Online Appendix for:
Charles Cameron and Jonathan Kastellec
"Are Supreme Court Nominations a Move-the-Median Game?"
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Appendix A presents supplemental information relevant to our empirical analyses, while Appendix B, which starts on page 20, presents the complete version of the theory, along with proofs.

A Appendix A

In this appendix, we present the following:

- Section A.1: Additional notes
- Section A.2: Supplemental figures
- Section A.3: Discussion of the mapping of Martin-Quinn scores into DW-NOMINATE
- Section A.4.1: Analysis of the role of nominee quality and party in roll call votes
- Section A.5: Evaluating MTM-theory over time
- Section A.6: Robustness checks using the filibuster pivot as the pivotal senator
- Section A.7: Robustness check excluding voice votes
- Section A.8: References for citations in Appendix A

A.1 Additional notes

In this subsection we present some additional notes that we could not present in the main text due to space constraints.

1. Our theoretical model abstracts away from many events that occur between the nomination stage and the final Senate vote, such as meetings with individual senators and hearings by the Senate Judiciary Committee. In practice, almost every Supreme Court nominee reaches the floor of the Senate and receives a confirmation vote. This differs from many other types of presidential nominations (including lower federal court judges), where nominees are routinely blocked from reaching a floor vote.

2. Our usage of the term "gridlock" differs from its traditional meaning in the pivotal politics literature (Krehbiel 1998), which focuses on legislation. There the gridlock scenario results in no legislation being passed, since at least one veto player prefers the status quo to a given proposal. In MTM-games with perfect information, a nominee will always be confirmed in equilibrium; in our gridlock scenario, however, movement in the location of the *median justice* cannot be obtained.

3. With respect to our empirical results, one possibility worth addressing is that simple measurement error explains our failure to find support for MTM-theory. We would argue against this conclusion for two reasons. First, a number of studies have showed that it is very easy to construct models of roll call voting on nominees in which the distance between the nominee and senator is highly predictive of a yes vote (see e.g. Epstein et al. 2006, Cameron, Kastellec and Park 2013, Zigerell 2010). These papers use very similar measures and bridging strategies to the ones we employ. (We also present a similar regression analysis below in Table A-2, based on our measures that shows that nominee-senator distance is highly predictive of confirmation votes). Second, the mistakes we document are not random, as one might expect if pure measurement error were driving the patterns. Rather, the combination of an overly deferent Senate and aggressive mistakes by the president are mutually supportive, and seem unlikely to have collectively occurred by chance.

4. In Figure 3A, the confidence interval for Harold Burton in the left panel is highly asymmetric because the distribution of distance from the old median justice to his ideal point is bimodal. This arises because in 9 percent of simulations, President Truman is estimated as to the right of the Senate median; in the other 91% he is to left. Thus, 91% of time Burton is as estimated as an own goal. In Figure 3B, similar circumstances explain the asymmetric confidence intervals for Brennan, Harlan, Warren, and Fortas (CJ).

A.2 Supplemental Figures

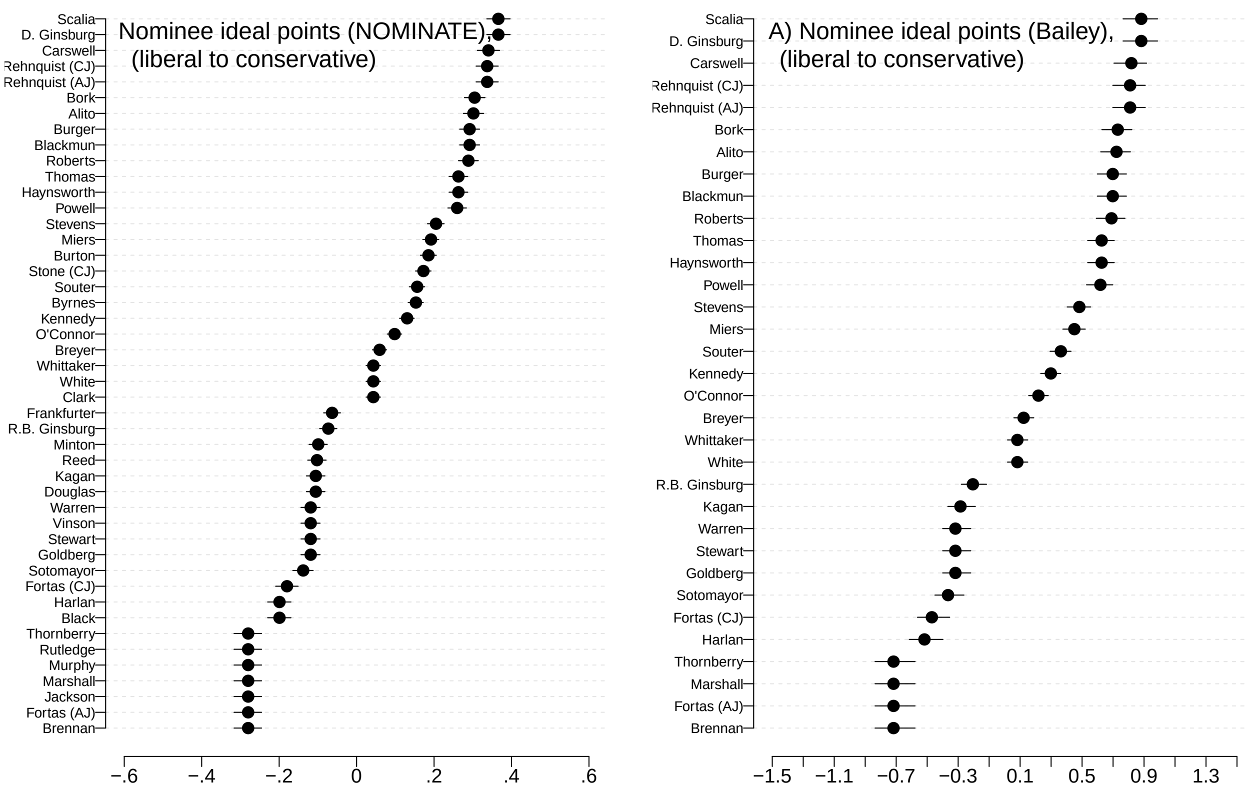

Figure A-1: Estimates of each nominee's ideal point, ordered from most to least conservative, for both the NOMINATE and Bailey-based measures. Horizontal lines depict 95% confidence intervals.

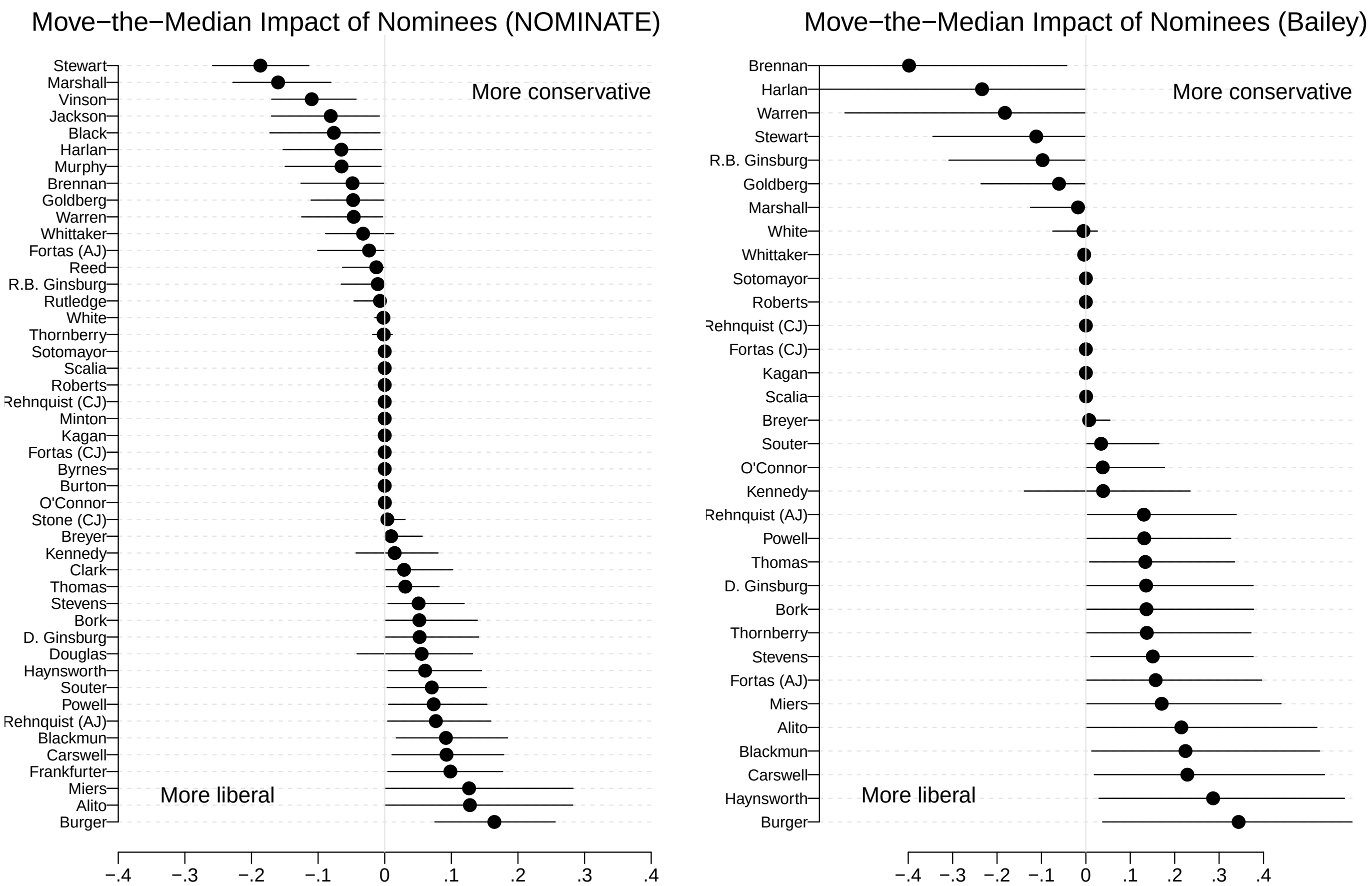

Figure A-2: How much each nominee would move the median justice, if the nominee were confirmed, ordered from most to least conservative. Horizontal lines depict 95% confidence intervals. Many of the confidence intervals in the figure are both asymmetric and "clipped" at zero. This is because, for most nominations, the ideal points on the existing justices are distributed such that there is zero probability that the nominee moves the median justice in the "opposite" direction as suggested by the fixed ideal points. Also note that the uncertainty in the Bailey estimates is much larger.

A.3 Mapping justices into DW-NOMINATE

As discussed in the "Data and Results" section of the paper, to place Supreme Court justices in DW-NOMINATE space, we follow the lead of Epstein et al. (2007)[1] and transform the justices' Martin-Quinn scores into NOMINATE. Epstein et al. begin with the 15 confirmed nominees who fall into the "unconstrained" regime in Moraski and Shipan's (1999) analysis (Blackmun, Brennan, Breyer, Burger, Goldberg, Marshall, O'Connor, Powell, Rehnquist (both nominations), Scalia, Stewart, Warren, White, and Whitaker). Using these nominees, they regress the nominating president's Common Space NOMINATE score on the 1st-year voting score of the confirmed justices (i.e. the Martin-Quinn score from the justices' first term on the Court). Because Martin-Quinn scores are unbounded, whereas NOMINATE scores exist in [-1,1], Epstein et al. first take the tangent transformation of the president's common space score, then regress it on the Martin-Quinn scores. Finally, they use the arc-tangent prediction from this equation to place the justices in Common Space.

Our procedure is similar, except a) we use the president's DW-NOMINATE score (since we work with these scores for both the president and the Senate); b) we incorporate the uncertainty in the MQ scores into our estimates of justices' ideology in DW space; and c) we use all presidents, not just those from the unconstrained regime in Moraski and Shipan's (1999)—see below for more on this choice. Specifically, we begin with the Martin-Quinn median estimate of justice ideology in their first terms, and then use the standard error of that estimate to generate a distribution of 1,000 MQ scores for each justice. For each simulation, we run the following model:

$$\tan(\frac{\pi}{2}DW_i) = B_0 + B_1 MQ_i, \tag{A-1}$$

where DW is the DW score of the nominating president of justice i and MQ is the justice's first-year MQ score. The resultant prediction equation gives us:

[1]References for citations in Appendix A appear in Section A.8.

	MS unconstrained nominees	All MS nominees	All nominees
Intercept	-.10	-0.02	-.09
	(.16)	-0.13	(.08)
MQ score	.42	0.39	.39
	(.10)	(.09)	(.06)
R^2	.55	.48	.55
Root MSE	.54	.53	.50
N	15	24	40

Table A-1: Regressions of president DW-NOMINATE scores on justices' voting scores. See text for details of model specification. Standard errors in parentheses. Model 1 uses the 15 confirmed unconstrained nominations from Moraski and Shipan. Model 2 uses all 24 confirmed nominees from Moraski and Shipan. Model 3 uses all 40 confirmed nominees from our data. The intercept and slope estimates are very similar across models.

$$D\hat{W}_i = \frac{2}{\pi}\arctan(\hat{B}_0 + \hat{B}_1 MQ) \tag{A-2}$$

That is, we get a predicted DW-NOMINATE score for each justice (across 1,000 simulations). With these in hand, we can then create estimates of the location of the old median justice on the Court in DW-NOMINATE space, as well as the location of the new median justice (once we incorporate the location of the nominee).

