998), who, however, examine a different question. Their focus is efficiency and political failure in a context where a current policy decision—"investment"—affects the preferences and welfare of the citizens in the future and hence the outcome of future political choices and elections; in their setting the long-term policy choice is fully credible and no problem of commitment arises. Our study, instead, specifically focuses on the issue of the credibility of long-term targets, and on how commitment to a policy target is determined in political equilibrium.

The structure of the paper is as follows. Section 2 describes policy preferences and the political system as we model them. Sections 3 and 4 characterize policy commitment outcomes under repeated elections. Section 5 analyzes the political outcome under a two-period system and compares it with the outcome under repeated voting. Section 6 concludes.

2 Policy preferences and the political system

Consider a two-period economy with two policy choices x_t and y_t $(t = 1, 2)$ in each period, as well as policy commitment choices in the first period which constrain the choice of x_2. We shall assume that these commitment choices simply consist of a lower bound x_2^1 on the second period policy choice x_2, and that a commitment technology exists such that this constraint is always enforced *ex post*. No commitment is feasible or desirable with respect to y_2.[3]

There is a continuum of voters, each identified by a two-dimensional vector $v \equiv (i, j)$—which denotes the voter's "type" and determines her policy preferences along the two policy dimensions as described below. All voters live for two periods, and their preferences over policies are assumed to be intertemporally separable, with preferences

[3]This could be because of institutional reasons, or because flexibility is required. For example, suppose that the economy can experience a second-period shock θ_2, having zero mean and known variance, which causes a certain policy choice y_2 to have the same effect as a choice $y_2 + \theta_2$. Then, if the variance of θ_2 is sufficiently large, it will never be desirable to commit to a given level of y_2.

for first-period policies summarized by

$$s_1(x_1, y_1; i, j) \equiv u(x_1, y_1; i, j), \tag{1}$$

where u takes the form

$$u(x_1, y_1; i, j) \equiv -(x_1 - i)^2 - (y_1 - j)^2. \tag{2}$$

Quadratic utility functions have been frequently used in economic models of political equilibrium (e.g., Cremer and Palfrey, 1996), because they ensure that the final outcome of a pairwise ballot between two policy choices is determined by the preferences of a pivotal voter at the centre of the voters' distribution, whom we shall hereafter refer to as the *median citizen*, thus ensuring the existence of a voting equilibrium under fairly general conditions.

Second-period utility is also a quadratic function of the second-period policy choices, with the same preference parameters, but with the addition of a linear component h_1, which depends on some action (hereafter *investment*) taken in the first period by some other agents outside the economy (the *investors*), and which positively affects all individuals in the economy (e.g., investment by foreign residents in the domestic economy positively affects domestic factor returns and economic rents):

$$s_2(x_2, y_2, h_1; i, j) \equiv u(x_2, y_2; i, j) + h_1. \tag{3}$$

The first-period action h_1, in turn, is an increasing function f of the anticipated policy choice x_2 (e.g., foreign investment responds positively to anticipated tax reductions). We assume this relationship to be linear, i.e. $f(x_2) \equiv kx_2$, with $k > 0$. This dependency of h_1 on anticipated policy choices is the mechanism that gives rise to a time consistency problem in policy choices, as will be discussed later.

Intertemporal utility can then be expressed as

$$z(x_1, y_1, x_2, y_2; i, j) \equiv s_1(x_1, y_1, h_1; i, j) + \rho s_2(x_2, y_2, f(x_2); i, j), \tag{4}$$

where $\rho \in (0, 1)$ is a discount factor.

Voters are uniformly distributed over a square support of unit side $V \equiv \{(i, j) \mid i, j \in [0, 1]\}$, but only a subset of voters, $C \equiv \{(i, j) \mid i + j \leq 1/2\} \subset V$, can stand as candidates in an election at a cost of zero (i.e. the cost of standing as a candidate is prohibitive for the remaining voters). These latter assumptions are not without loss of generality, but our analysis and results can be readily extended to a setup with rectangular support and a general linear constraint on the space of candidates. Also note that the symmetry of the model along the y policy dimension implies that the analysis and results are completely unchanged if C consists of the top left-hand corner of V. There is, however, no such symmetry along the x policy dimension; hence if C coincides with the top (or bottom) right-hand corner of V, conclusions are affected. We shall deal with this (less interesting) case later.

Policy choices are made by elected policymakers, who cannot pre-commit to a certain policy action before they are elected, i.e. individuals vote over candidates through a sequence of pairwise ballots, and then elected candidates select their preferred policies. In this framework policymakers do not derive any direct utility from holding office, and only favour being elected insofar as this enables them to implement their favoured policies.

In the next three sections we shall examine three distinct institutional scenarios: (i) different policymakers are elected in each period, and in the first period, two distinct policymakers are elected, one selecting x_1 and y_1 and the other selecting the commitment level x_2^1; (ii) different policymakers are elected in each period, but a single policymaker makes all choices in the first period; (iii) a single policymaker is elected in the first period and makes all policy choices, remaining in tenure for two periods.

3 Repeated voting with independent commitment choices

Suppose first that elections are held in both periods, and that in the first period commitment and policy choices are made by two distinct policymakers (scenario (i) above). Admittedly, this is a rather artificial scenario, but it provides a useful benchmark for analyzing the commitment incentives of elected policymakers and how voters respond to them.

In this case, a voting equilibrium is a subgame-perfect equilibrium of a five-stage game, where: (I) citizens elect candidates c_1 and c_1^2, who remain in office during the first period; (II) the elected candidates make first-period policy choices, with c_1 choosing x_1, y_1, and c_1^2 choosing x_2^1; (III) the investors choose h^1; (IV) citizens elect a candidate c_2; (V) the elected candidate c_2 chooses x_2, y_2.

