Online Supplementary Appendix to accompany "Senate Countermajoritarianism"

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The purpose of this appendix is to provide clarifications and supplementary analysis for the article, "Senate Countermajoritarianism." It proceeds via five sections. The first focuses on the use of population as a benchmark for identifying countermajoritarian roll calls during periods when access to the franchise was severely restricted. The second addresses the treatment of roll calls that result in a tie within the chamber. The third explores consequences from increasing the magnitude of the population discrepancy required for a roll call to be characterized as countermajoritarian. The fourth presents alternative model specifications for analyzing the incidence of external countermajoritarianism. And the fifth provides context about the large number of treaty votes during the 19th century and the high incidence of nomination roll calls since 2013.

1. Restrictions on Full Citizenship

The reliance on total population by state as measured by the Census is normatively problematic for much of Senate history. Prior to the adoption of the 15th Amendment in 1870, African Americans could not vote in federal elections, and during the era of Jim Crow, poll taxes and other tactics were used to exclude them from the electorate. During the antebellum period, the population counts of southern states included large numbers of enslaved individuals whose interests were not reflected in the roll calls cast by Senators from those areas. Until ratification of the 19th Amendment in 1920, women were not legally guaranteed the right to vote. And for early

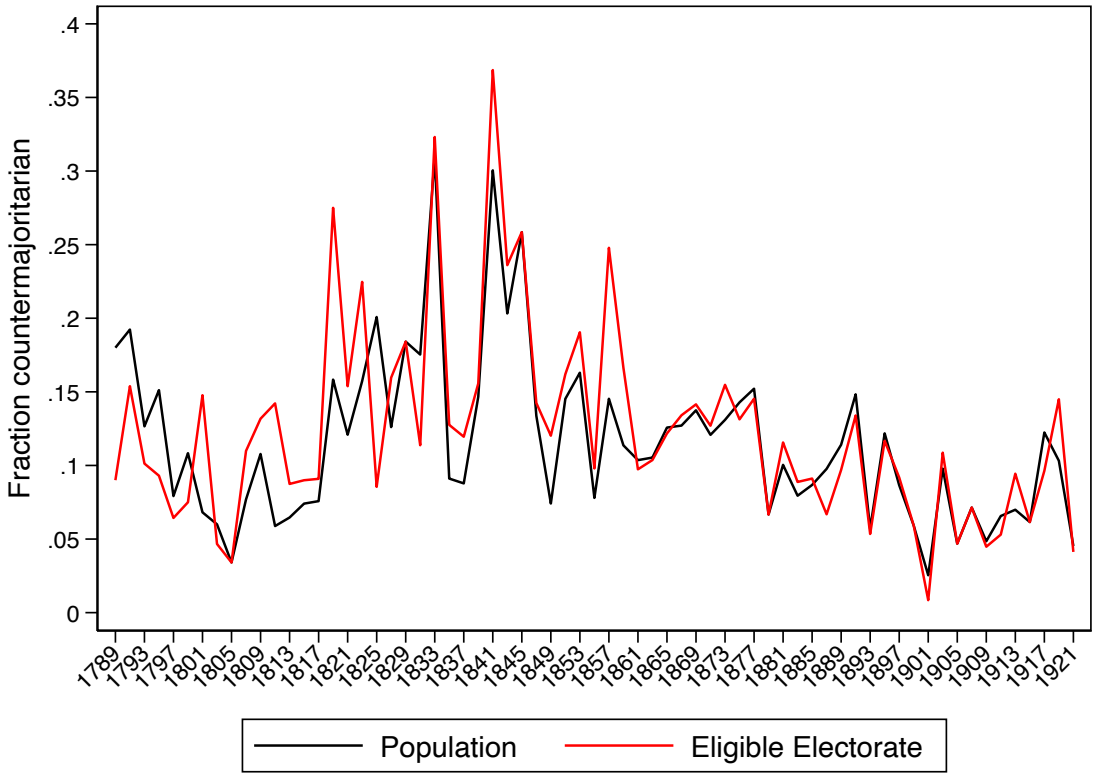
congresses, many people were excluded from full citizenship rights because of immigrant status or property requirements. If the roll calls cast by Senators are weighted by the number of constituents with full citizenship rights, as opposed to raw Census totals, would the prevalence of countermajoritarian results change, and if so, how?