As we discussed in the text, we choose not to use the results from Moraski and Shipan (1999) to inform our choice of which nominees to use for the transformation between Martin-Quinn scores and DW-NOMINATE, since the choice of presidents/nominee by Epstein et al. (2007) assumes that MTM-theory does a good job of characterizing presidential selection.

How sensitive is the estimated mapping between Martin-Quinn and DW-NOMINATE to the choice of nominees? We estimated several models using different sets of nominees to answer this question. Here, for simplicity, we focus just on the Martin-Quinn point predictions and ignore uncertainty. Model (1) in Table A-1 presents the results of the regression in Eqn. A-1, using the same 15 "unconstrained" nominations as Epstein et al. The intercept is about 0 and the coefficient on MQ-score is about .4. Next, Model 2 uses all 24 confirmed nominees that Moraski and Shipan used in their analysis. The intercept and slope are nearly identical and statistically indistinguishable from the results using only the constrained nominations. Finally, Model 3 uses all 40 confirmed nominees in our dataset. The results are again effectively the same. In addition, there is little difference in model performance across each model.

Thus, using all presidents to estimate the mapping from MQ to NOMINATE does not affect our estimates of justices' location. In addition, the results across models in Table A-1 provides further support for our results showing that presidents' ability to select nominees close to their ideal points is not affected by the Senate—or, is affected much less than MTM-theory would predict.

A.4 Supplemental analyses and robustness checks

In this section we present several supplementary analyses and robustness checks that are discussed or referenced in the paper.

A.4.1 The role of nominee quality and party in roll call votes

As discussed in the Discussion section in the paper, we find that senatorial voting errors (particularly "false positives") are predicted by whether the senator is of the president's party and by nominee quality. Here we present the results of this analysis. For each observation where a senator is predicted to vote no, we regress their actual vote choice on whether the senator's same-party status, and on the nominee's perceived legal quality, using the standard newspaper-based measure of quality (Cameron, Cover and Segal 1990, Epstein et al. 2006). The results are presented in Table A-2. Models (1) and (2) use the court-outcome based as the basis for predictions of no votes, with Model (1) using the NOMINATE measure and Model (2) using the Bailey measure. Models (3) and (4) use the predictions from the position-taking senators model. The regressions incorporate uncertainty in the predictions,

	Court-outcome based		Position-taking senators	
	(1) (NOMINATE)	(2) (Bailey)	(3) (NOMINATE)	(4) (Bailey)
Intercept	.7	-2.5	.36	-1.3
	[.08, 1.3]	[-3.9, -1.1]	[.02, .67]	[1.7, -.84]
Quality	3.8	6.1	4.0	5.2
	[3.4, 4.6]	[5.0, 7.4]	[3.8, 4.2]	[4.7, 6.1]
Same party as president	1.4	2.0	1.6	2.1
	[1.0, 1.7]	[1.3, 2.5]	[1.2, 1.8]	[1.5, 2.5]
Senator-nominee distance	-5.0	-3.6	-4.8	-4.4
	[-5.7, -4.2]	[-6.2, -2.1]	[-5.4, -4.4]	[-6.0, -3.7]

Table A-2: Explaining false positives in Senate voting.

as discussed in footnote 14 in the paper; the numbers in brackets are 95% confidence intervals.

The results are clear: across all models, voting errors in the yes direction are more likely when the senator is of the president's party, and when a nominee's legal quality is higher.

A.5 Evaluating MTM-theory over time

As discussed in Section 4 of the paper, we conducted analyses evaluating the performance of MTM-theory over time. The clearest way to assess this question is to use senatorial voting decisions. Figure A-3 evaluates the accuracy of MTM predictions with respect to Senate voting over time in two ways. (In the interests of space, we present here only the results using NOMINATE; the results with Bailey show the same general patterns, and are available upon request.) First, the top two panels depict the *probability of a mistake* by the full Senate, first for the court-outcome based model and then for the position-taking senators model—that is, confirming when the theory predicts rejection and vice versa. (We again omit the mixed-motivations model because for some nominations the predicted vote of the Senate median is ambiguous without knowing λ_S.) Nominees in bold are those who were rejected (we omit the three nominees who did not receive a floor vote at all). We calculate the probability of a mistake by taking, for each nominee, the mean of simulations in which the theory is correct. For example, looking at Justice Black in the top panel, in nearly

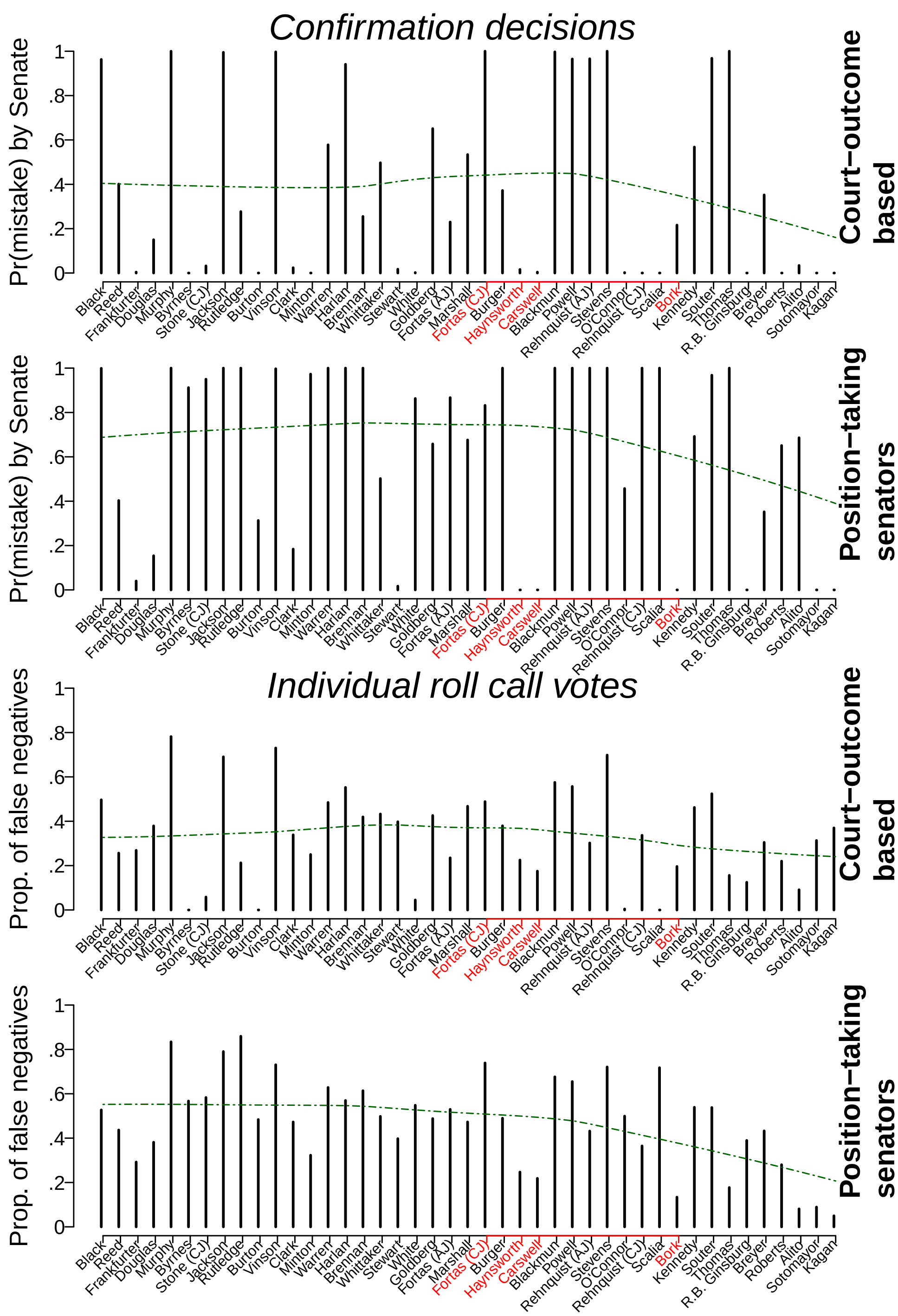

Figure A-3: Voting errors by the Senate. The top two panels depict the probability the Senate made a mistake in its confirm or reject decision on each nominee, for the court-outcome based and position-taking senators models. Nominees in bold were rejected. The bottom two panels depict the proportion of false negatives for each nominee—that is, the proportion of predicted no votes that are actually votes to confirm. The lines are lowess lines.

100% of simulations the court-outcome based model incorrectly predicted that Justice Black should be rejected by the Senate. The lines in each panel are loess lines.

The graph makes clear that the incidence of mistakes by the full Senate was high in early decades, particularly using the position-taking senators model. Indeed, the probability of mistaken confirmations was exactly one for the majority of nominees through the 1960s. In recent decades, however, mistakes under both models have declined significantly. Yet significant classification errors still persist. For example, under the position-taking senators model, both Roberts and Alito (as discussed earlier) should have been rejected, while the court-outcome based model predicts that neither Souter nor Thomas should have been confirmed.

The bottom two panels in Figure A-3 examine errors at the level of individual roll call votes. As noted above, most errors are "false negatives"—instances where senators are predicted to vote no but actually vote yes. We thus focus on these errors, plotting the proportion of false negatives for each nominee (for simplicity, we simply take the average of false negatives across all the simulation for each nominee). These pictures tell a similar story: the proportion of false negatives has been high across time—particularly for the position-taking senators model—but has trended downward as the number of no votes has increased. Because the decline in errors occurs more in the position-taking senators model relative to the court-outcome based model, it would appear senators have responded more sensitively to nominee ideology *per se* recently, rather than to the nominee's impact on the median justice.

A.6 Using the filibuster pivot

As discussed in footnote 3 in the paper, one important consideration in testing MTM-theory is whether one should treat the Senate median or the filibuster pivot as the pivotal senator. Our reading of the historical record on Supreme Court nominations is that the Senate median has been pivotal in the vast majority of nominations, if not all of them, for the following reasons. First, two nominees have been been confirmed by margins under the 60-vote threshold (Thomas and Alito), meaning that their nominations could have been successfully filibustered if opposing senators believed it were a politically viable strategy. For Alito, in fact, the Senate did vote 72-25 to invoke cloture—several Democrats voted for cloture but nevertheless voted against Alito's confirmation (his final margin of victory was 58-42). Similarly, during William Rehnquist's nomination to become associate justice in 1971, a cloture vote on his nomination only received 52 yes votes, not enough to cross the two-thirds threshold to end debate that existed at the time. Nevertheless, the Senate then agreed by unanimous consent to move to a vote on his nomination, where he was confirmed 68-26 (Beth and Palmer 2009, 13).

The only instance where a filibuster potentially derailed a confirmation was the nomination of Abe Fortas to become Chief Justice in 1968. However, it is unclear whether Fortas would have been confirmed in the absence of a filibuster, given that his nomination was dogged by accusations of financial impropriety, and he faced significant opposition from both Republicans and Southern Democrats (Curry 2005). Whittington (2006, 418), for example, argues that President Johnson "was forced to withdraw the nomination rather than [face] a certain defeat" on the Senate floor. In addition, it is notable that even as filibusters of lower federal court judges have become routine in modern nomination politics, the filibuster has not been wielded as a significant tool by the minority party during recent unified government nominations to the Supreme Court. Finally, the implementation of the "nuclear option" in 2013 with respect to lower court judges appears to have established a precedent by which the majority party in the Senate would shift the threshold for approval of Supreme Court nominees to 50 votes if the minority party used the filibuster to block a confirmable nominee.

