Ideology and Endogenous Constitutions*

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Abstract. We study a legislature where decisions are made by playing an agenda-setting game. Legislators are concerned about their electoral prospects but they are also genuinely concerned for the legislature to make the correct decision. We show that when ideological polarization is positive but not too large (and the status quo is extremely inefficient), institutions in which the executive has either no constraints (autocracy) or many constraints (unanimity) are preferable to democracies that operate under an intermediate number of constraints (simple majority rule). When instead ideological polarization is large (and the status quo is only moderately inefficient), simple majority turns out to be preferable.

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KEYWORDS: Voting Rule, Position-Taking Preferences, Ideological Polarization, Strategic Interactions, Agenda-Setting Game.

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1. Introduction

Many studies on American politics have shown that legislators engage in “position-taking” activities: they sponsor bills, make speeches, and build roll-call voting records aligned with their constituents. It is commonly believed that many position-taking activities cannot be explained by only appealing to preferences for policy outcomes. For instance, it would be hard to explain why legislators sponsor bills that have no chance of passing, why they deliver floor speeches to an almost empty chamber, and why they carefully ponder their votes even when the final outcome is already clear. Then, citing Mayhew (1974, p. 51), it is tempting to draw the conclusion that “politicians often get rewarded for taking positions rather than achieving effects.”¹

In this paper, we assume that legislators have a double objective: they are genuinely concerned for the legislature to make the correct decision but they are also concerned about their electoral prospects. Motivated by the previous discussion, we assume that electoral prospects are a function of the legislator’s position in the voting game.²

We study a small legislature that must select a one-dimensional policy by playing an agenda-setting game. This paper considers a specific but, in our opinion, rather frequent situation. In our model, all legislators agree that a certain policy (which we normalize to zero) is optimal for the country as a whole. However, we also suppose that some legislators may suffer an electoral cost if they vote or sponsor a bill in favor of that policy. In particular, the legislator representing the right (resp. left) constituency suffers an electoral cost if he does not position himself to the right (resp. left) of zero. A key feature of our model is that the amount of this cost is private information. Throughout this paper, we refer to ideological polarization as the distance between the positions preferred by the left and right constituencies.

First, we compare equilibrium outcomes under simple majority rule and unanimity rule. We solve the game with incomplete information and show that legislators use cutoff voting rules: they accept a reform if the weight associated to electoral considerations is not too high.

¹Similarly, according to the “two-arenas” hypothesis by Fenno (1978), legislators operate in the legislative arena, where effectiveness in voting matters, and also in the electoral arena, where voters reward legislators for their position-taking as well as their effectiveness. See also Kingdon (1989) and Arnold (1990).

²Denzau, Riker and Shepsle (1985) were among the first to model the tension that arises when legislators’ preferences are defined over results but also over voting behavior.

Our findings show that position-taking preferences of the type we posit here create non-trivial strategic interactions in the voting game that takes place after the agenda setter makes her proposal. More specifically, we argue that under simple majority rule voting decisions are *strategic substitutes*: the perspective that the proposal is voted by other legislators lowers the incentive to vote for the same proposal. In equilibrium, a proposal that benefits all legislators may fail to pass with some probability because some legislators may benefit even more if that proposal is passed without their votes. As in a public-good game, free-riding problems make reforms less likely to occur. Under unanimity rule, we show instead that voting strategies are *strategic complements*. The perspective that a proposal is voted by the other legislators increases the incentive to vote for the same proposal. As in a stag-hunt game, status-quo bias under unanimity rule may arise from a coordination problem or, more specifically, from the fear that other members in the legislature may not vote in favor of the reform.

The extent of these strategic interactions crucially depends, among other things, on the degree of ideological polarization and on the location of the status quo. In particular, for any given level of ideological polarization, we show that an inefficient status-quo policy alleviates coordination problems that arise under unanimity rule and, as a result, moves upwards the cutoff levels that legislators use in equilibrium.

These considerations may then help explain why unanimous constitutions (prescribing power-sharing, proportionality and mutual vetoes in decision-making) have been proposed (and sometimes adopted) to promote stability in divided countries that find themselves in severe difficulties.³

Also, we show that the existence of strategic interactions affects the proposal that an agenda setter decides to put to a vote. For instance, we argue that under simple majority rule an agenda setter representing the moderate constituency may have an incentive to propose a biased policy to increase the chance that the reform is passed. To understand this, note that a proposal that is biased towards, say, the left-wing legislator is less likely to be accepted by the right-wing legislator. Because of strategic substitutability under simple majority rule, everything else being equal, this increases the probability that the left-wing legislator accepts

³See for instance Lijphart (1977, p. 28), who argues that “in a political system with clearly separate and potentially hostile population segments, virtually all decisions are perceived as entailing high stakes, and strict majority rule places a strain on the unity and peace of the system.”

the reform.

Next, we analyze the equilibrium outcome under autocracy —a constitutional system where the policy selected by one legislator does not need to be accepted by the others. Our findings show that autocracy is particularly undesirable when ideological polarization is high and when the initial status quo is not particularly inefficient.

Finally, in Section 8 we abandon the assumption that the probability of being recognized agenda setter is exogenously given. Instead, we suppose that legislators decide whether or not to run for the agenda setter's position. We argue that the three constitutions analyzed here provide differential incentives to run for office. In particular, legislators representing voters at the extremes of the policy spectrum have stronger incentives to become agenda setter under more stringent majority requirements. Since reforms proposed by those legislators are more likely to be biased, we believe that constitutional designers should take these considerations into account.

This paper is organized as follows. In Section 2 we briefly review the related literature. In Section 3 we set up the model. We then proceed to study policy decisions. Section 4 studies voting decisions under simple majority and unanimity rule while Section 5 discusses equilibrium proposals. Section 6 studies policy choices under autocracy. In Section 7 we compare welfare under different constitutions. In Section 8 we consider an extension where we endogeneize the probability of being recognized agenda setter. Section 9 concludes. For ease of exposition, all proofs are in the Appendix

2. Review of the Literature

A very large literature investigates which voting rule a society should adopt to make collective decisions. According to Wicksell (1896), unanimity rule is desirable since it avoids the possibility that the government can reduce an individual below his status quo utility. Buchanan and Tullock (1962) argue that choosing the optimal majority rule involves a trade-off between the costs of expropriation, which decrease in the number of individuals whose agreement is required to make decisions, and some decision-time costs, which increase with the majority rule. Rae (1969) studies the choice of a voting rule by a group of individuals who are uncertain on whether or not they will gain or loose from a future collective decision and finds that simple majority rule is optimal since it maximizes total ex-ante utility. In a public good provision model, Aghion and Bolton (2004) show that on the one hand a low

majority rule provides higher ex-post flexibility (hence, more efficient public good provision), but on the other it provides little protection from expropriation.

In a related paper, Aghion, Alesina, and Trebbi (2004) study the problem of choosing at the constitutional stage (when individuals are ex-ante identical) the optimal size of the super-majority that is needed to pass legislation.⁴ Of particular interest for this paper is their analysis of how the optimal majority rule depends on the degree of polarization of preferences. In their model, a polarized society is a society in which the distribution of the individuals' ex-post gains and losses from legislation has a thick lower tail. Proposition 3 in their paper shows that for a sufficiently large degree of risk aversion, more polarization increases the optimal share of votes needed by the executive to pass a policy change since more checks and balances lower the risk of being, ex post, unsatisfied with the new legislation.⁵

A key contribution that is close to us is Alesina and Drazen (1991), who study a war-of-attrition model in which two policy makers must agree on a reform plan. In their model, each policy maker has an incentive to "wait-and-see", in the hope that the other policy maker will concede before him and will accept to bear a larger share of the adjustment burden. As a result, in general reforms are inefficiently delayed. A clear implication of the war-of-attrition model is that in a democracy where the executive faces few checks and balances, reforms would occur earlier since it would be costly for the opposition to veto the reform plan. Indeed, as shown by Spolaore (2004), when the executive has no constraints, reforms occur too often (that is, even when they are not socially optimal) and the costs of the reform are unevenly distributed. Their models are however very different from ours along various dimensions. For example, instead of considering a concession game we study here a legislative bargaining process over a one-dimensional policy.

Finally, this paper is related to the literature on legislative decision making with position-taking preferences. According to Denzau, Riker and Shepsle (1985), these preferences may help explain why in some cases legislators vote sincerely when a sophisticated vote, which is more difficult to explain to home constituents, would better promote the interests of their electorate.⁶ Several papers adopt position-taking preferences in models of interest group

⁴The authors abstract from the issue of self-stability of the voting rule, which is discussed in Barbera and Jackson (2004), Messner and Polborn (2004), and Maggi and Morelli (2006)

⁵See however Harstad (2004) who considers a model where the optimal majority rule is instead decreasing in ex-post heterogeneity of preferences.

