

Self-Organizing Legislatures: Policymaking under Procedural Endogeneity*

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Abstract

A puzzling feature of legislative organization is the continuous support by a majority of seemingly non-majoritarian procedures, such as non-median committees and limits on amendments. This paper studies a legislature's choice of procedures. We focus on (a) why legislatures institute restrictions on the procedural rights of its members and (b) how these restrictions survive challenges. In our model the legislature is initially procedurally neutral. We find that when a risk-averse legislative majority allocates procedural rights it does so with the specific goal of improving *procedural efficiency* i.e. reduce the policy uncertainty that can result from prolonged floor bargaining. Interestingly, policy outcomes under equilibrium procedures can be biased away from median voter theorem predictions.

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1 Introduction

Elections and legislatures are the two fundamental decision-making mechanisms of democratic self-governance. In elections a typically large number of decision-makers ("voters") make a selection from a fixed (usually fairly short) list of alternatives, such as candidates or political parties. In legislatures a smaller number of decision-makers (sometimes referred to as a "committee") debates many alternatives sequentially, following some kind of agenda process that governs what motions are permissible and so forth. Both elections and legislative decision-making are conducted by rules and protocols. These rules dramatically vary by country and jurisdiction. This is well-known in the case of electoral rules (e.g. Cox 1997), but less appreciated in the case of legislative decision-making (e.g. Diermeier and Myerson 1999). Electoral rules in some cases are specified by the constitutions, but more commonly are by law, either in a referendum or through the legislative process. In the case of legislatures constitutional law or precedence usually specifies that each representative has equal voting power, yet all others aspects of legislative decision-making such as the legislative officers and their power, the structure of agenda setting, debate rules etc. are chosen by the chamber itself. In particular, most legislatures members are not endowed with equal procedural power. Rather, self-governing legislatures typically evolve to restrict the procedural rights of its members. In practice this is achieved by creating legislative offices endowed with special prerogatives such as gatekeeping, proposal and scheduling rights and prerogatives. These are further strengthened by limits on the rights to amend the output of those special offices. The existence of skewed procedural rights creates inequality in the distribution of legislative power that in turn critically affects policy outcomes (Shepsle and Weingast 1984, Baron and Ferejohn 1989). Given their likely impact on legislative output, the existence of restrictions on the procedural rights of some legislators seems at odds with a legislature's majoritarian foundation (Krehbiel 2004).

The question of whether such restrictive procedures are fundamentally non-majoritarian has important normative ramifications. U.S. President Woodrow Wilson (1885), for example, was troubled by the power acquired by the standing committees of the U.S. House of Representatives by the late 1880s:

"[The House] legislates in its committee-rooms; not by the determinations of majorities, but by the resolutions of specially-commissioned minorities." (page 69).

Yet, the U.S. Constitution gives House members the right of self-organization. The power to change the standing rules can be exercised by a majority at any time;¹ the only leadership position imposed by the Constitution is that of Speaker.² The chamber's ability to change its rules and by-laws at any time suggests that any observed procedures must be self-enforcing. The goal of our paper is to provide a model of such self-enforcing procedures.

While our model is motivated by the current debate on the internal structure of legislatures, in particular the role of parties and committees (e.g , the model is applicable to any decision-process where a "committee" makes a decision from a large set of alternatives through a deliberative process. Other examples are boards of directors, central banking committees, parties, unions and many more. Whenever such groups decide by majority rule and have the power to determine their own by-laws and procedures (at least within certain limits) our model is applicable.

The question of which decision-making procedures to use is as old as political economy itself, going back to theories of the social contract and, in its modern form, to Buchanan and Tullock (1962, p.6).

"When we recognize that "constitutional" decisions themselves, which are necessarily collective, may also be reached under any of several decision-making rules, the same issue is confronted all over again. Moreover, in postulating a decision making rule for constitutional choices we face the same problem when we ask: How is the rule itself chosen?"

There are various ways to make this question precise. One approach is to use a social choice approach as in Koray (2000). Koray models social choice functions as choice alterna-

¹Major reforms to the House committee system have been infrequent. The most significant was the Legislative Reorganization Act of 1946. It mandated a significant reduction in the number of standing committees from forty-eight to nineteen. Most of the abolished committees, however, resurfaced as sub-committees of the remaining standing committees.

²The question of on whether the institutions of the U.S. House of Representatives are majoritarian is a matter of current academic debate. Patty (2007), for instance, argues that the House discharge procedure is non-majoritarian.

tives. This allows to formalize the question when a social choice functions are "self-selective", i.e. would chose themselves. Koray (2000) shows that if preference profiles are sufficiently rich all self-selective social choice functions must be dictatorial. Barbera and Jackson (2004) consider self-stable voting rules instead. A voting rule s is "self-stable" if there is no alternative voting rule s' that would beat s if the voting between s and s' is according to s . Barbera and Jackson (2004) show that for a significant number of social preference configuration no voting rule is stable. They then consider hierarchical constitutions which are defined by a pair of rules (s, S) where s is a rule that is used for all decisions other than voting on voting rules while S is used to decide on any changes to s . Then a *constitution* (s, S) is self-stable if there is no alternative voting rule s' that would beat s if the voting between s and s' is according to S . Barbera and Jackson show that such self-stable constitutions always exist. An example is the case where s is the majority rule and S is unanimity, but other constitutions can be self-stable as well.