As a robustness check, in this sub-section we replicate all the results in the paper in which the theory makes different predictions depending on which senator is pivotal (the analyses of individual senator votes and own goals are not implicated by the distinction). For each nominee and simulation, we calculated the filibuster pivot, accounting for whether the president was a Democrat or Republican. (Before 1975—up through and including the nomination of John Paul Stevens—two-thirds of senators present were required to invoke

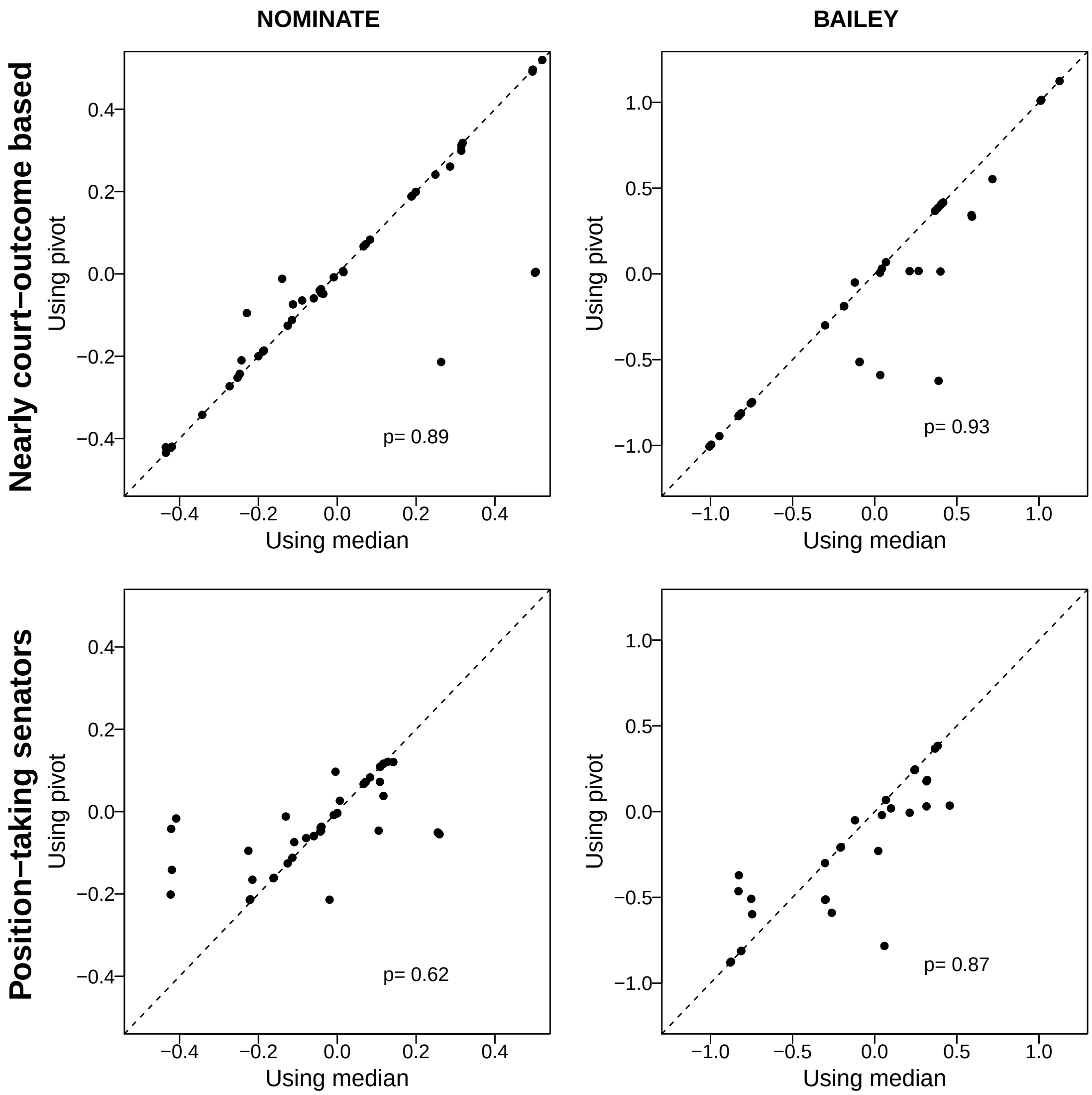

Figure A-4: Predicted nominee locations of the nearly court-outcome based and the position-taking senators models, based on whether the Senate median or filibuster pivot is pivotal. See text for details.

cloture. In 1975, the threshold was reduced to three-fifths of all senators.)

Before turning to the tests of senator votes and presidential selection, we begin by comparing the predicted nominee locations of the nearly court-outcome based and the position-taking senators models, based on whether the median senator or filibuster pivot is pivotal. Figure A-4 presents these comparisons, using both the NOMINATE and Bailey measures. For simplicity, for each nominee we depict the mean prediction across simulations. In addition, the correlation between the median-based and filibuster-pivot-based calculations are

		NOMINATE		*Bailey*	
Confirmation decisions					
		Predicted reject	Predicted confirm	Predicted reject	Predicted confirm
Court-outcome based	Reject	.07 [.05, .07]	.02 [.02, .05]	.10 [.07, .10]	.03 [.03, .07]
	Confirm	.37 [.32,.42]	.53 [.49,.58]	.33 [.23,.33]	.53 [.47,.63]
Position-taking senators	Reject	.07 [.07, .09]	.02 [.000, .02]	.10 [.10, .10]	.03 [.03, .03]
	Confirm	.58 [.52 .65]	.32 [.26, .40]	.57 [.47 .67]	.30 [.20, .40]

Table A-3: Using the filibuster pivot, predicted versus confirmation decisions by the Senate. For each two-by-two table, cell proportions are displayed, along with 95% confidence intervals in brackets.

given in each panel. Beginning with the nearly court-outcome based model, Figure A-4 shows that the two sets of predictions are highly correlated—and, in fact, are identical for many nominees. For the position-taking senators model, the differences in the predictions depending on which senator is pivotal are more substantial—this is not surprising, given that this model is more sensitive to the location of the pivotal senator, since he or she weighs the nominee against the old median justice. Still, the senator-based and filibuster pivot-based measures are substantially correlated.

Next, we replicate the analysis of the Senate's confirmation decisions presented in Table 2 in the paper, but this time assuming the filibuster pivot is pivotal—see Table A-3. As it turns out, for both measures and both MTM-variants, there are very few nominations where MTM-theory predicts that the Senate median should confirm but the filibuster should reject. Not surprisingly then, when we compare predicted versus actual confirmation decisions using the filibuster pivot, the results are unchanged. When MTM-theory predicts the Senate filibuster should confirm a nominee, the nominee is almost always confirmed. However, when MTM-theory predicts a rejection, the nominee is almost always confirmed as well.

Next, Figure A-5 replicates Figure 4 in the paper, and tests the prediction of no aggressive

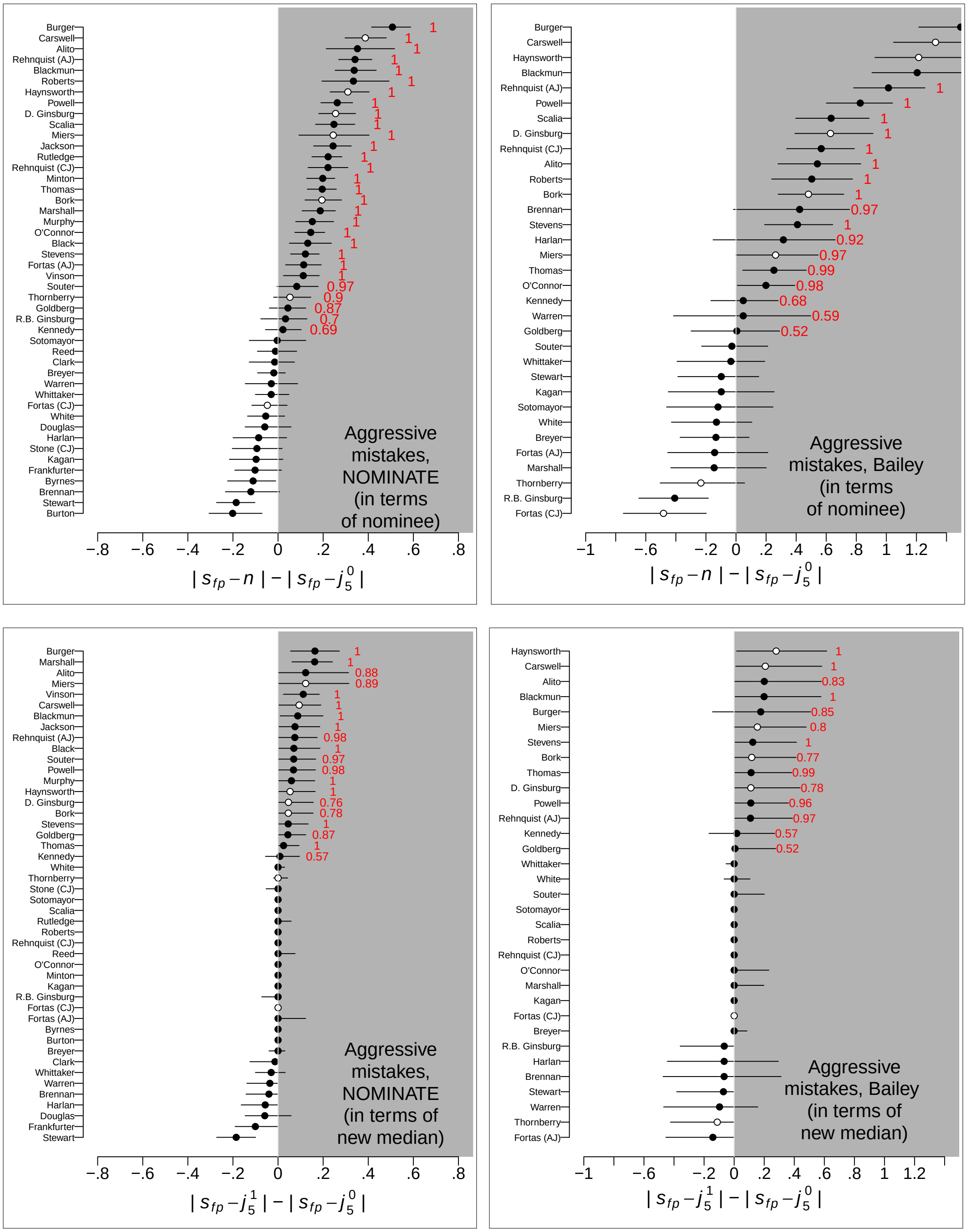

Figure A-5: Evaluation of "aggressive mistakes" by presidents, based on the filibuster pivot. ***Top****: In terms of the nominee.* ***Bottom****: In terms of the new median justice. Nominees in the shaded regions are estimated as aggressive mistakes. See text for more details.*

mistakes by the president, but this time assuming the filibuster pivot (whom we denote s_{fp}) is pivotal. Figure A-5 shows a similar pattern: in many instances the president nominates

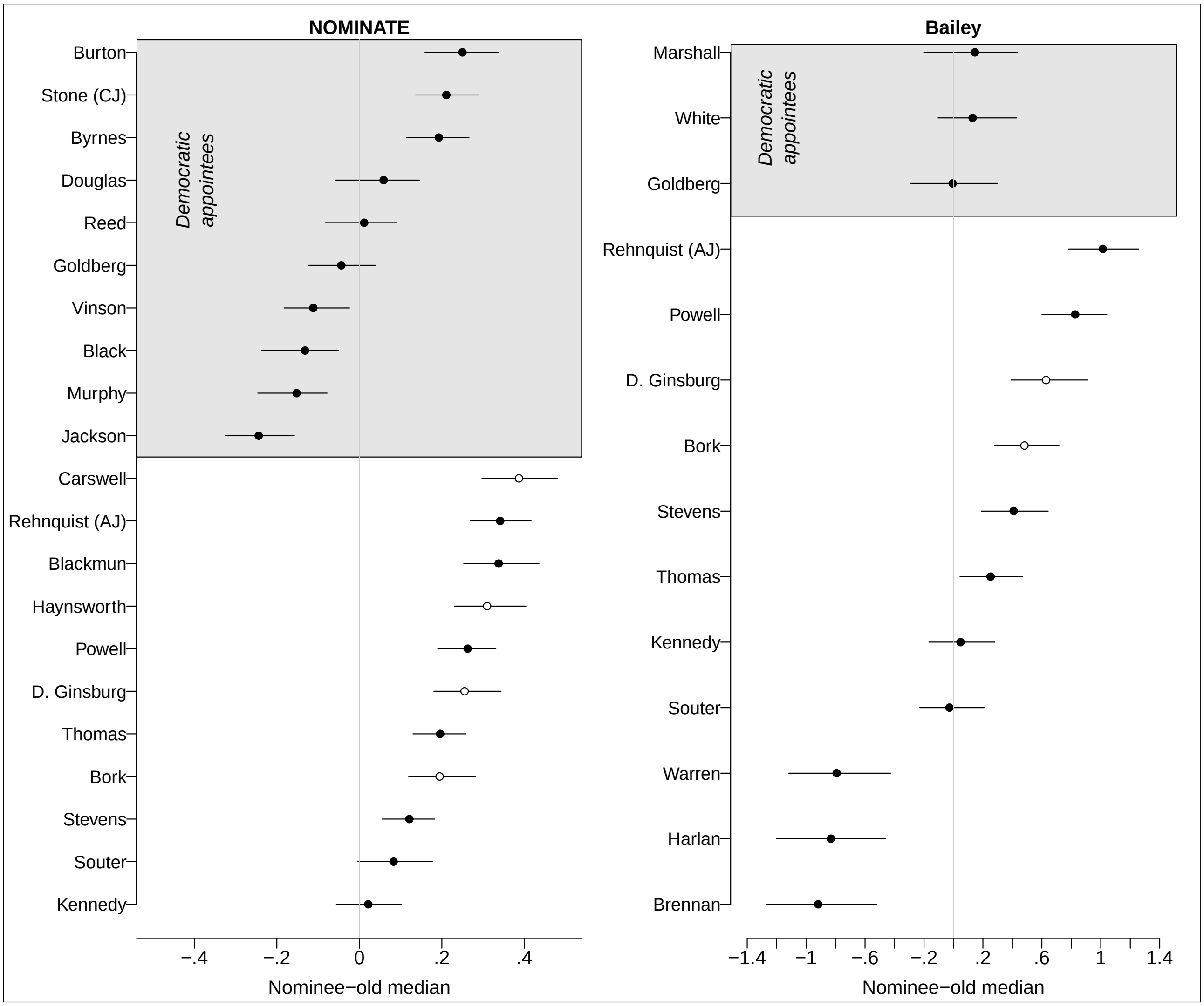

Figure A-6: Evaluation of the "median locked" prediction, based on the filibuster pivot. See text for details.

someone who is farther away from the filibuster pivot than is the old median justice. In addition, in a non-trivial number of nominations, an aggressive mistake results in the *new median justice* being farther from the filibuster pivot than the old median justice—and most of these nominees are confirmed.

