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Alessandra Casella, Sébastien Turban, and Gregory Wawro

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REFORMING SENATE RULES FOR JUDICIAL NOMINATIONS[+]

By Alessandra Casella[*], Sébastien Turban[±], and Gregory Wawro[§]

Abstract

There is general agreement on the need for reform in the confirmation process in the Senate. This paper considers judicial nominations, and proposes a system of Storable Votes, coupled with periodical simultaneous votes on a slate of nominees. Storable Votes would substitute the cloture vote. As is the case now, each candidate would be nominated for a different position, and each senator would vote on whether to move the nomination forward to the final vote. Under Storable Votes, the nomination would move forward if a simple majority of votes is in favor, but a senator's total number of votes, equal to the number of nominees on the slate, could be distributed over the different names in any way the senator wishes. The senator is then induced to cast more votes on nominations he considers higher priorities. By accounting for intensity of preferences, Storable Votes make it possible for the minority to win occasionally, but only when the relative importance its members assign to a nomination is higher than the relative importance assigned by the majority.

The power of the minority depends both on the cohesion of the minority party and on the polarization of the nomination process. Numerical simulations show that under plausible scenarios the minority succeeds in blocking between 20 and 30 percent of nominations.

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[*] Columbia University, Department of Economics; NBER, and CEPR, ac186@columbia.edu
[±] Columbia University, Department of Economics, st2511@columbia.edu
[§] Columbia University, Department of Politics, gjw10@columbia.edu

1. Introduction

Controversy over the confirmation of judicial nominees has reached unprecedented levels. At the root of this controversy is the use of the filibuster in the U.S. Senate to delay and in many cases prevent the confirmation of judges to the federal bench. This has raised the question of whether the Senate is failing to perform its constitutional duties of advice and consent. While various reform proposals have been considered, none has made much headway. The minority party has uniformly and steadfastly opposed reform out of fear that it will be steamrolled by the majority party, and even members of the majority party frustrated by minority rigidity are leery of taking steps that would alter the tradition of extended debate that has marked the Senate as unique among the world's legislatures. The Senate finds itself in a morass, failing to perform its basic duties yet unable to make rules changes that would put it back on the path to being a functioning institution.[1]

In this paper we consider a reform that better balances the respect for minority rights with the right of the majority to rule. This reform, which employs *Storable Votes*, restores legislative obstruction to its legitimate role of protecting exceptionally strong minority preferences---something that has been missing in the era of the "silent filibuster." This should appeal to the minority and has the potential to resolve to a degree the charged debate on reforming filibuster rules, especially as the majority increasingly threatens to invoke the so-called "nuclear option" and strip the minority of its ability to block nominees. We demonstrate how storable votes can lead to minority victories in certain instances, but only if the minority is particularly intense in its opposition to certain nominees. In essence, this restores an informational component to minority obstruction that was valued by majorities as well as minorities throughout Senate history, but has been absent in recent decades.

[1] See for example the discussion in Mann and Ornstein, 2008.

2. Judicial Nominations: Institutional Details

Abstracting from courts of special jurisdiction[2], there are 865 federal judge positions in the United States: 9 Supreme Court judges, 179 Court of Appeal judges and 677 District Court judges. There are 94 District courts, ranging from 2 to 28 judges each. At the time of this writing (03/28/13), there are 67 current vacancies for district judges and 17 future vacancies, with 17 nominations pending. The Courts of Appeal (or Circuit Courts) are organized in 13 circuits and currently have 16 current vacancies and 2 future vacancies, with 7 nominees pending.

Federal judges in these courts have life tenure. They are nominated by the President and must be confirmed by the Senate. Typically, the President selects the names in consultation with (or on recommendation from) the senators of the state where the judge will serve.[3] The name of a nominee is then referred to the Senate Judiciary Committee which conducts background checks and gathers additional information, including the rating assigned to the nominee by the American Bar Association. Once all information is collected, the Judiciary Committee holds a hearing, calling witnesses in favor and against the nominee, and the nominee himself. After the hearing, the Committee votes on whether to report the nomination to the full Senate, and if the nomination proceeds decides whether to add its own recommendation, in favor or against the nominee. If the nomination proceeds, it is then debated by the full Senate. While a simple majority can confirm the nominee via an Up-or-Down vote, ending debate to move to that vote requires the support of a broader coalition. The majority leader can ask for unanimous consent to close debate and move to the vote, but if a

[2] The Court of Appeals for the Armed Forces, the Court of Federal Claims, the Court of International Trade, the Tax Court, the Court of Appeals for Veterans Claims, the Judicial Panel on Multidistrict Litigation.

[3] The practice of the Blue Slips guarantees that the home senators have a voice: the Senate Judiciary Committee asks the two home senators (on light blue letterhead) whether they approve of the nominee. The senators check off the appropriate box and return the slip (or occasionally pointedly refrain from returning it). Blue slips are not a formal part of the nomination procedure and the importance assigned to them has varied with time and with the Chairs of the Judicial Committee.

single senator objects the nomination stalls.[4] If unanimous consent is not granted, the majority leader has two options: he can bargain with objecting senators, or he can seek to invoke cloture on the nomination. In the latter case, a cloture motion must be filed. It is adopted if it obtains at least 60 votes in favor, in which case debate ends and the nomination proceeds to the Up-or-Down vote. In recent practice, prolonged floor debate need not and typically does not actually take place, giving rise to so-called "silent filibusters". Whether the filibustering senators are silent or talking, as long as the votes in favor of invoking cloture are short of the required 60, the nomination does not proceed. Of course, dilatory tactics are possible not only in preventing the final vote but at every step of the process--for example, in delaying the Judiciary Committee hearing, or in reporting the nomination to the full Senate after the hearing.

3. A Brief History of the Filibuster of Judicial Nominations[5]

Throughout most of the Senate's history, filibusters of judicial nominations were extremely rare. In almost all cases, the individuals nominated by the President were confirmed with little controversy, often by voice votes (Wawro, 2011). While there is disagreement over when the first true filibuster of a judicial nomination occurred, this kind of obstruction did not become a major issue until the first decade of the 21st century. According to available measures, the use of filibusters had increased dramatically since the 1970s, and had begun to concern a broader range of Senate business (Binder and Smith,1997; Binder, Lawrence and Smith, 2002; Beth, 2013; Dion, 1997; Sinclair, 2002). The expansion in filibusters fully extended to judicial nominees, however, only during the administration of George W. Bush, when minority party Democrats filibustered a set of nominees to the Court of Appeals. The controversy came to a head in 2005 when the Republican leadership threatened to use a complicated--but not entirely unprecedented --procedural maneuver involving a ruling from the presiding officer of the Senate that would have permitted Republicans to end the filibusters

[4] A senator can place a "hold" on a nomination, signaling in advance the senator's objection to the unanimous consent request.

[5] See Burdett, 1940, for the first systematic study of the filibuster in the US Senate.

with a simple majority vote instead of the three-fifths majority required to invoke cloture under existing Senate rules (Gold and Gupta, 2004). The use of this maneuver, referred to as the "nuclear option" or less pejoratively as the "constitutional option," was preempted by an informal agreement struck by a bipartisan group of senators known as the Gang of Fourteen. Under the agreement, majority party signatories would not support the effort to change the rules while minority party signatories would agree to vote in favor of cloture on some---but not all---of the obstructed nominees to permit their confirmation. As a result, three of the five obstructed nominees were confirmed. With respect to future nominations, the senators who signed the memo of understanding agreed to "exercise their responsibilities under the Advice and Consent Clause of the United States Constitution in good faith," and filibuster nominees only under "extraordinary circumstances." The signatories themselves would determine when such circumstances existed.[6]

While the Gang of Fourteen agreement diffused the immediate controversy, judicial nominations have continued to be contentious, raising again the possibility that majority party senators will try to invoke the nuclear option with respect to the confirmation process.[7] The number of judicial confirmations was particularly low during the first three years of the Obama presidency. It has since recovered and the confirmation rate is at present around 80 percent, similar to what it was under Clinton, although lower than the 90 percent and above that was the norm during the Carter and Reagan presidencies. Figure 1 summarizes nominations and confirmations for Circuit (Appeal) courts and District courts under the last three Presidents, at the same time in their second mandate.

More striking than the confirmation rate is the increased delay in processing nominations. The Congressional Research Service has compiled measures of delay for "uncontroversial" nominees---nominees reported by the Judicial Committee to the full Senate with a unanimously favorable

[6] Koger, 2008, discusses the dispute over the Bush nominations and the emergence and role of the Gang of Fourteen.

[7] See for example http://www.reuters.com/article/2013/07/15/us-usa-congress-senate-idUSBRE96D08M20130715.

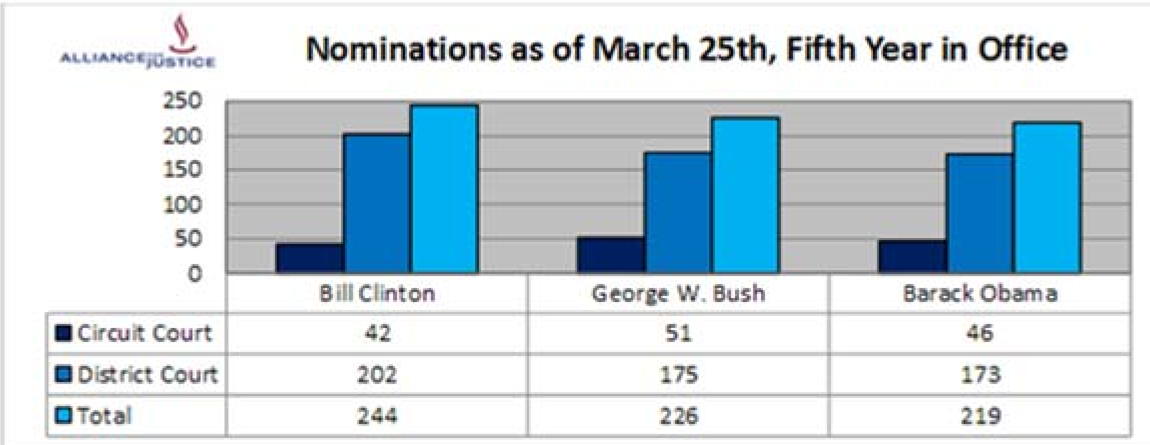
recommendation and finally approved with less than five negative votes. Considering data from the Reagan presidency to the Obama presidency[8], the median delay between nomination and confirmation for "uncontroversial" Circuit court nominees has gone from a low of 44 days during the Reagan presidency to a high of 218 days under the Obama presidency, and the proportion of nominees waiting more than 200 days has increased correspondingly from 5 to 64 percent. For "uncontroversial" District court nominees the numbers are very similar: the median delay has gone from a low of 41 days (Reagan presidency) to a high of 208 days (Obama presidency), and the proportion of nominees waiting more than 200 days has increased in parallel from 7 to 55 percent.[9] Figure 2 reports average and median delays for uncontroversial nominees over the last five presidencies.

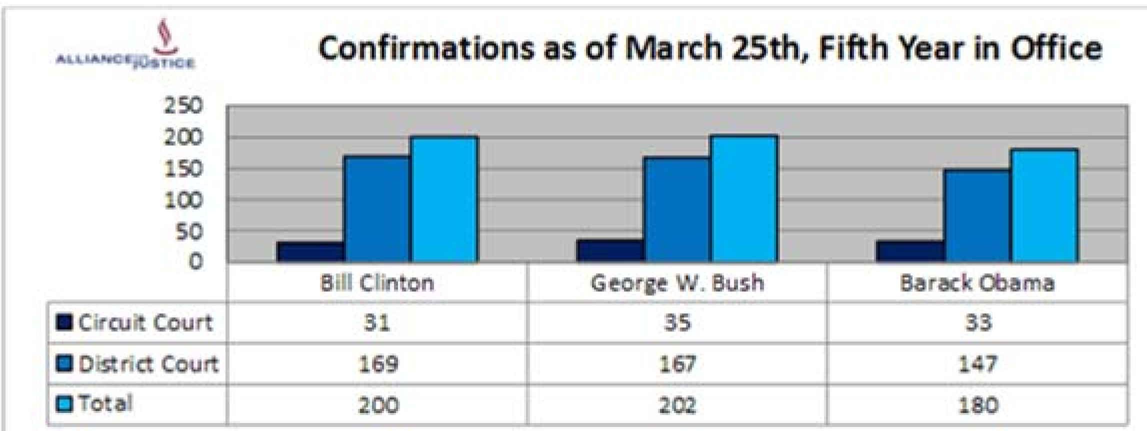
The dramatic increase in delays, matched with relative stable rates of confirmation, supports the view that obstruction has come to play a larger role in judicial nominations. The data suggest widespread, generalized opposition, as opposed to reasoned disagreement over specific nominees.[10] If this reading is correct, creating a confirmation system that channels opposition away from across-the-board dilatory tactics and into concentrated efforts to stop few specific nominations should bring back the original motivation for debate and indeed for the filibuster.

[8] From 1981 to September 14, 2012.

[9] McMillion, 2012a, Congressional Research Service, R42732. If all nominees are included, not only uncontroversial ones, the highest delays appear during the presidency of G.W. Bush. See McMillion, 2012b, Congressional Research Service R42556. The general observation that time needed for confirmation has increased dramatically in the last thirty years remains unchanged but the reading may be slightly more optimistic: over the last two presidencies, the Senate did impose longer delays on more controversial nominees.

[10] See also the detailed analysis in Shenkman (2012).