⁶See also Groseclose and Milyo (2001).

politics. Among others, we mention Snyder (1991), Groseclose and Snyder (1996), Diermeier and Myerson (1999), and Seidmann (2007). In the context of a model of influence, Snyder and Ting (2005) and Dal Bó (2006) develop a rationale for position taking in legislatures. Specifically, they show that voters may want to condition their reelection decisions on legislators' roll-call votes in order to prevent interest groups from dominating the legislative process. Finally, Levy (2007, Section 6.2) considers a specific channel that may induce position-taking preferences on legislators. In her model, the voting behavior of a committee member is informative about his competence. Members that care about policy outcomes but also about their reputation may then face a non-trivial voting choice because the best decision in terms of policy outcomes often does not coincide with the one that maximizes reputational considerations.⁷

3. The Model

A three-person legislature $N = \{l, c, r\}$ has to select a one-dimensional policy x in the continuous interval $X \subset R$. The indexes l, c , and r stand for the legislator who represents the left, center, and right-leaning constituency, respectively.⁸

We suppose that x is decided after playing an agenda-setting game under closed rule.⁹ The details of the voting game will be described in Section 3.2. Let $q \in X$ denote the status-quo alternative.

3.1. Preferences

Concerning preferences, we assume here that legislators have a double objective. In particular, the utility of each policy maker $i \in N$ is given by

$$u_i(p_i, x) = -\frac{1}{2}|x| - \theta_i |p_i - i|. \quad (1)$$

The first term in (1) depends on x , the policy that is implemented in the economy. The second term is less standard and reflects electoral considerations on the part of legislators.¹⁰

⁷A similar trade-off is analyzed by Austen-Smith (1992), where voting behavior is a signal about legislators' preferences.

⁸For simplicity, we focus on a three-person committee. This is the smallest committee size for which we can obtain interesting results in terms of voting rules.

⁹The seminal reference is Romer and Rosenthal (1978).

¹⁰See Section 2 for a brief review of the literature on position-taking in legislatures.

More specifically, it depends on the position p_i taken by legislator i in the voting game, where p_i also takes values in X . In order to maximize the second term p_i should be set equal to i . Note that the index i denotes the legislator but also the policy that minimizes the legislator's position cost.

To streamline the analysis, we assume that $c = 0$ and that l and r are symmetrically on opposite sides of zero.¹¹ That is,

$$l < 0 < r \quad \text{and} \quad r = -l. \quad (2)$$

Moreover, in order to make the model as transparent as possible it is also assumed that the first term in (1) is the same for all legislators: that is, all legislators agree that the correct policy decision for the economy at large is $x = 0$. Then, disagreement among legislators arises because of electoral considerations.¹²

We now describe how positions are determined. In our model, committee members are either constrained or unconstrained in choosing their positions. We let x^j denote the proposal made by the recognized agenda setter j , where $j \in N$. If j proposes x^j , p_j is automatically set equal to x^j . For legislators other than the agenda setter, positions are related to voting decisions. In particular, if $i \in N \setminus \{j\}$ votes in favor of x^j , we assume that $p_i = x^j$. If instead he rejects proposal x^j , legislator i is free to choose his preferred position. In this case, it is immediate to see that legislator i will choose p_i equal to i . Throughout, we assume that the voting records and the identity of the agenda setter are publicly known.

The relative weight of electoral considerations versus policy considerations is measured by $\theta_i \in [0, 1]$. Hereafter, we assume that it is commonly known that legislator c does not suffer a position cost and, consequently, that $\theta_c = 0$. Conversely, we assume that there is uncertainty about the specific values of θ_l and θ_r . Each player knows his own θ_i before playing the agenda-setting game. This information is private. However, it is common knowledge that θ_l and θ_r are drawn independently and take values in the interval $[0, 1]$ with cumulative

¹¹In a previous draft of this paper, we analyzed the case in which condition (2) does not hold. When the positions that minimize the second term of (1) are on the same side of zero, the main intuition behind our results remain unchanged.

¹²The main thrust of our results would survive if we assume some disagreement on policy outcomes.

distribution function $F(\cdot)$. For $i = l, r$ we assume

$$F(\theta_i) = \begin{cases} \gamma & \text{if } \theta_i = 0, \\ \gamma + (1 - \gamma)\theta_i & \text{if } 0 < \theta_i \leq 1, \end{cases} \quad (3)$$

with $\gamma \in (0, 1)$. That is, the density function has a positive mass at zero. Thereafter, density is uniformly distributed.

Throughout this paper, we will often refer to l and r as the *ideological legislators*. Knowing the values of r and l , we define the following measure of *ideological polarization*:

$$\iota \equiv r - l > 0. \quad (4)$$

3.2. Agenda-setting Game

Each legislator has a probability $\rho_i \in (0, 1)$ of being recognized. As in most of the literature on legislative bargaining, these probabilities are assumed to be exogenous.¹³ After the identity of the agenda setter is known, policy x is chosen through a one-session agenda-setting game. The legislative process is under closed rule.¹⁴

The number of constraints that the agenda setter (she) faces is specified in the constitution (denoted $\mathcal{C}$). More specifically, under *autocracy* (denoted $\mathcal{A}$) the proposal of the agenda setter does not need to be approved. Under *simple majority rule* (denoted $\mathcal{M}$) the agenda setter needs at least one “yea” vote to pass her proposal. Finally, under *unanimity rule* (denoted $\mathcal{U}$) two “yea” votes are necessary. We now summarize in details the timing.

Timing of Events

(1) Nature selects the agenda setter from N according to some exogenous recognition probabilities.

(2) Legislators l and r privately observe their types θ_l and θ_r , respectively.

¹³See for instance the seminal paper by Baron and Ferejohn (1989). An exception is Yildirim (2007). In Section 8, we consider an extension where the recognition probabilities are endogenously determined.

¹⁴In other terms, the agenda setter makes a take-it-or-leave-it proposal. This assumption, which is often made in the legislative bargaining literature, is a way of capturing the idea that in practice there exist institutional features that allow some legislators to control the agenda. For a discussion, see Huber (1996), Baron (1998), and Diermeier and Feddersen (1998).

- (3) *The recognized agenda setter makes a take-it-or-leave-it proposal. After observing her proposal, the other legislators simultaneously cast their votes.*
- (4) *The proposal is implemented if it obtains the minimum number of votes specified in the constitution. Otherwise, the status quo is kept in place, $x = q$.*
- (5) *After the agenda-setting game, positions are determined.*

These stages are analyzed in reverse order. Solving the optimal strategies in the final stage, which defines the legislator's position, is immediate. We need to distinguish two cases. If legislator i has not accepted or made a proposal, he optimally chooses $p_i = i$. If instead he has cast a "yea" vote, p_i must coincide with the proposal.

Moving backwards, the agenda-setting game includes two stages: the proposal stage and the voting game. A strategy for the recognized agenda setter $i \in N$ under constitution $\mathcal{C}$ specifies a proposal $x_{\mathcal{C}}^i(\theta_i) \in X$ for each type $\theta_i \in [0, 1]$. If the constitution is either simple majority or unanimity rule, the proposal of the agenda setter is subsequently voted on by the legislature. Given a proposal, a strategy for a voting legislator specifies an action $s_{\mathcal{C}}^i(\theta_i) \in \{Yea, Nay\}$ for each type $\theta_i \in [0, 1]$. A Bayesian Nash equilibrium in the voting game is a pair of strategies for the two voting legislators such that for each voting player and every possible value of θ_i the voting decision is a (weakly undominated) best response to the other's voting decisions.¹⁵ Given an equilibrium in the voting stage, the agenda setter selects the proposal that maximizes her expected payoff. An equilibrium in the agenda-setting game under constitution $\mathcal{C}$ is then given by $\sigma_{\mathcal{C}}^* = [\mathbf{x}_{\mathcal{C}}^*, \mathbf{s}_{\mathcal{C}}^*]$, where $\mathbf{x}_{\mathcal{C}}^*$ denotes the equilibrium proposal for each possible agenda setter and every possible value of θ_i , while $\mathbf{s}_{\mathcal{C}}^*$ denotes the equilibrium voting strategies for all possible pairs of members in the legislature and every possible type.

4. Equilibrium Voting Strategies

In order to analyze the equilibrium outcomes under simple majority and unanimity rule, it is key to understand how legislators vote.

In this paper we do *not* require legislators to vote as if they were pivotal. Nevertheless, it is instructive to see how a legislator i of type θ_i would vote if he were using a pivotal voting

¹⁵Ruling out the use of weakly dominated voting strategies is standard in the voting literature

rule. It is immediate that he would accept proposal x^j if his type satisfies

$$-\frac{1}{2}|x^j| - \theta_i|x^j - i| \geq -\frac{1}{2}|q|. \quad (5)$$

That is, the utility of implementing x^j and taking position $p_i = x^j$ must be greater than the utility of maintaining the status quo and choosing $p_i = i$. In equivalent terms, one can write (5) as

$$\theta_i \leq \frac{|q| - |x^j|}{2|x^j - i|}. \quad (6)$$

As discussed in Section 3.2, in this paper we require instead that each member's vote must be a (weakly undominated) best response to the expected strategy of the other voting legislator.

As we will see, Bayesian Nash equilibria in the voting game will have the "cutoff property": that is, a legislator accepts a proposal if his type (the weight of electoral considerations) is below a certain cutoff point and rejects otherwise. In general the equilibrium threshold will turn out to be lower (hence, more demanding) than in condition (6). To understand this, note that in our setting a vote matters for economic outcomes only when the legislator is pivotal, but it matters for electoral considerations in any event. As a result, the effective importance of policy considerations (relatively to electoral ones) is weakened.