A related literature has been investigated which decision rules will be chosen by a majority to make future policy decisions characterized by trade-offs between flexibility and commitment (Aghion and Bolton 1997, Aghion, Alesina, and Trebbi 2002, Messner and Polborn 2004). Aghion, Alesina, and Trebbi (2002), for example, model the choice of constraining future leaders by checks and balances in the context of an investment model. Messner and Polborn (2004) show how in an overlapping generations model current majorities will chose future super-majority rules. Dixit, Grossman, and Gul (2000) show how in a two-party model where the parties randomly alternate in power constraints on decision-making may emerge in equilibrium. The finding of endogenous political compromise is reminiscent of the literature on self-enforcing risk sharing contracts (e.g. Kocherlakota 1996) as it mitigates the swings due to large shifts in policy when the power structure changes. Surprisingly, super-majority requirements may make political compromise more difficult.

In this paper we present a model of majoritarian choice of procedures. In contrast to the social choice oriented approaches our decision-problem is model as a hierarchical sequential bargaining game under majority rule.³ That is, procedures must constitute equilibria in a

³The canonical legislative bargaining model (Baron and Ferejohn 1989a) assumes equal procedural rights. However, as Baron and Ferejohn (1989b) put it "We acknowledge that random recognition rules are not generally observed in real legislatures." (page 349).

model of policy choice. The goal is to address two questions: starting from a procedurally neutral legislature (i) what drives majoritarian incentives to allocate proposal power unequally? and (ii) how can non-majoritarian procedural rules be stable given that majorities can change them at any time?

Our approach is to model the choice of procedures in a "busy legislature" (Cox 2006) where decision-making is characterized by opportunity costs of legislative bargaining. This creates some possibility for proposers to bias policy choices away from median legislators. Unless proposal power is concentrated with a single legislator this creates uncertainty over legislative outcomes, somewhat reminiscent of the alternating power model in Dixit, Grossman, and Gul (2000). The model's key insight is that unequal proposal power stems from the floor's concern with procedural efficiency i.e. reducing the uncertainty produced by decentralized bargaining over policy. This incentive is stronger the more risk averse legislators are. The intuition is that when bargaining takes time floor deliberation does not guarantee median outcomes since non-median legislators can exploit their proposal power and the median's impatience to bias outcomes away from the median. The uncertainty over the final legislative output creates an incentive for all legislators, the median included, to restrict proposal power to designated proposers, since a proposer in equilibrium will limit the variance in policy outcomes by limiting proposals. Both median and non-median proposal rules can achieve that, however. Thus in setting up a *non-median* proposal rule, the median legislator essentially trades off policy goals for a reduction in policy variance. We show that this approach can then be used to explain the emergence of permanent rules, even though a legislature has the right to change to rules on any given issues.

Our model has direct consequences for the theory of legislatures, especially the study of the U.S. Congress committee system. There are three leading theoretical approaches to committee power: distributive, partisan and informational. Current non-informational models of legislative procedures are based on the assumption of procedural commitment i.e. the majority commits to protect the pre-existing proposal or gatekeeping power of committees. Committees then form, for instance, because policy extremists can take advantage of gatekeeping power to exploit and protect the potential gains from trading their votes with each other (Weingast and Marshall 1988). Cox and McCubbins (1993) argue that the

chamber median allows control of the agenda by the majority party median because this improves the party's "record" and with it its members' reelection prospects. In other words, party moderates are willing to sacrifice some policy goals in order to help their party move policy outcomes closer to the party median. Or, a majority's preference affinities induce them to vote together to take over the legislative agenda in order to achieve their ideological goals, even if there are no extra-legislative incentives to impose party discipline (Diermeier and Vlaicu 2008). While procedural commitment models help us understand the incentives that lead to the formation of committees, they all predict that committees are able to extract policy benefits at the expense of the floor and so raise the question of why the floor *systematically* chooses to defer to committees. Our model provides such an answer by embedding procedural choice into a sequential bargaining model. Unequal decision-rules are self-enforcing.

2 Model

Three legislators $i = 1, 2, 3$ have jurisdiction to set policy over a number of policy issues.⁴ On each issue legislators can choose a *policy*, denoted x , from the compact interval $[-1, 1]$. Legislators evaluate this choice against the exogenous status quo $q \neq 0$. Apart from their policymaking authority legislators also have the power to choose the procedures that govern the policymaking process. Procedures are modeled as a vector $\boldsymbol{\pi} = (\pi_1, \pi_2, \pi_3)$ of *procedural rights*, where π_1, π_2, π_3 are probabilities.

Thus, the collective choice problem has two components: first, choosing procedural rights from the two-dimensional simplex $\Delta = \left\{ (\pi_1, \pi_2, \pi_3) \mid \pi_i \geq 0, \sum_{i=1,2,3} \pi_i = 1 \right\}$; and second, choosing policy from the interval $[-1, 1]$. The process through which these two types of choices are made is a legislative bargaining protocol which will be described after defining legislators' preferences.