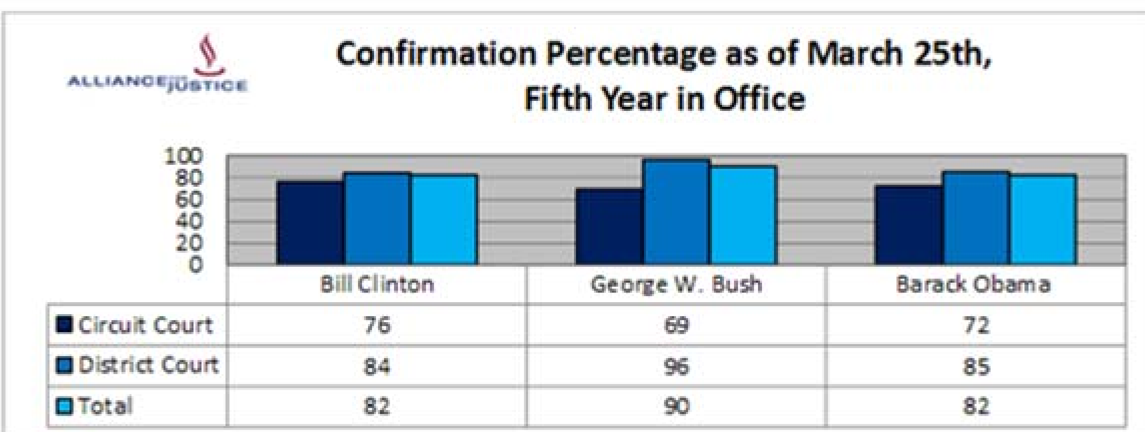


Figure 1. Judicial nominations summary. Source: Alliance for Justice, http://www.afj.org/judicial-selection/judicial-selection-snapshot.pdf.

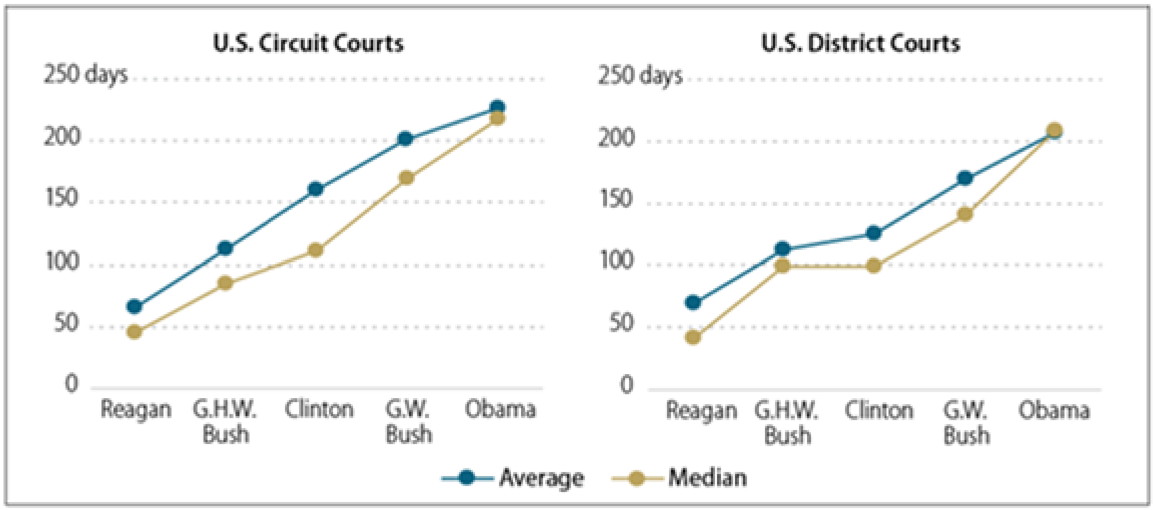


Figure 2. Delays from first nomination to confirmation for uncontroversial judicial nominees (1981 to September 2012). Source: McMillion, 2012a.

Democratic leaders have declared that the Gang of Fourteen agreement is dead.[11] While the Senate adopted rules reforms at the beginning of the 113th Congress and attempted to address the problems of filibusters more generally, those reforms appear to have done little to resolve the problems. More serious attempts at reform are necessary.

Any serious reform effort needs to acknowledge the significant capacity of the minority to prevent changes in rules. While there is disagreement over the viability of the nuclear option, the reluctance to resort to it suggests that there may be bipartisan support for an alternative that would fall short of imposing majority cloture and keep intact the ability of a minority to obstruct nominees that it intensely opposes.[12] Intensity of opposition used to figure prominently in filibuster battles and its expression was valued by members of the majority because it provided an informative signal about potential public opposition (Wawro and Schickler, 2006). In recent congresses, the intensity dimension to obstruction has largely been lost, as filibustering senators are no longer forced to

[11] See http://thehill.com/homenews/senate/301615-democratic-leaders-pact-that-kept-us-from-using-nuclear-option-is-dead.

[12] See the discussion of arguments for and against legislating by supermajorities in McGann, 2004.

take and hold the floor for lengthy periods of time. Instead, "silent filibusters" have become the norm, and senators can merely threaten to filibuster a piece of legislation or a nomination to keep it from advancing. Since senators no longer incur the costs that were traditionally associated with filibusters, the filibusters have become minimally informative about intensity. A reform that preserved the ability of a minority to obstruct but restored the intensity dimension to this obstruction would be attractive to members of the majority. Requiring opposing senators to physically hold the floor would cost dearly in terms of one of the senate's more scarce resources--time. We suggest that an appropriate reform of the voting system would achieve the same goal without such waste.

4. Storable Votes

Storable votes are designed to grant voters increased influence over those decisions they consider most important. By doing so, they allow the minority to win occasionally, while avoiding not only the costs in time of "talking filibusters" but also the inertia and political horse-trading of supermajorities and vetoes. Storable votes induce individuals to reveal their priorities truthfully; most importantly, they are simple and treat everyone equally.

The idea is analyzed at length in Casella, 2012.[13] Here we summarize briefly its main properties. Consider a committee faced with a number of independent binary decisions: for example, a set of proposals, each of which can either pass or fail; or a set of candidates, each to be appointed to or rejected for a particular position. Each decision is taken according to the majority of votes cast and each voter has a number of votes equal to the number of decisions. The only difference with respect to simple majority voting is that a voter is not restricted to casting a single vote on each decision, but can choose how many votes to cast, out of the total number at his disposal. For concreteness, imagine a meeting in which ten nominees are presented for confirmation. Each voter then has ten votes at his disposal. If a voter is somewhat indifferent over one name, he can choose to abstain and save ("store") his corresponding vote for use over a different

[13] See also Casella, 2005; Casella, Palfrey and Riezman, 2008, and Casella and Gelman 2008. Hortalà Vallvé, 2012, independently proposes a very similar idea.

nominee. If he feels very strongly about one of the nominees, he can choose to cast several votes on that nominee, as many as he wishes, under the constraint that the total number of votes cast over the entire slate of ten nominees cannot exceed ten. If the voter casts five votes for or against one nominee, for example, then he will have five only left for the remaining nine.

Storable votes have several desirable properties.[14] First, by allowing a voter to concentrate his votes, and hence his influence, on the decisions he feels more strongly about, storable votes allow the voter to increase the probability of obtaining his desired outcome when it matters, at the cost of lower influence on decisions he cares less about, an advantageous trade-off. Second, by creating a distinction between the majority of *votes* and the majority of *voters*, storable votes allow the minority to win occasionally, but only on decisions to which the minority assigns higher priority than the majority does, and only with a frequency that is correlated to the size of the minority group. Third, although storable votes make minority victories possible, they treat every individual identically. This is important both because it corresponds to our ethical imperatives and because it implies that the design of the voting scheme need not be modified if the size of the minority changes.

Before discussing how storable votes could be applied to judicial nominations, two clarifications may be useful. First, the model makes no particular assumption on the "origin" of the preferences: every individual voter has preferences for or against each decision, and holds these preferences with more or less intensity (thus including the possibility of indifference). But whether the preferences originate in self-interest, or in the voter's view of the common good, or in the advantage of the group or party he identifies with is not our concern here. Individual preferences are the primitives of our analysis and we do not question them. We ask how storable votes aggregate those preferences in a social choice.

Second, by allowing voters to cast multiple votes on a single decision, subject to a budget constraint, storable votes resemble *Cumulative Voting*. There

[14] The properties listed below have been derived theoretically and tested experimentally in the laboratory and, in one case, in a field test. See Casella, 2012.

are however important differences. Cumulative voting applies to elections in which multiple candidates simultaneously compete for a limited number of positions. Each voter holds a number of votes equal to the number of positions and can cast as many votes as the voter wishes on any individual candidate. The important point is that all candidates compete for all positions. As a result, the favorite candidate of a cohesive minority of sufficient size is *guaranteed* to be elected: if all minority voters cast all their votes for that candidate it is impossible for the majority to distribute its votes so that all slots are filled by majority candidates with a higher number of votes. No such guarantee exists with storable votes because each decision or candidate is independent of the others, and each can only pass or fail. The number of votes cast on one nominee has no direct impact on the probability that a different nominee be confirmed or not.[15] Contrary to storable votes, applying cumulative voting to judicial nominations would demand a fundamental change in the right to nominate candidates. Cumulative voting would require *two* alternative lists of nominees, presented by the two major parties, from which the confirmed names would be chosen by voting. The principle of presidential nomination would be abolished.

5. Storable Votes as an Alternative to the Filibuster

Our concrete proposal is the use of storable votes in deciding whether or not to move a nomination to the Up-or-Down vote by the full Senate. Our focus is on District court and Circuit courts nominations.[16] The vetting of the nominees by the Senate Judicial Committee would remain unchanged. Once the Committee

[15] Imagine for example a scenario with five open slots. With both Cumulative Voting and Storable Votes, each voter has five votes to be spent on the different candidates as desired. With Cumulative Voting however, there are more than five candidates, and only the five with the highest number of votes are elected. Imagine, for example, a minority of 30 and a majority of 70. If the minority casts all its votes over his preferred candidate, that candidate will receive 150 votes (30*5). The majority has a total of 70*5 = 350 votes, and cannot possibly divide them over five names in such a way that all have more than the 150 votes necessary to beat the minority's candidate. With Storable Votes, there are only five candidates and each can be confirmed or not. If the minority casts all its votes against confirming candidate *A*, for example, the majority can still win a confirmation for *A* by casting any number of votes higher than 150, which is clearly feasible since it holds 350 in all. As for the other candidates, the minority has no votes left, and the majority, with a possible reserve of up to 199 votes (350-151) will win the other votes too.

[16] Supreme Court nominations are too infrequent for our scheme and politically too momentous for realistic reform.

decides to report nominees to the full Senate, however, this would be done not as a single name at an arbitrary time, but on a slate of several names, at fixed intervals during the year. Each slate would comprise only nominees to the same level courts---either all nominees to District courts, or all nominees to Circuit courts. Each name would be nominated for a specific position and there would be no competition for positions among the different names. As in the current system, the only question would be whether or not the nominees should be confirmed. For concreteness, suppose that District court lists would include ten nominees and be presented to the Senate every three months, from March to December. Lists of nominees to Circuit courts would be shorter and presented less frequently: for example, they could include five names and be presented twice during the year. These numbers are arbitrary and we present them here as examples only, but they are in line with the data on nominations and confirmations in recent years.

Once a slate of nominees is reported to the full Senate, debate on all the nominees takes place. Debate over each nominee could be mandated for a specified minimal amount of time, barring unanimous agreement to proceed to the vote on moving the nomination further. Similarly, a maximal time devoted to debate would also be specified and could be lengthened only by unanimous consent. The debate ends with a vote on whether or not to move each nomination to the final Up-or-Down vote. As in the current system, it is at this stage that the minority's interests are protected, both in allowing debate and in giving the minority the chance of blocking some of the nominations.

The main innovation is the voting procedure on whether or not to move the nomination further. Over the full slate of names, each senator would have a total number of votes equal to the number of nominations and would be able to cast as many of those votes as desired on any individual nomination, subject to the total number of votes at the senator's disposal. If the list has ten nominations, for example, then each senator would have ten votes. The senators would proceed to vote on each nomination in turn by secret ballot; all ballots would then be counted when all nominations have been considered and voting has ended.

As in the standard logic of storable votes, the possibility to concentrate votes allows the minority to win some of the contests---here to block some of the nominations from proceeding to the final vote. Exactly as in the case of the filibuster, the minority's right to influence the nominations process is recognized. However, the minority cannot block all nominations, but must choose those it considers salient enough to exercise its concentrated power. Even then, it will be able to stop nominations only when the majority assigns to them a lower relative priority than the minority does, as indeed seems appropriate in a majoritarian system. The minority is not guaranteed a minimum number of successful blocks, but can prevail in those cases in which our intuitive sense of justice would want a minority to prevail: when it cares more strongly than the majority does.

If a nomination is prevented from proceeding to the final vote, it must be withdrawn and cannot be represented. If a nomination proceeds to the final vote, it is then voted upon by simple majority.

There are at least two reasons why storable votes are well-suited to voting over judicial nominations. First, the confirmation of any individual nominee is logically independent from the confirmation of another: each decision is to be taken on its own right. Because the decisions are separable, the number of votes cast on each can respond to the importance assigned to the specific nomination. Second, in the design proposed here, the full slate of nominations is known when votes are cast: there is no uncertainty on the agenda that may drive a voter to save votes against an uncertain future nomination.

But what effect would such a system have in practice? Addressing this question requires the discipline of a formal model.

6. The Model

A committee of N members votes on a set of T nominations, each of which can either pass or fail. Voter i's preferences over nomination t are summarized by a value $v_{it} \in [-1,1]$. A positive value means that the voter is in favor of the nomination, a negative value that the voter is against. Voter i's utility from the decision on nomination t, u_{it}, is given by $v_{it} = |v_{it}|$ if the outcome of the vote is as he desires, and $-v_{it}$ otherwise.[17] We call v_{it} the *intensity* of voter *i*'s preferences over nomination t. Thus each voter's preference over each nomination has two dimensions: *direction*, indicated by the sign of v_{it}, and *intensity*, indicated by the magnitude of v_{it}. Preferences are separable across nominations, and voter *i*'s utility over the full set of nominations U_i equals the sum of the utilities derived from all nominations: $U_i = \Sigma_t u_{it}$.