Section 5.1 studies equilibrium voting rules under unanimity rule. Section 5.2 studies equilibrium voting rules under simple majority rule.

4.1. Unanimity Rule

Under unanimity rule, the agenda setter needs to obtain two "yea" votes to pass her proposal. In this subsection, we first suppose that the recognized agenda setter is c and study the voting strategies of l and r . Subsequently, we study the case in which the recognized agenda setter is either l or r .

Suppose that c is the recognized agenda setter and let $x_{\mathcal{U}}^c$ denote her proposal. Recalling that $\theta_c = 0$, notice first that member c does not find it profitable to propose a policy that is more inefficient than q . Therefore, we restrict $x_{\mathcal{U}}^c$ to be such that $|q| > |x_{\mathcal{U}}^c|$. Fix any such $x_{\mathcal{U}}^c$. The following two-by-two matrix illustrates the payoffs to l (the row player) and r (the column player) under unanimity rule:

	<i>Yea</i>	<i>Nay</i>
<i>Yea</i>	$-\frac{1}{2} x_{\mathcal{U}}^c - \theta_l x_{\mathcal{U}}^c - l , -\frac{1}{2} x_{\mathcal{U}}^c - \theta_r x_{\mathcal{U}}^c - r $	$-\frac{1}{2} q - \theta_l x^c - l , -\frac{1}{2} q $
<i>Nay</i>	$-\frac{1}{2} q , -\frac{1}{2} q - \theta_r x_{\mathcal{U}}^c - r $	$-\frac{1}{2} q , -\frac{1}{2} q $

Note that in writing the payoffs after a “nay” vote we have implicitly assumed that the legislator optimally selects his position in the final stage.

We now solve the game with incomplete information. Suppose that legislator i , with $i \in \{l, r\}$, is of type θ_i and believes that the other ideological legislator, denoted by $-i$, will use a cutoff strategy with cutoff $\bar{\theta}_{-i} \in [0, 1]$. That is, suppose that i expects that $-i$ will vote for proposal $x_{\mathcal{U}}^c$ if θ_{-i} is weakly smaller than $\bar{\theta}_{-i}$ and reject otherwise. From (3) it is immediate that the expected probability that $-i$ accepts is given by $\gamma + (1 - \gamma)\bar{\theta}_{-i}$.

We can then compute the net gain for an ideological legislator of type θ_i from accepting proposal $x_{\mathcal{U}}^c$. This is given by

$$NB(\theta_i, \bar{\theta}_{-i}, x_{\mathcal{U}}^c) = -\theta_i|x_{\mathcal{U}}^c - i| - \frac{1}{2}|x_{\mathcal{U}}^c|(\gamma + (1 - \gamma)\bar{\theta}_{-i}) - \frac{1}{2}|q|(1 - \gamma - (1 - \gamma)\bar{\theta}_{-i}) + \frac{1}{2}|q|. \quad (7)$$

The first three terms in (7) constitute the expected payoff from accepting $x_{\mathcal{U}}^c$. Note that this payoff is not certain under unanimity rule because $x_{\mathcal{U}}^c$ passes only if it is accepted by the other legislator. The last term of (7) is minus the (sure) payoff from rejecting, keeping the status quo and pandering to voters. We can rewrite (7) as

$$NB(\theta_i, \bar{\theta}_{-i}, x_{\mathcal{U}}^c) = -\theta_i|x_{\mathcal{U}}^c - i| + \frac{1}{2}(|q| - |x_{\mathcal{U}}^c|)(\gamma + (1 - \gamma)\bar{\theta}_{-i}). \quad (8)$$

Legislator i accepts (resp. rejects) $x_{\mathcal{U}}^c$ if the expression in (8) is positive (resp. negative). If the net gain is zero, member i is indifferent between accepting and rejecting.

Recalling that $|q| - |x_{\mathcal{U}}^c| > 0$, note that under unanimity rule the net benefit from accepting is increasing in the expected probability that the other legislator has cast a “yea” vote. In other terms, the voting decisions of l and r are strategic complements. Note that under unanimity rule a legislator may accept less frequently than under the pivotal voting rule described in (6). This occurs because each legislator entertains the possibility that the other legislator may reject the proposal.

From (8) also note that $NB(\theta_i, \bar{\theta}_{-i}, x_{\mathcal{U}}^c)$ is decreasing θ_i . Then, the best response to a cutoff

strategy of member $-i$ is to also use a cutoff strategy with cutoff point $\bar{\theta}_i(\bar{\theta}_{-i})$. The cutoff of member i is found as the solution to the equation $NB(\theta_i, \bar{\theta}_{-i}, x_{\mathcal{U}}^c) = 0$. If $NB(\theta_i, \bar{\theta}_{-i}, x_{\mathcal{U}}^c) > 0$ for every θ_i , we set $\bar{\theta}_i(\bar{\theta}_{-i}) = 1$. Hence we obtain

$$\bar{\theta}_i(\bar{\theta}_{-i}) = \min \left\{ \frac{(\gamma + (1 - \gamma)\bar{\theta}_{-i})(|q| - |x_{\mathcal{U}}^c|)}{2|x_{\mathcal{U}}^c - i|}, 1 \right\}. \quad (9)$$

Equation (9) is the best-response function of member i . Note that intercept (at $\bar{\theta}_{-i} = 0$) and the slope of the best-response function are both strictly positive. This is a consequence of the assumption that $\gamma \in (0, 1)$ and of the fact that equilibrium proposals by c are such that $|q| - |x_{\mathcal{U}}^c| > 0$. To obtain the cutoff equilibrium we find the intersection of $\bar{\theta}_i(\bar{\theta}_{-i})$ and $\bar{\theta}_{-i}(\bar{\theta}_i)$.

As is well known, multiple equilibria are common in games with strategic interactions. It is immediate, however, to verify that our setting generates a *unique* equilibrium in cutoff strategies under unanimity rule.¹⁶ We let $\theta_{i,\mathcal{U}}^*$ denote the equilibrium voting cutoff of member i under unanimity rule.

The equilibrium cutoff for both voting legislators is at the interior of the interval $[0, 1]$ when

$$\frac{|q| - |x_{\mathcal{U}}^c|}{2|x_{\mathcal{U}}^c - i|} < 1, \quad (10)$$

holds for every $i \in \{l, r\}$. Note that the left-hand side of (10) is the value of the best-response curve at $\bar{\theta}_{-i} = 1$.

When instead

$$\frac{|q| - |x_{\mathcal{U}}^c|}{2|x_{\mathcal{U}}^c - i|} \geq 1, \quad (11)$$

for every $i \in \{l, r\}$, we have that $\theta_{i,\mathcal{U}}^* = \theta_{r,\mathcal{U}}^* = 1$ and proposal $x_{\mathcal{U}}^c$ passes with probability one.

Figures 1-2 draw the best-response functions of members i (in red) and $-i$ (in black) after proposal $x_{\mathcal{U}}^c = 0$.¹⁷ Figure 1 illustrates an interior equilibrium, while Figure 2 illustrates a corner equilibrium.¹⁸ It is important to note that inequality (11) is more likely to be

¹⁶On this point, see Baliga and Sjöström (2009), who analyze uniqueness of equilibria in games of conflict with payoff uncertainty under a more general information structure than the one analyzed here. See also Vives (2001)

¹⁷Recalling that $r = -l$, it is immediate that the cutoff-equilibrium when $x_{\mathcal{U}}^c = 0$ lies on the 45 degree line. This would not be true if $x_{\mathcal{U}}^c \neq 0$.

¹⁸In both figures, the equilibrium is denoted by E . Note that Figures 1-2 do not exhaust all possibilities: when $x_{\mathcal{U}}^c \neq 0$ one can have an equilibrium where the cutoff level is equal to 1 for a legislator and strictly

satisfied for both legislators when the initial status quo is inefficient, ideological polarization is low and the proposal is centered. The underlying intuition is that under such parameter configurations the other legislator is expected to likely accept. Since under unanimity rule voting decisions are strategic complement, this initiates a virtuous circle that leads to the approval of a reform with high probability.

When instead inequality (10) is satisfied for both legislators, the equilibrium is interior and, consequently, with some probability the reform does not pass.

It is important to stress the role of the assumption that $\gamma \in (0, 1)$. If we assumed $\gamma = 0$, uniqueness would not always be guaranteed. Moreover, it would not be possible to rule out a “no-trust” equilibrium where proposal $x_{\mathcal{U}}^c$ is never accepted.¹⁹

Finally, we proceed to study the case in which the recognized agenda setter is either l or r . Let $x_{\mathcal{U}}^j$ denote the proposal of an ideological legislator $j \in \{l, r\}$. Under unanimity rule, $x_{\mathcal{U}}^j$ must be approved by c and by either l (if the agenda setter is r) or r (if the agenda setter is l). Finding out the voting strategy by c is straightforward. Since we assume that legislators do not use weakly dominated strategies, it is not hard to see that legislator c accepts any proposal that (weakly) improves upon the status quo. Since the voting strategy of c is pinned down, it becomes immediate to find out the strategy of the other ideological legislator. We need to distinguish two cases: $|q| \geq |x_{\mathcal{U}}^j|$ and $|q| < |x_{\mathcal{U}}^j|$. Consider first $|q| \geq |x_{\mathcal{U}}^j|$. Since member c is expected to accept, the ideological voting legislator i uses a pivotal voting rule and, consequently, accepts if his type θ_i satisfies condition (6). When instead $|q| < |x_{\mathcal{U}}^j|$, it is immediate that the proposal obtains two “nay” votes.