Stage V

In the last stage of the game, the candidate $c_2 = (i_2^c, j_2^c)$ who has been elected as second-period decisionmaker chooses x_2 and y_2 to be equal to

$$(\tilde{x}_2, \tilde{y}_2)(i_2^c, j_2^c, x_2^1) \equiv \arg\max_{(x_2,y_2)} -(x_2 - i_2^c)^2 - (y_2 - j_2^c)^2 + h_1, \tag{5}$$

subject to the constraint $x_2 \geq x_2^1$, and where h_1 is taken as fixed, having been irreversibly chosen by the investors in period 1. This gives

$$\tilde{x}_2(i_2^c, j_2^c, x_2^1) = \max\{i_2^c, x_2^1\}, \tag{6}$$

and

$$\tilde{y}_2(i_2^c, j_2^c, x_2^1) = j_2^c. \tag{7}$$

Stage IV

At this stage, each voter $v \in V$ ranks potential candidates $c \in C$ according to her preferences, anticipating each candidate's optimal choice at the last stage given the pre-existing commitment choice x_2^1. With a quadratic utility function, the following result can be established:

Lemma 1 *There exists a candidate c_2 who survives a sequence of pairwise majority voting contests (a Condorcet winner). This is the candidate whose policy choice maximizes the utility of the median citizen $\bar{v} = (1/2, 1/2)$, and who is on the boundary $C' \equiv \{c = (i^c, j^c) \in C \,|\, j^c + i^c = 1/2\}$ of the set of candidates C.*

Proof: Consider two candidates of types a and b, implementing the policy choice (x_2^a, y_2^a) and (x_2^b, y_2^b) respectively. A voter with preference parameters (i', j') is going to vote for a if and only if $-(x_2^a - i')^2 - (y_2^a - j')^2 > -(x_2^b - i')^2 - (y_2^b - j')^2$; which yields, after manipulation, $Ai' > B + Dj'$, where $A \equiv 2(x_2^a - x_2^b)$, $B = (x_2^a)^2 - \left(x_2^b\right)^2 + (y_2^a)^2 - \left(y_2^b\right)^2$, and $D = 2(y_2^b - y_2^a)$; i' is thus a linear function of j'. The candidate of type a thus obtains the votes of all citizens with $Ai' > B + Dj'$, while her opponent obtains the votes of all the remaining citizens; the two sets of supporters are thus convex and separated by a linear boundary. Since citizens are uniformly distributed over the support V, the candidate who obtains a majority of votes in all possible pairwise ballots is the candidate who obtains the vote of the citizen at the centre of the support.

To prove the second part of the result, consider that any candidate $c_2 = (i_2^c, j_2^c)$ with $j_2^c < 1/2 - i_2^c$, would choose the same level of x_2 as a candidate with the same preference parameter i_2^c on the boundary of C; the latter, however, will select $y_2 = j_2^c = 1/2 - i_2^c$, which is closest to the median voter's preferred level than the choice of any interior candidate, and would therefore prevail in a pairwise ballot. Q.E.D.

We can therefore restrict our attention to the median citizen's preferred candidate within the subset C'. Each of these candidates selects $\tilde{x}_2(i_2^c, 1/2-i_2^c, x_2^1) = \max\{i_2^c, x_2^1\}$ and $\tilde{y}_2(i_2^c, 1/2 - i_2^c, x_2^1) = 1/2 - i_2^c$. The candidate $(i_2^c, 1/2 - i_2^c)$ preferred by $\bar{v} = (1/2, 1/2)$ is the one who maximizes her utility

$$s_2\left(\tilde{x}_2(i_2^c, 1/2 - i_2^c, x_2^1), \tilde{y}_2(i_2^c, 1/2 - i_2^c, x_2^1), h_1, 1/2, 1/2\right)$$

$$= -\left(\max\{i_2^c, x_2^1\} - 1/2\right)^2 - (i_2^c)^2 + h_1. \tag{8}$$

Let $I'(x_2^1)$ be the subset of C' where $i_2^c \geq x_2^1$ (in other words, the subset of candidates who could set $\tilde{x}_2 = i_2^c$), and let $I''(x_2^1)$ be its complement in C'. In $I'(x_2^1)$, (8) is maximized by $i_2^c = 1/4$, while in $I''(x_2^1)$, it is maximized by $i_2^c = 0$. Given the commitment choice x_2^1, voters will thus elect a candidate $i_2^c = 1/4$ if and only if $x_2^1 < 1/4$ and $u(1/4, 1/4, 1/2, 1/2) > u(x_2^1, 0, 1/2, 1/2)$, which together imply

$$x_2^1 < \left(1 - \sqrt{1/2}\right)/2 \equiv \overline{x}_2; \tag{9}$$

otherwise, they elect the candidate of type $i_2^c = 0$.

Thus, the identity of the second-period policymaker, as a function of the first-period commitment choice, can be expressed as

$$\tilde{i}_2^c(x_2^1) \equiv \begin{cases} 1/4, & \text{if } x_2^1 < \overline{x}_2; \\ 0, & \text{if } x_2^1 \geq \overline{x}_2. \end{cases} \tag{10}$$

The associated equilibrium policy choices are

$$\hat{x}_2(x_2^1) \equiv \tilde{x}_2(\tilde{i}_2^c(x_2^1), 1/2 - \tilde{i}_2^c(x_2^1), x_2^1) = \max\{\tilde{i}_2^c(x_2^1), x_2^1\}; \tag{11}$$

$$\hat{y}_2(x_2^1) \equiv \tilde{y}_2(\tilde{i}_2^c(x_2^1), 1/2 - \tilde{i}_2^c(x_2^1), x_2^1) = 1/2 - \tilde{i}_2^c(x_2^1). \tag{12}$$

Stage III

Before second-period policy choices are made, the investors decide their action h_1 on the basis of their expectations about x_2, with h_1 being set equal to kx_2. Thus, the choice of h_1 is a "rational-expectations" outcome reflecting fully anticipated policy choices, which in turn depend on the constraint x_2^1 set at the previous stage. From our previous analysis, we have

$$\hat{h}_1(x_2^1) \equiv k\hat{x}_2(x_2^1) = \max\{k\tilde{i}_2^c(x_2^1), kx_2^1\}. \tag{13}$$

Stage II

In the second stage of the game, an elected policymaker of type $c_1 = (i_1^c, j_1^c)$, decides first-period policies x_1, y_1, and, independently, a separate elected policymaker of type $c_1^2 = (i_1^{2c}, j_1^{2c})$, selects the level x_2^1 that constrains future policy. The first policymaker's choice is unconstrained and has no bearing on future outcomes. Hence she simply selects $x_1 = i_1^c$, $y_1 = j_1^c$.