The committee is composed of two groups of different sizes, the majority, of size M, and the minority, of size $m < M$. With abuse of notation, we will use M and m to indicate both the labels and the sizes of the two groups. The two groups differ systematically in their preferences: all majority members are in favor of all nominations and all minority members are opposed: $v_{it} < 0$ for all $i \in m$, and $v_{it} > 0$ for all $i \in M$.

The direction of preferences is thus publicly known but intensities are private information, although their stochastic properties are common knowledge. Each voter's intensities are independent across nominations, but may be correlated to other voters' intensities for a given nomination, both within and across groups, capturing the possibility that different posts may be considered more or less important, and different nominees more or less polarizing. For given nomination t, the voters' profile of intensities v_t is a random variable distributed according to the commonly known distribution $\Gamma_t(v)$. For most of our analysis, we assume that values are identically distributed across nominations: $\Gamma_t = \Gamma$, and for each nomination, we denote by Σ the covariance matrix of voters' values. We allow for a generic Σ with the only constraints that it must be symmetric, positive semi-definite, and different from the unit matrix.[18] We assume in addition that each committee member's marginal distribution over his own value, $\Gamma'_t(v_i)$, is identical across members and, here and for most of our analysis, uniform over [0,1].

[17] What matters is the *differential* utility from winning or losing the fight over a nomination, here $v_{it}-(-v_{it})=2v_{it}$. Alternative normalizations are fully equivalent. For example: (1) $u_{it} = v_{it}$ if the outcome of the vote is as i desires, and 0 otherwise; or (2) $u_{it} = v_{it}$ if the nomination is approved and 0 otherwise. In both of these cases, the differential utility equals v_{it}, identical up to a constant (2) to the specification in the text.

[18] We denote by unit matrix a matrix composed fully of 1's. Because voting occurs after one's own values are realized, this last constraint is necessary for the game to have incomplete information.

A cohesive majority always wins the up-or-down vote, which is decided by simple majority. The point at which the minority can make itself heard is the vote to end debate, where the filibuster can take place. In the theoretical model, we can thus merge the vote to end debate and the final up-or-down vote in a single poll, held with storable votes, with no loss of generality. Each voter holds a total of T votes and can cast as many as the voter wishes for or against any nomination. All voters cast their votes simultaneously over all nominations, and each nomination is then decided according to the majority of votes cast. In case of a tie, we suppose that the nomination is approved.[19] No voter can gain from casting votes against his sincerely preferred direction, and thus we assume that voters vote sincerely.[20] The strategic question that every voter i faces is the number of votes to cast on any individual nomination t, a variable we denote by x_{it} where $x_{it} \geq 0$ and $\Sigma_t\ x_{it} = T$. Formally, the equilibrium concept is Bayesian Nash equilibrium. Denoting by x_i^* the equilibrium vector of votes cast by i, by x_{-i}^* the equilibrium profile of votes cast by all other voters, and by EU_i i's expected utility, then: $x_i^*(v_i,m,M,T,\Gamma) = \text{argmax}\ EU_i\ (x_{-i}^*\ (v_i,m,M,T,\Gamma)$ for all i.

Equilibrium strategies are not easy to characterize: each individual strategy is T-dimensional; we have left the correlation patterns within and across the two parties very general, and the different sizes of the two parties make the game asymmetrical. The following, however, must hold:

> **Proposition 1**. *For any* Σ*, an equilibrium exists.*
> **Proof**. For any Σ the multivariate distribution Γ is a Gaussian copula. In particular, this distribution is absolutely continuous with respect to the product measure of the uniform marginals because it has a density with respect to the Lebesgue measure. Because of that, and because each action set is finite, conditions R1 and R2 in Milgrom and Weber (1985) are satisfied. Hence an equilibrium exists. □

[19] The assumption acknowledges the power of the agenda setter--here the President. But alternative assumptions, for example resolving ties with a coin toss--would not affect the substance of the results.
[20] Voting against one's preferred direction is weakly dominated: it can be a best response only if the voter is not pivotal. Thus it yields a payoff that is always weakly lower than voting in line with one's preferred direction.

We know that an equilibrium exists because we can apply directly the existence theorem in Milgrom and Weber (1985). But what properties do the equilibrium strategies possess? What complicates matters is the arbitrary correlation of intensities within and across the two groups. For the question we have in mind, allowing for a general pattern of correlations is important, and it is the assumption we will maintain in the rest of the paper. For an intuitive understanding of the equilibrium strategies, however, it is very helpful to consider some special cases. For the rest of this section only, then, suppose that intensities are: (i) independent across the two groups, and (ii) either independent (model *B*) or fully correlated (model *C*) within each group. In other words, if voter i belongs to group g ($g \in \{M,m\}$), the importance that i attributes to nomination t, v_{it}, conveys no information about v_{jt}, $j \in g' \neq g$, the importance attributed to t by any voter j belonging to the other group. In model *B*, it also conveys no information about the importance attributed to t by any other voter $s \in g$, i.e. by any other voter belonging to i's own group. In model *C*, on the contrary, $v_{it} = v_{st}$ for all $i, s \in g$: all members of the same group attribute the same importance to any given nomination.[21]

In model *C*, voters' interests within each group are perfectly aligned; if there is an equilibrium where each group coordinates its strategy so as to maximize the group's payoff, given the aggregate strategy of the other group, then no individual voter can gain from deviating.[22] Thus we can represent the n-person game described by model *C* through a simpler 2-person game where the players are the two groups, or alternatively the two group leaders. We call such game *C2* and denote the strategies by x_M and x_m. Game *C2* again satisfies the conditions in Milgrom and Weber (1985) and thus we know that an equilibrium exists. In addition:

Lemma 1. *Both models B and C2 have an equilibrium in pure strategies.*

[21] Models *B* and *C* are studied in detail in a related model in Casella, Palfrey and Riezman (2008).
[22] This is the logic exploited by McLennan (1998).

> **Proof.** Both models *B* and *C2* satisfy the conditions of the Purification Theorem in Milgrom and Weber (1985).□

As shown in Casella, Palfrey and Riezman (2008), there is a simple equivalence between the equilibrium strategies of the *C2* game and the equilibrium strategies of the original *C* model. In particular, there exist equilibrium strategies of model *C* such that $\Sigma_{i \in m} x_{it}^{*}(v_{it},M,m,T) = x_{mt}^{*}(v_{mt},M,m,T)$ and $\Sigma_{i \in M} x_{it}^{*}(v_{it},M,m,T) = x_{Mt}^{*}(v_{Mt},M,m,T)$: model *C* has an equilibrium such that the aggregate number of votes cast by all members of a group over each nomination equals the number of votes that each player casts in equilibrium in the 2-person game. We can thus call equilibrium *group strategies* of model *C* the equilibrium individual strategies of the *C2* game. The following property then holds:

> **Proposition 2: Monotonicity.** *We call a strategy monotonic if the number of votes cast is monotonically increasing in the intensity of preferences v_{it}. For any number of voters N, party M and m, number of nominations T, and distribution Γ, model B has an equilibrium in monotonic individual strategies; model C has an equilibrium in monotonic groups strategies.*
>
> **Proof**. Call $X_{-i,t}$ the net balance of votes in favor of nomination *t* excluding voter *i*, who may belong to either group: $X_{-i,t} = \Sigma_{\{j \in M, j \neq i\}} x_{jt} - \Sigma_{\{j \in m, j \neq i\}} x_{jt}$. Consider first model *B* and suppose other voters' strategies are monotonic. Given $\Gamma_{t} = \Gamma$, independence across and within groups implies $EX_{-i,t}(v_t,M,m,T) = EX_{-i,t'}(v_{t'},M,m,T)$ for all *t, t'*: the expected vote balance is equal across nominations. But note that voter *i*'s probability of being on the winning side on nomination *t* is always weakly increasing in x_{it}. It follows that *i*'s best response is monotonic. Identical logic holds in model *C2*, and hence applies to group strategies in model *C*. □

Monotonicity is at the heart of storable votes' intuitive appeal. It states, simply, that a voter will cast more votes on decisions the voter considers higher priorities. The following example makes clear how it may apply.

> **Example**. *Suppose M = 3 and m = 2, with T = 2. Each voter has a total of two votes.*
>
> (i). *In model B there is an equilibrium where each minority member i casts both votes on nomination t if $v_{it} \geq 1.36\, v_{it'}$, and casts one vote on*

each nomination otherwise; each majority member j casts both votes on issue t if $v_{jt} \geq 1.05\, v_{jt'}$*, and casts one vote on each nomination otherwise. The minority blocks each nomination with 24 percent probability. Thus both nominations are blocked with 5.75 percent probability, and both pass with 58 percent probability.*

(ii). In model C there exists an equilibrium where the majority casts four votes on nomination t such that $v_{Mt} \geq v_{Mt'}$*, and two votes on* $v_{Mt} \leq v_{Mt'}$*; the minority casts all its four votes on nomination t such that* $v_{mt} \geq v_{mt'}$*. Thus with 50 percent probability one nomination is blocked and with 50 percent probability both pass.*

The voting patterns in the example are intuitive: in both models, voters concentrate their votes on the nomination to which they assign higher intensity. In model *B*, concentration requires that the wedge in intensities be large enough; in model *C*, concentration always occurs, although the majority never needs to concentrate *all* its votes.

7. Simulating Storable Votes in the Senate

In what follows, we abandon the restrictions on the correlations of intensities imposed in models *B* and *C*, and we parameterize the model with the goal of approximating the current composition of the Senate. The matrix Σ is positive definite, but otherwise arbitrary; there are 100 senators ($N = 100$), 55 are in the majority party, and 45 in the minority party ($M = 55$, $m = 45$)[23], and we suppose that the Senators vote on a slate of 10 district judges ($T = 10$). We describe below our methodology and then our results as we increase incrementally the complexity of the environment.

7.1. Rules-of-thumb

The example described in the previous section confirms the findings of existing analyses of storable votes in small committees. But studying the effects of the voting rule in a concrete application to a body like the Senate requires a different approach. The problem is that identifying the equilibrium strategies in a general

[23] There are currently 53 Democratic senators and 45 Republican senators, with 2 Independent senators typically voting with the Democrats.

enough set-up is simply too difficult: equilibrium strategies are conditional on the realization of the whole vector of intensities and on their stochastic properties--in particular the correlations of intensities, both within and across parties.[24] If we want to preserve the richness of the model, we need a simplification. We propose to model the voters' behavior through a set of possible rules-of-thumb. There are two additional reasons for deviating from the full equilibrium analysis. First, given the complexity of the optimal strategy, simple rules are in fact more likely to approximate actual behavior in the Senate. Second, simple rules-of-thumb will allow us to evaluate how robust the results are to strategic mistakes, in particular to sensible but not fully optimal behaviors.

We develop the rules through a number of assumptions. First, we impose monotonicity, in line with the broad intuition behind storable votes. Second, we suppose that the number of votes cast depends, for each voter, exclusively on the ranks of the voter's realized intensities, and not on their cardinal values. Thus we ignore the possible importance of the exact wedge between intensities that emerges in the example above, in the case of model *B*. Third, we suppose that all voters in the same party adopt the same rule. (We do allow members of the two parties to choose different rules).[25] Fourth, among all possible rules that respect monotonicity and depend on intensities' rank alone, we focus on a subset only. Finally, within this subset we identify rules that are mutual best responses at the party level: each party best responds to the other party's rule.

It is important to note that the selection of rules that depend exclusively on rank means that the specification of the distribution function Γ plays a limited role in the analysis, as long as $\Gamma_t = \Gamma$ for all t. The shape of Γ determines the cardinal values whose realizations are most likely, but if cardinal values per se have no impact on voting behavior, the minority's success in blocking one or more nominations does not depend on Γ. For given rule, thus, our specification of

[24] We could simplify the analysis by considering a chamber of 100 voters large enough for asymptotic results, but laws of large numbers would only apply if the intensities were independent or exchangeable (Casella and Gelman, 2008).

[25] Note, for clarity, that following the same rule does not amount to choosing the same action: "cast all votes on your highest priority", for example, will in general correspond to senators of the same party concentrating their votes on different nominations, as long as they disagree on which nomination is their highest individual priority.

Γ as uniform is not restrictive. What is influenced by Γ, instead, is the cardinal measure of realized utility, U_t, for each rule, and thus the selection of the mutual best responses. We have experimented with a Beta distribution with varying parameters and found that, as long as $\Gamma_t = \Gamma$ for all t, overall the results change little. We will return to this point in the last section of the paper.

With 10 nominations and 10 votes, there are 43 possible monotonic, ordinal rules, ranging from casting one vote on each nominee to concentrating all 10 votes on the nominee to whom the voter attaches highest intensity of preferences. Because the dimension under which the rules differ is the concentration of votes on higher intensity nominations, we have summarized such concentration, for each rule, in a Gini coefficient, and we have then selected five rules, corresponding to the quartiles of the Gini ordering. Thus, for example, the rule we call *Q3* is such that 75 percent of the possible monotonic rank-only rules have lower votes concentration, as reflected in the Gini coefficient. The five rules are represented in Figure 3 in order of increasing vote concentration. The horizontal axis is the ordered rank of intensities, starting with the highest: 1 corresponds to the nomination to which the senator attaches highest value, and 10 to the lowest.