4.2. Simple Majority Rule

Under simple majority rule, the agenda setter needs to obtain at least one “yea” vote to pass her proposal. In this subsection, we first suppose that the recognized agenda setter is c and study the voting strategies of l and r . Subsequently, we study the case in which the recognized agenda setter is either l or r .

Suppose that c is the recognized agenda setter and let $x_{\mathcal{M}}^c$ denote her proposal. As we

lower than one for the other.

¹⁹Note, in fact, that a sort of *multiplier effect* takes place when it is assumed that $\gamma > 0$. A small probability that the other legislator accepts has a more than proportionate effect on the equilibrium probability of acceptance. As a result of this, the inefficient outcome in which reforms are never accepted is ruled out.

discussed in Subsection 4.1, fix any $x_{\mathcal{M}}^c$ such that $|q| - |x_{\mathcal{M}}^c| > 0$. The following two-by-two matrix illustrates the payoffs to l (the row player) and r (the column player) under simple majority rule:

	<i>Yea</i>	<i>Nay</i>
<i>Yea</i>	$-\frac{1}{2} x_{\mathcal{M}}^c - \theta_l x_{\mathcal{M}}^c - l , -\frac{1}{2} x_{\mathcal{M}}^c - \theta_r x_{\mathcal{M}}^c - r $	$-\frac{1}{2} x_{\mathcal{M}}^c - \theta_l x_{\mathcal{M}}^c - l , -\frac{1}{2} x_{\mathcal{M}}^c $
<i>Nay</i>	$-\frac{1}{2} x_{\mathcal{M}}^c , -\frac{1}{2} x_{\mathcal{M}}^c - \theta_r x_{\mathcal{M}}^c - r $	$-\frac{1}{2} q , -\frac{1}{2} q $

We now solve the game of incomplete information. Suppose that legislator i , with $i \in \{l, r\}$, is of type θ_i and believes that the other ideological legislator, denoted by $-i$, will use a cutoff strategy with cutoff point $\bar{\theta}_{-i} \in [0, 1]$. The net gain for an ideological legislator of type θ_i from accepting proposal $x_{\mathcal{M}}^c$ is given by

$$NB(\theta_i, \bar{\theta}_{-i}, x_{\mathcal{M}}^c) = -\theta_i|x_{\mathcal{M}}^c - i| - \frac{1}{2}|x_{\mathcal{M}}^c| + \frac{1}{2}|x_{\mathcal{M}}^c|(\gamma + (1 - \gamma)\bar{\theta}_{-i}) + \frac{1}{2}|q|(1 - \gamma - (1 - \gamma)\bar{\theta}_{-i}). \quad (12)$$

The first two terms of expression (12) constitute the sure payoff from accepting $x_{\mathcal{M}}^c$, while the last two terms are equal to minus the expected payoff from rejecting proposal $x_{\mathcal{M}}^c$. The latter payoff is not certain because under simple majority rule the proposal may still pass if the other legislator accepts it. Expression (12) can also be written as

$$NB(\theta_i, \bar{\theta}_{-i}, x_{\mathcal{M}}^c) = -\theta_i|x_{\mathcal{M}}^c - i| + \frac{1}{2}(|q| - |x_{\mathcal{M}}^c|)(1 - \gamma - (1 - \gamma)\bar{\theta}_{-i}). \quad (13)$$

Recalling that $|q| - |x_{\mathcal{M}}^c| > 0$, notice from (13) that under simple majority rule the net benefit from accepting is decreasing in the expected probability that the other legislator has cast a “yea” vote. In other terms, the voting decisions of the two legislators are strategic substitutes.

Also, note from (13) that $NB(\theta_i, \bar{\theta}_{-i}, x_{\mathcal{M}}^c)$ is decreasing in θ_i . Then the best response to a cutoff strategy is to also use a cutoff strategy. Similarly to what we did in the previous subsection, we find the best-response function of legislator i

$$\bar{\theta}_i(\bar{\theta}_{-i}) = \min \left\{ \frac{(1 - \gamma - (1 - \gamma)\bar{\theta}_{-i})(|q| - |x_{\mathcal{M}}^c|)}{2|x_{\mathcal{M}}^c - i|}, 1 \right\}. \quad (14)$$

Knowing that $|q| - |x_{\mathcal{M}}^c| > 0$ and that $\gamma \in (0, 1)$, it is immediate to see that the intercept

of the best response is positive, that its slope is negative and that $\bar{\theta}_i(1) = 0$.

While existence remains straightforward, under simple majority rule uniqueness of an equilibrium in cutoff strategies is not guaranteed in general.

A sufficient condition for a unique equilibrium is that for every $i \in \{l, r\}$

$$(1 - \gamma) \frac{|q| - |x_{\mathcal{M}}^c|}{2|x_{\mathcal{M}}^c - i|} < 1, \quad (15)$$

where the left-hand side of (15) is the intercept of the best-response curve of member i at $\bar{\theta}_{-i} = 0$. It can be easily verified that in this case the slopes of the two best-response functions are less than one in absolute value. It is well known that this guarantees that the two best response curves intersect only once.²⁰ Moreover, the cutoff equilibrium is interior. This implies that with strictly positive probability proposal $x_{\mathcal{M}}^c$ is rejected. This case is illustrated in Figure 3.²¹

Note that inequality (15) is more likely to be satisfied when γ is sufficiently large. Intuitively, the perspective that the other legislator may vote for $x_{\mathcal{M}}^c$ provides weak incentives to also accept the proposal.

Figure 4 illustrates the case in which inequality (15) does *not* hold for *both* legislators. Similarly to what occurs in a game of chicken under complete information, after receiving proposal $x_{\mathcal{M}}^c$ we have multiple Nash equilibria. In particular, there are corner cutoff equilibria (denoted E_2 and E_3) in which the cutoff level of one legislator is zero, while the cutoff of the other is one. In this case, the proposal is passed for sure. However, there is also an interior equilibrium (denoted E_1) in which the proposal is sometimes rejected.²²

Finally, we can now proceed to study the case in which the recognized agenda setter is either l or r . Let $x_{\mathcal{M}}^j$ denote the proposal by an ideological legislator $j \in \{l, r\}$. It is not hard to see that the equilibrium in the voting game after proposal $x_{\mathcal{M}}^j$ is unique. More specifically, proposals $x_{\mathcal{M}}^j$ such that $|q| - |x_{\mathcal{M}}^j| < 0$ are rejected by both legislators, while proposals such

²⁰See for instance Vives (2001).

²¹For ease of exposition, as in previous graphs, Figure 3 illustrates the best-response curves in the symmetric case (when $x_{\mathcal{M}}^c = 0$).

²²Note that the probability of rejection remains above zero even when the status quo is extremely inefficient. In a model of legislative bargaining with standard preferences, this is usually not the case. For instance, Battaglini and Coate (2008) argue that in extreme circumstances all legislators vote for a policy that maximizes the collective good.

that $|q| - |x_{\mathcal{M}}^j| \geq 0$ pass for sure because they are accepted by member c .

5. Equilibrium Proposals

So far, we have solved for the voting decisions under unanimity and simple-majority rules after a given policy proposal. Proceeding backwards, we tackle the proposal stage.

A complete characterization of the equilibrium proposal strategy for every parameter value is more involved and beyond the scope of this paper. Nevertheless, we are able to determine regions of parameters (identified in Propositions 1-2 below) where equilibrium proposals can be solved for. This will allow us to compare constitutions and provide a set of meaningful conditions under which one voting rule dominates the other.

In this section, we briefly discuss the considerations that impact the choice of the optimal proposal. To begin with, suppose that c is the recognized agenda setter. First, note that under simple majority rule member c may have an incentive to propose a biased policy to increase the probability that the reform is passed. Figure 5-6 illustrate this point by comparing the cutoff equilibria when c proposes policy zero and when she proposes a policy biased towards legislator l . In Figure 5 we selected a configuration of parameters (namely, γ , ι and q) where policy zero is rejected with some probability. In Figure 6, we draw the two-best response curves for the same set of parameters as in Figure 5 but we assume that the proposal is to the left of zero. Looking at Figure 6, note that this biased proposal has tilted the two best-response so as to move the equilibrium to a corner where member l accepts with probability one.²³ The intuition for this result is that a policy to the left of zero is less likely to be accepted by the right-wing legislator. Because of strategic substitutability under simple majority rule, this may dramatically increase the likelihood that l accepts the reform.²⁴

Under unanimity rule instead, we find that member c proposes policies in the middle of the policy space in order to sustain the mutual trust that the proposal will voted by all legislators. The fact that acceptance decisions are strategic complements under unanimity rule is the key element that explains this result.