In contrast, the commitment choice by c_1^2 is made in anticipation of its effects on investment (Stage III) and on the future political choice of both the voters (Stage IV) and the future decisionmaker (Stage V). She thus chooses x_2^1 so as to maximize her *ex-ante* second-period utility, which is equal to

$$s_2\left(\hat{x}_2(x_2^1), \hat{y}_2(x_2^1), f(\hat{x}_2(x_2^1)), i_1^{2c}, j_1^{2c}\right) \equiv \omega_2(i_1^{2c}, j_1^{2c}, x_2^1). \tag{14}$$

For $x_2^1 \geq \overline{x}_2$, we have $\tilde{i}_2^c(x_2^1) = 0$, $\hat{x}_2(x_2^1) = x_2^1$, $\hat{y}_2(x_2^1) = 1/2$, and (14) becomes

$$\omega_2(i_1^{2c}, j_1^{2c}, x_2^1) = -\left(x_2^1 - i_1^{2c}\right)^2 - \left(1/2 - j_1^{2c}\right)^2 + kx_2^1, \quad x_2^1 \geq \overline{x}_2, \tag{15}$$

which, in the range $[\overline{x}_2, \infty)$, is maximized by $x_2^1 = \max\{\overline{x}_2, i_1^{2c} + k/2\}$. If a lower bound $x_2^1 < \overline{x}_2$ is chosen, the second-period policymaker will be $\tilde{i}_2(x_2^1) = 1/4$, who will select $\hat{x}_2(x_2^1) = 1/4$, $\hat{y}_2(x_2^1) = 1/4$, implying that x_2^1 will not be binding since $1/4 > \overline{x}_2 > x_2^1$; for simplicity, we assume that in this case x_2^1 is set equal to 0.

Then if $x_2^1 = 0$ is chosen, (14) becomes

$$\omega_2(i_1^{2c}, j_1^{2c}, 0) = -\left(1/4 - i_1^{2c}\right)^2 - \left(1/4 - j_1^{2c}\right)^2 + k/4. \tag{16}$$

A decisionmaker of type (i_1^{2c}, j_1^{2c}) will set $x_2^1 \geq \overline{x}_2$ if and only if

$$\max_{x_2^1 > \overline{x}_2} \omega_2(i_1^{2c}, j_1^{2c}, x_2^1) \geq \omega_2(i_1^{2c}, j_1^{2c}, 0). \tag{17}$$

As before, it can be shown that the only candidates to survive a sequence of pairwise contests are those on the boundary C'.

If k is not too large (i.e. if the benefit from commitment is not too large), candidates in the "middle" of C' will choose not to constrain future policy:

Proposition 1 *If $k < 1/2$, there is a non-empty interval $N \equiv (\underline{i}, \overline{i})$, with $\underline{i} < 1/4 < \overline{i}$, of candidates in C' who, if elected, would choose not to constrain second-period policies.*

Proof: Let $\omega_2'(i_1^{2c}, x_2^1) \equiv \omega_2(i_1^{2c}, 1/2 - i_1^{2c}, x_2^1)$. For a policymaker in C', we have

$$\omega_2'(i_1^{2c}, 0) = -2(1/4 - i_1^{2c})^2 + k/4. \tag{18}$$

For a policymaker $i_1^{2c} > \overline{x}_2 - k/2$,

$$\max_{x_2^1 > \overline{x}_2} \omega_2'(i_1^{2c}, x_2^1) = -(i_1^{2c})^2 + k i_1^{2c} + k^2/4; \tag{19}$$

which is greater than $\omega_2'(i_1^{2c}, 0)$ if and only if either

$$i_1^{2c} \leq \underline{i} \equiv \left(1 - k - \sqrt{1/2 - k}\right)/2, \tag{20}$$

or

$$i_1^{2c} \geq \overline{i} \equiv \left(1 - k + \sqrt{1/2 - k}\right)/2. \tag{21}$$

Note that $\underline{i} > \overline{x}_2 - k/2$ for all values of $k > 0$, with $\underline{i} = \overline{x}_2$ when $k = 0$, i.e. there is a non-empty interval $(\overline{x}_2 - k/2, \underline{i})$ of policymakers just below $\underline{i}$ who will always find it optimal to commit to $x_1^1 = i_1^{2c} + k/2$. For policymakers for whom $i_1^{2c} \leq \overline{x}_2 - k/2 < \underline{i}$, we have

$$\max_{x_2^1 > \overline{x}_2} \omega_2'(i_1^{2c}, x_2^1) = \omega_2'(i_1^{2c}, \overline{x}_2) = -(\overline{x}_2 - i_1^{2c})^2 - (i_1^{2c})^2 + k\overline{x}_2, \tag{22}$$

which, for $i_1^{2c} \leq \overline{x}_2 - k/2$, is greater than $\omega_2'(i_1^{2c}, 0)$. Therefore, for a policymaker $i_1^{2c} \notin (\underline{i}, \overline{i})$, $\max_{x_2^1 > \overline{x}_2} \omega_2'(i_1^{2c}, x_2^1) \geq \omega_2'(i_1^{2c}, 0)$, implying that she will select a positive (and binding) value for x_2^1,

One can also verify that $\underline{i}$ and $\overline{i}$ are distinct real numbers, satisfying $\underline{i} < 1/4 < \overline{i}$, if and only if $k < 1/2$; when $k = 1/2$, then $\underline{i} = \overline{i} = 1/4$, while when $k > 1/2$, $\underline{i}$ and $\overline{i}$ are complex conjugated numbers. Furthermore, with $k \geq 1/2$, we have $\overline{x}_2 - k/2 < 0 < i_1^{2c}$ for all candidates in C'. Thus, with $k \geq 1/2$, all candidates, including the candidate $i_1^{2c} = 0$, would fully commit by setting $x_2^1 = i_1^{2c} + k/2 > 0$. Q.E.D.