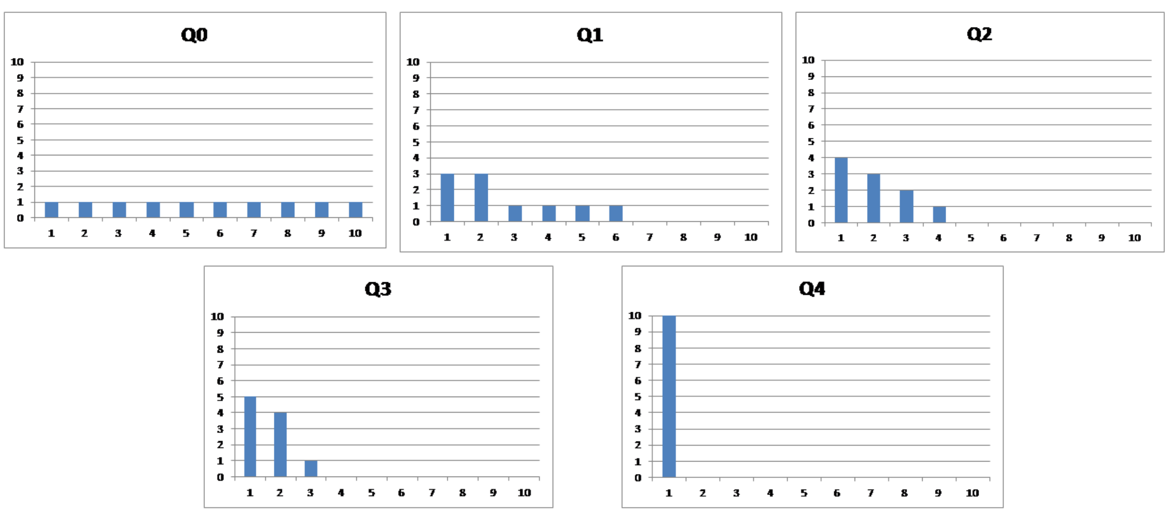


Figure 3. *Five behavioral rules*. Individual voting rules as function of value ranks.

The first rule (*Q*0) is to cast one vote on each nominee, as if the option of concentrating votes were not available. The second rule (*Q*1) reflects some moderate concentration: the two nominations considered most important receive three votes each; the remaining four votes are distributed equally on four other nominations, in order of subjective importance, with the four

least important ones receiving no votes. The third rule (*Q*2) distributes the votes in perfectly declining order: four the highest intensity, three to the second, two the third and one to the fourth, with the six remaining nominations receiving no votes. The fourth rule (*Q*3) concentrates all votes on the three top nominations: the highest receives five votes, the second highest four and the third a single vote. Finally, the fifth rule (*Q*4) has the highest concentration possible: all votes are cast on the single highest intensity nomination.

In general, we expect concentration to be more valuable to the minority, which needs to counter its numerical disadvantage. And if the minority concentrates its votes, the majority will have an incentive to spread them.

In what follows, we simulate the results of adopting these different rules. In a representative Senate, we randomly generate 45 vectors of ten values for the minority and 55 vectors of ten values for the majority, in line with the stochastic properties we assume for such values. We then simulate voting results, assuming that all senators within a party adopt one of the rules-of-thumb described above. In each case, we calculate the number of successful minority blocks, and the share of maximal potential welfare appropriated by each of the two groups (which we call the group's *welfare index*)[26]. We replicate the calculations 100 times---we simulate 100 different slates of nominations---and we have verified that the randomness attributable to sampling error is negligible. The average number of minority blocks and the average welfare index for each party are then a reliable estimate of the expected effect of storable votes, for each behavioral rule.

[26] Expressing welfare as share of maximal potential welfare makes the number easier to interpret: it represents the success of the voting rule in furthering the interests of the party, regardless of party size, and always ranges from 0 to 100.

7.2. Three Basic Cases

Given the nature of storable votes, the results will be sensitive to the extent of coordination in voting that each party achieves. To have a reference point for the richer scenarios we will consider later, consider first the case of full independence: besides being independent across nominations, the intensities attributed to the nominations are independent across senators, both across and within each party. This set of assumptions is unrealistic but it is the simplest and helps us to understand the effects of the different rules-of-thumb.

With full independence, senators' intensities within each party will tend to be very dispersed, and this dispersion must make minority blocks relatively rare: it is difficult for the minority to achieve the level of coordination that would allow it to overcome the numerical superiority of the opposite party. How likely this is to occur depends on the rules-of-thumb followed in casting votes.

Figure 4 plots the expected number of minority blocks---the expected number of nominations prevented from proceeding out of the 10 presented to the Senate---depending on the voting rule used by members of the two parties. Lower-case letters on the depth axis indicate voting rules for the minority party; upper-case letters on the main horizontal axis indicate rules for the majority.

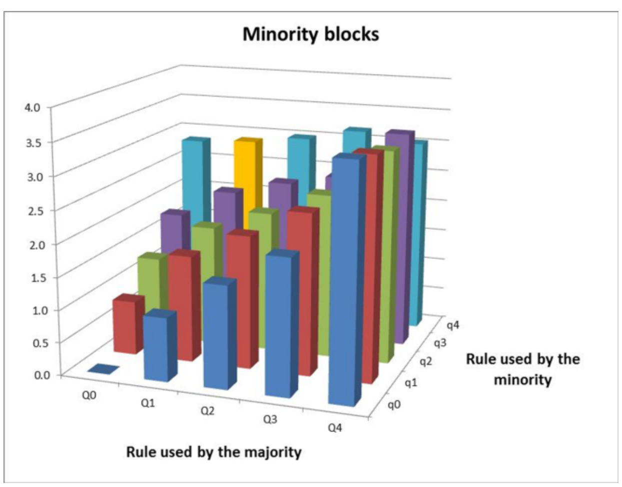


Figure 4. *Minority Blocks as function of the voting rules.* Ten nominations. Values are independent across nominations and both within and across parties. 100 Senates.

It is clear from the figure that the minority has higher success in blocking nominations if its senators concentrate their votes (following rules *q*3 or *q*4), while the majority minimizes the minority's influence by spreading its own votes (following rules *Q*0 or *Q*1) and benefiting from its larger numerical size. The importance of concentrating votes for the minority is very clear: if each minority senator concentrates all his votes on a single nomination, the minority achieves an expected number of blocks between 2.8 and 3.2 for ten nominations, for any voting rule followed by majority senators.[27] We see that with full independence across senators' intensities, the expected success rate for the minority cannot be much above 30 percent.

The column colored in orange corresponds to expected minority blocks when each party adopts the rule that yields it highest expected welfare, given the rule chosen by the opposite party. Here the majority party follows rule *Q*1 and the minority rule *q*4; the expected number of minority blocks is 29 percent. In general not only the expected number of blocks but the intensities associated with specific nominations matter in guiding parties' behavior. Both are reflected in expected welfare.[28]

The assumption that values are distributed independently among members of the same party is very strong. Even recognizing that members' preferences are likely to differ and that some senators may have more at stake than others, some degree of correlation within each party seems a more realistic scenario. Correlation will improve coordination and since coordination is particularly important for the minority, it will increase minority blocks and welfare. For our purposes, we do not need to distinguish whether in fact the correlation is the result of actual correlation in preferences or of pressure arising from the party leadership.[29]

The direction of preferences is perfectly correlated within each party; by correlation of preferences we mean here correlation in intensities. If party members agree in their priorities, they can succeed in concentrating votes on the

[27] Recall that the rule applies to each senator, independently. Here, each senator concentrates his votes on *his* highest priority, with no correlation with other senators' vote in his own party.
[28] To save space, we do not reproduce the welfare numbers here.
[29] In a previous version of this paper we studied an explicit model of party discipline: priorities are decided by the party leadership, and each senator votes according to the party's instructions with some probability *p*, and according to his own priorities with probability *1-p*. The model generates endogenously some coordination in voting but is qualitatively identical to the simpler assumption of correlation in intensities.

parties' priorities without individual senators having to concentrate all their own votes on a single nomination. This will allow minority senators to choose less concentrated voting rules, while forcing the majority to concentrate its own votes more. Suppose then that rather than being independently drawn, members' intensities within each party are correlated. To be concrete, assume a correlation of 0.5. Across parties and across nominations, values continue to be independent. [30]

What does an intra-party correlation of 0.5 mean in practice? Figure 5 reports three representative distributions of intensities from our numerical examples. Positive values correspond to the majority and negative values to the minority. For each party, we have collected the random draws in twenty bins of size 0.05, ranging from 0 to 1,or from -1 to 0. They are ordered on the horizontal axis. The vertical axis is the number of draws in each bin, summing up to 45 for the minority and to 55 for the majority. Each panel is a sample from one of the ten nominations.[31]

[30] We generate the samples of correlated values by applying the method in Phoon, Quek and Huang, 2004. We describe it in detail in the online appendix available at: http://www.columbia.edu/\symbol{126}st2511/notes/filibuster_correlations_0904.pdf.

[31] For clarity: each simulation of a single Senate will have ten such panels, one per nomination. Each rule-of-thumb then generates the votes, given each senator's realized vector of ten values. To simulate 100 Senates, we replicate this process 100 times.

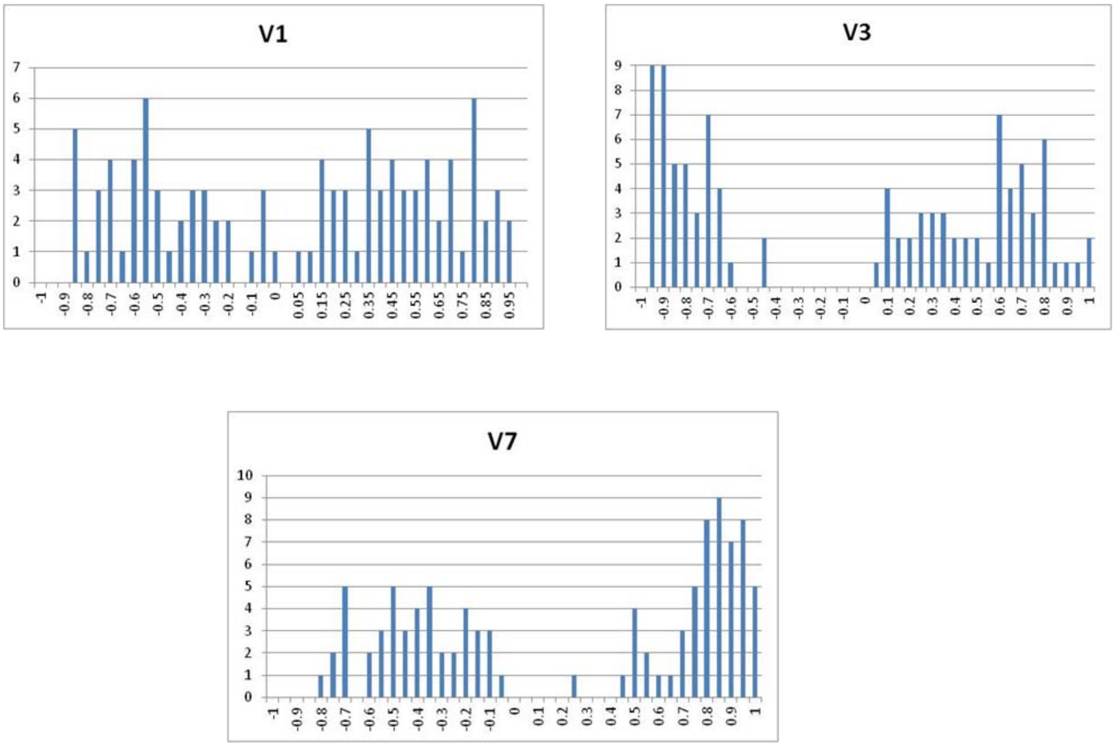


Figure 5. *Value distributions across all members; intra-party correlation.* Positive values correspond to majority party members; negative values to minority members. Values are independent across nominations and across parties, but correlated within each party (correlation coefficient=0.5).

Recall that the underlying distribution of intensities, for each nomination, is uniform. Thus, even with correlation within a party, dispersion in realized values remains possible, as in the first panel on the left. Equally possible, however, are more concentrated realizations of intensities, as in the panels labeled *V*3 and *V*7. *V*3 corresponds to a nomination that is strongly opposed by the minority--more than half of party members assign it a value in the top twenty percent of possible intensities--while it is supported by the majority, but with less concentrated intensity. Storable votes are designed to allow the minority to stop nominations with these features. It is unlikely instead that the minority can succeed in stopping a nomination similar to *V*7, where the pattern of intensities across the two parties is reversed: the majority strongly supports the nomination, the minority opposes it but does not consider it a priority.

Figure 6 reports minority blocks for the different rules-of-thumb with intra-party correlation equal to 0.5.

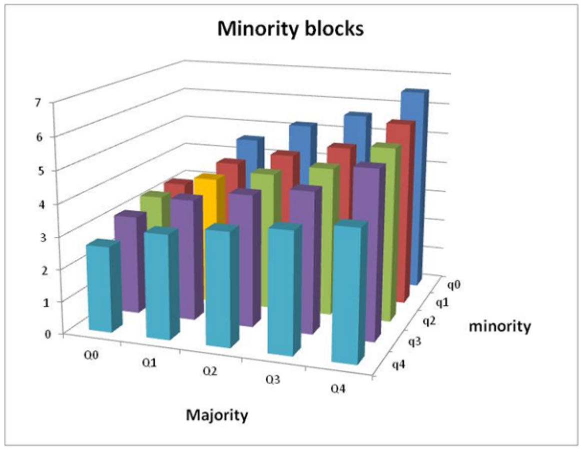


Figure 6. *Minority blocks with intra-party correlation.* Ten nominations; values are correlated within each party (with correlation coefficient = 0.5), and independent across parties and across nominations; 100 Senates.

The potentially high number of minority blocks appearing in the figure (up to more than six for ten nominations) is somewhat misleading: it requires the majority to adopt rule $Q4$, or full concentration (all 10 votes on a single nomination). But the majority gains from spreading votes, and especially so when it can count on correlation in preferences among its senators.[32] As in Figure 4, the orange column distinguishes the expected number of minority blocks when the two parties best respond to each other's rule: the minority follows rule $q2$, and the majority follows rule $Q1$. The expected number of minority blocks is 4, or an expected frequency of 40 percent, an increase of 10 percent relative to the non-correlated case. As expected, correlation in values helps cooperation and benefits disproportionately the minority, for whom coordination is essential. Notice also that by achieving concentration in votes through preferences alone, intra-party correlation reduces the divergence in the two parties' strategies and allows minority senators to spread their votes more.