⁴The three voters can be also interpreted as three voter types, as long as the three types have equal numbers.

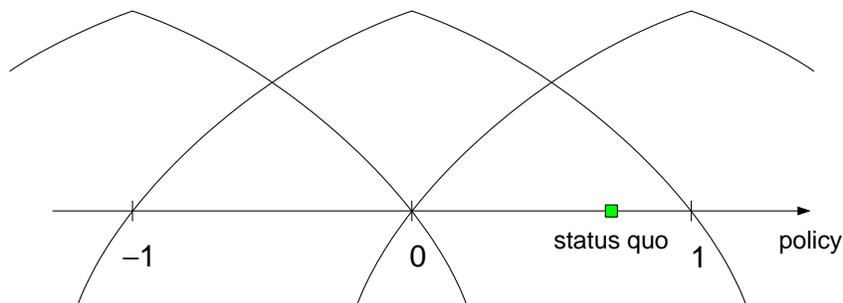


Figure 1: Policy Space and Policy Preferences.

2.1 Preferences

Legislators' policy preferences have four properties: they are single-peaked, order-restricted, symmetric, and concave. Formally these properties are modeled as follows. Let x_i denote the ideal point of legislator i . His policy preferences are represented by the following utility function:

$$u_i(x) := v(|x - x_i|)$$

where v is concave and decreasing in the absolute distance between policy and i 's ideal point; $v(0) > v(1) = 0$. Note that this implies legislators' preferences are single-peaked, symmetric and display risk-aversion. We also require v to represent order-restricted preferences. Preferences are order-restricted if, when faced with a choice between two *policy lotteries* X' and X'' , the group of legislators that prefers X' does not "overlap" with the group that prefers X'' . For instance, if left (L) prefers X' and middle (M) prefers X'' , then right (R) must prefer X'' as well.⁵

To preserve symmetry, we assume that ideal points are arranged equidistantly in the policy space: $x_L = -1, x_M = 0, x_R = 1$. This ensures that outcomes are not driven simply by proximity, but by the horizontal conflict of interest among legislators. Figure 1 illustrates these assumptions.

We are interested in single-peaked preferences because in a one-dimensional policy space they guarantee the existence of a Condorcet winner i.e. a policy that defeats any other in a pairwise majority-rule comparison. In Figure 1, for instance, the Condorcet winner

⁵Quadratic preferences, the prime functional form in theoretical and empirical studies using the spatial model, are one example of order-restricted preferences, as shown by Banks and Duggan (2003).

is the ideal point of the median legislator: $x_M = 0$. While the normative social-choice-theoretic underpinnings of this concept are well understood, it is unclear how, and whether, this alternative is chosen in a setup where legislators themselves will decide which pairwise comparisons are made. The Condorcet winner thus serves as a useful benchmark against which we can assess the performance of endogenous procedures.

Legislators' preferences over procedural rights are not primitives of the model but are derived from legislators' policy preferences. More precisely, a given allocation of procedural rights will generate a policy lottery. Thus, preferences over procedures are in fact preferences over policy lotteries. In short, the choice of procedures is driven by policy preferences.

2.2 Timing

At the beginning of the game legislators contemplate making a policy choice in one of a number of possible policy issues that might arise.⁶ A policy *issue* (q, ω) is defined by the position of the status quo q and the ordering of legislators' ideal points in the policy space, represented by the one-to-one mapping $\omega : \{L, M, R\} \rightarrow \{1, 2, 3\}$.⁷

The legislature is initially procedurally neutral i.e. all legislators have equal procedural rights. Voting rights are always equal. Legislators can choose, under neutral procedures, to alter the allocation of procedural rights that governs the policy choice.

The sequence of events is as follows. Before the policy issue is revealed, a majority vote is taken over whether to play an *organizational game*, where standing procedures can be set up. See Figure 2. After the policy issue is revealed, there are two scenarios.

(i) If the legislature has standing procedures, then a majority vote decides whether for this particular issue policymaking should still be governed by these standing procedures; if yes, then a *policy game* takes place under the standing procedures; if not, then standing procedures are circumvented and a majority vote determines whether a *procedural game* is played, where legislators can adopt ad hoc procedures, otherwise policymaking takes place under neutral procedures.

⁶Another interpretation is that a number of different policy issues will come up, each type occurring with a frequency given by a probability distribution over issue types.

⁷Notice that there are six different possible left-to-right ordering of ideal points.