The commitment choice of a first-period policymaker, as a function of her identity, is then

$$\tilde{x}_2^1(i_1^{2c}, 1/2 - i_1^{2c}) \equiv \begin{cases} 0, & \text{if } i_1^{2c} \in N; \\ \max\{\overline{x}_2, i_1^{2c} + k/2\}, & \text{if } i_1^{2c} \notin N. \end{cases} \tag{23}$$

A policymaker of type $i_1^{2c} \in N$ prefers to keep future policies unconstrained. This outcome is preferred to the outcome that would prevail if she set $x_2^1 > \overline{x}_2$, resulting in the election of a candidate with $i_2^c = 0$. This is because commitment on x_2 effectively removes the tradeoff second-period voters face between available candidates, and enables them to select their favoured second-period candidate with respect to the y policy dimension, supporting a policy choice $y_2 = 1/2$. A first-period policymaker in N, who has relatively weaker preferences for y—as well comparatively weak preferences for x—will then prefer to keep the choice of x_2 unconstrained, which ensures the future election of a candidate with $i_2^c = j_2^c = 1/4$.

In contrast, incumbents with $i_1^{2c} \notin N$ prefer the latter outcome to the former, either because their preferences with respect to y_2 are near to those of the candidate with $i_2^c = 0$—as is the case when $i_1^{2c} \leq \underline{i}$—or because the benefits from constraining the choice of x_2 outweigh the costs of an unfavourable choice of y_2—when $i_1^{2c} \geq \overline{i}$.

Stage I

In the first stage of the game, voters elect the first-period decisionmakers $c_1 = (i_1^c, j_1^c)$, and $c_1^2 = (i_1^{2c}, j_1^{2c})$ within the set C of candidates. For both elections, it can once again be shown that the preferences that prevail in a series of pairwise ballots are those of the median citizen, and that the only candidates who can be elected are those in C'.

The median citizen, in turn, favours a candidate $c_1 = (1/4, 1/4)$, and a candidate $c_1^2 = (i_1^{2c}, 1/2 - i_1^{2c}) \in C'$ whose choice maximizes her *ex-ante* second-period utility, which is equal to

$$s_2\left(\hat{x}_2(\tilde{x}_2^1(i_1^{2c})), \hat{y}_2(\tilde{x}_2^1(i_1^{2c})), f(\hat{x}_2(\tilde{x}_2^1(i_1^{2c}))), 1/2, 1/2\right) \equiv \Pi_2(i_1^{2c}). \tag{24}$$

When first-period policy choices and commitment choices are unlinked in this way, it can be shown that there will always be commitment in political equilibrium:

Proposition 2 *When the first-period policies and the second-period constraint x_2^1 are chosen by two separate elected decisionmakers, voters will always elect a first-period decisionmaker who chooses to constrain second-period policies.*

PROOF: If a candidate $i_1^{2c} \in N$ is elected, using our previous results we obtain

$$\Pi_2(i_1^{2c}) = (2k - 1)/8. \tag{25}$$

If instead a candidate $i_1^{2c} \notin N$ is elected, we have

$$\Pi_2(i_1^{2c}) = (k^2 + 2k - 1)/4 + i_1^{2c} - (i_1^{2c})^2. \tag{26}$$

In $[0, 1/2]\backslash N$ (the complement of N in $[0, 1/2]$), if $\bar{i} \leq 1/2$, (26) is maximized by $i_1^{2c} = 1/2$, yielding a value of $k^2/4 + k/2$, which is greater than $(2k - 1)/8$, the value of (25); if instead $\bar{i} > 1/2$, (26) is maximized by $i_1^{2c} = \underline{i}$, yielding a value equal to $(6k - 1)/8 + (k/2)\sqrt{1/2 - k}$, which is also greater than $(2k - 1)/8$. Note that $\bar{i} \leq 1/2$ if and only if $\sqrt{1/2 - k} \leq k$, which implies $k \geq (\sqrt{3} - 1)/2 \equiv \bar{k} < 1/2$. Thus, a candidate $i_1^{2c} = \bar{i} > 1/4$ is elected if $k > \bar{k}$, whereas a candidate $i_1^{2c} = \underline{i} < 1/4$ is elected otherwise. Q.E.D.

Dynamic inconsistency in political choices can thus arise with repeated elections: some candidates will not commit because voters cannot commit to certain second-period electoral outcomes, and, as a result, they will not be elected. If it were possible for voters to pre-commit to a second-period candidate before electing first-period policymakers, then strategic incentives for non-commitment by first-period candidates would vanish. As a thought experiment, suppose that the sequence of choices were as follows: first voters elect a second-period policymaker; then they elect a first-period policymaker who selects a lower bound x_2^1; after which the elected second-period policymaker selects x_2 and y_2. Then any first-period policymaker would take the identity of the second-period policymaker, and hence y_2, as given, and would choose $x_2^1 = i_1^{2c} + k/2$, securing a choice of x_2 that maximizes her ex-ante payoff. The elected first-period candidate would then be $i_1^{2c} = 1/2$ who supports a choice of x_2 coinciding with that preferred by the median citizen. In the later election, voters would anticipate this outcome and elect $i_2^c = 0$, who then chooses $x_2 = \tilde{x}_2^1(1/2) = 1/2 + k/4$, $y_2 = 1/2$, i.e. the policy combination which is the ex-ante preferred choice of the median citizen.

The above analysis, however, shows that if the commitment choice is unlinked from first-period policy choices, then, as conjectured in the introduction, imperfect commitment cannot arise in equilibrium. There will be candidates, who, if elected, are not willing to commit, but they will never be elected.