However, if the model's results strongly depend on the stochastic properties of the intensity draws, we cannot ignore the possibility of correlation

[32] In fact, with correlation, rule $Q4$ is always dominated by other rules, for example rule $Q3$, for both parties.

across parties. It seems quite plausible that the same names that elicit unusually strong support by the majority are those that the minority considers important to stop. Consider then our third case, where we set both intra-party and inter-party correlation to 0.5. Note that the two correlations cannot be set independently--they are logically linked.[33]

To have a concrete sense of what this assumption implies, again we reproduce here three realizations of intensities over three nominations from our random sample. As in Figure 5, positive values correspond to the majority, negative values to the minority. The horizontal axis reports the bins, each of size 0.05, and the vertical axis the number of realizations falling into each bin.

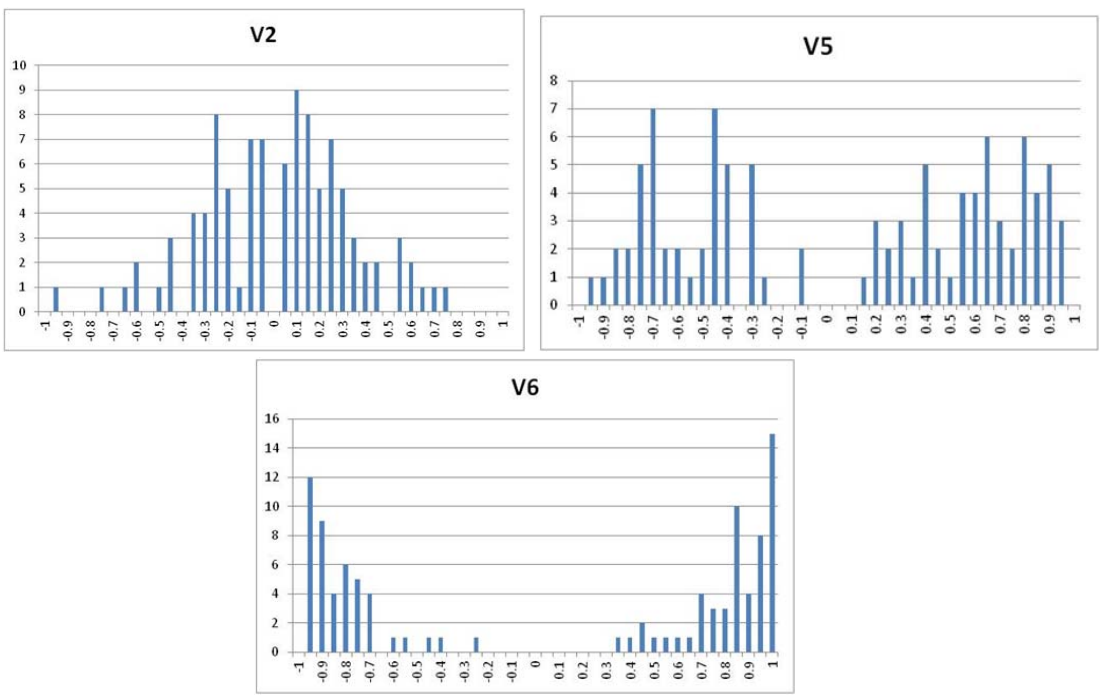


Figure 7. *Value distributions across all members; intra-party and inter-party correlations.* Positive values correspond to majority party members; negative values to minority members. Values are correlated both within and across parties (both correlation coefficients=0.5).

[33] We discuss this dependency and the constraint it imposes in the online appendix at: http://www.columbia.edu/¯st2511/notes/filibuster_correlations_0904.pdfan. Briefly, if we call the intra party (linear) correlation in the majority party ρ_M, in the minority party ρ_m, and the inter-party correlation ρ_I, then the matrix Σ is positive definite only if:

$$\rho_I^2 \leq \frac{(1+(M-1)\rho_M)(1+(m-1)\rho_m)}{Mm}$$

The three panels represent nominations that elicit weak, somewhat intense, and very intense preferences. The common feature is that intensities are relatively similar across voters not only within each party but also, and in contrast to Figure 5, across the two parties: if the majority considers a nomination a priority, stopping it is now a priority for the minority.

Correlation across parties weakens the position of the minority: blocking nominations it most strongly opposes is made difficult by the united votes in their support by the majority. A minority victory then requires more concentration in votes, with the result that fewer minority victories are possible. The assumptions on the stochastic properties of the preferences in this third case seem to us the most plausible, and in Figure 8 we report not only the number of minority blocks corresponding to each combination of rules-of-thumb, but also the expected welfare indexes for the two parties (note the difference in scale in the welfare diagrams). To improve the clarity of the figure, the rules are ordered differently for majority and minority.

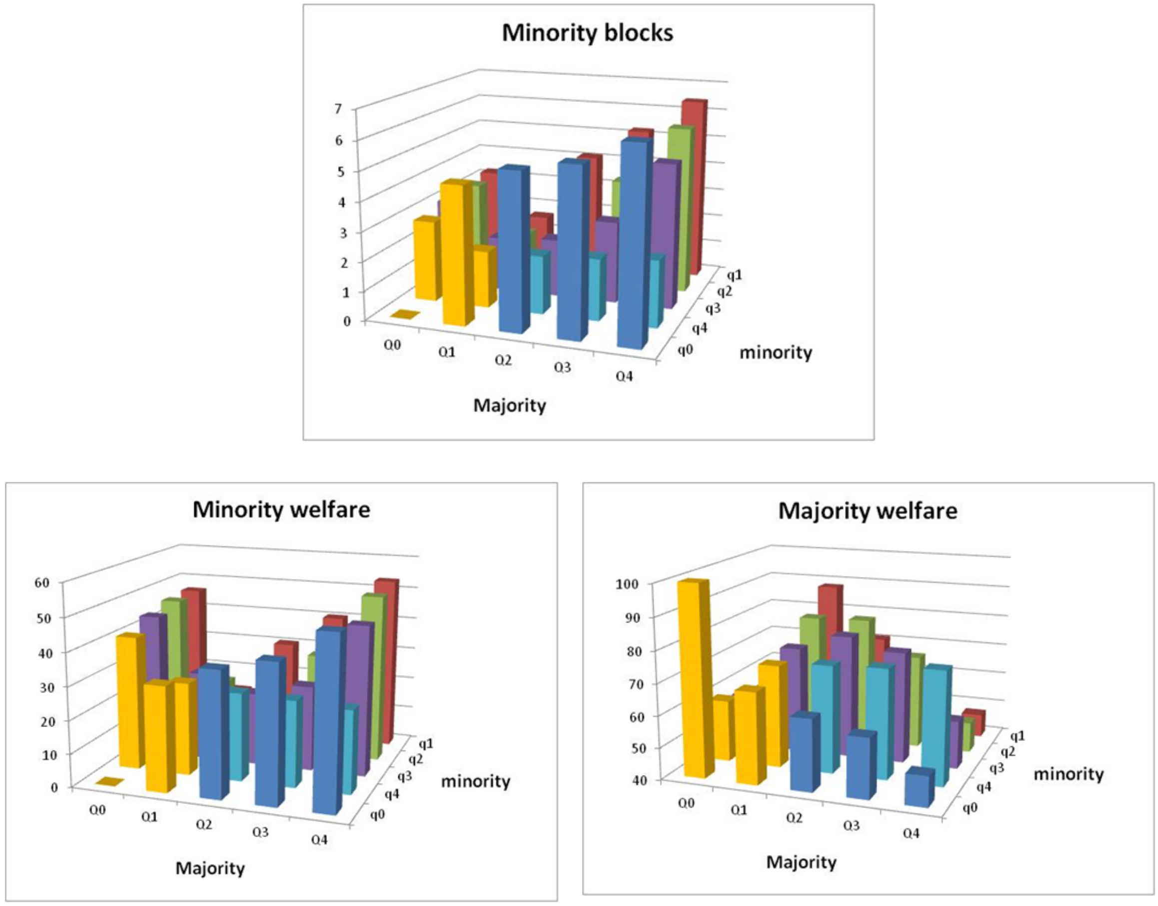


Figure 8. *Minority blocks and welfare shares.* Intensities are independent across nominations but correlated within each party and across parties, with correlation coefficients = 0.5 in both cases. Ten nominations; 100 Senates.

The panels show four orange columns because the parties' mutual best responses here require mixing over two rules: within the majority party, senators randomize between *Q*0 and *Q*1, within the minority between *q*0 and *q*4.[34] Under these rules, the expected number of minority blocks is
2.7, or 27 percent. The minority expects to appropriate 29 percent of its maximal welfare and the majority just above 71 percent.

As expected, the presence of inter-party correlation weakens the minority. Figure 9 summarizes, for both minority and majority senators, mutual best-

[34] At the party level, the randomization probabilities are the following: the majority plays *Q*0 with prob 0.08, and *Q*1 with prob 0.92; the minority plays *q*0 with prob 0.29 and *q*4 with probability 0.71. Allowing for some approximation due to integer problems, one interpretation is that a corresponding percentages of each party's senators, chosen randomly, follow each rule.

response voting rules and welfare outcomes in the three cases considered in this section.[35] The increased competition with the majority and the latter's larger size induce the minority to distinguish exclusively between the single highest intensity nomination and all others, now casting a few votes on the latter, in response to the likely lack of votes from the majority. Welfare falls, relatively to the case of intra-party correlation only, reflecting both the lower number of successful minority blocks and the direct competition with the majority on the most important nominations, the result of inter-party correlation on intensities.

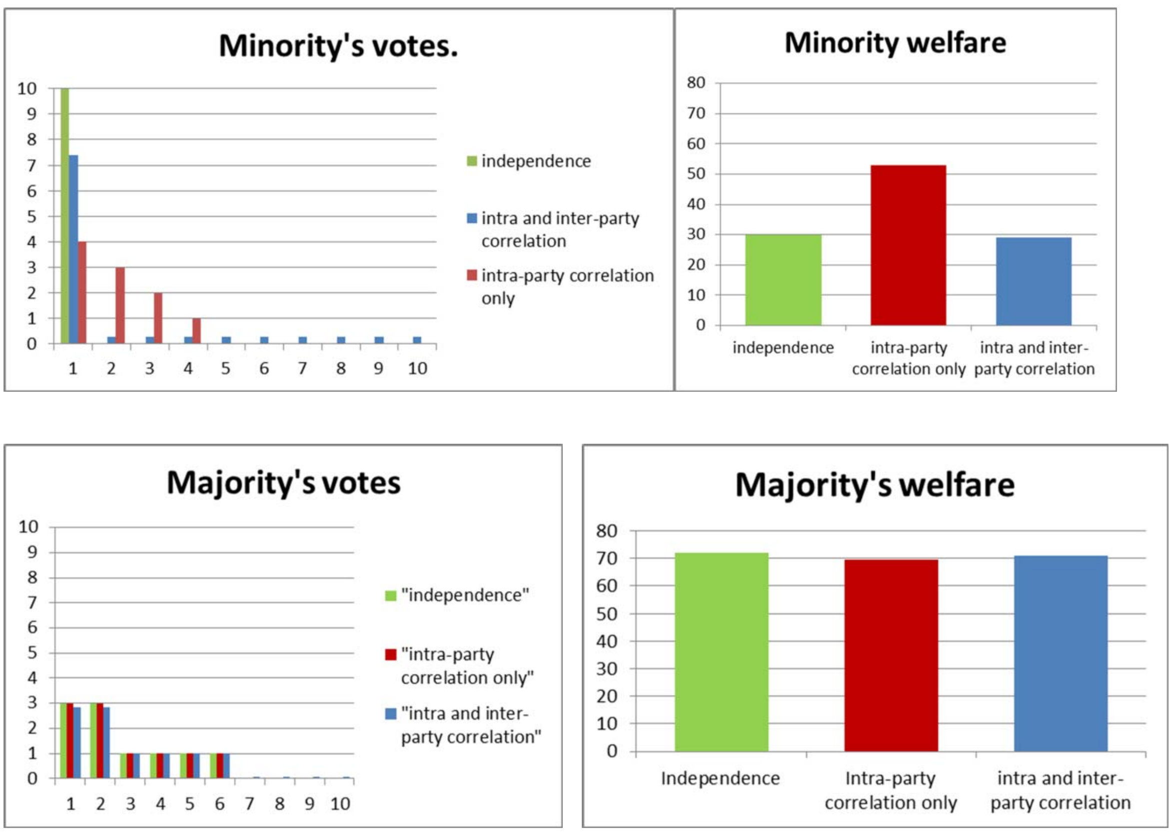


Figure 9. *Mutual best-response voting rules and welfare*. Three basic cases: (1) Intensities are independently distributed both within and across parties (green); (2) Intra-party correlation and inter-party independence (red); (3) Intra and inter-party correlation (blue). When intensities are correlated, the correlation coefficient is set equal to 0.5. Uniform distribution. 100 Senates

A clear message from Figure 9 is the different sensitivity of the two parties to the stochastic properties of the preferences. The majority is protected by its larger

[35] In the case of both intra and inter-party correlation, we use the mixing probabilities to construct, for senators of each party, a measure of expected votes per nomination rank. It is this measure we report in the figure.

size: both its voting pattern and its welfare are close to constant across the three cases. It needs to distribute its votes just barely more when intensities are correlated both within and across parties, in response to the minority's concentration of votes on priorities that are likely to be common to the two parties. The difference, however, is so small that the positive bars over ranks seventh and lower in the first panel on the left are difficult to detect. Welfare is around 70 percent in all three cases, making them effectively equivalent. Not surprisingly, the minority's behavior and outcomes are much more variable across the three cases. With full independence, the minority is hurt by the lack of coordination within its own party, an essential ingredient for overcoming its numerical inferiority. Intra-party correlation improves the minority's prospects and allows minority senators to cast votes on more than one nominations. If values are also correlated across parties, however, the benefits from coordinating votes within the minority are erased by the direct competition with the larger opposing party. The welfare measure is effectively constant at 30 percent in the two cases of independence and intra and inter-party correlation, and significantly higher, with an expected values of 53 percent, in the presence of intra-party correlation only.