To address the question, we can leverage estimates of the "potential electorate" produced by Burnham in his pathbreaking studies of voter turnout during the 19th century.[1] This measure accounts for the legal disenfranchisement of African Americans prior to 1870, and the restrictions on female suffrage before 1920. For practical reasons, Burnham was unable to incorporate state-level restrictions based on immigrant status or property. Nor does he capture the combined effects of the Jim Crow provisions that created daunting barriers to Black voting in the South prior to the Voting Rights Act. Yet, the Burnham measure allows us to take a first look at how incorporating restrictions on citizenship rights may affect assessments of Senate countermajoritarianism.

In Figure A1, the trend portrayed in Figure 2 of "Senate Countermajoritarianism" is reproduced for the period, 1789-1923, when the population dispersions across states associated with the Burnham measure are most likely to diverge from the Census totals used in the article. Also included is the trend for externally countermajoritarian roll calls when the voting eligible population is used to determine if the larger side on a roll call represents a popular minority. Prior to the Civil War, noteworthy differences are apparent in countermajoritarian incidence

[1] The data are provided in Burnham (2010), and the estimation process is described at length in Burnham (1986).

Figure A1. Proportion countermajoritarian, total population versus voting eligible population, 1789-1923



depending on which population measure is employed. During the first party system, with Federalists generally organizing the chamber, excluding individuals who lacked voting rights reduced the incidence of roll calls categorized as countermajoritarian. But as we move into the Jeffersonian and Jacksonian periods, and continuing through secession, the prevalence of countermajoritarian roll calls is generally higher when the voting eligible population serves as the benchmark. The deviation is yet another indicator of the importance of Senate malapportionment and equal state representation for the political strength of the South within the chamber. More generally, systematic restrictions on the exercise of citizenship rights can interact with Senate malapportionment in normatively consequential ways, especially when such restrictions are not dispersed evenly across states. The matter merits further inquiry.

2. Tie Votes

For the analysis reported in the article, tie votes are treated as negative outcomes – if a roll call results in a tie and the "yea" side represents more people than the members voting nay, the assumption is that the proposal fails, and the result is externally countermajoritarian. This premise reflects the standard practice in legislatures where – when the threshold is a simple majority – tie votes result in a defeat. Since the focus in these portions of the article is on the representational consequences of malapportionment, such an approach is reasonable and straightforward. Still, the decision raises certain questions about how findings might change if tie votes are treated differently. Two alternative options come to mind. One would be to drop tie roll calls from the analysis altogether. A second would be to integrate the tiebreaking votes cast by the Vice President, and where no tiebreaker is cast, treat the remaining ties as negative outcomes *a la* the approach in the text.

Figure A2 shows the incidence of external countermajoritarianism across Senates, based on (a) the treatment of ties used in the article, (b) discarding them entirely from the data, and (c) integrating the decisions of the Vice President per the approach described above.[2] As you can see, the trend lines are nearly indistinguishable. The main findings in the article are not dependent on the treatment of ties.

3. Magnitude of the Population Discrepancy

The analysis in the article defines a roll call outcome as countermajoritarian if one of two conditions are met: (a) the number of yeas exceeded the number nays but the total population represented by members on the nay side was larger than the population on the yea side; or (b) the number of nays equaled or exceeded the number of yeas and the population represented by the yea side exceeded the population represented by the nay side.