Next, Figure A-6 replicates the test of the "median locked" prediction. (While the calculation of the tests themselves in Figure A-6 do not implicate the filibuster pivot, the location of the pivot will affect the calculation of the nominating regimes, which will affect which nominees clearly fall into the lower left region of the main panels in Figure 2 in the

	Nearly court-outcome based				*Position-taking senators*			
	(1) (NOMINATE)	(2) (Bailey)	(3) (NOMINATE)	(4) (Bailey)	(5) (NOMINATE)	(6) (Bailey)	(7) (NOMINATE)	(8) (Bailey)
Intercept	.04	0.2	.03	0.08	.06	0.31	.01	.07
	[-.02, .11]	[.01, .40]	[-.03,.10]	[-.15, .31]	[-.01, .13]	[.09,.54]	[-.00, .03]	[-.03, .17]
Gridlock × j_5^0	.56	0.1			.64	0.52		
	[-.50, 1.56]	[-.71, .84]			[-.11, 1.32]	[-.07, 1.13]		
Pres. predicted × p	.29	0.56			.43	1		
	[.02, .60]	[.25, .90]			[-1.81, 3.75]	[-2.5,3.7]		
Flip × $2s_{fp} - j_5^0$	.63	0.26			.23	-0.3		
	[-6.53, 9.01]	[-47.01, 29.85]			[-.13, .60]	[.20, .77]		
!Gridlock × j_5^0			.38	0.27			.32	-.05
			[-.35, 1.03]	[-.30, .88]			[.01, .69]	[-.66, .48]
!Pres. predicted × p			.45	0.41			.37	.38
			[.27, .64]	[.11, .78]			[.32, .42]	[.27, .52]
!Flip × $2s_{fp} - j_5^0$			.13	-0.11			-.06	-.33
			[-.12, .40]	[-.43. .19]			[-.16, .04]	[-.52, -.13]
N	46	33	46	33	46	33	46	33
R^2	.15	.37	.39	.33	.14	.28	.46	.61

Table A-4: Linear regression models of presidential selection, using the filibuster pivot. In each model the dependent variable is the estimated location of the nominee. 95% confidence intervals in brackets, which are estimated via simulation. The R^2 values presented are the mean R^2 estimate across all simulations, for a given model.

paper; these are the nominees subject to the median-locked prediction.) Figure A-6 reveals nearly identical results as that seen in Figure 5 in the paper.

Finally, Table A-4 replicates the regressions of nominee location presented in Table 3 in the paper, this time using the filibuster pivot as the pivotal senator. The key results remain unchanged. In the nearly court-outcome based model, the coefficient on the president's ideal point is significant even in the placebo regressions (Models 3 and 4). Moreover, when we turn to the position-taking senators model, the coefficients on the president is not statistically different from zero even in the main regressions. Thus, we are confident MTM-theory finds no better support when the filibuster pivot is employed, rather than the Senate median.

A.7 Excluding voice votes

As discussed in footnote 13 in the paper, the potential for selection bias in our study of Senate roll call votes exists in the fact that many nominees in our sample did not receive full roll call votes; instead, they were confirmed unanimously via voice vote (such nominees were all nominated before 1970). Coding senators who participate in voice votes as all

		NOMINATE		*Bailey*	
Roll call votes					
		Predicted no	Predicted yes	Predicted no	Predicted yes
Court-outcome based	Vote no	.12 [.10, .13]	.10 [.09, .12]	.12 [.10, .14]	.10 [.09, .13]
	Vote yes	.23 [.19,.26]	.55 [.52,.59]	.23 [.18, .23]	.58 [.55, .65]
Position-taking senators	Vote no	.19 [.18, .20]	.03 [.02, .04]	.19 [.18, .20]	.03 [.02, .04]
	Vote yes	.38 [.36, .40]	.40 [.38, .42]	.37 [.35 .40]	.40 [.38, .43]
Mixed-motivations	Vote no	.20 [.19,.21]	.02 [.01, .04]	.21 [.19,.22]	.02 [.01, .04]
	Vote yes	.35 [.34, .37]	.43 [.41, .44]	.35 [.33, .36]	.42 [.41, .44]

Table A-5: Predicted versus actual votes by individual senators, excluded nominations in which voice votes were held. For each two-by-two table, cell proportions are displayed, along with 95% confidence intervals in brackets.

voting "yes"—as we do in the main analyses—may overstate support for a nominee, as some senators (though presumably far from a majority) may have voted against him had a roll call vote been held. Cameron, Kastellec and Park (2013) show that selection bias does not seem to affect analyses of roll call votes that treat voices votes as "yeas." We reran all the analyses of Senate voting that appear in the paper, this time excluding nominees who received voice votes (28 of the 43 nominees in our data who were voted on by the Senate had full roll call votes). Given the direction of the errors we uncover in our main analyses (too many votes to confirm, compared to what MTM predicts), this procedure is biased *in favor* of finding support for MTM-theory, since we are excluding a large proportion of "yes" votes from the data.

The results from this analysis appear in Table A-5. Not surprisingly, the models do better here than when we include all nominations that reached the floor. In particular, the position-taking senators model and mixed-motivation models classify "nay" votes more successfully in this analysis. Still, even when we exclude a large proportion of would-be yes votes from the analysis, we still see that senators are still significantly more likely to vote yes when MTM-theory predicts they should vote yes. Thus, we are confident that treating voice votes as "yeas" does not create bias in our main analyses of senator vote choice in the paper. (Of course, the incidence of such votes does not affect the analyses of presidential selection, since the president's choice of nominee comes before the Senate acts.)

A.8 Appendix-A References

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B Appendix B: Proofs of Formal Theory

B.1 The Game

As discussed in the text, the players are the president (P) and k senators $S_1 ... S_k$. Index the players and members of the Court by their ideal points, i.e., $p, s_i, j_i \in X = \mathbb{R}$. Given the unidimensional policy space and single-peaked utility functions, medians are well-defined; denote the ideal point of the median senator as s_m. Denote justice i on the original natural court as J_i^0 and denote justices' ideal points by j_i^0, $i = 1, 2, ..., 9$, with $j_i^0 \in X$ (superscripts denote strong natural courts, that is, 9-member courts). Order the original justices by the value of their ideal points, so $j_1^0 < j_2^0 < ... < j_9^0$. Original Justice 5 J_5^0 is thus the median justice on the original Court, with ideal point j_5^0. Following a confirmation, there is a new 9-member natural Court; denote the ideal points of the members of the new Court by j_i^1. The ideal point of the median justice on the new Court is thus j_5^1.

The sequence of play in the one-shot game is simple: 1) Nature selects an exiting justice so that a vacancy or opening occurs on the 9-member Court; let e (for "exiting") denote the ideal point of the exiting justice; 2) President proposes a nominee N with ideal point $n \in X$; 3) senators vote to accept or reject the nominee; let $v_i \in \{0, 1\}$ denote the confirmation vote of the ith senator. If $\sum v_i \geq \frac{k+1}{2}$ the Senate accepts the nominee; otherwise, it rejects the nominee. If the Senate accepts the nominee, the Court's new median become j_5^1. If the Court rejects the nominee the "reversion policy" for the Court becomes q. The game is one of complete and perfect information.

The reversion policy What is the proper reversion policy q in the event the nominee is rejected? There are at least three arguably reasonable choices. The first alternative is to take the version policy q to be the old median justice on the Court, j_5^0. This alternative is strongly advocated in Krehbiel (2007). Krehbiel notes that all policies set by the old natural court (presumably) were set to the median j_5^0, a point which now lies within a gridlock interval on the 8-member Court and hence cannot be moved. Consequently, rejection of the nominee effectively retains existing policy at the old median. While this approach abstracts from new policy set by the 8-member Court, it is simple and logical.

The second alternative associates q with the median on the 8-member Court (see Moraski and Shipan 1999, Rohde and Shepshle 2007, Snyder and Weingast (2000). Unfortunately, this median is the interval $[j_4^0, j_5^0]$, $[j_5^0, j_6^0]$, or $[j_4^0, j_6^0]$, depending on the location of the vacancy ($e \in \{j_6^0, \dots, j_9^0\}$, $e \in \{j_1^0, \dots, j_4^0\}$, and $e = j_5^0$, respectively). Analysts typically associate the reversion policy with an arbitrary point within the intervals. Implicitly, these analysts consider future cases coming to the 8-member Court and assume the justices (somehow) set new policy to some point in the median range.

A third possibility stems from the observation that an 8-member Court is necessarily short-lived and will surely be followed—eventually—by a 9 member Court. In that case, q might be the discounted policy value of the future median justice's ideal point likely emerge from future play. Jo, Primo, and Sekiya (2013) begin to explore this logic by examining a two-period MTM game. This approach adds considerable complexity to the analysis; the infinite horizon game has not yet been solved.

For the sake of simplicity and consistency, we follow Krehbiel (2007) and assume $q = j_5^0$, in other words, the reversion policy is the ideal point of the old median justice. This simplifies the analysis without undue loss of generality.

Utility functions We specify utility functions that allow the players to value both the nominee's impact on the Court's new median and the nominee's ideology *per se* (see the discussion in the text). For the president:

$$u_P(j_5^1, q, n; p) = \begin{cases} -\lambda_p|p - j_5^1| - (1 - \lambda_p)|p - n| \text{ if confirmed} \\ -|p - q| - \epsilon \text{ if rejected} \end{cases} \tag{B-1}$$

where $0 \leq \lambda_p \leq 1$ and $\epsilon > 0$. Here, the president suffers a turn-down cost ϵ if his nominee is rejected (this may reflect public evaluation of the presidency). If his nominee is accepted, his evaluation reflects a weighted sum of the ideological distance between the president's ideal point and that of the new median justice, and the ideological distance between the president and his confirmed nominee's ideal point. Finally, we assume λ_s is common to all senators during a nomination and common knowledge; in addition, we assume λ_p is common knowledge.

Similarly for senators:

$$u_{s_i}(j_5^1, q; s_i) = \begin{cases} -\lambda_s|s_i - j_5^1| - (1-\lambda_s)|s_i - n| \text{ if } v_i = 1 \\ -|s_i - q| \text{ if } v_i = 0 \end{cases} \tag{B-2}$$

where $0 < \lambda_s \leq 1$. We adopt the standard convention that voting over two one-shot alternatives is sincere, so each senator evaluates her vote as if she were pivotal. If a senator votes in favor of a nominee, she receives a weighted average of the distance between her ideal policy and the new Court median's ideal point, and the distance between her ideal point and the nominee's ideology.

Care must be taken about the vacancy or opening on the Court (e), the ideology of the nominee (n), and the resulting ideal point of the new median justice (j_5^1). This relationship

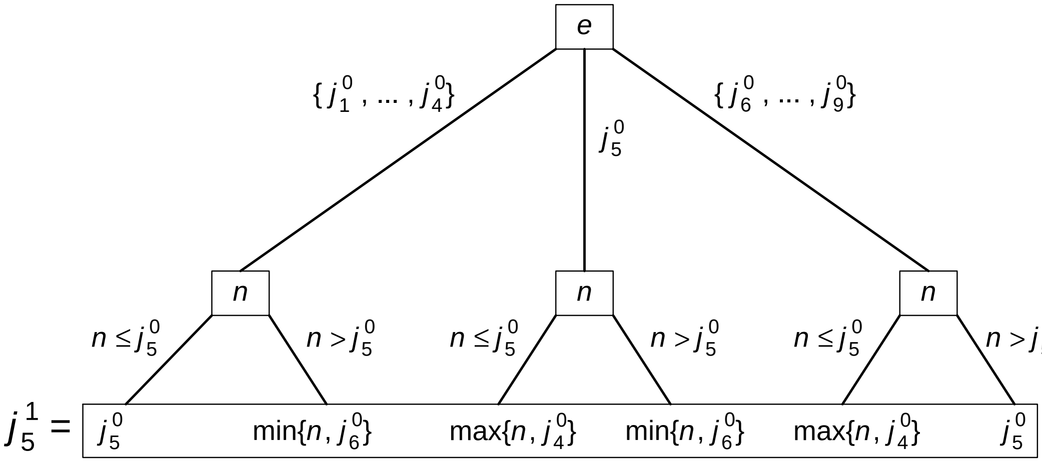

Figure B-1: Openings, Nominees, and the New Median Justice. See text for details.

is made explicit in the following "median production function":

$$
j_5^1 = \begin{cases} j_4^0 \text{ if } e \in \{j_5^0, \dots, j_9^0\} \text{ and } n \leq j_4^0 \\ j_5^0 \text{ if } \begin{cases} e \in \{j_1^0, \dots, j_4^0\} \text{ and } n \leq j_5^0 \\ e \in \{j_6^0, \dots, j_9^0\} \text{ and } n \geq j_5^0 \end{cases} \\ j_6^0 \text{ if } e \in \{j_1^0, \dots, j_5^0\} \text{ and } n \geq j_6^0 \\ n \in (\, j_4^0, j_6^0) \text{ if } \begin{cases} e \in \{j_1^0, \dots, j_4^0\} \text{ and } j_5^0 < n < j_6^0 \\ e = j_5^0 \text{ and } j_4^0 < n < j_6^0 \\ e \in \{j_6^0, \dots, j_9^0\} \text{ and } j_4^0 < n < j_5^0 \end{cases} \end{cases} \qquad \text{(B-3)}
$$

More intuitively, the relationship between the exiting justice, the nominee, and the resulting new median justice is shown in the form of a classification tree in Figure B-1. Importantly, the new median justice j_5^1 can only be j_4^0, j_5^0 (the old median justice), j_6^0, or n itself, with n bounded within $[j_4^0, j_6^0]$. The nominee can become the median justice only when the opening and the nominee lie on opposite sides of the old median justice and n lies between j_4^0 and j_6^0. The set of possible new medians is thus the closed interval $I = [j_4^0, j_6^0]$. Equation B-3 is a function mapping the nominee's ideology n, the opening e, and the values j_4^0, j_5^0, and j_6^0 into a point on interval I. That is, $j_5^1 = f(n, e; j_4^0, j_5^0, j_6^0)$.