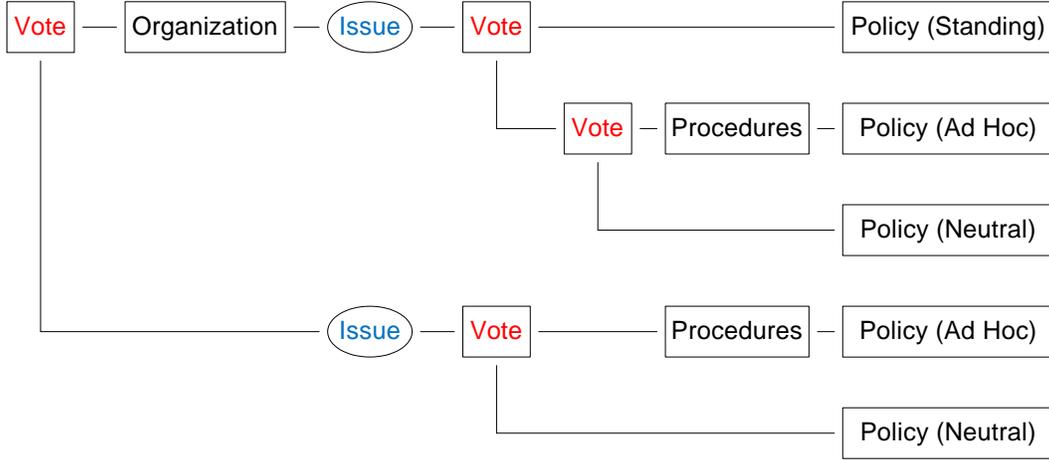


Figure 2: Timing of the game.

(ii) If the legislature has not set up standing procedures, then a majority vote determines if ad hoc procedures should be adopted before policymaking begins. If yes, then there is a procedural game, followed by a policy game governed by the just adopted procedures. If not, then policy is made under neutral procedures.

Each of the three types of games (organizational, procedural, policy) is a bargaining game in the spirit of Banks and Duggan (2006). They differ among themselves in three dimensions: the procedures used in bargaining, the outcome of bargaining, and the underlying status quo. The organizational game is played under neutral procedures, its outcome is a vector of procedural rights (ρ_1, ρ_2, ρ_3) , referred to as standing procedures; the status quo is neutral procedures. The procedural game is played under neutral procedures, its outcome is a vector of procedural rights (π_1, π_2, π_3) , referred to as ad hoc procedures; the status quo is neutral procedures. Finally, the policy game is played either under standing or ad hoc procedures, its outcome is a policy x ; the status quo is q .

The extensive form of a bargaining game is as follows.

- (1) **Recognition** One legislator is recognized according to his procedural rights.
- (2) **Proposal** The recognized legislator makes a proposal (the proposal can be the status quo itself - meaning that the proposer "keeps the gates closed" to preserve the status quo).
- (3) **Vote** All legislators simultaneously vote, by simple majority, between the proposal and the status quo. If the proposal passes, bargaining ends. If less than two legislators

vote for the proposal two things can happen: one, with an exogenous probability bargaining has to stop, in which case the status quo remains in place; two, with the complementary probability, bargaining can continue for another period, the game restarts from stage (1).

The probability that bargaining has to stop after a failed vote captures in reduced form the opportunity costs of delaying a decision.⁸ If this probability is large, failing to make a decision today will very likely prevent legislators from taking a second look at this issue tomorrow. In a modern legislature the most obvious sources of opportunity costs are the many other policy issues on the agenda, constituency service, and reelection campaigns. We denote by η the opportunity costs incurred in the organizational and procedural games, and by γ the opportunity costs incurred in the policy game, $0 < \eta, \gamma \leq 1$.

2.3 Equilibrium Definition

The game consists of a sequence of votes and proposals. A strategy for a legislator is a mapping from the set of histories to the set of available actions (policy proposals, votes). A history of length t is a collection of variables describing the identity of the recognized proposers, the policy each one proposed and how each legislator voted. We restrict attention to pure strategies. We use the standard equilibrium concept for legislative bargaining games, namely stationary equilibrium. A stationary equilibrium is an undominated subgame perfect equilibrium in stationary strategies, i.e. strategies that are independent of the history of play up to the current period.⁹

3 Policy Game

The model can be solved by a form of backwards induction, starting with the policy game and ending with the vote for/against an organizational game. This section characterizes the equilibrium of the policy game, for an exogenous allocation of procedural rights (ρ_L, ρ_M, ρ_R) .

⁸Note that under this specification a bargaining game ends in a finite number of rounds with probability one. One can think of each bargaining game as lasting one period, with uncertainty about the number of rounds that can be "squeezed in" during that period. If opportunity costs are prohibitive, then only one round is feasible. If they are smaller, several rounds are possible.

⁹For a general treatment of legislative bargaining games see Austen-Smith and Banks (2006).

This allocation of procedural rights is endogenously determined in the previous stages of the game.

Banks and Duggan (2006) characterize the properties of the policy game for general policy spaces and voting rules. Here we solve it for in the particular policy environment and voting rule we have chosen. Due to the order-preserving properties of the payoff functions, the support of the median legislator can be shown to be both necessary and sufficient for any proposal to pass in the first round. The immediate implication is that when the median is recognized to propose (that happens with probability ρ_M) it can pass its ideal point in the first round: $x_M^* = 0$.