Figure 10 summarizes the main quantitative result of this section: the fraction of successful minority blocks across the three cases: 29 and 40 percent respectively in the first two cases, and 27 percent, as mentioned above, when both forms of correlation are present.

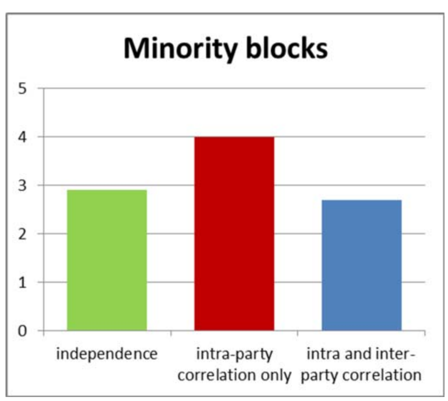
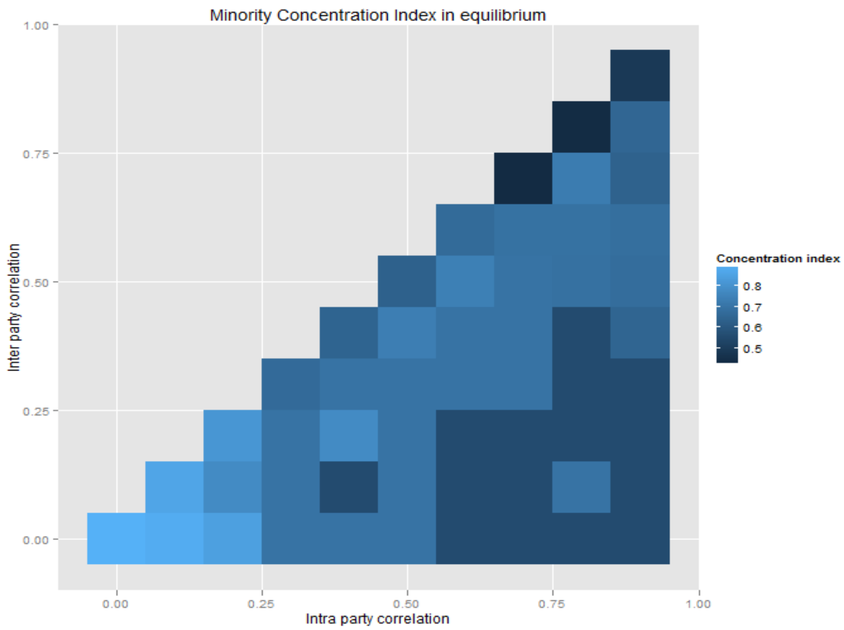


Figure 10. *Fraction of successful minority blocks.* Three basic cases: (1) Intensities are independently distributed both within and across parties (green); (2) Intra-party correlation and inter-party independence (red); (3) Intra and inter-party correlation (blue). When intensities are correlated, the correlation coefficient is set equal to 0.5. Uniform distribution. 100 Senates.

7.3. General Correlation Pattern

Extending the analysis to a larger set of intra and inter-party correlations is more demanding computationally but presents no logical difficulty. In this section, we discuss simulation results obtained by increasing both types of correlation, separately, from 0 to 0.9, in steps of 0.1. Without strong grounds to assume higher correlation in intensities among members of one or the other party, we maintain the assumption that intra-party correlation is equal in the two parties. In all graphs presented below, we plot intra-party correlation on the horizontal axis, and inter-party correlation on the vertical axis. We use a color scale such that lighter shades correspond to higher values.

The first question we ask is how the concentration of votes in the mutual best response rules is affected by changes in the correlation coefficients. Because we are allowing the two parties to mix optimally over the five original rules, they are able to reach all convex combinations of such rules. As a result, the concentration of votes can vary widely and smoothly. Given the focus on concentration, we use as summary statistics the Gini coefficient corresponding to the best response voting rules. We report it in Figure 11, in panel (a) for the minority and panel (b) for the majority. A lighter shade stands for higher concentration, but note that the scale differs across the two panels: it ranges between 0.4 and 0.9 for the minority, and between 0.2 and 0.7 for the majority. The most common Gini values are between 0.6 and 0.8 for the minority and between 0.4 and 0.6 for the majority.



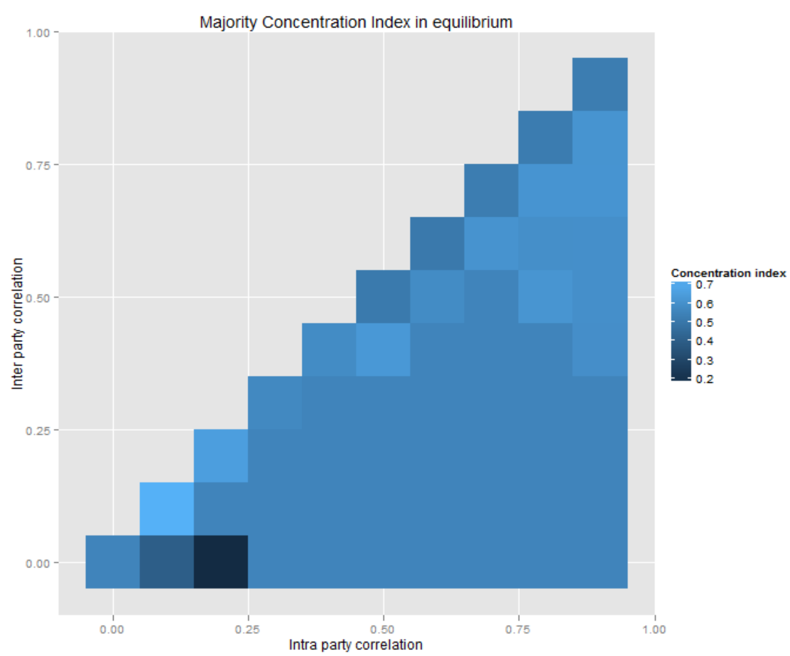


Figure 11. *Vote concentration in the mutual best response rules, at different intra-party and inter-party correlations*. Gini coefficients. Intra-party correlation on the horizontal axis; inter-party correlation on the vertical axis. Minority (panel (a)), and majority (panel (b)). Uniform distribution; 100 Senates.

The figure shows some unexpected non-monotonicities: squares of contrasting colors, relative to the neighboring squares.[36] These are few and not robust, however, and change across different sets of simulations. They occur when the best response rule is not unique, and the alternative rules have varying Gini coefficients. They do however all yield similar outcomes and are in fact equivalent from a welfare perspective. Thus the apparent non-monotonicites do not appear when describing outcomes.

The figure has four main messages, confirming the results of the previous section. First, the majority concentrates votes less than the minority--this is expected, is clear in the figure, and holds for most correlation values. Second, the majority's voting behavior is relatively insensitive to correlation values: contrary to panel (a), most of the squares in panel (b) are colored in similar shades. In most cases, the majority's best response has Gini values equivalent to rule Q1. Third, the voting pattern is much more variable for the minority party. In particular, for given inter-party correlation, the votes' concentration falls as values lie further to the right in the figure, or intra-party correlation increases. As remarked earlier, the coordination provided by more similar preferences makes it possible, and profitable, to spread votes more. Finally, and always focusing on the minority, the effect of inter-party correlation is ambiguous: for given intra-party correlation, as we move vertically up in the graph, concentration first increases and then declines. The pattern reflects two contrasting forces: on one hand, increased competition with the majority on the same priorities means that the minority can win only if it concentrates its votes more; on the other, if the inter-party correlation is sufficiently high, it becomes profitable for the minority to hedge against the likely losses of the direct competition and direct votes instead towards lower priority nominations, spreading the votes more.

The percentage of minority blocks, calculated at the mutual best response rules, ranges from 25 to 45 percent, depending on the correlation values. It is plotted in Figure 12. As predicted, the percentage of blocks is higher the higher is intra-party correlation, and the lower is inter-party correlation. The effect of the

[36] For example in the minority's rule at inter-party correlation of 0.1 and intra-party correlation of 0.4 or 0.8.

latter is stronger, so that at equal values for the two correlations (the diagonal in the graph) the fraction of blocks never rises above 30 percent.

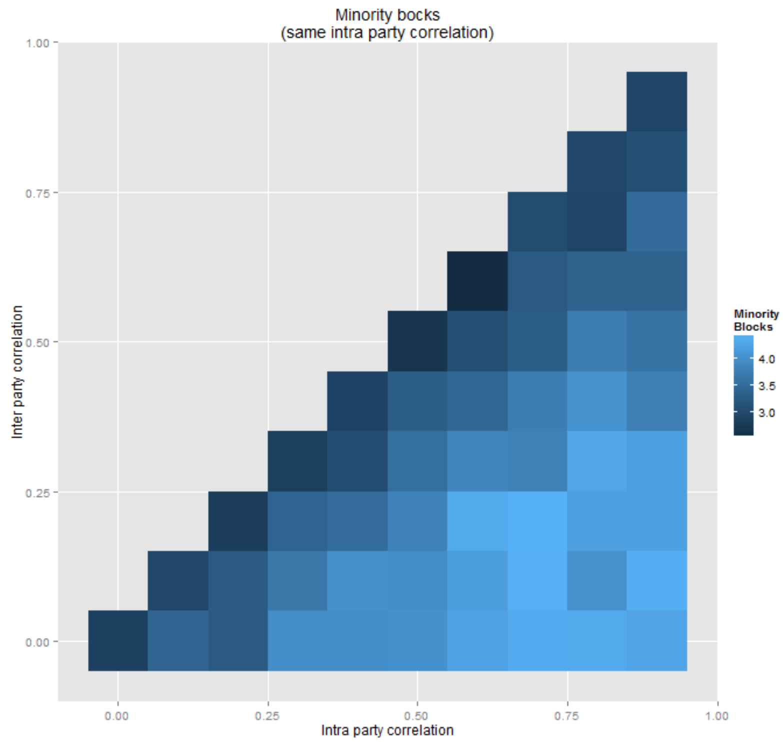


Figure 12. *Percentage of minority blocks*. Blocks are calculated at the mutual best response rules, for different intra-party (horizontal axis) and inter-party (vertical axis) correlation coefficients. Uniform distribution; 100 Senates.

Figure 13 reports total welfare for the two parties, at different correlation values. Expected welfare is always higher and less variable for the majority party.[37] The two parties' variation in welfare at different correlation coefficients, however, reflects the power of the minority. For the minority party (in panel (a)), it mirrors the fraction of minority blocks almost exactly. For the majority (in panel (b)), the figure shows that welfare is affected not only by the number of minority blocks, but also by the importance of the nominations the minority blocks. As described above, the minority concentrates its votes most at intermediate inter-party

[37] The minority's scale ranges from -100 to 25; the majority's from 90 to 120. Different correlation patterns result in different mean values for the valuation draws. In previous sections, we reported the share of maximal welfare appropriated, as opposed to total welfare, because the correlation pattern was taken as given. At given correlations, the two measures are equivalent, and the share of maximal welfare easier to interpret. Recall that what matters is the comparison between different values, not the values per se.

correlation, and thus succeeds, occasionally, in stopping nominations the majority is also likely to value highly. The result is that majority welfare is lowest at intermediate inter-party correlation. At higher correlation, the minority shifts at least partially away from direct competition with the majority and minority blocks are not only less frequent but also less salient.

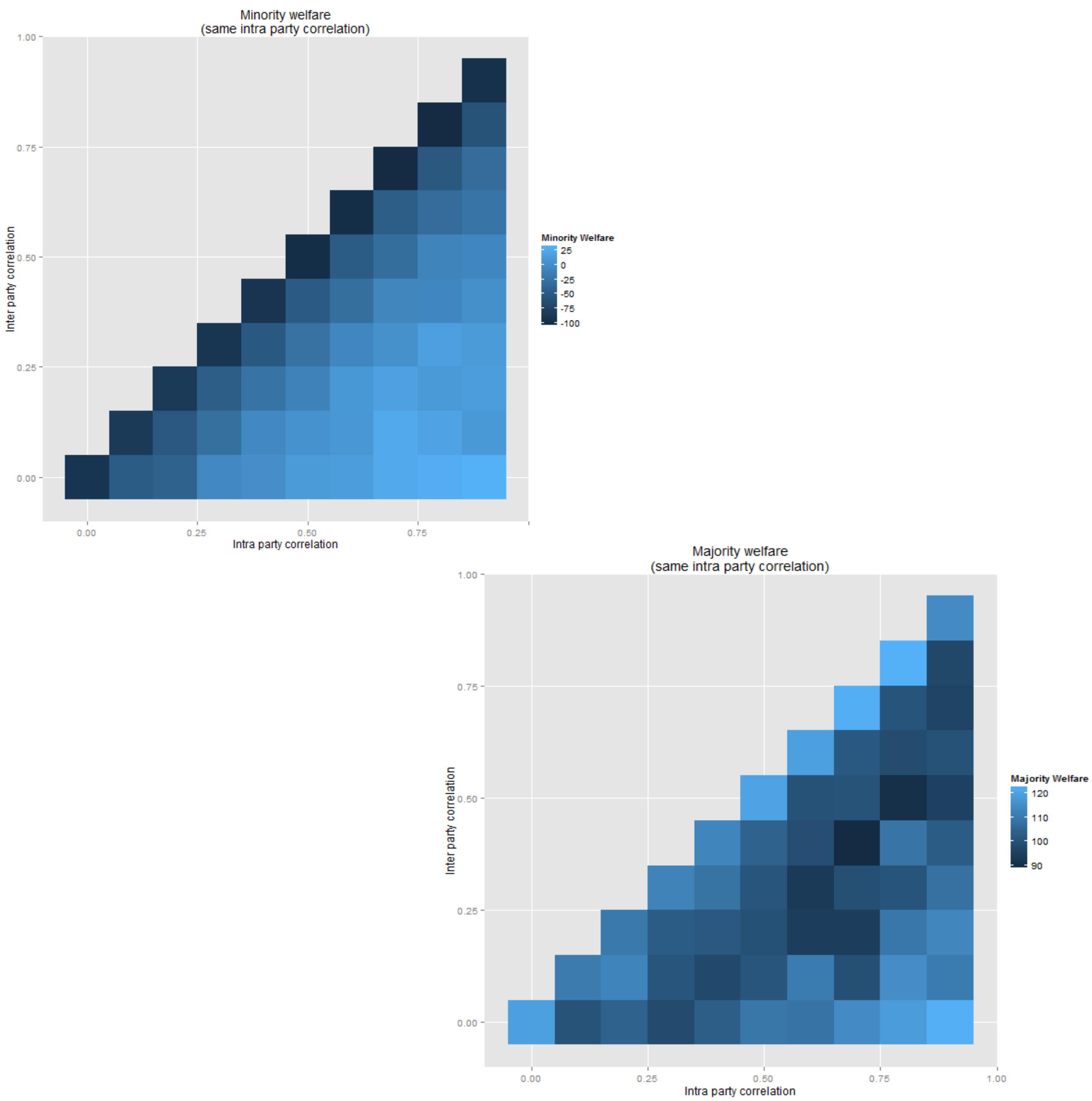


Figure 13. *Total welfare for different correlation coefficients*. Welfare numbers are calculated at the mutual best response rules; Intra-party correlation on the horizontal axis; inter-party correlation on the vertical axis. Panel (a): minority party; panel (b): majority party. Uniform distribution; 100 Senates.