Note that there will be commitment in equilibrium also when $k = 0$, i.e. in situations where the effect of commitment on investment is irrelevant to voters. Even in this scenario, there will be candidates who, under repeated voting, are willing to commit in order to influence second-period electoral outcomes; and even in this scenario voters will be willing to take advantage of the strategic behaviour of first-period candidates in order to support a second-period policy combination which could not be otherwise attained. Thus, two different forms of strategic commitment incentives are simultaneously at work in the model, albeit on different sides of the political game: an incentive on the part of voters to indirectly use commitment to constrain future policies on the one hand, and an incentive on the part of elected candidates to forgo commitment in order to influence second-period electoral outcomes on the other.

Also note that if k is positive but small (i.e. if the gains from commitment are small), it is possible for a candidate $i_1^{2c} = \underline{i}$ to prevail, rather than a candidate $i_1^{2c} = \overline{i}$. In this case, voters may choose to achieve commitment by electing a candidate whose preferences on x—the policy dimension requiring positive commitment—are farther, rather than nearer, to those of the majority; this occurs because, in this case, all candidates with preferences on x nearer to those of the majority would choose not to commit, and would thus leave the majority worse off in the second period. In order to induce commitment, voters may then have to elect a first period policymaker whose preferences for x are comparatively weak.

4 Repeated voting with a single first-period policymaker

Consider now a more realistic scenario where a single first-period elected policymaker selects both the first-period policies x_1, y_1, and the constraint x_2^1.

The last four stages of the game are as before. In Stage I, each voter $v \in V$ ranks potential candidates $c \in C$ on the basis of the intertemporal payoff each of them yields. Once more we restrict the attention to the subset C' on the frontier, where $j_c = y_1 = 1/2 - i_c$; and once more it can be proved that the preferences that prevail after a sequence of pairwise contests are still those of the median citizen $\hat{v} = (1/2, 1/2)$. The intertemporal payoff that the median citizen obtains if a candidate $c_1 = (i_1^c, 1/2 - i_1^c)$ is elected in the first period is equal to

$$z\left(i_1^c, 1/2 - i_1^c, \hat{x}_2(\tilde{x}_2^1(i_1^c)), \hat{y}_2(\tilde{x}_2^1(i_1^c)), 1/2, 1/2\right). \tag{27}$$

The first-period policy choice preferred by the median citizen is clearly that of candidate $i_1^c = j_1^c = 1/4$. If $k < 1/2$, however, this candidate will choose (as shown before) not to constrain x_2, which will result in her being re-elected in the second period. As our analysis will show, depending on the model's parameters, voters may then choose to elect a different candidate who is willing to commit; alternatively, if they discount the future highly enough, they may still prefer to elect $i_1^c = j_1^c = 1/4$. Thus, lack of commitment can arise in political equilibrium because the candidate preferred by the median citizen strategically chooses not to commit in order to secure re-election.

Let $\bar{s}_1(i_1^c) \equiv -(i_1^c)^2 - (1/2 - i_1^c)^2$ (the median citizen's first-period utility if i^c is elected), $\bar{s}_2(i_1^c) = -(1/2 - i_1^c + k/2)^2 + ki_1^c + k^2/2$ (the median citizen's second-period utility if i_1^c is elected and constrains second period policies at $x_2^1 = i_1^c + k/2$), $\bar{s}_2' \equiv -1/2 + k/4$ (the median citizen's second-period utility if a candidate i_1^c is elected who does not constrain second period policies); and define $R(i_1^c) \equiv -(\bar{s}_1(1/4) - \bar{s}_1(i_1^c))/(\bar{s}_2'(1/4) - \bar{s}_2(i_1^c))$, and $i_1^0(\rho) \equiv (1+\rho)/(4+2\rho)$.

We can then state the following result:

Proposition 3 *When $k < 1/2$ and the first-period policies and the second-period constraint x_2^1 are chosen by a single elected decisionmakers, voters will elect a first-period decisionmaker who chooses to constrain second-period policies only if one of the following set of conditions is met:*

1. $\bar{i} \leq i^0(\rho)$ *and* $\rho \geq R(i^0(\rho))$*;*

2. $i^0(\rho) < \bar{i} \leq 1/2$ *and* $\rho \geq R(\bar{i})$*;*

3. $\bar{i} > 1/2$ *and* $\rho \geq R(\underline{i})$*.*

In all other cases, voters will elect a candidate with $i_1^c = j_1^c = 1/4$*, who does not constrain second-period policies.*

PROOF: From our previous analysis, if $i_1^c \notin N$, we have $\hat{x}_2(\tilde{x}_2^1(i_1^{2c})) = i_1^{2c} + k/2$, $\hat{y}_2(\tilde{x}_2^1(i_1^{2c})) = 0$; otherwise, $\hat{x}_2(\tilde{x}_2^1(i_1^{2c})) = 1/4$ and $\hat{y}_2(\tilde{x}_2^1(i_1^{2c})) = 1/4$. Thus, outside N, (27) becomes

$$- (i_1^c - 1/2)^2 - (i_1^c)^2 + \rho \left[- (i_1^c + k/2 - 1/2)^2 + k (i_1^c + k/2) \right]; \tag{28}$$

whereas, within N, (27) becomes

$$- (i_1^c - 1/2)^2 - (i_1^c)^2 - \rho(2k - 1)/8. \tag{29}$$

(28) is maximized by $i_1^c = i_1^0(\rho)$, which is increasing in ρ, equal to 1/4 when $\rho = 0$ and diverging to 1/2 when ρ diverges to infinity. For $i_1^c \notin N$, (28) is thus maximized by $i_1^c = i_1^o(\rho)$ if $i_1^o(\rho) \geq \bar{i}$; otherwise it is maximized by $i_1^c = \bar{i}$ if $\bar{i} \leq 1/2$, and by $i_1^c = \underline{i}$ if $\bar{i} > 1/2$. (29) is always maximized by $i = 1/4$. Four different equilibrium regimes are then possible, depending on the values of k and ρ (which determine the relative positions of $i_1^0(\rho)$ and $\bar{i}$ and their value relative to 1/2):