A voting strategy for a senator is a function mapping the set of possible new medians, the set of possible nominees, and the set of reversion policies into the set of vote choices: $\sigma_i : I \times X \times X \rightarrow \{0,1\}$, so that $\sigma_i(j_5^1, n, q)$. A nominating strategy for a president is function mapping the set of possible ideal points of the senators, the set of ideal points of the eight justices on the Court, and the set of reversion policies, into the set of possible nominees: $\pi : X^k \times X^8 \times X \rightarrow X$. In practice, this strategy is typically simplified into a mapping from the set of ideal points for the Senate median s_m, the set of possible openings, the interval I, and the possible reversion policies, hence $\pi : X \times X^9 \times I \times X \rightarrow X$, so that $\pi(s_m, e, j_4^0, j_5^0, j_6^0) \rightarrow X$.

B.2 Equilibrium

The utility weights define classes of game with quite different equilibria. We focus on four cases of particular interest: 1) the benchmark court-outcome based model ($\lambda_p = \lambda_s = 1$); 2) a nearly court-outcome based model ($\lambda_p < 1, \lambda_s = 1$); 3) the position-taking senators model ($\lambda_p < 1, \lambda_s = 0$), and 4) the mixed-motivations model ($0 < \lambda_p < 1, 0 < \lambda_s < 0$).

For the sake of brevity, throughout we assume $p > j_5^0 = q$.

B.2.1 Court-outcome based model

In the court-outcome based model, the actors care only about the immediate policy consequences of a nomination. Hence, median-equivalent nominees are utility-equivalent.

Voting by Senators The voting strategy for senators is extremely simple in principle: $v_i = 1$ iff $|s_i - j_5^1| \leq |s_i - j_5^0|$. However, because the determination of j_5^1 via Equation B-3 is complex, stating the equilibrium voting strategy in terms of o, n, and s_i is rather involved. The following observation proves useful. The possible new medians—j_4^0, j_5^0, j_6^0, plus intermediate n—imply four groups of senators: 1) Group A: $s_i < \frac{j_4^0 + j_5^0}{2}$, who prefer j_4^0 to j_5^0 ; 2) Group B: $\frac{j_4^0 + j_5^0}{2} \leq s_i < j_5^0$, who prefer j_5^0 to j_4^0; 3) Group C: $j_5^0 < s_i < \frac{j_5^0 + j_6^0}{2}$, who prefer j_5^0 to j_6^0; and, 4) Group D: $s_i > \frac{j_5^0 + j_6^0}{2}$, who prefer j_6^0 to j_5^0. Recall that these four groups of senators are shown in Figure 2 in the paper. We assume an indifferent senator votes "aye".

Proposition 1 *The following is the senatorial vote function in the court-outcome based model:*

$$\sigma_i^*(e,n;s_i) = \begin{cases} 1 \text{ if } \begin{cases} e \in \{j_1^0, \ldots, j_4^0\},\ n \leq j_5^0,\ \forall s_i \text{ (All groups)} \\ e \in \{j_1^0, \ldots, j_4^0\}, n > j_5^0 \text{ but } n \leq 2s_i - j_5^0,\ j_5^0 < s_i < \frac{j_5^0 + j_6^0}{2} \text{ (Group C)} \\ e \in \{j_1^0, \ldots, j_4^0\}, n > j_5^0,\ s_i > \frac{j_5^0 + j_6^0}{2} \text{ (Group D)} \\ e = j_5^0, n \leq j_5^0,\ s_m < \frac{j_4^0 + j_5^0}{2} \text{ (Group A)} \\ e = j_5^0, n \leq j_5^0 \text{ but } n > 2s_i - j_5^0,\ \frac{j_4^0 + j_5^0}{2} \leq s_i < j_5^0 \text{ (Group B)} \\ e = j_5^0, n > j_5^0 \text{ but } n \leq 2s_i - j_5^0,\ j_5^0 < s_i < \frac{j_5^0 + j_6^0}{2} \text{ (Group C)} \\ e = j_5^0, n > j_5^0, s_i > \frac{j_5^0 + j_6^0}{2} \text{ (Group D)} \\ e \in \{j_6^0, \ldots, j_9^0\}, n \leq j_5^0,\ s_i < \frac{j_4^0 + j_5^0}{2} \text{ (Group A)} \\ e \in \{j_6^0, \ldots, j_9^0\}, n \leq j_5^0 \text{ but } n > 2s_i - j_5^0,\ \frac{j_4^0 + j_5^0}{2} \leq s_i < j_5^0 \text{ (Group B)} \\ e \in \{j_6^0, \ldots, j_9^0\},\ n > j_5^0, \forall s_i \text{ (All groups)} \end{cases} \\ 0 \text{ otherwise} \end{cases} \tag{B-4}$$

Proof. The proof is by enumeration. To calculate new medians, reference to Figure B-1 is helpful. *Case 1.* $e \in \{j_1^0, \ldots, j_4^0\}$, $n \leq j_5^0$ so $j_5^1 = j_5^0$. Because $j_5^1 = j_5^0$ all senators regardless of location s_i are indifferent between the two. So $v_i = 1$.*Case 2.* $e \in \{j_1^0, \ldots, j_4^0\}$, $n > j_5^0$ so $j_5^1 = \min\{n, j_6^0\}$. A) & B) $s_m < \frac{j_4^0 + j_5^0}{2}$ or $\frac{j_4^0 + j_5^0}{2} \leq s_i < j_5^0$ (in other words, $s_i < j_5^0$). Senator prefers j_5^0 to all j_5^1 so $v_i = 0$. C) $j_5^0 < s_i < \frac{j_5^0 + j_6^0}{2}$. If $n \leq 2s_i - j_5^0$, senator prefers all j_5^1 to j_5^0, so $v_i = 1$; conversely if $n > 2s_i - j_5^0$, senator prefers j_5^0 to all j_5^1 so $v_i = 0$. D) $s_i > \frac{j_5^0 + j_6^0}{2}$. Senator prefers all j_5^1 to j_5^0, so $v_i = 1$.

Case 3. $e = j_5^0, n \leq j_5^0$ so $j_5^1 = \max\{j_4^0, n\}$.A) $s_m < \frac{j_4^0 + j_5^0}{2}$. Senator prefers all j_5^1 to j_5^0, so $v_i = 1$.B) $\frac{j_4^0 + j_5^0}{2} \leq s_i < j_5^0$. If $n \leq 2s_i - j_5^0$, senator prefers j_5^0 to all j_5^1 so $v_i = 0$; conversely, if $n > 2s_i - j_5^0$, senator prefers all j_5^1 to j_5^0 so $v_i = 1$. C) & D) $j_5^0 < s_i < \frac{j_5^0 + j_6^0}{2}$ or $s_i > \frac{j_5^0 + j_6^0}{2}$

Group	Opening	Confirmable n	Confirmable n yielding $j_5^1 \geq j_5^0$	Resulting j_5^1
A	$\{j_1^0, \dots, j_4^0\}$	$n \leq j_5^0$	j_5^0	j_5^0
A	j_5^0	$n \leq j_5^0$	j_5^0	j_5^0
A	$\{j_6^0, \dots, j_9^0\}$	all n	$n \geq j_5^0$	j_5^0
B	$\{j_1^0, \dots, j_4^0\}$	$n \leq j_5^0$	j_5^0	j_5^0
B	j_5^0	$2s_m - j_5^0 \leq n \leq j_5^0$	j_5^0	j_5^0
B	$\{j_6^0, \dots, j_9^0\}$	$n \geq 2s_m - j_5^0$	$n \geq j_5^0$	j_5^0
C	$\{j_1^0, \dots, j_4^0\}$	$n \leq 2s_m - j_5^0$	$j_5^0 \leq n \leq 2s_m - j_5^0$	$[j_5^0, 2s_m - j_5^0]$
C	j_5^0	$j_5^0 \leq n \leq 2s_m - j_5^0$	$j_5^0 \leq n \leq 2s_m - j_5^0$	$[j_5^0, 2s_m - j_5^0]$
C	$\{j_6^0, \dots, j_9^0\}$	$n \geq j_5^0$	$n \geq j_5^0$	j_5^0
D	$\{j_1^0, \dots, j_4^0\}$	all n	$n \geq j_5^0$	$[j_5^0, j_6^0]$
D	j_5^0	$n \geq j_5^0$	$n \geq j_5^0$	$[j_5^0, j_6^0]$
D	$\{j_6^0, \dots, j_9^0\}$	$n > j_5^0$	$n \geq j_5^0$	j_5^0

Table B-1: Implications of the Median Senator's Voting Strategy in the court-outcome based model

(in other words, $s_i < j_5^0$). Senator prefers j_5^0 to all j_5^1 so $v_i = 0$ (problem at n=j5). *Case 4.* $e = j_5^0, n > j_5^0$ so $j_5^1 = \min\{n, j_6^0\}$. The new median is identical to that in Case 2 so the analysis is the same. *Case 5.* $e \in \{j_6^0, \dots, j_9^0\}$, $n \leq j_5^0$ so $j_5^1 = \max\{j_4^0, n\}$. The same as Case 3. *Case 6.* $e \in \{j_6^0, \dots, j_9^0\}$, $n > j_5^0$ so $j_5^1 = j_5^0$. The same as Case 1. ■

It may be more intuitive to consider ranges of senators and ranges of openings, and the nominees that senators will vote for. These are shown in the first three columns of Table B-1.

Presidential Choice of Nominees From the president's perspective, the key senator is the median senator since if she votes for the nominee, the nominee will be confirmed, and vice versa. The vote function for the median senator is given by Equation B-4, replacing s_i by s_m.

Table B-1 uses Equation B-4 to identify, for ranges of median senators and openings on the Court, the range of confirmable nominees (these are shown in columns 1-3 of the table). Column 4 in the table then shows the subset of confirmable nominees that yield new Court medians weakly greater than the old median on the Court. The fifth column shows the range of new medians on the Court that result from confirmation of one of these nominees.

Using the table it is straightforward to derive the president's equilibrium nomination correspondence in a subgame perfect equilibrium. This relationship $n^*(s_m, e; p)$ indicates ranges of utility-equivalent, best-response nominees for the president, given the location of the median justice, the opening on the Court, and the ideal point of the president. For the sake of brevity, we focus on $p > j_5^0$ (there are mirror cases for $p < j_5^0$). There are two cases to consider: $j_5^0 < p < j_6^0$ and $p \geq j_6^0$

Proposition 2 *(Nominating Strategy in the Court-outcome based model) The following indicates the president's equilibrium nomination strategy:*

If $p \geq j_6^0$*:*

$$n^*(s_m, e; p \geq j_6^0) = \begin{cases} j_5^0 \text{ if } e \in \{j_1^0, ..., j_5^0\} \text{ and } s_m \in \text{Groups A or B} \\ 2s_m - j_5^0 \text{ if } e \in \{j_1^0, ..., j_5^0\} \text{ and } s_m \in \text{Group C} \\ x \geq j_6^0 \text{ if } e \in \{j_1^0, ..., j_5^0\} \text{ and } s_m \in \text{Group D} \\ x \geq j_5^0 \text{ if } e \in \{j_6^0, \dots, j_9^0\}\ \forall s_m \end{cases}$$

If $j_5^0 \leq p < j_6^0$*:*

$$n^*(s_m, e; j_5^0 \leq p < j_6^0) = \begin{cases} j_5^0 \text{ if } e \in \{j_1^0, ..., j_5^0\} \text{ and } s_m \in \text{Groups A or B} \\ p \text{ if } e \in \{j_1^0, ..., j_5^0\} \text{ and } s_m \in \text{Group C and } p < 2s_m - j_5^0 \\ 2s_m - j_5^0 \text{ if } e \in \{j_1^0, ..., j_5^0\} \text{ and } s_m \in \text{Group C and } p \geq 2s_m - j_5^0 \\ p \text{ if } e \in \{j_1^0, ..., j_5^0\} \text{ and } s_m \in \text{Group D} \\ x \geq j_5^0 \text{ if } e \in \{j_6^0, \dots, j_9^0\}\ \forall s_m \end{cases}$$

Proof. From inspection of Table B-1, noting that if a range of confirmable nominees yields the same final median, and no other feasible median is preferable for the president, then all proposals in the range must be part of the president's strategy. For example, if $e \in \{j_1^0, ..., j_5^0\}$ and $s_m \in$ Group D then any nominee $n \geq j_6^0$ will be approved by the median senator and yield $j_5^1 = j_6^0$ (see Figure B-1 and Table B-1). If $p \geq j_6^0$, deviation by the president to any other nominee cannot be profitable as either the median senator approves a nominee that yields a new median justice that is less desireable for the president, or the median rejects the nominee; hence, all $n \geq j_6^0$ are part of the strategy profile in this configuration. ■

B.2.2 Nearly court-outcome based model

Here, the voting strategy of senators is exactly the same as in the court-outcome based model (Equation B-4). But the president no longer views median-equivalent appointees as utility-equivalent: he prefers closer nominees, all else equal (recall Equation B-1). Consequently, if the median senator will vote for a range of median-equivalent nominees, the president selects the nominee in that range closest to his ideal point. This change alters the president's nominating strategy. Again for brevity we focus on $p > j_5^0$.