²³ In Figures 5-6, we set $\gamma = 0.2$, $q = 2$, $l = -1$ and $r = 1$. When policy zero is proposed by c , the intercept of both reaction functions is 0.8 and with positive probability policy zero is rejected (see Figure 5). It is possible to show that proposal $-0.\bar{3}$ would shift the intercept of l 's (resp. r 's) best-response up to 1 (resp. down to $\simeq 0.5$). As shown in Figure 6, policy $-0.\bar{3}$ would be accepted for sure by l .

²⁴Note that this jump in the probability of acceptance is peculiar to our setting and would not occur in a standard agenda-setting model where legislators use pivotal voting rules.

Finally, concerning the proposal strategies of the ideological legislators, we obtain that when ι is high and $|q|$ is low, members l and r may choose to propose a policy that panders to their voters and that is sure to be rejected so as to keep the status quo.

6. Autocracy

We now find the policy decision of an autocrat. Recall that an autocrat cannot be blocked by the legislature. Then he picks x to maximize (1) subject to the constraint that his choice automatically determines his position p^i . It is immediate to determine policy choices under autocracy:

$$x_{\mathcal{A}}^{*i} = \begin{cases} i, & \text{if } \theta_i > \frac{1}{2}, \\ 0, & \text{if } \theta_i \leq \frac{1}{2}. \end{cases} \quad (16)$$

Notice from (16) that the autocrat's choice does not depend on q . As a result, the economy may implement a policy that is a more inefficient than the initial condition.²⁵

7. Welfare Comparison

We can now proceed to compare the equilibrium outcomes under the three constitutions analyzed before.

In this paper, we adopt the following welfare criterion: we judge a voting rule by its capacity to pass reforms that bring the policy outcome close to zero. This criterion can be justified in two ways. One possibility is to suppose that policy zero is indeed optimal for the economy and that this is known to legislators. The disagreement of (at least some) voters would then arise from asymmetric information or from ideological bias and prejudices that induce voters to believe that the solution for the issue at hand is the usual (and dogmatic) one.²⁶ A second justification would be to invoke the fact that zero is the policy that maximizes the *ex-ante* utility of a voter who is in an initial situation where he does not know his

²⁵ Interestingly, note that an autocrat may prefer to be an agenda setter under simple majority (or unanimity) rule because he would have the possibility to propose a policy that is not accepted, put the blame on the legislature, and keep the status quo. In other terms, as in the general theory of the second best further constraints can sometimes be welfare improving.

²⁶ The possibility that asymmetric information may induce position-taking preferences has been explored by Austen-Smith (1992). In a model where voters do not know the politicians' preferences and also do not know the exact policy that maximizes their utility, a politician may not vote in favor of a moderate policy out of the fear of being misidentified as a legislator with moderate preferences.

future identity and has probability equal to $1/3$ of being characterized by the utility function $u_i = -|x - i|$, with $i = l, c, r$.

More formally, let an equilibrium $\sigma_C^* = [\mathbf{x}_C^*, \mathbf{s}_C^*]$ under constitution $\mathcal{C}$ be given and let $\theta \in [0, 1]^2 \times \{0\}$ denote a realization of types for all three members.²⁷ Suppose that $i \in N$ is the recognized agenda setter. For any given θ , the strategy profile σ_C^* gives us the proposal of the agenda setter, $x_C^{*i}(\theta_i)$, and allows us to compute the probability, denoted by $\chi(x_C^{*i}, \mathbf{s}_C^*, \theta)$, that $x_C^{*i}(\theta_i)$ is accepted. Then, expected welfare under constitution $\mathcal{C}$ conditional on i being the recognized agenda setter is given by

$$W_C^i(\iota, q, \gamma, \sigma_C^*) = E_\theta [\chi(x_C^{*i}, \mathbf{s}_C^*, \theta)(-|x_C^{*i}(\theta_i)|) + (1 - \chi(x_C^{*i}, \mathbf{s}_C^*, \theta))(-|q|)]. \quad (17)$$

Using the exogenous recognition probabilities, expected welfare under constitution $\mathcal{C}$ is

$$W_C(\iota, q, \gamma, \sigma_C^*) = \sum_{i \in N} \rho_i W_C^i(\iota, q, \gamma, \sigma_C^*). \quad (18)$$

In what follows, recalling that under autocracy and unanimity rule the equilibrium is unique, we simplify the notation by dropping σ_A^* and σ_U^* . Instead, knowing that under simple majority rule uniqueness is not guaranteed for all parameter values, we keep the index σ_M^* to refer to a particular equilibrium under simple majority rule.

Using (2), (3), (4) and (16), maximized expected welfare under autocracy can be easily computed:

$$W_A(\iota, q, \gamma) = -(1 - \rho_c) \left(1 - \gamma - \frac{1}{2}(1 - \gamma) \right) \frac{\iota}{2}. \quad (19)$$

Finding maximized welfare under simple majority and unanimity rule would require a complete characterization of the equilibrium proposals under both constitutions, which is more involved. We are nevertheless able to identify regions of parameters where welfare comparisons can be obtained.

For instance, it is not hard to see that autocracy is the least preferable constitution in a region of parameters characterized by high values of ι and low values of $|q|$. To understand this, it is enough to notice from (19) that welfare under autocracy does not depend on q and

²⁷Recall that the types of l and r are drawn independently from the same cumulative distribution function (3).

is decreasing in ι and to also notice that welfares under simple majority or unanimity rule are both bounded below by $-|q|$.²⁸

We now proceed to compare welfare under simple majority and unanimity rule. The choice between these two constitutions is determined by the following trade-off. On the one hand, under unanimity rule the agenda setter faces more constraints since she needs one extra “yea” vote. This explains why, *ceteris paribus*, reforms are more difficult to pass under unanimity rule. But on the other hand, due to strategic interactions the acceptance constraints under unanimity rule may turn out to be less binding than under simple majority rule. In other terms, under unanimity rule legislators may use less strict equilibrium cutoff levels when casting their votes. This second effect goes in the opposite direction and, other things being equal, makes reforms more likely under unanimity rule.

We argue below that the terms of this trade-off depend, among other things, on the ratio between $|q|$ (our measure of the degree of inefficiency of the status quo) and the value of ι (our measure of ideological polarization).

For instance, it is quite intuitive that when the absolute value of q is low relatively to the value of ι , the first effect is dominant. In this case, in fact, the likelihood that the other ideological legislator accepts is so low that even a legislator with weak electoral considerations may hesitate to accept under unanimity rule. Consequently, we obtain that simple majority rule is relatively more desirable.

When instead the absolute value of q is large relatively to the value of ι , the second effect dominates. To see this, note that having an inefficient status quo makes the need of a reform more generally felt. This (together with a low ι) is precisely what may sustain the belief that the reform is approved by the other legislator. Due to strategic complementarity under unanimity rule, reforms are then approved more frequently. The opposite holds true under simple majority rule due to strategic substitutability. As a result, the voting cutoff levels under simple majority may be lower than under unanimity rule. This explains why in this region of parameters unanimity rule is likely to dominate.

Putting these considerations together leads us to our next two propositions.

Proposition 1: *Unanimity rule and autocracy yield higher equilibrium welfare than simple*

²⁸Unlike under autocracy, a proposal that worsens the status quo would not pass under constitutions $\mathcal{U}$ and $\mathcal{M}$. On this issue, see also the discussion in footnote 25.

majority rule when the value of ι is sufficiently low relatively to $|q|$.

More specifically, let any equilibrium $\sigma_{\mathcal{M}}^*$ under simple majority rule be given. Fix any $q \neq 0$. Then there exists a $\underline{\iota}$, where

$$\underline{\iota} \equiv \frac{2}{3}|q|, \quad (20)$$

such that for every $\iota \in (0, \underline{\iota})$ and for every $\gamma \in (0, 1)$ we have that $W_{\mathcal{U}}(\iota, q, \gamma) = W_{\mathcal{A}}(\iota, q, \gamma) \geq W_{\mathcal{M}}(\iota, q, \gamma, \sigma_{\mathcal{M}}^*)$.

Moreover, fix any $q \neq 0$ and any $\iota \in (0, \underline{\iota})$. Then there also exists a $\bar{\gamma} \in (0, 1)$ such that for every $\gamma \in (\bar{\gamma}, 1)$ we have that $W_{\mathcal{U}}(\iota, q, \gamma) = W_{\mathcal{A}}(\iota, q, \gamma) > W_{\mathcal{M}}(\iota, q, \gamma, \sigma_{\mathcal{M}}^*)$.

Proposition 1 above establishes that when ideological polarization is low relatively to $|q|$, welfare under unanimity rule coincides with the one under autocracy, as described in (19). In particular, exactly as under autocracy, under unanimity rule member c is able to propose and pass policy zero. The first part of Proposition 1 also establishes that for every equilibrium $\sigma_{\mathcal{M}}^*$ simple majority rule is weakly dominated in welfare terms by the other two constitutional regimes.²⁹ Moreover, if γ is also high (that is, if legislators are sufficiently optimistic about the possibility that electoral considerations do not matter), it can be shown that in any equilibrium under simple majority rule policy zero fails to be accepted with positive probability by l and r . As established by the second part of Proposition 1, simple majority rule is then strictly dominated in welfare terms.