Also, by the symmetry of the payoff functions, L and R 's proposals are symmetric around zero. Denote this common value by $x^* = x_R^* = -x_L^*$. Solving for x^* thus completely characterizes the equilibrium of the policy game. Because the median is pivotal, a non-median legislator's proposal can be skewed in his favor to the point where the median is just indifferent between accepting the proposal and delaying:

$$u_M(x^*) = u_M(-x^*) = \gamma u_M(q) + (1 - \gamma) [\rho_L u_M(x^*) + \rho_M u_M(0) + \rho_R u_M(-x^*)]$$

and so the equilibrium *policy deviation* $x^*(q, \gamma, \rho_M)$ is the certainty equivalent of a lottery between the median and the status quo:

$$v(x^*) = \frac{\gamma}{1 - (1 - \gamma)(1 - \rho_M)} v(|q|) + \frac{(1 - \gamma)\rho_M}{1 - (1 - \gamma)(1 - \rho_M)} v(0). \quad (1)$$

In equilibrium the following distribution of policy outcomes will be observed.

$$X^*(|q|, \gamma, \boldsymbol{\rho}) = \begin{cases} -x^*(|q|, \gamma, \rho_M), & \text{with probability } \rho_L \\ 0, & \text{with probability } \rho_M \\ +x^*(|q|, \gamma, \rho_M), & \text{with probability } \rho_R \end{cases}$$

We refer to the mean of this distribution as the *policy bias*: $\mathbb{E}[X^*(|q|, \gamma, \boldsymbol{\rho})]$.

We note several features of this equilibrium: first, the equilibrium deviation $x^*(|q|, \gamma, \rho_M)$ is always positive: $0 < x^*(|q|, \gamma, \rho_M) \leq |q|$; second, opportunity costs keep outcomes away

from the median with probability $1 - \rho_M$; and third, the support of the policy distribution is symmetric despite the fact that procedural rights may be asymmetric. This is because, conditional on being recognized, non-median legislators have the same bargaining power relative to the median: the median's threat is the same when he faces L as when he faces R , namely waiting for next period's proposal.

Comparative statics are also intuitive. The policy deviation is larger when (i) the status quo is more extreme, since the cost of waiting is larger for the median, (ii) when the median incurs larger costs γ from delaying, and (iii) when the degree of risk aversion is higher, since future outcomes are uncertain so the benefits of waiting are reduced.

These features of equilibrium are summarized in the next proposition, for the case of neutral procedures $\boldsymbol{\rho} = (1/3, 1/3, 1/3)$.

Proposition 1 (*Policy under Neutral Procedures*) *Policymaking under neutral procedures generates a uniform distribution of policy outcomes, with a support that is symmetric around the median. Equilibrium policy bias is zero.*

Policy variance is larger when the status quo is more extreme, when opportunity costs of delay are large, and when the median has weak procedural rights.

Neutral procedures are an important special case because they capture the idea of an egalitarian legislature, where both voting power *and* procedural power are equally distributed. Self-organizing legislatures are originally egalitarian. Yet they are allowed by law or statute to set up internal procedures.¹⁰ But, as Cox (2006) rightly observes, "while legislators are everywhere equal in voting power, they are unequal in agenda-setting power." (page 142). Almost invariably, legislatures develop internal rules that alter the original egalitarian allocation of procedural power.

The legislative output described in Proposition 1 will serve as the benchmark against which we compare legislative outcomes that arise when the legislature is free to choose its own procedures. Our goal is to answer two questions: (1) What are the incentives to set up restrictive procedures? and (2) What is the effect of the endogenously chosen procedures

¹⁰In the U.S., for instance, Congress's power of self-organization is explicitly stated in the Constitution: "Each House may determine the Rules of its Proceedings." (*U.S. Constitution*, Article 1, Section 5, Clause 2). Standing rules are voted on at the beginning of each two-year Congress.

on legislative output? The bargaining process through which procedures are chosen was described in the previous section. The next section characterizes the equilibrium of that game.

Before analyzing the procedural game a basic but important observation is in order: Procedural rights are a source of power over outcomes. A legislator prefers to have more procedural rights than less for two reasons. First, because this increases the likelihood of an outcome he favors. Second, because it brings policy outcomes closer to him, by increasing his bargaining power relative to other players, in particular the median. There is also a potential downside of more recognition for a non-median proposer, namely that the variance of outcomes increases if the median's recognition power is weakened. However, this effect is completely offset by a more favorable distribution of outcomes.

4 Procedural Choice

This section models a legislature's incentives to set up restrictive procedures. We assume that procedural choice may take place before each and every policy issue that is considered by the legislature. This is important because it means that procedures are fully majoritarian: procedures require majority support every time a policy issue is considered. Procedures do not originate in a previous session of the legislature, or are imposed by the majority party, or survive due to a norm of deference, or due to any previous commitment of a majority. In our model all procedures used to deliberate on policy must have the support of a majority of the membership of the legislature, according to its *current* issue-specific policy preferences.

A well-studied example of a self-organizing legislature is the U.S. House of Representatives. According to the U.S. Constitution all procedural institutions in the House, except the office of the Speaker originate with its members and need to be approved by a majority. Moreover, these offices and rules can be altered at any time during a legislative term by any majority. Procedural rules must therefore, in effect, maintain the continuous support of a majority.

4.1 Procedural Game

To understand legislators' choice between neutral procedures and restrictive procedures, we first need to characterize the nature of restrictive procedures adopted in equilibrium. Restrictive procedures are adopted in a procedural game. Legislators bargain over procedures with equal rights to propose new procedures that are set against the status quo of neutral procedures. Bargaining is subject to opportunity costs η .