Proposition 3 *(Nominating Strategy in the nearly court-outcome based model) The following indicates the president"s equilibrium nomination strategy:*

$$n^*(s_m, o) = \begin{cases} j_5^0 \textit{ if } e \in \{j_1^0, \dots, j_5^0\} \textit{ and } s_m \in \textit{Groups A or B} \\ p \textit{ if } e \in \{j_1^0, \dots, j_5^0\} \textit{ and } s_m \in \textit{Group C and } p < 2s_m - j_5^0 \\ 2s_m - j_5^0 \textit{ if } e \in \{j_1^0, \dots, j_5^0\} \textit{ and } s_m \in \textit{Group C and } p \geq 2s_m - j_5^0 \\ p \textit{ if } e \in \{j_1^0, \dots, j_5^0\} \textit{ and } s_m \in \textit{Group D} \\ p \textit{ if } e \in \{j_6^0, \dots, j_9^0\} \ \forall s_m \end{cases}$$

Proof. The strategy is similar to that in Proposition 2, except that if a range of confirmable, median-equivalent nominees contains an element closest to p, the president must nominate that element rather than any of the other median-equivalent confirmable nominees. This affects the selected nominees when 1) $p \geq j_6^0$ and a) $e \in \{j_1^0, ..., j_5^0\}$ and $s_m \in$ Group D and b) $e \in \{j_6^0, \dots, j_9^0\}$ $\forall s_m$, and 2) $j_5^0 \leq p < j_6^0$ and $e \in \{j_6^0, \dots, j_9^0\}$ $\forall s_m$. In these cases, the nominee must be $n = p$. With these changes, it is convenient to consolidate the strategies when $p \geq j_6^0$ and $j_5^0 \leq p < j_6^0$. ■

B.2.3 Position-taking senators model

When $\lambda_s = 0$ senators vote for the nominee iff $|s_i - n| \leq |s_i - j_5^0|$. The median production function plays no role, so for senators this is a simple Romer-Rosenthal take-it-or-leave-it game where the "leave it" option corresponds to the old Court's median justice. Senator i votes for the nominee if and only if $|s_i - n| \leq |s_i - j_5^0|$. For the president, there remains a distinction between the nominee's ideology and the ideological position of the new median justice. As in the previous game, the president focuses on confirmable nominees. Many confirmable nominees may yield the best attainable median justice; among these, the president chooses the nominee with n as close as possible to p

Proposition 4 *(Position-taking senators model). When $\lambda_s = 0$ and $\lambda_p < 1$, sub-game perfect voting and nominating strategies are:*

$$v_i^*(n, j_5^0; s_i) = \begin{cases} 1 \textit{ if } \begin{cases} s_i \leq j_5^0 \ \& \ n \in [2s_i - j_5^0, j_5^0] \\ s_i > j_5^0 \ \& \ n \in [j_5^0, 2s_i - j_5^0] \end{cases} \\ 0 \textit{ otherwise} \end{cases}$$

When $p > j_5^0$

$$n^*(s_m, j_5^0; p) = \begin{cases} j_5^0 \textit{ if } s_m \leq j_5^0 \\ 2s_i - j_5^0 \textit{ if } s_m \in \left[j_5^0, \frac{j_5^0 + p}{2}\right] \\ p \textit{ if } s_m > \frac{j_5^0 + p}{2} \end{cases}$$

and when $p \leq j_5^0$

$$n^*(s_m, j_5^0; p) = \begin{cases} j_5^0 \textit{ if } s_m \geq j_5^0 \\ 2s_i - j_5^0 \textit{ if } s_m \in \left[\frac{j_5^0 + p}{2}, j_5^0\right] \\ p \textit{ if } s_m < \frac{j_5^0 + p}{2} \end{cases}$$

Proof. Follows from Romer and Rosenthal (1978). See also Krehbiel (2007), proof of Proposition (pp 239-240). ■

B.2.4 Mixed-motivations model

Here, senators distinguish among median-equivalent nominees. For example, they could put some weight—perhaps quite small—on the possibility the nominee may act as the median, an "as if" possibility. This "as if" possibility radically changes the voting strategy of the median senator, which in turn alters the nominating strategy of the president.

Voting by senators Given a nominee n, the new median induced by the nominee j_5^1, and the reversion policy j_5^0, a senator i votes for the nominee if and only if $\lambda_s|s_i - j_5^1| + (1-\lambda_s)|s_i - n| \leq |s_i - j_5^0|$. In words, the senator votes for the nominee if the weighted average of the senator's distance to the new median and distance to the nominee is less than the simple distance to the reversion policy (the old median justice). It proves helpful to define a point x utility-equivalent to the weighted average. Some algebra shows that

$$x = \begin{cases} \lambda_s j_5^1 + (1-\lambda_s)n \text{ if } s_i < \min\{j_5^1, n\} \text{ or } s_i > \max\{j_5^1, n\} \\ \lambda_s(2s_i - j_5^1) + (1-\lambda_s)n \text{ if } j_5^1 < s_i < n \text{ or } n < s_i < j_5^1 \\ \end{cases}$$

(In the second case, one may also write $= \lambda_s j_5^1 + (1-\lambda_s)(2s_i - n)$ if $j_5^1 < \lambda_s j_5^1 + (1-\lambda_s)n < s_i$ or $n < s_i < \lambda_s j_5^1 + (1-\lambda_s)n$). In the text, we write the senatorial vote function in terms of x and the senators "preferred sets" $[j_5^1, 2s_i - j_5^1]$ (when $s_i > j_5^0$) and $[2s_i - j_5^0, j_5^0]$ (when $s_i \leq j_5^0$). Here we make the relations between n and j_5^1 explicit.

Proposition 5 *The following is the senatorial vote function in the mixed-motivations model:*

$$v_i^*(n, j_5^0; s_i) = \begin{cases} 1 \text{ if } \begin{cases} i)\ \frac{2s_i - j_5^0 - \lambda_s j_5^1}{1-\lambda_s} \le n \le 2s_i - j_5^0 < j_5^1 < s_i < j_5^0 \text{ or} \\ j_5^0 < s_i < j_5^1 < 2s_i - j_5^0 \le n \le \frac{2s_i - j_5^0 - \lambda_s j_5^1}{1-\lambda_s} \\ ii)\ \frac{2s_i(1-\lambda_s) - j_5^0 + \lambda_s j_5^1}{1-\lambda_s} \le n \le 2s_i - j_5^0 < s_i < j_5^1 < j_5^0 \text{ or} \\ j_5^0 < j_5^1 < s_i < 2s_i - j_5^0 < n \le \frac{2s_i(1-\lambda_s) - j_5^0 + \lambda_s j_5^1}{1-\lambda_s} \\ iii)\ n, j_5^1 \in [2s_i - j_5^0, j_5^0] \text{ or } n, j_5^1 \in [j_5^0, 2s_i - j_5^0] \end{cases} \\ 0 \text{ otherwise} \end{cases}$$

Proof. First, if x lies within a senator's "preferred set" she votes for the nominee, but otherwise does not. Second, note that if $j_5^0 < n$ then $j_5^0 \le j_5^1 \le n$, and if $n < j_5^0$ then $n \le j_5^1 \le j_5^0$ (see Figure B-1). This limits the number of cases. In Parts i and ii, j_5^1 lies in the senator's preferred set while n lies (weakly) outside it. The issue is, does x lies within the the preferred set? In Part i, j_5^1 lies on the same side of senator i's ideal point as n. Using the above definition of x, x will lie inside the preferred set if $\lambda_s j_5^1 + (1-\lambda_s)n \le 2s_i - j_5^0$ $\Rightarrow n \le \frac{2s_i - j_5^0 - \lambda_s j_5^1}{1-\lambda_s}$ when the preferred set is $[j_5^0, 2s_i - j_5^0]$ and similarly for the other preferred set. In Part ii, j_5^1 lies on the opposite side of senator i's ideal point as n. Hence the key relationship is $\lambda_s(2s_i - j_5^1) + (1-\lambda_s)n \le 2s_i - j_5^0 \Rightarrow n \le \frac{2s_i(1-\lambda_s) - j_5^0 + \lambda_s j_5^1}{1-\lambda_s}$ when $[j_5^0, 2s_i - j_5^0]$ is the preferred set and similarly for the other preferred set. Part iii) considers the case when both n and j_5^1 lie within the preferred set. Since x is just a weighted average of the two, x must clearly lie in the preferred set. In all other cases, x lies outside the preferred set so the senator prefers j_5^1 to n. ■

The following is a corollary of the Proposition: If a senator is to vote for a nominee, i) the implied new median justice j_5^1 must lie within the senator's preferred set, and ii) the nominee's ideology n must lie either within the preferred set, or not "too far" beyond the $2s_i - j_5^0$ edge (where "too far" is given by the quotients in the Proposition).

Presidential Choice of Nominees The logic for the president is fairly straightforward. If the x created by $n = p$ lies within the median senator's preferred region, then $n = p$. If not, then the president must offer an x at the edge of the preferred set, so that either $x = 2s_i - j_5^0$ or $x = j_5^0$. Among the set of nominees whose x corresponds to these two points, the president picks the utility maximizing one. The proposition simply makes clear which points these are, given the opening e and location of median senator s_m. Because the mirror cases are not as straightforward as previously, in this Proposition we indicate the president's strategy for all locations of p.

Proposition 6 *The following is the nomination strategy in the mixed-motivations model: When* $p \geq j_5^0$

$$n^*(s_m, e; p) = \begin{cases} j_5^0 \ \textit{if } s_m \in A \textit{ or } B \\ p \ \textit{if} \begin{cases} e \in \{j_1^0, \dots, j_5^0\}, \ s_m \in C \ \& \ p \in [j_5^0, 2s_m - j_5^0] \\ e \in \{j_1^0, \dots, j_5^0\}, \ s_m \in D \ \& \ p \in [j_5^0, x = \begin{cases} \frac{2s_m(1-\lambda_s) - j_5^0 + \lambda_s j_6^0}{1-\lambda_s} \ \textit{if } s_m > j_6^0 \\ \frac{2s_m - j_5^0 - \lambda_s j_6^0}{1-\lambda_s} \ \textit{if } \frac{j_5^0 + j_6^0}{2} < s_m < j_6^0 \end{cases}] \\ e \in \{j_6^0, \dots, j_9^0\}, \ s_m \in C \textit{ or } D \ \& \ p \in [j_5^0, 2s_m - j_5^0] \end{cases} \\ 2s_m - j_5^0 \ \textit{if} \begin{cases} e \in \{j_1^0, \dots, j_5^0\}, \ s_m \in C \ \& \ p > 2s_m - j_5^0 \\ e \in \{j_6^0, \dots, j_9^0\}, \ s_m \in C \textit{ or } D \ \& \ p > 2s_m - j_5^0 \end{cases} \\ \frac{2s_m(1-\lambda_s) - j_5^0 + \lambda_s j_6^0}{1-\lambda_s} \ \textit{if } e \in \{j_1^0, \dots, j_5^0\}, \ s_m \geq j_6^0, \ \& \ p > \frac{2s_m(1-\lambda_s) - j_5^0 + \lambda_s j_6^0}{1-\lambda_s} \\ \frac{2s_m - j_5^0 - \lambda_s j_6^0}{1-\lambda_s} \ \textit{if } e \in \{j_1^0, \dots, j_5^0\}, \ \frac{j_5^0 + j_6^0}{2} < s_m < j_6^0, \ \& \ p > \frac{2s_m - j_5^0 - \lambda_s j_6^0}{1-\lambda_s} \end{cases}$$

When $p < j_5^0$

$$n^*(s_m, e; p) = \begin{cases} j_5^0 \ \textit{if } s_m \in C \ \textit{or } D \\ p \ \textit{if} \begin{cases} e \in \{j_1^0, \dots, j_4^0\}, \ s_m \in A \ \textit{or } B \ \&\ p \in [2s_m - j_5^0, j_5^0] \\ e \in \{j_5^0, \dots, j_9^0\}, \ s_m \in A \ \&\ p \in [x = \begin{cases} \frac{2s_m(1-\lambda_s) - j_5^0 + \lambda_s j_4^0}{1-\lambda_s} \ \textit{if } s_m < j_4^0 \\ \frac{2s_m - j_5^0 - \lambda_s j_4^0}{1-\lambda_s} \ \textit{if } j_4^0 < s_m < \frac{j_4^0 + j_5^0}{2} \end{cases}, j_5^0] \\ e \in \{j_5^0, \dots, j_9^0\}, \ s_m \in B \ \&\ p \in [2s_m - j_5^0, j_5^0] \end{cases} \\ 2s_m - j_5^0 \ \textit{if} \begin{cases} e \in \{j_1^0, \dots, j_4^0\}, \ s_m \in A \ \textit{or } B \ \&\ p < 2s_m - j_5^0 \\ e \in \{j_5^0, \dots, j_9^0\}, \ s_m \in B \ \&\ p < 2s_m - j_5^0 \end{cases} \\ \frac{2s_m(1-\lambda_s) - j_5^0 + \lambda_s j_6^0}{1-\lambda_s} \ \textit{if } e \in \{j_5^0, \dots, j_9^0\}, \ s_m < j_4^0 \ \&\ p < \frac{2s_m(1-\lambda_s) - j_5^0 + \lambda_s j_6^0}{1-\lambda_s} \\ \frac{2s_m - j_5^0 - \lambda_s j_6^0}{1-\lambda_s} \ \textit{if } e \in \{j_5^0, \dots, j_9^0\}, \ j_4^0 < s_m < \frac{j_4^0 + j_5^0}{2}, \ \&\ p < \frac{2s_m - j_5^0 - \lambda_s j_6^0}{1-\lambda_s} \end{cases}$$

Proof. The proof is by construction. We present the material systematically by enumerating cases. The proposition summarizes the cases.