We now state Proposition 2.

Proposition 2: *Simple majority rule yields higher equilibrium welfare than unanimity rule and autocracy when the value of ι is sufficiently high relatively to $|q|$.*

More specifically, let any equilibrium $\sigma_{\mathcal{M}}^*$ under simple majority rule be given. Fix any $q \neq 0$ and fix any $\gamma \in (0, 1)$. Then, there exists a $\bar{\iota} > 2|q|$ such that for every $\iota > \bar{\iota}$ we have that $W_{\mathcal{M}}(\iota, q, \gamma, \sigma_{\mathcal{M}}^*) > W_{\mathcal{U}}(\iota, q, \gamma) > W_{\mathcal{A}}(\iota, q, \gamma)$.

Proposition 2 above establishes that when ideological polarization is high relatively to $|q|$ autocracy is especially inefficient. This is mainly because its welfare, as described in (19), is not bounded from below by $-|q|$ and is decreasing in ι . In that same region of parameters

²⁹The inequality is strict for at least one particular voting equilibrium, the symmetric one (i.e., equilibrium E_1 in Figure 4).

Proposition 2 also establishes that simple majority rule strictly dominates unanimity rule in welfare terms. To understand this, note that under unanimity rule an ideological legislator is reluctant to accept (or propose) a reform simply because, when ι is high and $|q|$ is low it is quite unlikely to observe a “yea” vote from the other ideological legislator.

8. Endogenous Recognition

In this section, we briefly consider an extension to our model. We endogenize the probabilities of being recognized agenda setter. This seems a reasonable extension. After all the decision of sponsoring a bill is a voluntary choice. In this section, we argue that legislators may not have the same incentives to run for office and that different constitutions may provide differential incentives to become agenda setter. The timing of events is identical to the one discussed in Section 3.3 with the exception of stage (1), which is modified as follows:

(1) Legislators simultaneously decide whether or not to run for the agenda setter’s position. The agenda setter is then randomly selected from the set of legislators that decided to run for office.

To streamline the analysis, we suppose that legislators decide whether or not to run for office before observing their type.³⁰ We denote i ’s decision whether or not to run for the agenda setter’s position by $s_i \in \{0, 1\}$ where $s_i = 1$ (resp. $s_i = 0$) indicates that i runs (does not run) for the agenda setter’s position. For simplicity, assume that the decision to run entails no cost. The benefit of becoming agenda setter is given by the possibility of setting the agenda. If running for office is costless, why would a legislator ever decide not to compete for office? To understand this, notice that being the agenda setter is associated to an implicit cost: an agenda setter, if she wants to see a reform pass, must propose it and suffer an electoral cost. Under simple majority rule and autocracy instead, an ideological legislator may hope to see a reform pass without having to accept it.

Since c does not suffer a position cost, we assume that $s_c = 1$ and focus on the candidacy strategies of the two ideological legislators. Let $\rho_i(s_i, s_{-i})$ denote the recognition probability of legislator i when his effort decision is s_i and the effort decision of the other ideological legislator is s_{-i} . For instance, $\rho_i(1, 1)$ denotes the probability that legislator i is selected

³⁰If this were not the case, the decision in the entry stage would be informative for the other members.

when all legislators run for office (recall that $s_c = 1$). We make the following simplifying two assumptions on recognition probabilities. For $i = l, r$ we assume

$$\rho_i(0, 1) = \rho_i(0, 0) = 0, \quad (21)$$

$$\rho_i(1, 0) = \rho_i(1, 1) < \frac{1}{2}. \quad (22)$$

Both assumptions imply that the recognition probability of member i does not depend on the entry decision of the other ideological legislator.³¹ According to assumption (21), legislator i is not recognized if he does not run for office. Since recognition probabilities must add to one, assumptions (21) and (22) imply that when one ideological legislator does not run for office the probability that the other ideological legislator is recognized does not change, while the probability that c is recognized increases accordingly.

As established in Proposition 3, the incentives to run for office are affected by the majority rule specified in the constitution.

Proposition 3: *Under unanimity rule both ideological legislators run for office. Under autocracy, neither ideological legislator runs for office and member c is elected with probability one.*

The intuition behind this result is that the higher the majority requirement, the lower the probability that an ideological legislator is able to avoid the position cost by choosing $s_i = 0$. This decreases the expected payoff of not being agenda setter and, consequently, provides more incentives to run for office. Being agenda setter, in fact, allows ideological legislators to choose the position cost that solves the optimal trade-off between electoral concerns and policy motivations.

A stark implication of Proposition 3 is that autocracy is first-best. This occurs because in a model where recognition probabilities are endogenous member c is elected with probability one and, consequently, policy zero is implemented regardless of the extent of ideological polarization. We emphasize some caveats to this result. First, in other contexts (for instance, a

³¹This assumption simplifies the strategic interaction in the candidacy stage.

redistributive problem) autocracy may lead to very poor outcomes. Second, in many constitutional regimes, the agenda setter coincides with the chief executive. Therefore, we expect that the decision to become chief executive will be driven by a larger array of motivations than the ones analyzed in this section.

That being said, we believe that the channel highlighted here is worthy of notice and, in some circumstances, should be taken into account by constitutional designers.

9. Conclusions

In this paper, we argue that the choice of the constitution affects equilibrium policy decisions through different channels. As is standard, it affects the number of constraints that the executive faces. Moreover, to the extent that legislators have position-taking preferences, the choice of the majority rule also determines the nature of strategic interactions that arise in the voting game and affects equilibrium voting decisions.

In our model, the relative importance of electoral versus policy considerations is assumed to be privately observed. We solve the game of incomplete information and find (see Proposition 1) that when ideological polarization is not too large (and the status quo is sufficiently inefficient), institutions in which the executive has either no constraints (autocracy) or many constraints (unanimity) are preferable to democracies that operate under an intermediate number of constraints (simple majority rule). When instead ideological polarization is large (and the status quo is only moderately inefficient), simple majority rule turns out to be preferable (see Proposition 2).

All in all, our findings provide a justification for the adoption of more consensual forms of democracy for ideologically divided countries that find themselves in a difficult starting condition, provided that the degree of ideological polarization is not too high.

Appendix

Proof of Proposition 1: We proceed in four steps.

Step 1: Fix any $q \neq 0$. Suppose that member c is the recognized agenda setter and suppose that

$$\iota \leq |q|. \tag{A.1}$$

Under unanimity rule, we show that for every $\gamma \in (0, 1)$ the equilibrium proposal of member c is at the center, that is $x_{\mathcal{U}}^{*c} = 0$.

Proof: First, notice that under unanimity rule policy zero is accepted with probability one when $\iota \leq |q|$. To see this, using (2) it is enough to check that when $x_{\mathcal{U}}^c = 0$ inequality (11) holds for l and r . Consequently, the two best-response curves defined in (9) intersect only once at $\theta_{r,\mathcal{U}}^* = \theta_{l,\mathcal{U}}^* = 1$. Recalling that $\theta_c = 0$, it is then immediate that in equilibrium member c proposes policy zero under unanimity rule.

Step 2: Let $\sigma_{\mathcal{M}}^*$ be any equilibrium under simple majority rule. Suppose that $\iota \leq |q|$. Then for every $\gamma \in (0, 1)$ we have $W_{\mathcal{U}}^c(\iota, q, \gamma) = W_{\mathcal{A}}^c(\iota, q, \gamma) \geq W_{\mathcal{M}}^c(\iota, q, \gamma, \sigma_{\mathcal{M}}^*)$.

Proof: From Step 1, it is immediate to conclude that when $\iota \leq |q|$ we have $W_{\mathcal{U}}^c(\iota, q, \gamma) = 0$ for every $\gamma \in (0, 1)$. From (16) we also conclude that $W_{\mathcal{A}}^c(\iota, q, \gamma) = 0$ for all possible configuration of parameters. Since the welfare criterion defined in (17) is bounded from above by 0, it is immediate to prove the claim of Step 2.

Step 3: Suppose that member c is the recognized agenda setter and suppose that parameters are such that

$$(1 - \gamma) |q| < \iota \leq |q|. \quad (\text{A.2})$$

If policy zero is proposed, in the unique equilibrium under simple majority rule policy zero is accepted with probability strictly less than one. Then $W_{\mathcal{U}}^c(\iota, q, \gamma) = W_{\mathcal{A}}^c(\iota, q, \gamma) > W_{\mathcal{M}}^c(\iota, q, \gamma, \sigma_{\mathcal{M}}^*)$.

Proof: Suppose that policy zero is proposed by c under simple majority rule. Note that when $(1 - \gamma) |q| < \iota$ the slopes of the best-response curves defined in (14) are less than one in absolute value. This guarantees that the two best-response curves intersect only once. Moreover, the equilibrium is interior: in the unique cutoff equilibrium we have $\theta_{r,\mathcal{M}}^* = \theta_{l,\mathcal{M}}^* < 1$. Then, if policy zero is put to a vote, it is rejected with strictly positive probability. Using definition (17), this implies that when (A.2) is satisfied we have $W_{\mathcal{M}}^c(\iota, q, \gamma, \sigma_{\mathcal{M}}^*) < 0$. On the other hand, under condition (A.1) we know from Step 2 that for every $\gamma \in (0, 1)$ we have $W_{\mathcal{U}}^c(\iota, q, \gamma) = W_{\mathcal{A}}^c(\iota, q, \gamma) = 0$. Hence welfare under simple majority rule is strictly lower than welfare under either $\mathcal{U}$ or $\mathcal{A}$.