It is commonly argued that the increased delays and contentions surrounding nominations are the result of the increased polarization of American politics.[38] If the current institutions have proven themselves fragile to polarization, we need to evaluate whether storable votes are likely to be more robust. The results in this section provide some answers.

A useful definition of polarization is as "increased difference in parties' ideological medians". The challenge is how to represent this definition precisely in terms of preference distributions. With storable votes, neither the range of the intensities' support nor the exact shape of the distribution play a large role, because the allocation of the available votes depends mostly on *relative* intensities of preferences, and thus on intensities' ranks, rather than on their absolute values.[39] The one property that remains crucial is the correlation of intensities across voters. We can interpret increased polarization as a joint increase in intra-party and inter-party correlation of intensities.

In terms of the figures described above, this is equivalent to moving upwards along the diagonal. The number of minority blocks remains constant, between 25 and 30 percent; minority's welfare is also constant, while majority's welfare tends towards a slight increase. If increased correlation is the correct representation of polarization in this model, we can conclude
that the outcomes produced by storable votes should be reasonably robust. The most noticeable change is the increased dispersion in minority's votes as the correlation coefficients move towards 1. Although the voting behavior is specific to the introduction of storable votes, we can detect the same underlying logic in the current generalization of the minority's opposition

[38] For thorough documentation of the increased polarization of the American Congress, see McCarty, Poole and Rosenthal (2006) and Theriault (2008). Rohde and Shepsle (2007) and Pildes (2011) offer critical discussions of the
factors in play. See also the numerous references cited in these works.

[39] This is a general feature of storable votes, but, as we argued earlier, here the property is particularly clear because we are restricting the voting decisions to rank-dependent voting rules only.

to a broad range of nominations, including traditionally undisputed ones--District judges, for example.[40]

8. Composition of the Nominees List

The analysis described so far sheds light on the likely effects of storable votes, given a slate of nominees. It emphasizes the central effect of intra-party and inter-party correlations and concludes that if intra-party correlation is similar among majority and minority members, a plausible estimate of the fraction of successful minority blocks is between 20 and 30 percent.

These conclusions build our intuition and help us understand the voting system. In a real application, however, the slate of nominee would not be given exogenously. With storable votes, all names on a slate are linked by the common votes' budget, and the likelihood of a successful minority block depends of the stochastic properties of the preferences over *all* nominees: how polarizing nominee A is, for example, will affect the chances that B is blocked. Thus the composition of the slate can be used strategically, and to the extent that the President's preferences are in line with one of the two parties, it will be. We ask in this section whether the results and intuition obtained so far are fragile to the strategic composition of the nominees' slate.

8.1. Choosing the stochastic properties of the slate as a whole

We begin by supposing that the agenda setter can choose the slate so as to target specific correlations, but these correlations cannot vary across nominees. More precisely, the agenda setter can target three parameters, each of which applies to all nominees: the intra-party correlations in the two parties, separately, and, within the constraints that ensure that the set of correlation is coherent, the inter-party correlation between them.

[40] See the discussion in Schekman, 2012, or, for example, http://www.nytimes.com/2013/06/23/opinion/sunday/the-endless-battle-over-judicial-nominees.html?hp\&_r=0

Figure 14 reports total welfare for each party evaluated at the mutual best response rules. The first panel in the figure corresponds to the minority; the second to the majority; in each panel, each small graph corresponds to a given inter-party correlation, with intra-majority party correlation on the horizontal axis and intra-minority correlation on the vertical axis, all in increments of 0.1 as in the previous figures. Empty cells correspond to combinations of correlations that are mutually incompatible. As in the previous figures, lighter shades correspond to higher values and the scale differs between the two parties, both in the value implied by a given color shade and in range of change across shades.[41]

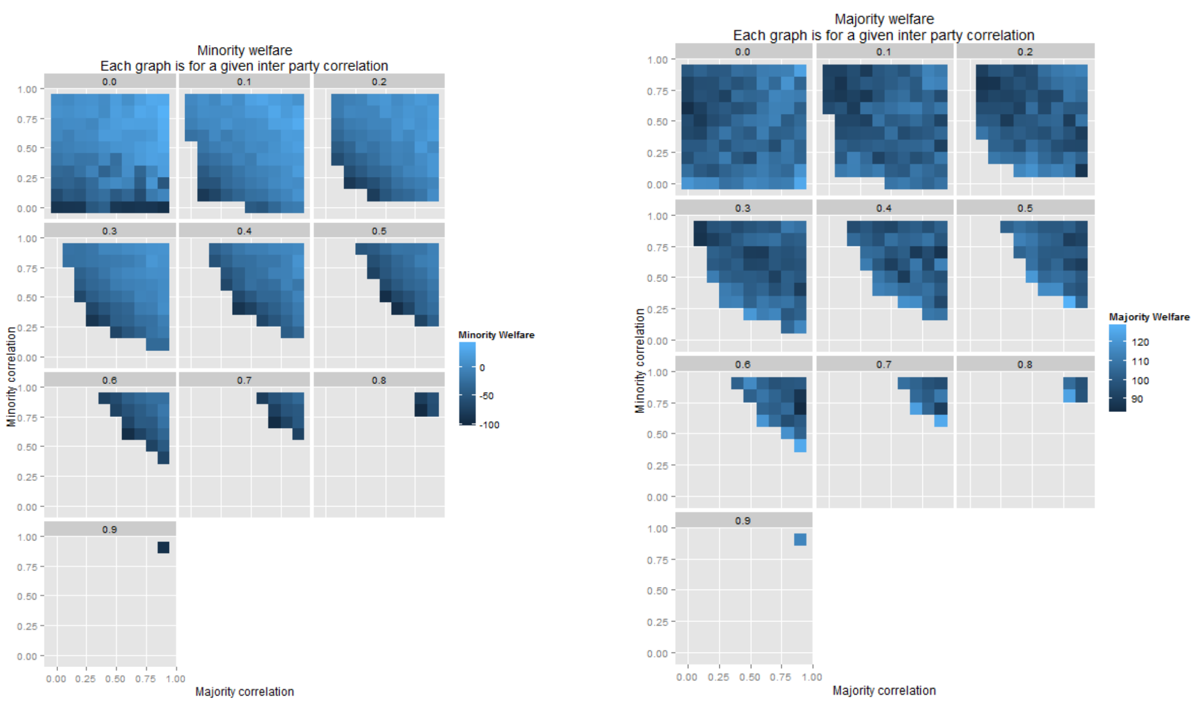


Figure 14. *Total welfare for each party; different correlation patterns.* Welfare is evaluated at the mutual best response rules. Panel (a): minority party; panel (b): majority party. Uniform distribution; 100 Senates.

Suppose first that the President's preferences are aligned with the majority party's preferences. Panel (b) in Figure 14 is somewhat irregular. At low inter-party correlation (the graphs in the first row of the panel), the main priority is

[41] Here the majority's total welfare ranges from 85 to 130, and the minority's from -100 to 50. Recall that what matters is the ratio between different values, not the values per se.

avoiding names that are likely to divide the majority party: welfare is lowest (shades are darkest) on the vertical line near the vertical axis, at lowest intra-majority correlation. At higher inter-party correlation, the priority shifts toward choosing names that are likely to divide the minority: welfare is highest (shades are lightest) near the horizontal axis, in fact as near as possible to the origin, where intra-party correlation is low in both parties but the majority is protected by its larger size.

If the President's preferences are aligned with the minority party, we need to reinterpret our model. All minority members are then in favor of all nominations, all majority members opposed, and minority blocks are instead minority victories, i.e. instances of minority's success in overcoming potential majority blocks. Give this reinterpretation, however, the model remains identical and again we can analyze the agenda problem of a minority President through Figure 14.[42] Not surprisingly, the ideal slate of nominees corresponds to low inter-party correlation. As noted earlier in Figure 13, we find that, for given inter-party correlation, high intra-party correlation in both parties is preferred (the corner furthest away from the origin).

The welfare pattern reflects the frequency of minority blocks, but when intra-party correlation can differ in the two parties the correspondence is less immediate than it was in the previous section. As shown in Figure 15, especially at high inter-party correlation, minority blocks are higher if majority intensities are highly correlated, while minority's intensities are not, within the admissible boundaries. The reason is that the resulting concentration in majority party's votes allows the minority to win more often. But if intensities within the minority party are dispersed, those victories do not amount to high welfare gains. Hence the contrast with Figure 14.

[42] The assumptions are the mirror images of those in the majority-driven model studied so far. There must be one difference, though: if the slate reflects the minority's preferences, the storable votes poll must take the place of both the cloture and the final up-or-down vote.

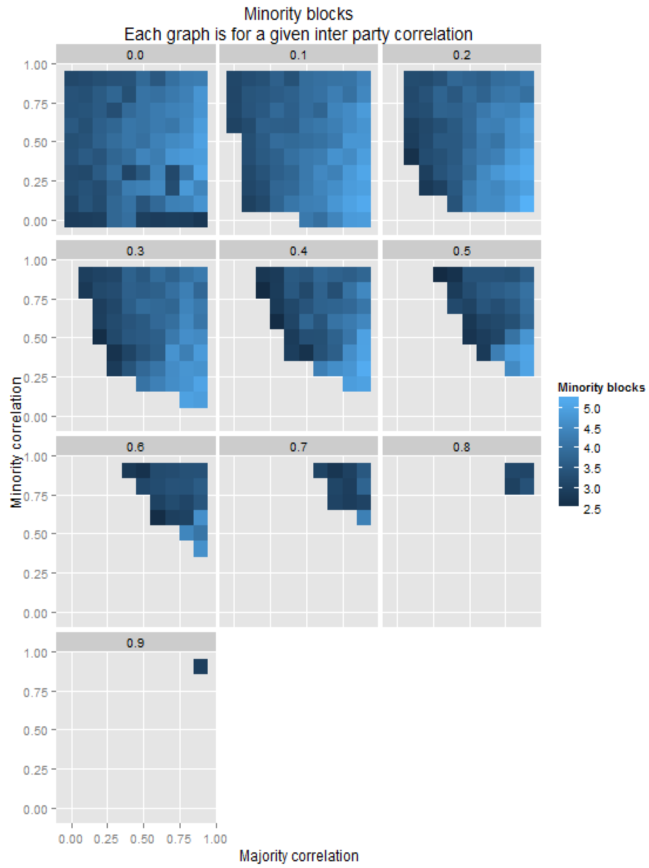


Figure 15. *Minority blocks; different correlation patterns.* Blocks are calculated at the mutual best response rules. Uniform distribution; 100 Senates.

8.2. Choosing the stochastic properties for individual nominees

A more subtle agenda policy however is available and intuitively compelling: the slate can consist of nominees that elicit different reactions, and the differences can be chosen strategically, with the goal of influencing the likely outcome of the vote. For example, adding to the slate a name over which the minority feels particularly strongly, relative to all other names, may concentrate the minority's votes in predictable fashion, granting to the majority some confidence that the remaining names will not be blocked. The question we study here is how large the advantage of the President's party can be when this strategic opportunity is exploited.

Capturing this scenario requires allowing differences in the expected intensities attached to different nominees, that is, allowing differences in the distributions of intensities that represent the preferences. This complicates the model substantially but has one positive effect: if the distributions have probability masses concentrated over different sub-intervals, then a likely ranking of the nominees emerges, regardless of correlations.[43] If we introduce differences in distributions across nominees, these differences may by themselves result in coordinated voting, making further correlations in intensities redundant. We can simplify the set-up and assume independence among all intensities, both within and across parties.

We ran our simulations using Beta distributions with three different sets of parameters. Beta (5,2) has a peak at higher values, its mean equals 5/7, and more than 75 percent of its probability mass is above 0.6; it corresponds to a nomination that elicits strong reactions. Beta (2,5) is the converse: it has a peak at lower values, a mean of 2/7, and more than 75 percent of its probability mass is below 0.4; thus it corresponds to a nomination that elicits weak support or opposition. The two distributions have equal variance (equal to 0.03). Finally Beta (1,1) is the uniform distribution, with mean at 0.5; preferences here are more diffuse, with no probability peak and variance equal to 0.08. The three probability distributions are depicted in Figure 16.

[43] Suppose for example that with 80 percent probability a random member's intensity over nominee A is between 0.8 and 1, and over nominees B is between 0.2 and 0.4. Then, regardless of correlations, most members are likely to feel more strongly over nominee A than over nominee B. The relative intensity of preferences acts as a coordinating device: most members will concentrate their votes on A rather than B.