Regime 1. If $\bar{i} \leq i^0(\rho)$, the citizens elect the candidate with $i = i^o(\rho)$ provided that

$$\bar{z}_A \equiv \bar{s}_1(i^o(\rho)) + \rho \bar{s}_2(i^o(\rho)) > \bar{z}_B \equiv \bar{s}_1(1/4) + \rho \bar{s}_2', \tag{30}$$

which, in turn, implies

$$\bar{s}_2(i^o(\rho)) - \bar{s}_2' > \frac{\bar{s}_1(1/4) - \bar{s}_1(i^o(\rho))}{\rho}, \tag{31}$$

Since the left-hand side of (31) is increasing in ρ and the right-hand side is decreasing in ρ,[4] the citizens are thus more likely to elect a candidate with $i = i^o(\rho)$ as the value of $i^0(\rho)$ remains greater than $\bar{\imath}$.[5]

Regime 2. If $i^0(\rho) < \bar{\imath} \leq 1/2$, the citizens elect a candidate with $i = \bar{\imath}$ provided that

$$\bar{z}_C \equiv \bar{s}_1(\bar{\imath}) + \rho \bar{s}_2(\bar{\imath}) > \bar{z}_B, \tag{32}$$

which yields:

$$\bar{s}_2(\bar{\imath}) - \bar{s}_2' > \frac{\bar{s}_1(1/4) - \bar{s}_1(\bar{\imath})}{\rho}; \tag{33}$$

since the right-hand side of (33) is also decreasing in ρ, the citizens are more likely to elect the candidate with $i_c = \bar{\imath}$, who commits to an effective target for x_2, the higher is the value of the discount factor.

Regime 3. If $\bar{\imath} > 1/2$, the citizens elect the candidate with $i_1^c = \underline{i}$ provided that

$$\bar{z}_D \equiv \bar{s}_1(\underline{i}) + \rho \bar{s}_2(\underline{i}) > \bar{z}_B, \tag{34}$$

which yields

$$\bar{s}_2(\underline{i}) - \bar{s}_2' > \frac{\bar{s}_1(1/4) - \bar{s}_1(\underline{i})}{\rho}; \tag{35}$$

this condition is again more likely to hold the larger the value of ρ.

If $\bar{\imath} \leq i^0(\rho)$ and (31) is violated, or if $i^0(\rho) < \bar{\imath} \leq 1/2$ and (33) is violated, or if $\bar{\imath} > 1/2$ and (35) is violated, the citizens elect the candidate with $i_1^c = 1/4$, who sets $x_2^1 = 0$ and does not constrain future policies. Q.E.D.

Thus, for imperfect commitment to arise in equilibrium, commitment choices and first-period policy choices must be linked in the identity of the first period decision-maker. Then, if voters attach a sufficiently high relative weight to first-period policies,

[4] $i^o(\rho)$ is increasing in ρ; $\bar{s}_2(i)$ is increasing in i and $\bar{s}_2(i)$ is also increasing in i for $i \geq 1/4$. Since $i^o(\rho) \geq 1/4$ the difference $\bar{s}_1(1/4) - \bar{s}_1(i^o(\rho))$ is decreasing in ρ; the left-hand side in (31) is thus increasing in ρ, while the right-hand side is decreasing.

[5] Intuitively, the lower the rate at which the citizens discount future utility, the higher is their willingness to elect a candidate who would pose a higher constraint on future policy, moving the future outcome in a direction which is favourable to the majority.

they may opt for a candidate who strategically chooses not to commit. Such choice on the part of voters does not simply reflect a tradeoff between the cost of deviating from favoured first-period policies and the cost of non-commitment. As discussed in the previous section, commitment by first-period candidates under repeated elections can be instrumental to the attainment of second-period policy combinations that would not be otherwise attainable through the available candidates. Therefore, the premium that voters place on current policy must be sufficiently high to overcome the *combined* gain from inducing a higher investment and from achieving a more favourable second-period policy combination through commitment by first-period policymakers.

No such tradeoff exists if the median citizen can stand as candidate. The reason why a first-period policymaker may opt, under repeated elections, to keep second-period policies unconstrained is that commitment would result in an unfavourable second-period political outcome; which, in turn, results in a tradeoff for voters between the two goals of achieving commitment and supporting the election of a second-period candidate they favour. If, on the other hand, the median citizen can stand for election, she will be elected in all periods independently of the value of k, and will thus commit to her ex-ante preferred choice of x_2. Hence, the assumption that the median citizen cannot stand for election is essential for noncommitment to arise in a political equilibrium. Without it, as conjectured in the introduction, no candidate who forgoes commitment would be elected in equilibrium.[6]

When ρ is sufficiently small (i.e. individuals are sufficiently impatient), a candidate who does not commit may be elected in the first period; in this case the median citizen chooses to support a first-period policy outcome that coincides with her first-period ideal point, at the cost of a lower second-period payoff. As in the case analyzed in the previous section, commitment may require the election of a candidate with stronger

[6]Nevertheless, this feature seems to be consistent with the observed polarization, in several political contexts, of candidates on political positions at the extremes, rather than at the centre, of the political spectrum. Explaining this observation goes beyond the scope of our analysis. Nevertheless, we can note that polarization may result from a correlation between the benefits of being elected and the preferences about policies: candidates with more extreme policy preferences may also have more intense policy preferences, making it worthwhile for them to stand as candidates in the presence of a positive standing cost.

preferences with respect to x than the preferred candidate who does not commit—in Regimes 1 and 2 as described in the proof of Proposition 3, where the candidate elected is $i_1^c = \max\{i^0(\rho), \bar{\imath}\}$—or a candidate with weaker preference for x relative to the candidate $i_1^c = 1/4$—in Regime 3, where the candidate elected is $i_1^c = \underline{i}$.