The next Step derives the equilibrium proposals when the agenda setter is ideological. As discussed at the end of Subsection 4.2, the equilibrium voting cutoffs under simple majority rule are unique. This is why when we write welfare under simple majority rule conditional on an ideological legislator being recognized, as defined in (17), we drop $\sigma_{\mathcal{M}}^*$ from our notation.

Step 4: Suppose that the recognized agenda setter is member j , with $j \in \{l, r\}$. When

$$\iota \leq \frac{2}{3} |q|, \quad (\text{A.3})$$

for every $\theta_j \in [0, 1]$ equilibrium proposals are $x_{\mathcal{M}}^{*j}(\theta_j) = x_{\mathcal{U}}^{*j}(\theta_j) = x_{\mathcal{A}}^{*j}(\theta_j)$, where $x_{\mathcal{A}}^{*j}(\theta_j)$ is as described in (16). Therefore, we conclude that under condition (A.3) we have $W_{\mathcal{U}}^j(\iota, q, \gamma) = W_{\mathcal{M}}^j(\iota, q, \gamma) = W_{\mathcal{A}}^j(\iota, q, \gamma)$ for every $\gamma \in (0, 1)$.

Proof: Without any loss of generality, suppose that the recognized agenda setter is $j = l$. (The argument is completely symmetric when $j = r$)

We proceed in three steps to analyze the choice of the optimal proposal under simple majority rule. First, we argue that member l , regardless of her type $\theta_l \in [0, 1]$, does not find it profitable to propose a policy that is sure to be rejected. To see this, just notice from (2) and (4) that condition (A.3) implies that $|l| < |q|$. Then, proposing a policy that is sure to be rejected would be dominated by proposing policy l , which is accepted by c because $|l| < |q|$.

Second, we argue that the set of policies that an agenda setter l of type θ_l is willing to propose and pass can be restricted to the interval $[l, 0]$. To see this, pick any proposal x' in X such that $x' > 0$. Only two cases are possible under simple majority rule: either x' is approved with probability one or x' is rejected with probability one. Suppose first that proposal x' is accepted. It is immediate that l , regardless of her type, could increase her utility by proposing, for example, policy zero, which is also accepted with probability one in equilibrium. Next, suppose that x' does not pass. Since $|l| < |q|$, it is also immediate that l would benefit from proposing policy zero, which is instead accepted. A similar argument can be used to show that l does not propose a policy below l .

Third, and finally, noting that all proposals that l is willing to consider are acceptable to member c , we can conclude that the acceptance constraints that l faces are not binding. As a result, when condition (A.3) is satisfied the equilibrium proposal under $\mathcal{M}$ is given by (16).

Consider next the equilibrium proposal under unanimity rule. First, we show that when condition (A.3) is satisfied, any proposal in the interval $[l, 0]$ obtains an unanimous vote. To see this, note that since $|l| < |q|$ member c is expected to accept any proposal in $[l, 0]$. Then, after receiving a proposal in $[l, 0]$, member r recognizes that his vote is pivotal and uses condition (6) to decide his voting strategy. It is easy to show that when condition (A.3) is met, member r (for every $\theta_r \in [0, 1]$) accepts any policy in $[l, 0]$.

Second, following a similar argument to the one used before, we can easily show that the set of policies that an agenda setter l of type θ_l considers proposing can be restricted to the interval $[l, 0]$. Hence, when condition (A.3) is satisfied, the two acceptance constraints that member l faces are not binding. The equilibrium proposal under unanimity rule is thus given by (16).

From the previous discussion, it is then immediate to conclude that welfare under constitutions $\mathcal{M}$ and $\mathcal{U}$ coincide with (19), the equilibrium welfare under constitution $\mathcal{A}$. This concludes the proof of Step 4.

Using definition (18), putting together Steps 1-2 and 4 and noting that condition (A.1) is implied by condition (A.3), it is immediate to verify the first part of Proposition 1. Putting together Steps 3-4 and noting that condition (A.2) is satisfied when γ is sufficiently large and (A.3) holds, it is also immediate to verify the second part of Proposition 1. ■

Proof of Proposition 2: We proceed in four steps.

Step 1: Suppose that member c is the recognized agenda setter under unanimity rule. We show that when

$$\iota > 2|q|, \tag{A.4}$$

the equilibrium proposal is at the center, that is $x_{\mathcal{U}}^{*c} = 0$. Then, the unique equilibrium cutoff levels under unanimity rule are

$$\theta_{l,\mathcal{U}}^* = \theta_{r,\mathcal{U}}^* = \frac{\gamma |q|}{\iota - (1 - \gamma) |q|} < 1. \quad (\text{A.5})$$

Proof: In order to show that member c proposes zero when condition (A.4) is satisfied, using (9) draw the two best-response curves when $x_{\mathcal{U}}^c = 0$. It can be verified that under condition (A.4) any proposal other than policy zero would shift the best-response curves $\bar{\theta}_i(\bar{\theta}_{-i})$ and $\bar{\theta}_{-i}(\bar{\theta}_i)$ down to the right and up to the left, respectively. Since the slopes of the best-response curves are positive, this implies that both equilibrium cut-off levels decrease. Then proposing a policy different from zero would not be profitable for c . Knowing that $x_{\mathcal{U}}^{*c} = 0$, it is a matter of straightforward algebra to derive (A.5) after solving the intersection between the two best-response curves. This concludes the proof of Step 1.

Given the results obtained in Step 1, using (3) and definition (17) and knowing that proposals under unanimity rule pass only if both ideological legislators cast a “yea” vote, we obtain that under condition (A.4) and for every $\gamma \in (0, 1)$

$$W_{\mathcal{U}}^c(\iota, q, \gamma) = - \left(1 - \left(\gamma + (1 - \gamma) \frac{\gamma |q|}{\iota - (1 - \gamma) |q|} \right)^2 \right) |q|. \quad (\text{A.6})$$

Step 2: Suppose that member c is the recognized agenda setter and that condition (A.4) holds. Let any equilibrium $\sigma_{\mathcal{M}}^*$ for constitution $\mathcal{M}$ be given. Fix any $q \neq 0$ and fix any $\gamma \in (0, 1)$. We show that there exists a $\iota' > 2|q|$ such that for all $\iota > \iota'$ we have $W_{\mathcal{M}}^c(\iota, q, \gamma, \sigma_{\mathcal{M}}^*) > W_{\mathcal{U}}^c(\iota, q, \gamma)$.

Proof: First we argue that

$$- \left(1 - \gamma - (1 - \gamma) \frac{(1 - \gamma) |q|}{\iota + (1 - \gamma) |q|} \right)^2 |q| \leq W_{\mathcal{M}}^c(\iota, q, \gamma, \sigma_{\mathcal{M}}^*). \quad (\text{A.7})$$

To see this, note that the left-hand side of (A.7) is equal to welfare under simple majority rule when member c proposes policy zero and l and r play the symmetric equilibrium (that is, the one with the lowest payoff for c). To compute the left-hand side, use the definition of best-response curve in (14) when $x_{\mathcal{M}}^c = 0$ and recall that under simple-majority rule the status quo is kept in place only if both legislators reject. To explain the inequality in (A.7), note that regardless of the voting strategies that c expects, the left-hand side is a lower bound to welfare under simple-majority rule.

From (A.6) note that the limit of welfare under unanimity rule as $\iota \rightarrow \infty$ goes to $-(1 - \gamma^2) |q|$. Instead, the limit of the left-hand side of (A.7) goes to $-(1 - \gamma)^2 |q|$ as $\iota \rightarrow \infty$. Since $\gamma \in (0, 1)$ it is immediate to show that $-(1 - \gamma)^2 |q| > -(1 - \gamma^2) |q|$. This implies that there exists a $\iota' > 2|q|$, which depends on γ , such that for every $\iota > \iota'$ we have that $W_{\mathcal{M}}^c(\iota, q, \gamma, \sigma_{\mathcal{M}}^*) > W_{\mathcal{U}}^c(\iota, q, \gamma)$. This concludes the proof of Step 2

Step 3: Suppose that member $j \in \{r, l\}$ is the recognized agenda setter. We show that when condition (A.4) is satisfied we have $W_{\mathcal{M}}^j(\iota, q, \gamma, \sigma_{\mathcal{M}}^*) > W_{\mathcal{U}}^j(\iota, q, \gamma)$.

Proof: Without any loss of generality, suppose that the recognized agenda setter is $j = l$. (The argument is completely symmetric when $j = r$)

Suppose condition (A.4) is satisfied. To begin with, we compute the optimal proposal strategy of l under constitution $\mathcal{M}$. First note that condition (A.4) implies that $|l| > |q|$. Contrary to the conclusion reached in Step 4 of the proof of Proposition 1, member l may find it profitable to propose a policy that is sure to be rejected in order to pander to her voters and keep the status quo. To take account of this possibility, we proceed as follows. First, we find the best proposal among the ones that are acceptable to at least one member. Subsequently, we find the best proposal among the ones that would be rejected.