Case 1: $e \in \{j_1^0, \dots, j_4^0\}$.

Note that $j_5^1 = \begin{cases} j_5^0 \text{ if } n \leq j_5^0 \\ n \text{ if } j_5^0 < n < j_6^0 \\ j_6^0 \text{ if } n \geq j_6^0 \end{cases}$

Subcase 1A: $s_m \in A$ (so $s_m < \frac{j_4^0 + j_5^0}{2}$).

Subsubcase 1A i) $p > j_5^0$.

Claim: $n = j_5^0$.

This is the familiar gridlock configuration. s_m will reject any $n > j_5^0$ since then $j_5^1 > j_5^0$. So $n = j_5^0$.

Subsubcase 1A ii). $p < j_5^0$.

Claim: $n = \begin{cases} p \text{ if } p \in [2s_m - j_5^0, j_5^0] \\ 2s_m - j \text{ if } p < 2s_m - j_5^0 \end{cases}$.

If $p \in [2s_m - j_5^0, j_5^0]$ then $n = p$ which the median senator accepts, since $j_5^1 = j_5^0$ while $n \in [2s_m - j_5^0, j_5^0]$ by construction. (Recall that a convex combination of distances to two points in the accept set must be less than the distance to the reversion policy). So we focus on $p, n < 2s_m - j_5^0$. In this case, note that $j_5^1 = j_5^0$. In such a case, the median senator accepts n when $s_m > j_5^1$ iff $\lambda_s(j_5^0 - s_m) + (1-\lambda_s)(s_m - n) \leq (s_m - j_5^0) \Rightarrow (1-\lambda_s)(s_m - n) \leq (1-\lambda_s)(s_m - j_5^0) \Rightarrow n \geq 2s_m - j_5^0$. But this is a contradiction to $n < 2s_m - j_5^0$. This implies that if $p \geq 2s_m - j_5^0$ then $n = p$ but if $p < 2s_m - j_5^0$ then $n = 2s_m - j_5^0$.

Subcase 1B: $s_m \in B$ (so $\frac{j_4^0 + j_5^0}{2} < s_m < j_5^0$).

Subsubcase 1B i) $p \geq j_5^0$.

Claim: $n = j_5^0$. This is the familiar gridlock configuration. s_m will reject any $n > j_5^0$ since then $j_5^1 = j_5^0$ but n is farther than j_5^0. So $n = j_5^0$.

Subsubcase 1B ii). $p < j_5^0$.

Claim: $n = \begin{cases} p \text{ if } p \in [2s_m - j_5^0, j_5^0] \\ 2s_m - j \text{ if } p < 2s_m - j_5^0 \end{cases}$.

If $p \in [2s_m - j_5^0, j_5^0]$ then $n = p$ which the median senator accepts, since $j_5^1 = j_5^0$ while $n \in [2s_m - j_5^0, j_5^0]$ by construction. (Recall that a convex combination of distances to two points in the accept set must be less than the distance to the reversion policy). So we focus on $p, n < 2s_m - j_5^0$. In this case, note that $j_5^1 = j_5^0$.In such a case, the median senator accepts n when $s_m > j_5^1$ iff $\lambda_s(j_5^0 - s_m) + (1-\lambda_s)(s_m - n) \leq (s_m - j_5^0) \Rightarrow (1-\lambda_s)(s_m - n) \leq (1-\lambda_s)(s_m - j_5^0) \Rightarrow n \geq 2s_m - j_5^0$. But this is a contradiction to $n < 2s_m - j_5^0$. This implies that if $p \geq 2s_m - j_5^0$ then $n = p$ but if $p < 2s_m - j_5^0$ then $n = 2s_m - j_5^0$.

Subcase 1C: $s_m \in C$ (so $j_5^0 < s_m \leq \frac{j_5^0 + j_6^0}{2}$).

Subsubcase 1C i) $p \geq j_5^0$.

Claim: $n = \begin{cases} p \text{ if } p \in [j_5^0, 2s_m - j_5^0] \\ 2s_m - j \text{ if } p > 2s_m - j_5^0 \end{cases}$.

Again, if $p \in [j_5^0, 2s_m - j_5^0]$ then $n = p$ (by construction since $2s_m - j_5^0 < j_6^0$) which the median senator accepts, since both j_5^1 and n lie in the accept zone. (Recall that a convex combination of distances to two points in the accept set must be less than the distance to the reversion policy). So again we focus on $p, n > 2s_m - j_5^0$. First, suppose $n > 2s_m - j_5^0$ but $n < j_6^0$ so $j_5^1 = n$. Then median senator accepts n iff $\lambda_s(n - s_m) + (1 - \lambda_s)(n - s_m) \leq (s_m - j_5^0) \Rightarrow (n - s_m) \leq (s_m - j_5^0) \Rightarrow n \leq 2s_m - j_5^0$. But this is a contradiction of $n > 2s_m - j_5^0$. Hence, if $p > 2s_m - j_5^0$ then $n = 2s_m - j_5^0$. We need not consider the case when when $n > 2s_m - j_5^0$ and $n \geq j_6^0$ since we have just proven that n cannot be greater than $2s_m - j_5^0$.

Subsubcase 1C ii) $p < j_5^0$.

Claim: $n = j_5^0$. Again the gridlock scenario, so $n = j_5^0$.

Subcase 1D: $s_m \in D$ (so $s_m > \frac{j_5^0 + j_6^0}{2}$).

Subsubcase 1D i) $p > j_5^0$.

Claim: $n = \begin{cases} p \text{ if } j_5^0 < p < x \\ x \text{ if } p > x \end{cases}$ where $x = \begin{cases} \frac{2s_m(1-\lambda_s) - j_5^0 + \lambda_s j_5^1}{1-\lambda_s} \text{ if } s_m > j_6^0 \\ \frac{2s_m - j_5^0 - \lambda_s j_5^1}{1-\lambda_s} \text{ if } s_m < j_6^0 \end{cases}$.

If $p \in [j_5^0, 2s_m - j_5^0]$ then $n = p$ which the median senator accepts, since either $j_5^1 = n$ (if $j_5^0 < n \leq j_6^0$) or $j_5^1 = j_6^0 \in [2s_m - j_5^0, j_5^0]$ (by construction) (if $n > j_6^0$)). (Recall that a convex combination of distances to two points in the accept set must be less than the distance to the reversion policy). So we focus on $p, n > 2s_m - j_5^0$. In this case, note that $j_5^1 = j_6^0$ since $s_m > \frac{j_5^0 + j_6^0}{2}$. In such a case, the median senator accepts n when $s_m < j_5^1 = j_6^0$ iff $\lambda_s(j_6^0 - s_m) + (1 - \lambda_s)(n - s_m) \leq (s_m - j_5^0) \Rightarrow n \leq \frac{2s_m - j_5^0 - \lambda_s j_5^1}{1-\lambda_s}$; and when $s_m > j_5^1 = j_6^0$ accepts n iff $\lambda_s(s_m - j_6^0) + (1 - \lambda_s)(n - s_m) \leq (s_n - j_5^0) \Rightarrow n \leq \frac{2s_m(1-\lambda_s) - j_5^0 + \lambda_s j_5^1}{1-\lambda_s}$. This implies that if $p \leq \frac{2s_m - j_5^0 - \lambda_s j_5^1}{1-\lambda_s}$ or $\frac{2s_m(1-\lambda_s) - j_5^0 + \lambda_s j_5^1}{1-\lambda_s}$ (respectively) $n = p$ but if $p > \frac{2s_m - j_5^0 - \lambda_s j_5^1}{1-\lambda_s}$ or $\frac{2s_m(1-\lambda_s) - j_5^0 + \lambda_s j_5^1}{1-\lambda_s}$ (respectively) then $n = \frac{2s_m - j_5^0 - \lambda_s j_5^1}{1-\lambda_s}$ or $\frac{2s_m(1-\lambda_s) - j_5^0 + \lambda_s j_5^1}{1-\lambda_s}$ (respectively).

Subsubcase 1D ii) $p < j_5^0$.

Claim: $n = j_5^0$.

Again the gridlock scenario, so $n = j_5^0$.

Case 2: $e = j_5^0$.

Note that $j_5^1 = \begin{cases} j_4^0 \text{ if } n \leq j_4^0 \\ n \text{ if } j_4^0 < n < j_6^0 \\ j_6^0 \text{ if } n \geq j_6^0 \end{cases}$.

Subcase 2A. $s_m \in A$ (so $s_m < \frac{j_4^0+j_5^0}{2}$).

Subsubcase 2A i) $p \geq j_5^0$.

Claim: $n = j_5^0$.

This is the familiar gridlock configuration. s_m will reject any higher n since then both n and j_5^1 are farther than j_5^0.

Subcase 2A ii). $p < j_5^0$.

Claim: $n = \begin{cases} p \text{ if } x < p < j_5^0 \\ x \text{ if } p < x < j_5^0 \end{cases}$ where $x = \begin{cases} \frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s} \text{ if } s_m < j_4^0 \\ \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s} \text{ if } j_4^0 < s_m < \frac{j_4^0+j_5^0}{2} \end{cases}$.

If $p \in [2s_m - j_5^0, j_5^0]$ then $n = p$ which the median senator accepts, since either $j_5^1 = n$ (if $j_4^0 < n \leq j_5^0$) or $j_5^1 = j_4^0 \in [2s_m - j_5^0, j_5^0]$ (recall that a convex combination of distances to two points in the accept set must be less than the distance to the reversion policy). So we focus on $p, n < 2s_m - j_5^0$. In this case, note that $j_5^1 = j_4^0$ since $s_m < \frac{j_4^0+j_5^0}{2}$. In such a case, the median senator accepts n when $s_m > j_5^1$ iff $\lambda_s(s_m - j_4^0) + (1-\lambda_s)(s_m - n) \leq (j_5^0 - s_m) \Rightarrow n \geq \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s}$; and when $s_m < j_5^1$ accepts n iff $\lambda_s(j_4^0 - s_m) + (1-\lambda_s)(s_m - n) \leq (j_5^0 - s_m) \Rightarrow n \geq \frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s}$. This implies that if $p \geq \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s}$ or $\frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s}$ (respectively) $n = p$ but if $p < \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s}$ or $\frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s}$ (respectively) then $n = \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s}$ or $\frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s}$ (respectively).

Subcase 2B: $s_m \in B$ (so $\frac{j_4^0+j_5^0}{2} < s_m < j_5^0$).

Subsubcase 2B i) $p \geq j_5^0$.

Claim: $n = j_5^0$.

This is the familiar gridlock configuration. s_m will reject any higher n since then both n and j_5^1 are farther than j_5^0. So $n = j_5^0$.

Subsubcase 2B ii). $p < j_5^0$.

Claim: $n = \begin{cases} p \text{ if } p \in [2s_m - j_5^0, j_5^0] \\ 2s_m - j \text{ if } p < 2s_m - j_5^0 \end{cases}$.

Again, if $p \in [2s_m - j_5^0, j_5^0]$ then $n = p$ which the median senator accepts, since then $j_5^1 = n$ (by construction $j_4^0 < 2s_m - j_5^0$). (Recall that a convex combination of distances to two points in the accept set must be less than the distance to the reversion policy). So again we focus on $p, n < 2s_m - j_5^0$. First, suppose $n < 2s_m - j_5^0$ but $n > j_4^0$ so $j_5^1 = n$. Then median senator accepts n iff $\lambda_s(s_m - n) + (1 - \lambda_s)(s_m - n) \leq (j_5^0 - s_m) = (s_m - n) \leq (j_5^0 - s_m) \Rightarrow n \geq 2s_m - j_5^0$. But this is a contradiction of $n < 2s_m - j_5^0$. Hence, if $p < 2s_m - j_5^0$ then $n = 2s_m - j_5^0$. We need not consider the case when when $n < 2s_m - j_5^0$ but $n \leq j_4^0$ since we have just proven that n cannot be less than $2s_m - j_5^0$.