5 Two-period tenure

The strategic incentive to forgo commitment on the part of first-period policymakers could be eliminated by moving to a two-period tenure system. Note that in the framework we are analyzing, which features no uncertainty, there is no intrinsic option value in not committing *ex-ante* to electing the same policymaker for both periods.[7] Yet, we shall show that a repeated-elections system may still be preferred by a majority to a two-period tenure system.

If a policymaker is elected in the first period for a two-period term, the same decisionmaker decides the first-period policies, x_1 and x_2, the constraint on the second-period policies, x_2^1, and the second-period policies, x_2 and y_2. The ability to effectively choose her second-period level of x_2 in the first-period removes the time-inconsistency problem affecting the choice of x_2, and enables any elected candidate $c = (i^c, j^c)$ to achieve her first-best intertemporal payoff by pre-committing to a lower-bound $x_2^1 = i^c + k/2$ (which will always be binding *ex-post*).

In the first period, each citizen votes for the candidate whose choice maximizes her own intertemporal utility. Once more, we can focus on the set C', and once more the candidate who wins is the candidate who maximizes the intertemporal utility of the median citizen, which is equal to

$$z\left(i^c, 1/2 - i^c, i^c + k/2, 1/2 - i^c, 1/2, 1/2\right). \tag{36}$$

It is easy to verify that this is maximized by $i^c = 1/4$. Thus, with a two-period tenure system, the candidate who is preferred by the citizens for his first-period policy choices is also preferred for his choices on commitment and second-period policies; in other

[7]The type of uncertainty described in Footnote 3 would only affect the policy choice by any given policymaker under the different realizations, not the identity of the candidate favoured by each voter after the realization.

words, the citizens face no tradeoff in elections between maximizing their first- and second-period utility.

The comparison between the equilibrium values of x_t and y_t $(t = 1, 2)$, under a two-period tenure system, with those that would occur with a one-period tenure system and two electoral calls, is generally ambiguous, and depends on the relevant equilibrium regime under repeated voting. It can be shown that the equilibrium value of x_t with a two-period tenure is larger in both periods than its equilibrium value with a one-period tenure in Regimes 1 and 2 of Proposition 3. If Regime 3 prevails, x_t is smaller in both periods. In all remaining cases, x_1 is the same while x_2 is larger under a two-period tenure system. The equilibrium value of y_t is smaller in both periods in Regimes 1 or 2, it is larger in Regime 3, is the same otherwise.

What we wish to focus on for the purposes of our argument is the comparison of the relative performance of the single- and two-period electoral systems. This comparison also depends on the relative weights of first- and second-period policy outcomes in the voters' intertemporal payoff:

Proposition 4 *When none of the sets of conditions in Proposition 3 holds, or if ρ is below a certain value $\underline{\rho}^*$, a majority of the citizens will favour a two-period tenure system. Otherwise a majority will favour a system where elections are held in each period.*

PROOF: The intertemporal utility of the median citizen in a two-period tenure equilibrium is equal to

$$\bar{z}' = \bar{s}_1(1/4) + \rho\bar{s}_2^*(1/4), \tag{37}$$

where $\bar{s}_2^*(1/4) = k^2/4 + k/2 - 1/8$ is the second-period utility that the median citizen obtains when a decisionmaker with $i = 1/4$ in the second period is constrained to set $x_2 \geq x_2^1 = 1/4 + k/2$. It is immediately evident that $\bar{z}'$ is always larger than $\bar{z}_B$, since $\bar{s}_2^*(1/4) > \bar{s}_2' = k/4 - 1/8$.[8] The comparison between $\bar{z}'$ and $\bar{z}_A$, $\bar{z}_C$ and $\bar{z}_D$ depends

[8] Intuitively, the difference between $\bar{z}'$ and $\bar{z}_B$ is that in the latter the decisionmaker in the second period is constrained to set x_2 at a value which is nearer to the preference of the median citizen, thereby also inducing a larger investment; and both effects increase the median citizen's second period utility.

instead on the value of ρ. Since $\bar{s}_1(i^o(\rho)) < \bar{s}_1(1/4)$ but $\bar{s}_2(i^o(\rho)) > \bar{s}_2^*(1/4)$, $\bar{z}'$ is larger than $\bar{z}_A$ if and only if

$$\rho < \frac{\bar{s}_1(1/4) - \bar{s}_1(i^o(\rho))}{\bar{s}_2(i^o(\rho)) - \bar{s}_2^*(1/4)}; \tag{38}$$

notice that, since the right-hand side is diminishing in ρ, there is a unique value $\underline{\rho}^*$ such that (38) is satisfied if and only if $\rho < \underline{\rho}^*$; in the same way, $\bar{z}'$ is larger than $\bar{z}_C$ if and only if

$$\rho < \frac{\bar{s}_1(1/4) - \bar{s}_1(\bar{i})}{\bar{s}_2(\bar{i}) - \bar{s}_2^*(1/4)}, \tag{39}$$

and $\bar{z}'$ is larger than $\bar{z}_D$ if and only if

$$\rho < \frac{\bar{s}_1(1/4) - \bar{s}_1(\underline{i})}{\bar{s}_2(\underline{i}) - \bar{s}_2^*(1/4)}, \tag{40}$$

given that $\bar{s}_1(\underline{i}) < \bar{s}_1(1/4)$ while $\bar{s}_2(\underline{i}) > \bar{s}_2^*(1/4)$ when $k < 1$. Q.E.D.

This result has interesting implications for the constitutional choice of the optimal time span between two successive elections. Arguments in support of less frequent elections include the need to encourage elected officials to adopt a long-term view of policy making by freeing them from the short-term pressures associated with frequent electoral campaigns—which in our framework translates into positive commitment choices by two-period tenured candidates.