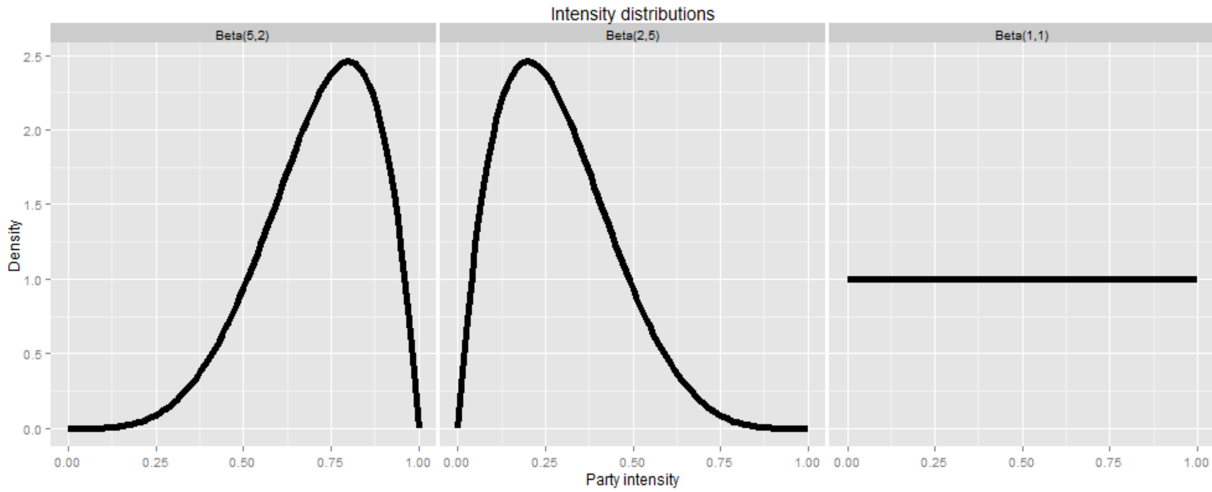


Figure 16. *Probability distributions of parties intensities.* In all cases, the support is [0,1]. The first distribution is Beta(5,2); the second is Beta (2,5); the third is uniform, or Beta(1,1).

In general, majority and minority preferences may be represented by a different distribution. Thus each nominee is characterized by one pair of distributions, one for each party, and each pair can be any combination of two out of the three Beta distributions just described. There are nine possible such pairs, and thus nine types of nominees. A slate is a list of nominees whose types have been chosen by the agenda setter with the goal of maximizing the welfare of his party, taking into account the pattern of voting the slate is likely to induce. In the simulations, we construct all possible slates and obtain each party's welfare and the number of minority blocks when the two parties' voting rules are mutual best responses, given the slate. Because the number of calculations is very large, we limit ourselves to a slate of five nominees.[44]

With five nominees and three distributions, there is a total of 1287 possible slates. Figure 17 reports the composition of the three highest-welfare slates for the majority (panel (a) at the top), and for the minority (panel (b) at the

44 We have verified that the results obtained so far for ten nominees extend to slates of five, with no substantial difference in the best response rules and in the percentage of minority blocks. Hence the results in this section can be compared to previous results.

bottom). Hence panel (a) corresponds to a majority party President, and panel (b) to a minority party President. Each slate is a row of five graphs, one for each nominee, where each individual graph represents the distribution of preferences in the minority (the negative values to the left of 0), and in the majority (the positive values to the right of 0).

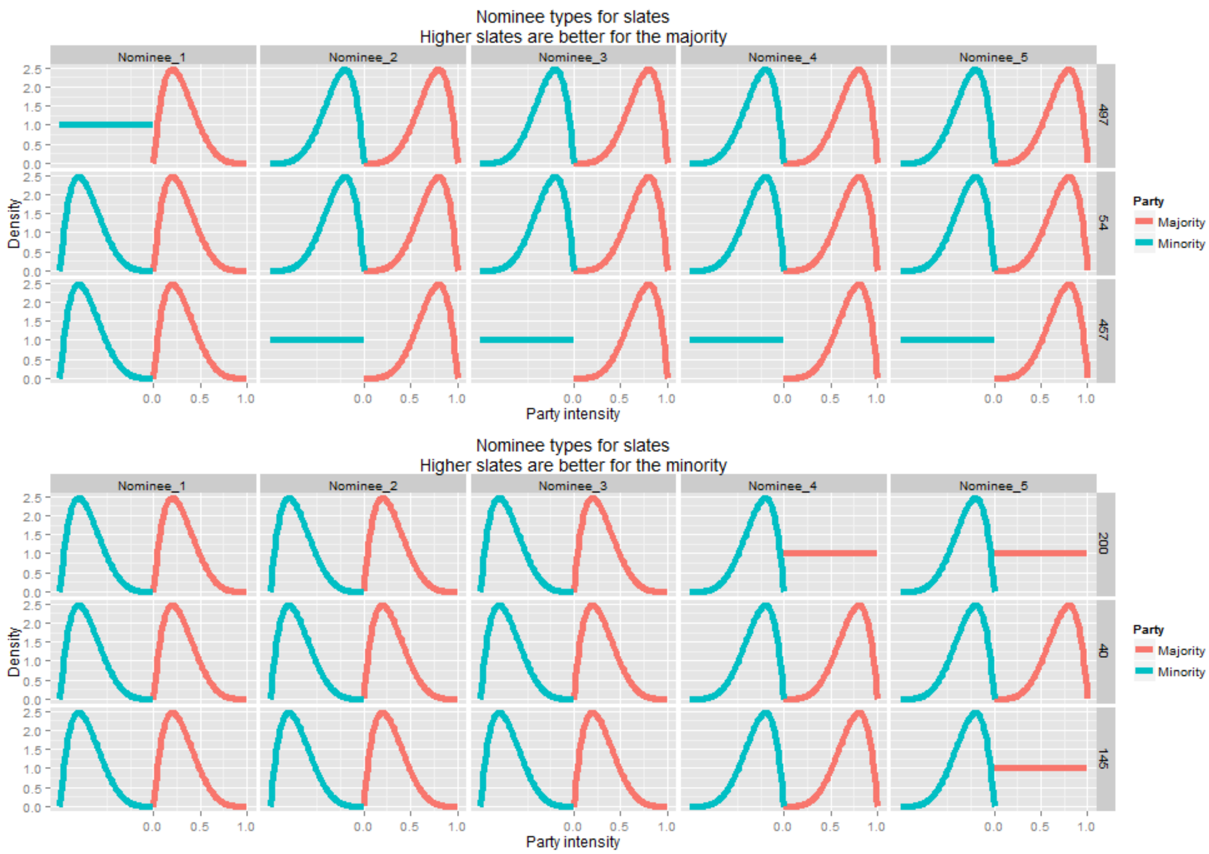


Figure 17. *Welfare-maximizing slate composition, five nominees.* Upper panel (a): the three slates with highest majority welfare. Lower panel (b): the three slates with highest minority welfare. The five graphs in each row correspond to the five nominees; each represents the distribution of preference intensities in the two parties. Welfare is evaluated at the mutual best response rules. 100 Senates.

Consider for example the first row in panel (a): the highest welfare slate for the majority. It is important to keep in mind that the slate is determined in its entirety: each choice of distribution for either party depends on all other distributions--the characteristics desired of each nominee depend on the characteristics of all others. Predictably, the majority wants nominees it strongly supports, and in four of the five graphs the distribution on the right-hand side of zero (the majority's distribution of intensities) is concentrated at high intensities. Equally predictably, the majority desires as little opposition as possible to these names, and in the same four graphs the distribution on the left-hand side of zero (the minority's distribution of intensities) is concentrated at low intensities. Recall, however, that voting behavior is grounded in ranking of priorities, and thus the minority's tepid opposition will translate into few "nay" votes only if its members concentrate their votes on a fifth name, whose defeat is considered more important. Hence the fifth name on the slate has different properties: the minority's distribution is uniform, which implies both a high likelihood that opposition to this nominee is stronger than to any of the others, and the possibility of a large enough difference in intensities to induce a high concentration of votes. At the same time, the majority's distribution is concentrated on low values, with the joint effects that few majority votes will be spent on this nominee, and that the resulting majority defeat will not be too painful.[45] The details vary but the identical logic is present in all three rows in panel (a), i.e. in all three majority-preferred slates.

Panel (b), reporting the three highest welfare slates for the minority, shows that the logic also applies if the President, the agenda-setter, belongs to the minority party and shares that party's preferences. In this case, however, the highest welfare slates anticipate that the minority will lose *two* nominations fights, out of five: two nominees are designed to attract the majority's concentrated votes and because they are only weakly supported by the minority, those defeats will not be too painful. The smaller size of the minority party means that not one, but two nominees will be sacrificed.

The ability to control the slate is thus undoubtedly valuable: in our simulations, a majority-party President can limit the number of minority blocks to not more than 20 percent, and a minority-party President can succeed in passing 60 percent of his nominees. In addition, the defeats are designed to

[45] With this slate, the voting rules that are mutual best responses are the following: the majority plays Q1 and the minority either Q2 or Q3 or Q4. Regardless of the minority's rule, in our simulations the fifth nominee is blocked and the others pass with probability approaching one.

concern "decoy" nominees intentionally catalyzing the opposition. Yet, there are important limits to the freedom of maneuver of the agenda-setter. First, and crucially, the nominations that the President's party considers most important and intends to win must be relatively non-controversial: the strategic use of decoys can work only if the remaining names are acceptable to the opposition party. This is a direct effect of the voting scheme, and works against extreme polarization in the composition of the slate. Second, although the effect is muted by the small number of distributions we are allowing here, the decoy names themselves cannot be too extreme: they are meant to attract the negative votes of the opposition, but they can fulfill this function only if the nominating party itself is willing to spend some votes in their support.

A clear result of the simulations is how more important the control of the slate is to the minority than to the majority. The number of decoys goes from one, when the majority has effective agenda power, to two when the minority does. As in earlier results, the majority is protected by its larger size: if the use of decoys were unfeasible, for example because politically too costly, the majority would lose little, but the minority would be heavily penalized.[46] Even when in control of the agenda, the minority's position remains vulnerable, but note that neither with a 60 percent rule nor with simple majority would the minority be able to pass any of its nominees.

We have assumed in this section that parties can nominate candidates who evoke very different intensities in the two parties. But if increased polarization means, as we argued earlier, that intensities have become more highly correlated across the two parties, the assumption is inappropriate. Suppose then that the agenda-setter is restricted to slates of candidates such that the distribution of intensities is identical in the two parties. Among the three distributions allowed here, an agenda-setter representing the interests of the majority would select a slate of names that evokes strong reactions in both parties, and one representing

[46] If the distributions of intensities were restricted to be equal for all nominees, the majority would choose a slate of names it all strongly supports and which all are only weakly opposed by the minority. Such a slate ranks sixth of 1287 possible ones in terms of majority welfare. The minority would instead choose nominees both parties feel weakly about. Such a slate ranks below 1027th in terms of minority welfare.

the minority a slate that is as uncontroversial as possible, i.e. that evokes weak reactions in both parties. In other words, the majority gives little weight to the possibility of defeat and chooses candidates which maximize its welfare when nominated, even if strongly opposed by the minority. The minority, on the other hand, expects defeats with high probability on all names, and thus chooses candidates that can be sacrificed with relatively little pain.

9. Conclusions

This paper proposes a possible reform of the filibuster in the confirmation of judicial nominations. The reform is designed to grant some power to the minority while preventing it from delaying and blocking an arbitrary number of nominations. More precisely, the objective is to induce the minority to block only those nominations it feels most strongly about, and to induce the majority to present nominees that for the most part are not too controversial. We suggest that a system of storable votes, coupled with periodic simultaneous votes on a slate of nominees, can achieve this goal. With storable votes, voters can decide how many votes to cast for or against any individual nomination, under the constraint that over the full slate their total number of votes is fixed. By accounting for intensity of preferences, storable votes make it possible for the minority to win occasionally, but only when the relative importance its members assign to a nomination is higher than the relative importance assigned by the majority.

With the help of numerical simulations, the paper studies the effects of such a system in a simplified scenario where individual members' voting behavior is chosen among a limited number of rules of thumb. Predictably, the results depend on the pattern of preference intensities among the members of the two parties: what matters is both how cohesive each party is, and how polarized the nominations are. Because of the minority's smaller size, coordination in voting among its members is essential to a minority victory. Thus the minority will succeed in blocking nominations only if its members rank the different nominations on a single slate similarly. Correlation in preferences among majority members has less influence on the results because it is less important in achieving majority victories. Where it does matter is when preferences in the two parties are polarized and the two parties agree on the relative importance of the different nominations: strong opposition by the minority means strong support by the majority. We find that when both intra-party and inter-party correlations in intensities of preferences are high, the minority succeeds in blocking between 20 and 30 percent of nominations.

If the majority can influence the President's choice of names on the slate, it can strategically nominate some "decoy" candidates, with the explicit purpose of catalyzing the opposition votes of the minority. This strategy, however, can work only to the extent that the remaining candidates are relatively uncontroversial. Note that the decoy candidates can fulfill their function only if the majority at least weakly supports them, since the minority could otherwise block them at very low votes' cost. Thus, unless the majority is willing to risk the political cost of nominating and standing behind extreme decoy candidates, storable votes work to mitigate the polarization of the nomination process: most of the nominated candidates should be acceptable to the minority. The same logic applies if it is the minority which can influence the Presidential nominations. In such a case, however, the number of decoy nominees increases, as the number of votes that the minority needs the majority to spend on non-viable candidates increases. As a result, we expect that the slate of candidates would be more polarizing when the President belongs to the minority party.

A concluding evaluation of the storable votes scheme, in its application to judicial nominations, would require a clear comparison to the current system of cloture votes, and this in turn a model of its costs and benefits. Even in the current system, a minority large enough to defeat a cloture vote in fact will not be able, or will not find it profitable, to block *all* nominations. The more subtle political costs of such a behavior and the influence that such costs exercise on the nomination policy of the majority must be given their weight. We leave this richer comparative discussion to future work.

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