There are two ways to think about this bargaining game. First, we can view it as a typical divide-the-dollar problem, as in Baron and Ferejohn (1989). Players have equal recognition and they make a choice among various alternative allocations of recognition rights from a simplex. However, the similarity ends there. In our procedural game players' preferences over outcomes are not completely symmetric. This is due to their locations in the policy space. For instance, the conflict of interest between L and M is less sharp than the conflict between L and R . Moreover, our choice problem has a non-empty core. In fact, it has a Condorcet winner: Exclusive recognition for the median wins a majority vote when paired against any other allocation.¹¹

The second way to look at the procedural game is as a bargaining game over policy lotteries. This is the approach we adopt. In the Appendix we show that, as in the policy game, the median is pivotal in every vote. The immediate consequence is that any no-delay equilibrium proposal has to make sure the median does not prefer delaying a majority decision. To put it differently, it has to avoid the median legislator choosing his fallback position, which is the uncertain outcome of possibly another round of bargaining.

In equilibrium M will exploit his pivotal position to pass his ideal allocation, namely exclusive recognition for himself, provided he is selected. L and R are able to extract rents when recognized as proposer, by proposing to share procedural rights with the median. Due to the symmetry of the game, L and R will offer the same probability share to the median. Let this share be denoted by $\pi_M^*(q, \gamma, \eta)$. Then, L and R 's proposals are, respectively,

¹¹Any other allocation makes the median strictly worse off and at least another legislator strictly worse off. The median is strictly worse off because of risk aversion; even if the new allocation is symmetric - and therefore generates an unbiased policy distribution - the median legislator strictly prefers exclusive recognition because it produces the median policy with certainty. At least another legislator is made worse off because he implicitly gets a policy lottery that has a less favorable variance and/or a less favorable mean.

$$\boldsymbol{\pi}^L = (1 - \pi_M^*, \pi_M^*, 0) \text{ and } \boldsymbol{\pi}^R = (0, \pi_M^*, 1 - \pi_M^*).$$

Proposition 2 (*Ad Hoc Procedures*) *The median will always have recognition rights under ad hoc procedures. If the median proposes procedures, he will pass procedures that give him exclusive recognition rights $\pi_M^* = 1$. If a non-median legislator proposes procedures, he will pass procedures where he shares recognition rights with the median. In this case the median gets at least its status quo recognition rights $\frac{1}{3} \leq \pi_M^* < 1$; this share decreases with opportunity costs η .*

It is intuitively clear why the median will preserve at least a third of procedural rights. The worst case scenario for the median is a deadlocked procedural bargaining session that will keep neutral procedures in place. Thus the median is able to exact at least his status quo rights. Another interesting feature of the equilibrium is that the median policy cannot be guaranteed by equilibrium ad hoc procedures as long as opportunity costs η are positive. As opportunity costs become negligible, equilibrium ad hoc procedures approach median procedures, and these in turn make policy outcomes approach the median.

Equilibrium procedures, as summarized by π_M^* , depend on two other parameters apart from η , namely q and γ . Their effect is ambiguous, however. There are two opposing forces. First, a more extreme status quo q or higher opportunity costs γ both weaken the median's bargaining power in the procedural game, because they make the median's fallback position less valuable - more volatile outcomes in the future. Second, a more extreme status quo q or higher opportunity costs γ both reduce the benefit that the median gets for each increase in recognition probability, because other legislators' policy influence is greater.

4.2 Majority Support for Restrictive Procedures

Given the biases that restrictive procedures may create, why would a majority consent to restrictive procedures? Why not stick to neutral procedures? The answer is that restrictive procedures improve procedural efficiency. They reduce the variance in future policy outcomes, without unnecessary bias.

The logic of this statement is as follows. Consider what a set of restrictive procedures needs to achieve if it is chosen by a majority. First, they have to benefit the median.

This is because the median is pivotal and so can veto any procedures that do not favor himself. Second, if the median benefits from restrictive procedures then it must be that they *reduce policy uncertainty*; otherwise, since the median was already getting his ideal policy on average under neutral procedures (by Proposition 1) restrictive procedures that increased policy uncertainty would be vetoed. Third, if policy volatility is reduced, then at least one other legislator must benefit from restrictive procedures. If policy remains unbiased, both will.

Proposition 3 *If there are no standing procedure in place, then on every policy issue there is an unanimous vote in favor of setting up ad hoc restrictive procedures.*

The expected policy distribution under ad hoc procedures is a composite lottery:

$$Y = \begin{cases} X^*(|q|, \gamma, \boldsymbol{\pi}^L), & \text{wp } \frac{1}{3} \\ X^*(|q|, \gamma, \boldsymbol{\pi}^M), & \text{wp } \frac{1}{3} \\ X^*(|q|, \gamma, \boldsymbol{\pi}^R), & \text{wp } \frac{1}{3} \end{cases} = \begin{cases} -x^*(|q|, \gamma, \pi_M^*), & \text{wp } \frac{1}{3}(1 - \pi_M^*) \\ 0, & \text{wp } \frac{1}{3} + \frac{2}{3}\pi_M^* \\ +x^*(|q|, \gamma, \pi_M^*), & \text{wp } \frac{1}{3}(1 - \pi_M^*) \end{cases}$$

which, because $\pi_M^* \geq \frac{1}{3}$, has a strictly smaller variance than the policy distribution under neutral procedures.