We let $x_{\mathcal{M},y}^l$ denote the best proposal among the ones that pass for sure under simple majority rule. That is,

$$x_{\mathcal{M},y}^l = \arg \max_{|x_{\mathcal{M}}^l| \leq |q|} -\frac{1}{2} |x_{\mathcal{M}}^l| - \theta_l |x_{\mathcal{M}}^l - l|. \quad (\text{A.8})$$

It is not hard to see that given that utility is linear, the solution is at a corner: that is, $x_{\mathcal{M},y}^l \in \{0, q\}$. The payoff to member l of type θ_l associated to $x_{\mathcal{M},y}^l$ is

$$\max \left\{ -\frac{1}{2} |q| - \theta_l |q - l|, -\theta_l |l| \right\}, \quad (\text{A.9})$$

where the first term in the curly brackets in (A.9) is the utility of proposing the status quo, while the second term is the utility of proposing zero.

We let instead $x_{\mathcal{M},n}^l$ denote the best proposal among the ones that are rejected for sure under constitution $\mathcal{M}$. It is immediate that $x_{\mathcal{M},n}^l = l$, which gives l the following payoff:

$$-\frac{1}{2} |q|. \quad (\text{A.10})$$

Using (A.9) and (A.10), we solve for the optimal proposal of legislator $j \in \{l, r\}$ under constitution $\mathcal{M}$

$$x_{\mathcal{M}}^{*j} = \begin{cases} j, & \text{if } \theta_j > \frac{|q|}{|j|}, \\ 0, & \text{otherwise.} \end{cases} \quad (\text{A.11})$$

When (A.4) holds, note that whenever according to (A.11) member j , with $j \in \{l, r\}$, proposes policy j , the proposal is rejected by the legislature and the status quo is kept in place.

We now find the proposal that ideological legislator l proposes under constitution $\mathcal{U}$. As discussed before, if proposal $x_{\mathcal{U}}^l$ is such that $|x_{\mathcal{U}}^l| > |q|$, both c and r reject the proposal. If instead $|x_{\mathcal{U}}^l| \leq |q|$, note that $x_{\mathcal{U}}^l$ does not necessarily pass under unanimity rule because when condition (A.4) holds, $x_{\mathcal{U}}^l$ may not satisfy condition (6) for member r . Let $\chi(x_{\mathcal{U}}^l)$ denote the probability that $x_{\mathcal{U}}^l$ is accepted under constitution $\mathcal{U}$. As discussed above, we have $\chi(x_{\mathcal{U}}^l) < 1$ when $|x_{\mathcal{U}}^l| \leq |q|$ and $\chi(x_{\mathcal{U}}^l) = 0$ otherwise. This implies that the expected payoff to l from proposing a policy $x_{\mathcal{U}}^l$ such that $|x_{\mathcal{U}}^l| \leq |q|$ is weakly smaller than (A.9). On the other hand, the payoff from proposing policy l is still given by (A.10). This implies that there are instances

in which l proposes zero under constitution $\mathcal{M}$ but panders to voters under constitution $\mathcal{U}$. Then, we conclude that

$$x_{\mathcal{U}}^{*j} = \begin{cases} j, & \text{if } \theta_j > \hat{\theta}, \\ 0, & \text{otherwise.} \end{cases} \quad (\text{A.12})$$

where $\hat{\theta} < \frac{|q|}{|j|}$. That is, under unanimity rule the status quo is kept in place with higher probability. This concludes the proof of Step 3.

Step 4: Let any equilibrium $\sigma_{\mathcal{M}}^*$ for constitution $\mathcal{M}$ be given. Fix any $q \neq 0$ and fix any $\gamma \in (0, 1)$. There exists a $\iota'' > 2|q|$ such that for every $\iota > \iota''$ we have $W_{\mathcal{M}}(\iota, q, \gamma, \sigma_{\mathcal{M}}^*) > W_{\mathcal{A}}(\iota, q, \gamma)$ and $W_{\mathcal{U}}(\iota, q, \gamma) > W_{\mathcal{A}}(\iota, q, \gamma)$.

Proof: First, notice that welfare under simple majority and unanimity rule is bounded below by $-|q|$. This is because a legislator would never accept a proposal that worsens the status quo. As long as $\rho_c < 1$, using (19) it is then immediate that for high values of ι autocracy is strictly dominated in welfare terms.

Putting together Steps 1-3, and using definition (18), it is immediate to prove that simple majority rule strictly dominates unanimity rule when ι is sufficiently high. To conclude the proof of Proposition 2 it is enough to use the result of Step 4. ■

Proof of Proposition 3: We proceed in three steps. We let $u_i(j)$ denote the expected utility of legislator i when j is the recognized agenda setter.

Step 1: Legislator $i \in \{l, r\}$ runs for office if and only if $u_i(j) \geq u_i(c)$.

Proof: Consider a legislator $i \in \{l, r\}$. We let $-i$ denote the other ideological legislator. Two cases are possible: $-i$ is expected to run for office or not. First, suppose that i expects $-i$ to choose $s_{-i} = 1$. Recalling that $s_c = 1$, i runs for office if and only if

$$\rho_i(1, 1)u_i(i) + (1 - \rho_i(1, 1) - \rho_{-i}(1, 1))u_i(c) + \rho_{-i}(1, 1)u_i(-i) \geq (1 - \rho_{-i}(1, 0))u_i(c) + \rho_{-i}(1, 0)u_i(-i). \quad (\text{A.13})$$

The left-hand (resp. right-hand) side of (A.13) is the expected utility when all legislators (resp. only $-i$ and c) run for office.

Second, suppose instead that i expects $-i$ to choose $s_{-i} = 0$. In this case, i runs for office if and only if

$$\rho_i(1, 1)u_i(i) + (1 - \rho_i(1, 0))u_i(c) \geq u_i(c). \quad (\text{A.14})$$

Since we assumed that $\rho_i(1, 0) = \rho_i(1, 1)$ for every $i = l, r$, (A.13) and (A.14) simplify to $u_i(i) \geq u_i(c)$.

Step 2: Under autocracy, only c runs for office and welfare is first-best.

Proof: From (16), it is immediate to see that under autocracy $u_i(c) = 0$ and $u_i(i) < 0$. From Step 1, we can then conclude that only member c runs for office. As a result, c is recognized with probability one and the economy implements policy zero.

Step 3: *Under unanimity rule, all legislators run for office.*

Proof: Let $x_{\mathcal{U}}^{*c}$ be the proposal under unanimity rule that i expects to receive from c . We let $\chi(x_{\mathcal{U}}^{*c})$ denote the expected probability that $x_{\mathcal{U}}^{*c}$ is accepted by $-i$ when this policy is proposed by c . Before the realization of θ_i , the expected payoff to legislator $i \in \{l, r\}$ of having c as agenda setter is

$$u_i(c) = E_{\theta_i} \text{Max} \left\{ -\frac{1}{2} \chi(x_{\mathcal{U}}^{*c}) |x_{\mathcal{U}}^{*c}| - \frac{1}{2} |q| (1 - \chi(x_{\mathcal{U}}^{*c})) - \theta_i |x_{\mathcal{U}}^{*c} - i|, -\frac{1}{2} |q| \right\} \quad (\text{A.15})$$

where the first term in the curly brackets in (A.15) is the expected payoff from casting a “yea” after receiving $x_{\mathcal{U}}^{*c}$ while the second term is the payoff of rejecting $x_{\mathcal{U}}^{*c}$. We now show that $u_i(i) > u_j(c)$. To see this, first note that if i becomes the agenda setter and he himself proposes $x_{\mathcal{U}}^{*c}$, this proposal would be accepted by $-i$ with probability weakly greater than $\chi(x_{\mathcal{U}}^{*c})$. This occurs because $-i$ would vote following the pivotal rule (6). This increases the first term in the curly brackets in (A.15). Second, note that i can always achieve the second term in the curly brackets in (A.15) by proposing the policy that panders to his voters. Finally, note that if i is recognized, he is not constrained to propose $x_{\mathcal{U}}^{*c}$ but he is able to select the proposal the better solves the trade-off between electoral and policy consideration. As a result, being elected agenda setter would give i higher utility than letting c propose $x_{\mathcal{U}}^{*c}$. This concludes the proof of Step 3. Putting together Steps 1-3, it is immediate to prove the claim of Proposition 3. ■

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Figure 1: Unanimity Rule: Interior Equilibrium ($x_{\mathcal{U}}^c$ is set to 0)

Figure 2: Unanimity Rule: Corner Equilibrium ($x_{\mathcal{U}}^c$ is set to 0)

Figure 3: Simple Majority Rule: Interior Equilibrium ($x_{\mathcal{M}}^c$ is set to 0)

Figure 4: Simple Majority Rule: Multiple Nash Equilibria ($x_{\mathcal{M}}^c$ is set to 0)

Figure 5: Simple Majority Rule: Centered Proposal, ($x_{\mathcal{M}}^c$ is set to 0)

Figure 6: Simple Majority Rule: Extreme Proposal, ($x_{\mathcal{U}}^c < 0$)