Subcase 2C: $s_m \in C$ (so $j_5^0 < s_m \leq \frac{j_5^0 + j_6^0}{2}$).

Subsubcase 2C i) $p \geq j_5^0$.

Claim: $n = \begin{cases} p \text{ if } p \in [j_5^0, 2s_m - j_5^0] \\ 2s_m - j \text{ if } p > 2s_m - j_5^0 \end{cases}$.

If $p \in [j_5^0, 2s_m - j_5^0]$ then $n = p$ which the median senator accepts, since then $j_5^1 = n$ (by construction $j_6^0 > 2s_m - j_5^0$). (Recall that a convex combination of distances to two points in the accept set must be less than the distance to the reversion policy). So again we focus on $p, n > 2s_m - j_5^0$. First, suppose $n > 2s_m - j_5^0$ but $n < j_6^0$ so $j_5^1 = n$. Then median senator accepts n iff $\lambda_s(n - s_m) + (1 - \lambda_s)(n - s_m) \leq (s_m - j_5^0) = (n - s_m) \leq (s_m - j_5^0) \Rightarrow n \leq 2s_m - j_5^0$. But this is a contradiction of $n > 2s_m - j_5^0$. Hence, if $p > 2s_m - j_5^0$ then $n = 2s_m - j_5^0$. We need not consider the case when when $n > 2s_m - j_5^0$ but $n \geq j_4^0$ since we have just proven that n cannot be greater than $2s_m - j_5^0$.

Subsubcase 2C ii) $p < j_5^0$.

Claim: $n = j_5^0$.

Again the gridlock scenario, so $n = j_5^0$.

Subcase 2D: $s_m \in D$ (so $s_m > \frac{j_5^0+j_6^0}{2}$).

Subsubcase 2D i) $p \geq j_5^0$.

Claim: $n = \begin{cases} p \text{ if } j_5^0 < p < x \\ x \text{ if } p > x \end{cases}$ where $x = \begin{cases} \frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s} \text{ if } s_m > j_6^0 \\ \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s} \text{ if } \frac{j_5^0+j_6^0}{2} < s_m < j_6^0 \end{cases}$.

If $p \in [j_5^0, 2s_m - j_5^0]$ then $n = p$ which the median senator accepts, since either $j_5^1 = n$ (if $j_5^0 < n \leq j_6^0$) or $j_5^1 = j_6^0 \in [j_5^0, 2s_m - j_5^0]$ (by construction). (Recall that a convex combination of distances to two points in the accept set must be less than the distance to the reversion policy). So we focus on $p, n > 2s_m - j_5^0$. In this case, note that $j_5^1 = j_6^0$ since $s_m > \frac{j_5^0+j_6^0}{2}$. In such a case, the median senator accepts n when $s_m < j_5^1 = j_6^0$ iff $\lambda_s(j_6^0 - s_m) + (1-\lambda_s)(n - s_m) \leq (s_m - j_5^0) \Rightarrow n \leq \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s}$; and when $s_m > j_5^1 = j_6^0$ accepts n iff $\lambda_s(s_m - j_6^0) + (1-\lambda_s)(n - s_m) \leq (s_n - j_5^0) \Rightarrow n \leq \frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s}$. This implies that if $p \leq \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s}$ or $\frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s}$ (respectively) $n = p$ but if $p > \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s}$ or $\frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s}$ (respectively) then $n = \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s}$ or $\frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s}$ (respectively).

Subsubcase 2D ii) $p < j_5^0$.

Claim: $n = j_5^0$.

Again the gridlock scenario, so $n = j_5^0$.

Case 3: $e \in \{j_6^0, \dots, j_9^0\}$.

Note that $j_5^1 = \begin{cases} j_4^0 \text{ if } n \leq j_4^0 \\ n \text{ if } j_4^0 < n < j_5^0 \\ j_5^0 \text{ if } n \geq j_5^0 \end{cases}$.

Subcase 3A: $s_m \in A$ (so $s_m < \frac{j_4^0+j_5^0}{2}$).

Subsubcase 3A i) $p \geq j_5^0$.

Claim: $n = j_5^0$.

This is the familiar gridlock configuration. s_m will reject any higher n since then $j_5^1 = j_5^0$ but n is farther than j_5^0. So $n = j_5^0$.

Subsubcase 3A ii). $p < j_5^0$.

Claim: $n = \begin{cases} p \text{ if } x < p < j_5^0 \\ x \text{ if } p < x < j_5^0 \end{cases}$ where $x = \begin{cases} \frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s} \text{ if } s_m < j_4^0 \\ \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s} \text{ if } j_4^0 < s_m < \frac{j_4^0+j_5^0}{2} \end{cases}$.

If $p \in [2s_m - j_5^0, j_5^0]$ then $n = p$ which the median senator accepts, since either $j_5^1 = n$ (if $j_4^0 < n \leq j_5^0$) or $j_5^1 = j_4^0 \in [2s_m - j_5^0, j_5^0]$ by construction. (Recall that a convex combination of distances to two points in the accept set must be less than the distance to the reversion policy). So we focus on $p, n < 2s_m - j_5^0$. In this case, note that $j_5^1 = j_4^0$ since $s_m < \frac{j_4^0+j_5^0}{2}$. In such a case, the median senator accepts n when $s_m > j_5^1$ iff $\lambda_s(s_m - j_4^0) + (1-\lambda_s)(s_m - n) \leq (j_5^0 - s_m) \Rightarrow n \geq \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s}$; and when $s_m < j_5^1$ accepts n iff $\lambda_s(j_4^0 - s_m) + (1-\lambda_s)(s_m - n) \leq (j_5^0 - s_m) \Rightarrow n \geq \frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s}$. This implies that if $p \geq \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s}$ or $\frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s}$ (respectively) $n = p$ but if $p < \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s}$ or $\frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s}$ (respectively) then $n = \frac{2s_m-j_5^0-\lambda_s j_5^1}{1-\lambda_s}$ or $\frac{2s_m(1-\lambda_s)-j_5^0+\lambda_s j_5^1}{1-\lambda_s}$ (respectively).

Subcase 3b: $s_m \in B$ (so $\frac{j_4^0+j_5^0}{2} < s_m < j_5^0$).

Subsubcase 3B i) $p \geq j_5^0$. Claim: $n = j_5^0$. This is the familiar gridlock configuration. s_m will reject any $n > j_5^0$ since then $j_5^1 = j_5^0$ but n is farther than j_5^0. So $n = j_5^0$.

Subsubcase 3B ii). $p < j_5^0$.

Claim: $n = \begin{cases} p \text{ if } p \in [2s_m - j_5^0, j_5^0] \\ 2s_m - j \text{ if } p < 2s_m - j_5^0 \end{cases}$.

Again, if $p \in [2s_m - j_5^0, j_5^0]$ then $n = p$ which the median senator accepts, since then $j_5^1 = n$ (by construction $j_4^0 < 2s_m - j_5^0$). (Recall that a convex combination of distances to two points in the accept set must be less than the distance to the reversion policy). So again we focus on $p, n < 2s_m - j_5^0$. First, suppose $n < 2s_m - j_5^0$ but $n > j_4^0$ so $j_5^1 = n$. Then median senator accepts n iff $\lambda_s(s_m - n) + (1-\lambda_s)(s_m - n) \leq (j_5^0 - s_m) = (s_m - n) \leq (j_5^0 - s_m) \Rightarrow n \geq 2s_m - j_5^0$. But this is a contradiction of $n < 2s_m - j_5^0$. Hence, if $p < 2s_m - j_5^0$ then $n = 2s_m - j_5^0$. We need not consider the case when when $n < 2s_m - j_5^0$ but $n \leq j_4^0$ since we have just proven that n cannot be less than $2s_m - j_5^0$. Case 3C: $s_m \in C$ (so $j_5^0 < s_m \leq \frac{j_5^0+j_6^0}{2}$).

Subsubcase 3C i) $p \geq j_5^0$.

Claim: $n = \begin{cases} p \text{ if } p \in [j_5^0, 2s_m - j_5^0] \\ 2s_m - j \text{ if } p > 2s_m - j_5^0 \end{cases}$.

Again, if $p \in [j_5^0, 2s_m - j_5^0]$ then $n = p$ which the median senator accepts, since then $j_5^1 = j_5^0$. (Recall that a convex combination of distances to two points in the accept set must be less than the distance to the reversion policy). So again we focus on $p, n > 2s_m - j_5^0$. First, suppose $n > 2s_m - j_5^0$ and of course $j_5^1 = j_5^0$. Then median senator accepts n iff $\lambda_s(s_m - j_5^0) + (1-\lambda_s)(n - s_m) \leq (s_m - j_5^0) \Rightarrow (1-\lambda_s)(n-s_m) \leq (1-\lambda_s)(s_m - j_5^0) \Rightarrow n \leq 2s_m - j_5^0$. But this is a contradiction of $n > 2s_m - j_5^0$. Hence, if $p > 2s_m - j_5^0$ then $n = 2s_m - j_5^0$.

Subsubcase 3C ii) $p < j_5^0$.

Claim: $n = j_5^0$.

Again the gridlock scenario, so $n = j_5^0$.

Subcase 3D: $s_m \in D$ (so $s_m > \frac{j_5^0 + j_6^0}{2}$).

Subsubcase 3D i) $p \geq j_5^0$.

Claim: $n = \begin{cases} p \text{ if } p \in [j_5^0, 2s_m - j_5^0] \\ 2s_m - j \text{ if } p > 2s_m - j_5^0 \end{cases}$.

If $p \in [j_5^0, 2s_m - j_5^0]$ then $n = p$ which the median senator accepts, since $j_5^1 = j_5^0$ and $n \in [j_5^0, 2s_m - j_5^0]$. (Recall that a convex combination of distances to two points in the accept set must be less than the distance to the reversion policy). So we focus on $p, n > 2s_m - j_5^0$. In this case, note that $j_5^1 = j_5^0$ since $s_m > \frac{j_5^0 + j_6^0}{2}$. In such a case, the median senator accepts n iff $\lambda_s(s_m - j_5^0) + (1-\lambda_s)(n - s_m) \leq (s_m - j_5^0) \Rightarrow (1-\lambda_s)(n-s_m) \leq (1-\lambda_s)(s_m - j_5^0) \Rightarrow n \leq 2s_m - j_{5.}$ But this is a contradiction to $n > 2s_m - j_5^0$. This implies that if $p \leq 2s_m - j_5^0 n = p$ but if $p > 2s_m - j_5^0$ then $n = 2s_m - j_5^0$.

Subsubcase 3D ii) $p < j_5^0$

Claim: $n = j_5^0$.

Again the gridlock scenario, so $n = j_5^0$. ■

B.3 The Median on the Court

Finally, we now briefly consider the implied location of the new median on the Court (j_5^1) following play of the games. In what follows we assume $p > j_5^0$.

Proposition 7. In the court-outcome based, nearly-court outcome based, position-taking senators, and mixed motivation models, the location of the new median justice on the Court is as follows:

1) With a proximal vacancy (so $e \in \{j_6^0, \ldots, j_9^0\}$), $j_5^1 = j_5^0$.

2) With the "gridlock" configuration (so $s_m \leq j_5^0$), $j_5^1 = j_5^0$.

3) With a distal vacancy (so $e \in \{j_1^0, \ldots, j_5^0\}$) and $s_m > j_5^0$ (non-gridlock configuration) then

i) If $j_5^0 \leq p \leq j_6^0$

$$j_5^1 = \begin{cases} 2s_m - j_5^0 \text{ if } s_m \leq \frac{j_5^0 + p}{2} \\ p \text{ if } s_m > \frac{j_5^0 + p}{2} \end{cases}$$

ii) If $p > j_6^0$

$$j_5^1 = \begin{cases} 2s_m - j_5^0 \text{ if } s_m \leq \frac{j_5^0 + j_6^0}{2} \\ j_6^0 \text{ if } s_m > \frac{j_5^0 + j_6^0}{2} \end{cases}$$

Proof. The outcomes in the four games follow from Equation B-3 and Propositions 1 and 2 (court-outcome based model), Propositions 3 and 4 (nearly court-outcome based model), Proposition 4 (Position-taking senators model) and Propositions 5 and 6 (mixed-motivations model). The details are straightforward but tedious and are omitted for brevity. ■

It is perhaps surprising that the outcome in the position-taking senators model and that in the court-outcome based and nearly court-outcome based models should be identical since voting behavior and nominee selection differ across the models. But Equation B-3 is extremely restrictive. More specifically, when $p > j_5^0$, the equilibrium location of the new median justice can only be j_5^0, j_6^0, or n with $j_5^0 < n < j_6^0$. The configurations when $j_5^1 = j_5^0$ and $j_5^1 = j_6^0$ are clearly the same across the three models. More subtly, whenever the president's best confirmable nominee lies between j_5^0 and j_6^0, then the president nominates the same individual in all three models: either $n = p$ (which occurs when p lies within $[j_5^0, 2s_m - j_5^0]$ in all three models), or $n = 2s_m - j_5^0$ (which occurs when $p > 2s_m - j_5^0$). Given that the nearly court-based model and position-taking senators model yield the same court medians, it is perhaps not surprising that the mixed motivation model should as well.

B.4 Appendix-B References

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