5 Organization

Standing procedures are adopted in an organizational game. Legislators bargain over procedures with equal rights to propose new procedures that are set against the status quo of neutral procedures. Bargaining is subject to opportunity costs η . The structure of this game is identical to the procedural game, with one major distinction. At the organizational stage, legislators do not know which policy issue (q, ω) will arise in the future. They know the ordering of ideal points ω for each possible issue that might arise, and they know the probability distribution of issues.

There are a few important cases we would like to consider. The first is the one where the preference ordering remains constant across issues. In other words, there is a single median over all issues. The second is the one where there are two equally likely medians, say 1 and

2. And third, we would like to consider the case where all three legislators are equally likely medians.

5.1 Idiosyncratic Preferences

The organizational game in this case is strategically equivalent to the procedural game. It is a game of bargaining over policy lotteries. In fact, at this stage in the game legislators deal with composite policy lotteries. The additional uncertainty comes from two sources: future variation in status quo and the identity of the proposer if there is a reversion to ad hoc procedures.

Proposition 4 (*Standing Procedures*) *Under standing procedures median procedural rights are $\frac{1}{3} < \rho_M^* \leq 1$. Standing procedures can be either biased or unbiased. They are upheld with positive probability.*

Standing procedures further reduce policy uncertainty relative to ad hoc procedures.

Equilibrium standing procedures have the same form as equilibrium ad hoc procedures. The median will always have recognition rights under standing procedures. If the median proposes procedures, he will pass procedures that give him exclusive recognition rights $\rho_M^* = 1$. If a non-median legislator proposes procedures, he will pass procedures where he shares recognition rights with the median.

The median's bargaining position under standing procedures is stronger than under ad hoc procedures. That is because the median is pivotal and his fallback position is adopting procedures issue-by-issue, which is preferred by him to neutral procedures.

Proposition 5 *There is an unanimous vote in favor of setting up standing procedures.*

The logic of this claim is analogous to the claim made for ad hoc procedures.

6 Conclusion

Legislatures are busy organizations where deliberation in the plenary has non-negligible opportunity costs. This paper proposes a model of endogenous choice of procedures in a

majority rule legislature. The model provides a new way of thinking about the role of legislative procedures as it sheds light on the incentives to set up restrictive procedures, some of the most evident features of modern legislative organization. We have argued that legislators who are risk averse have an incentive to organize the legislative process with the goal of reducing the variance of policy outcomes. Restrictive procedures thus play an efficiency role: they reduce the policy costs of considering legislation.

Appendix

Proof of Proposition 1 The strategy of the proof is to find a no-delay stationary equilibrium. Then to show that a delay stationary equilibrium can be ruled out. The key intermediate step in proving this proposition is to show that the support of the median legislator is both necessary and sufficient for a policy proposal to pass. By symmetry of the payoff functions we then show that proposals are symmetrically distributed around the median. We characterize the equilibrium proposals and votes and perform comparative statics. The no-delay equilibrium is unique by construction. Finally, a delay stationary equilibrium can be ruled out.

Step 1 If preferences are single-peaked and order-restricted then (a) an equilibrium proposal is approved by the median legislator, and (b) if a proposal is approved by the median legislator it passes.

Let (x_L^*, x_M^*, x_R^*) denote a no-delay equilibrium set of proposals.

(a) Suppose that in a no-delay equilibrium i makes a proposal x_i^* that M prefers to block and wait for another round of bargaining. By waiting M is essentially opting for the following policy lottery:

$$W = \begin{cases} q, & \text{with probability } \gamma \\ x_L^*, & \text{with probability } (1 - \gamma) \rho_L \\ x_M^*, & \text{with probability } (1 - \gamma) \rho_M \\ x_R^*, & \text{with probability } (1 - \gamma) \rho_R \end{cases}$$

over the sure outcome x_i^* . By order-restrictedness either L or R strictly prefer W as well. Therefore the proposal x_i^* does not get a majority, a contradiction.

(b) Suppose now that M weakly prefers the proposal x_i^* to waiting, that is, to W . Then, again by order-restrictedness, at least one other legislator must at least weakly prefer x_i^* to W ; otherwise both are strictly worse off with the proposal x_i^* , which means that the support groups for x_i^* and W are disconnected.

Step 2 The key implication of the first step of the proof is that to characterize equilibrium proposals it is sufficient to look at the median legislator's voting decision. The median votes

for any proposal x that satisfies:

$$u_M(x) \geq \gamma u_M(q) + (1 - \gamma) [\rho_L u_M(x_L^*) + \rho_M u_M(x_M^*) + \rho_R u_M(x_R^*)].$$