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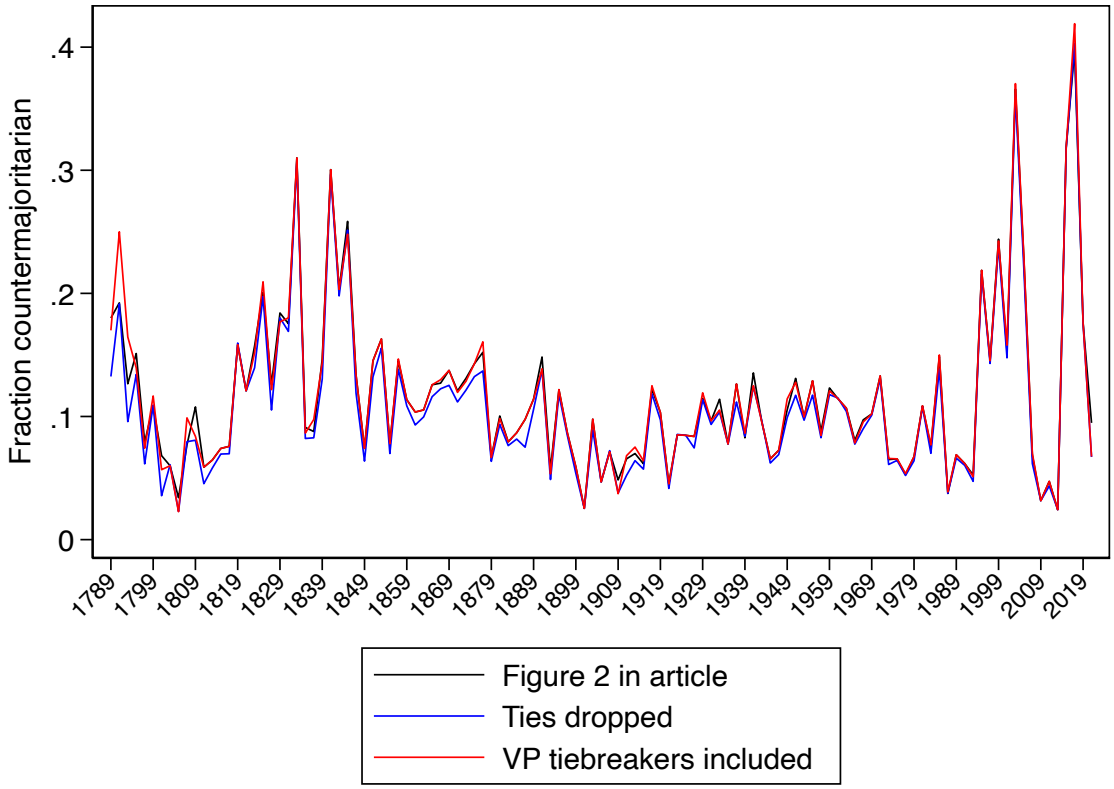
[2] To my knowledge, no systematic study exists of when Vice Presidents have chosen to break ties across the course of U.S. history, the strategic behavior that might shape these decisions, and the implications for Senate outcomes. Indeed, prior to the modern era, reliable data about how Vice Presidents voted is not readily accessible. But based on correspondence with the U.S. Senate Historical Office, supplemented by other sources, I was able to construct a nearly comprehensive dataset of vice-presidential tiebreakers, which in turn helped produce the associated trend reported in Figure A2. My thanks to Daniel Holt of the Senate Historical Office for his assistance.

Figure A2. Proportion countermajoritarian, with different approaches to treating roll calls resulting in a tie among Senators, 1789-2022