Our previous analysis suggests that the comparative benefits of a longer tenure system depend on the preferences of the candidate that would be elected in the first-period elections in equilibrium under repeated voting; if this candidate is unwilling to constrain future policies, less frequent elections are preferred by most citizens because they induce the same candidate to impose beneficial constraints on second-period policies. Conversely, if this candidate is willing to commit and has preferences that are not too far from those of the majority, a majority will prefer more frequent elections, because they enable it to benefit from the actual removal of one policy dimension to maximize its preferences on the remaining policy dimensions in the future. The benefit from this opportunity increases, of course, with the relative weight of future utility in intertemporal preferences; which explains why frequent elections are preferred when the discount factor is comparatively high. If, on the other hand, the first-period elected candidate in equilibrium is willing to commit but has preferences that are rather distant from those of the majority (as in the case $\bar{s}_2(i^*) < \bar{s}'$), then the median citizen's intertemporal payoff under repeated voting is lower than the payoff that it would obtain if her ex-ante preferred candidate ($i^c = j^c = 1/4$) held office for two-terms. This candidate would not be chosen with frequent elections—because she would then choose not to constrain future policies—but is preferred with unfrequent elections because her tastes are nearer to those of the majority.

Thus, in a hypothetical initial constitutional round, a majority may support a single-period tenure system over a two-period tenure system, even if in this framework there is no uncertainty about the future conditions and hence no inherent advantage in flexibility. This is more likely to occur the weaker is the effect of commitment (i.e. for a small k) and the more weight individuals place on future policies.

Before concluding, some additional remarks are in order with respect to the role played by our assumptions on the space of available candidates. As previously noted, non-commitment could not be observed if the median citizen can stand as candidate. The commitment problem would also disappear if C included instead all citizens for whom $j \geq 3/2 - i$, corresponding to the top-right (or, equivalently, bottom-right) corner of the support. In this case C' includes all candidates with $j^c = 3/2 - i^c$. It is easy to show that the candidate with $i^c = 3/4$ would always set $x_2^1 = i^c + k/2$ and would be elected in both periods, irrespectively of the frequency of elections.[9]. The essential difference between this set of candidates and the set where $j^c \leq 1/2 - i^c$ lies

[9]Once x_2^1 has been set, all second-period candidates set $x_2 = \max\{x_2^1, i_2^c\}$ and $y_2 = 3/2 - j_2^c$, and the median citizen prefers, among them, a candidate $i_2^c = x_2^1$, $j_2^c = 3/2 - i_2^c$ if $x_2^1 \geq 3/4$, and a candidate i_2^c= $j_c = 3/4$ otherwise; in the first period, a policymaker $i_1^{2c} = j_1^{2c} = 3/4$ would thus be indifferent between setting $x_2^1 = 3/4 + k/2$—inducing the election in the second period of a candidate $i_2^c = 3/4 + k/2$ and second-period policy choices $x_2 = x_2^1$, $y_2 = 3/4 - k/2$—and setting $x_2^1 = 0$—inducing re-election in the second period but supporting a lower level of investment (in both cases, his second-period utility would be equal to $3k/4$). Assuming that, being indifferent, she would choose the option most preferred by the median citizen, this candidate would then choose the first alternative, and would thus be elected. Since this candidate would also maximize the first-period utility of the median citizen, no tradeoff would exist between first- and second-period utility and this candidate would be elected irrespectively of the length of tenure.

in the feature that the candidate whose preferences on y are nearest to those of the median voter is here the candidate whose preferences on x are strongest, rather than weakest, in the set; his policy choice is thus not constrained by a lower bound on x_2.

6 Summary and conclusion

In this paper, we have examined whether lack of commitment to future policy targets can be used to influence both the policy choice of future decisionmakers and the voting choice of the citizens who elect them. Our aim was to explain why credible means of commitment to specific future policy choices may not be adopted, even when commitment is feasible and could in principle be beneficial to all voters. In particular, we wanted to examine whether this failure to undertake commitment lies in some form of "political failure" inherent in the democratic mechanism that would discourage the decisionmakers elected in earlier periods to commit.

Our analysis does show that, under repeated elections—when commitment choices and the policy choices they constrain are made by independently elected decisionmakers —an incumbent decisionmaker may be unwilling to constrain future choices, even if commitment to a positive target is required to support her first-best second-period outcome. In our model, this occurs when the preferences of candidates differ from the preferences of the majority, so that a constraint on future policy enables the majority to benefit from the removal of one issue from the political agenda, and elect future decisionmakers whose preferences on the remaining issues are nearer to the majority's position.

But for this to occur in equilibrium several conditions must be simultaneously met: the median citizen must not be able to stand as candidate; commitment choices must be made by the same decisionmaker who selects current policies; the rate at which voters discount the future must be high enough. If any of these conditions are not met, imperfect commitment cannot be observed in equilibrium. There will be candidates who, if elected, would not commit, but they will not be elected.

The presence of strategic incentives to forgo commitment, however, can still affect the outcome even when commitment is observed. In order to achieve commitment on future policies, in equilibrium, voters may elect a first-period candidate whose preferences are further away from their own preferences than those of other candidates who would not commit; in particular, voters may resort to electing a candidate with a comparatively weak stance on the very policy dimension that requires positive commitment, because all other available candidates would choose not to commit.

While a longer tenure in office would induce all candidates to commit, removing the strategic incentives to condition future political choices, a shorter tenure enables the majority to take advantage of the removal of one policy issue from the political agenda and elect a candidate who is favoured on the other policy issue, and may therefore be preferred by a majority to a two-period tenure system. This, however, can only be the case if under repeated voting voters choose to elect a first-period candidate who is willing to commit.

Possible extensions to our model include examining flexible commitment mechanisms, whereby costly deviation from a target is possible, with the deviation cost being itself part of the commitment choice of first-period policymakers. Our analysis could also be extended to an infinite-horizon environment, where, in each period, policy choices are constrained by commitment choices made by policymakers in earlier periods, in order to study the long-term properties of political equilibria as well as the associated transitional dynamics. Finally, our analysis could be extended to incorporate a more realistic institutional setting, with a parliamentary system and plurality voting.

International Monetary Fund and Warwick University

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