Since the median's payoff function is symmetric around zero, the set of proposals that are acceptable to the median is a closed interval centered at zero: $[-x^*, x^*]$. Proposers will then choose from this interval the policy that is closer to their ideal point:

$$x_L^* = -x^*, x_M^* = 0, x_R^* = x^*$$

Step 3 The no-delay equilibrium is then completely characterized by the policy deviation x^* . This satisfies the median's acceptance constraint with equality:

$$u_M(x^*) = u_M(-x^*) = \gamma u_M(q) + (1 - \gamma) [\rho_L u_M(x^*) + \rho_M u_M(0) + \rho_R u_M(-x^*)]$$

or, in terms of the function v :

$$v(x^*) = \frac{\gamma}{1 - (1 - \gamma)(1 - \rho_M)} v(|q|) + \frac{(1 - \gamma)\rho_M}{1 - (1 - \gamma)(1 - \rho_M)} v(0).$$

Step 4 Comparative statics. The equilibrium policy deviation is the certainty equivalent of a lottery between the status quo and the median's ideal point, therefore, as $0 < \gamma \leq 1$:

$$0 < x^*(|q|, \gamma, \rho_M) \leq |q|$$

It depends on three parameters: it increases in $|q|$, γ and decreases in ρ_M . Moreover, $\lim_{\gamma \rightarrow 0} x^*(|q|, \gamma, \rho_M) = 0$. In words, as opportunity costs become negligible policy outcomes converge to the median.

Proof of Proposition 2 [to be completed]

References

- [1] Aghion, Philippe, Alesina, Alberto F. and Trebbi, Francesco (2002) "Endogenous Political Institutions". Harvard Institute Research Working Paper No. 1957.
- [2] Austen-Smith, D. and J. Banks (2006) *Positive Political Theory II: Strategy and Structure*, University of Michigan Press.
- [3] Banks, J. S. and J. Duggan (2006b) "A Bargaining Model of Legislative Policy-Making," *Quarterly Journal of Political Science* 1: 49-85.
- [4] Barbera S. and M.O.Jackson. (2004). "Choosing How to Choose: Self - Stable Majority Rules and Constitutions." *Quarterly Journal of Economics* 119 (3): 1011-1048.
- [5] Baron, D. and J.A. Ferejohn (1989a) "Bargaining in Legislatures," *American Political Science Review* 83, p.1181-1206.
- [6] Baron, D. and J.A. Ferejohn (1989b) "The Power to Propose," in P. Ordeshook (ed.) *Models of Strategic Choice in Politics*, Ann Arbor: University of Michigan Press.
- [7] Black, D. (1958) *The Theory of Committees and Elections*, London: Cambridge University Press.
- [8] Cox, G.W. (2006) "The organization of democratic legislatures," in B. Weingast and D. Wittman (eds.) *The Oxford Handbook of Political Economy*, Oxford: Oxford University Press.
- [9] Cox, G.W. and M.D. McCubbins (1993) *Legislative Leviathan: Party Government in the House*, Berkeley, CA: University of California Press.
- [10] Diermeier, D. (1995) "Commitment, Deference and Legislative Institutions," *American Political Science Review* 89, pp. 344-355.
- [11] Diermeier and Vlaicu (2008) "Parties, Coalitions and the Internal Organization of Legislatures," working paper.
- [12] Dixit, Avinash, Gene M. Grossman and Faruk Gul (2000). "The Dynamics of Political Compromise," *Journal of Political Economy* 108(3): 531-568.

- [13] Gilligan and Krehbiel (1987) "Collective Decision-Making and Standing Committees: An Informational Rationale for Restrictive Amendment Procedures," *Journal of Law Economics and Organization* 3(2), pp. 287-335.
- [14] Gilligan and Krehbiel (1989) "Collective Choice without Procedural Commitment," in P. Ordeshook (ed.) *Models of Strategic Choice in Politics*.
- [15] Kim and Rothenberg (2008) "Foundations of Legislative Organization and Committee Influence," *Journal of Theoretical Politics* 20(3), pp. 339-374.
- [16] Kocherlakota, Narayana R (1996). "Implications of Efficient Risk Sharing without Commitment," *Review of Economic Studies* 63(4): 595-609.
- [17] Koray, S. (2000). "Self-selective social choice functions verify Arrow and Gibbard-Satterthwaite theorems" *Econometrica* 68: 981-995.
- [18] Krehbiel, K. (2004) "Legislative Organization," *Journal of Economic Perspectives* 18(1), pp. 113-128.
- [19] Messner, Mathias and Mattias K. Polborn. (2004). "Voting on Majority Rules," *Review of Economic Studies* 71(1): 115-132.
- [20] Mayhew, D. (1974) *Congress: The Electoral Connection*, New Haven, CT: Yale University Press.
- [21] Patty, J. (2007) "The House Discharge Procedure and Majoritarian Politics," *The Journal of Politics* 69, pp. 678-688.
- [22] Romer T. and H. Rosenthal (1978) "Political Resource Allocation, Controlled Agendas and the Status Quo," *Public Choice* 33, pp. 27-43.
- [23] Shepsle and Weingast (1981) "Structure-induced Equilibrium and Legislative Choice," *Public Choice* 37(3): 503-519.
- [24] Shepsle and Weingast (1984) "When Do Rules of Procedure Matter?" *The Journal of Politics* 46(1), pp. 206-221.
- [25] Stewart C. (2001) *Analyzing Congress*, Norton.
- [26] Wilson, W. (1885)[1963] *Congressional Government*, Boston: Houghton-Mifflin.