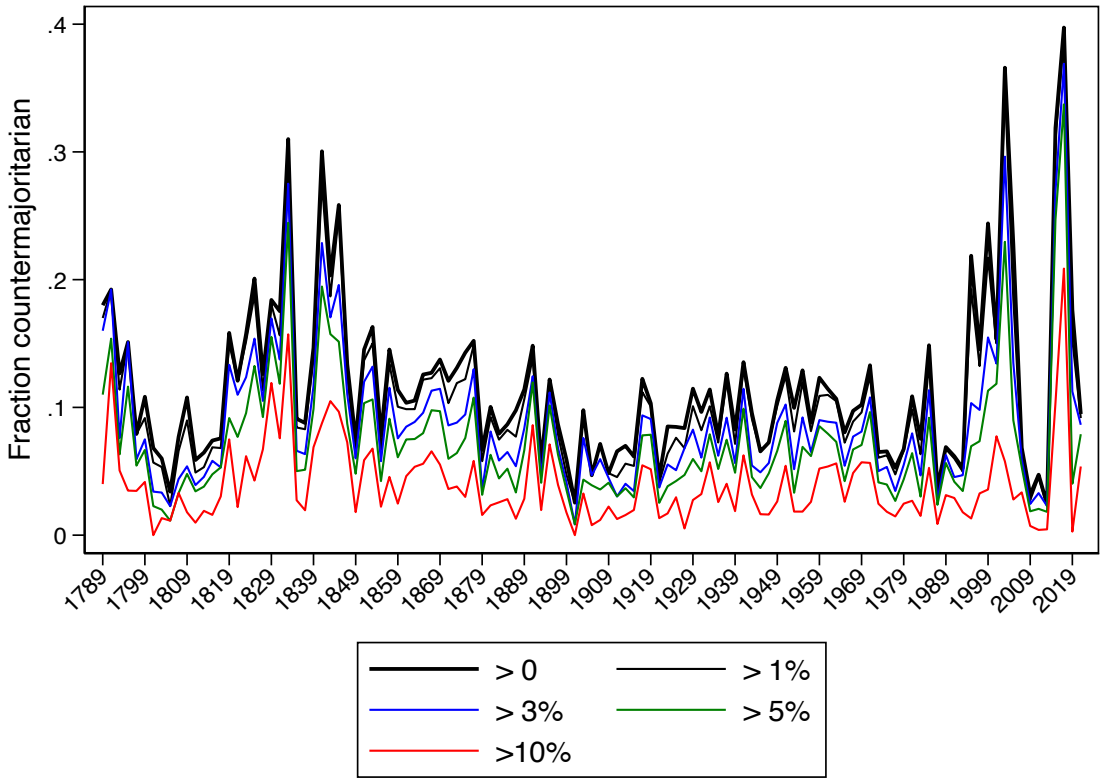
What happens, though, if we adopt incrementally higher thresholds? For instance, say the yeas outnumber the nays, but the population discrepancy (the extent to which voters represented by the nay side exceed the number represented by the yea side) must be one, three, five, or even ten percent for the outcome to be characterized as countermajoritarian? A case can be made that the normative implications become more significant the larger the population discrepancy.

Figure A3 shows the impact of elevated thresholds on countermajoritarian incidence over time. Overall, the fraction does decrease somewhat with incremental increases in the benchmark, but not very much. If the requirement is changed to one percent or more, the mean proportion per congress drops from 11.6 percent to 10.8. If we elevate the threshold to three or five percent, the mean proportions fall to 8.9 and 7.3, respectively. When the threshold is raised all the way to ten percent, the drop-off is more substantial – the mean proportion is now four percent.

But also notice that the implications from such adjustments change over time. For the congresses when countermajoritarianism is most prevalent using the least demanding threshold, population discrepancies of 10 percent or more often occur. In 2017-18, for example, about one in five roll calls featured results where the side with fewer votes within the chamber represented 10 percent or more of the U.S. population, or about 32 million people.

The implications of increasing the population discrepancies for the multivariate analysis of external countermajoritarianism reported in the article are summarized in Table A1. The first column of the table reproduces the results of the full model reported in the article. Columns two through five report analogous results when the required population discrepancy is raised to one, three, five, and ten percent, respectively.

Figure A3. Proportion countermajoritarian with elevated requirements for population discrepancy, 1789-2022



The primary results are robust across models, with the exception that the parameter estimate for "close votes" is no longer statistically significant for the regression based on the ten percent benchmark. Interestingly, the magnitude of the relationships that exist between "close votes" and "population coverage," on the one hand, and the incidence of external countermajoritarianism, on the other, begin to decline as the required population discrepancy between the winning and losing sides increases. The primary reason is that over-time changes in countermajoritarianism are less substantial at the higher levels of population discrepancy, and as a result there is less variance to be explained. For the purposes of this study, however, the consequences from making small adjustments in the benchmark appear to be modest, the trend lines in the figure are similar, and the primary takeaway about the primacy of political context continues to hold.

4. Alternative Specifications

The dependent variable in the regressions reported in Table 1 of the article is the proportion of all roll calls within a two-year congress characterized as countermajoritarian, differenced across congresses. Still, the underlying measure is a proportion that ranges between zero and one, where ordinary least squares may not be the most appropriate estimator (for one, it can produce predicted values outside the feasible range). Do the results reported in Table 1 hold up if the underlying proportional data are analyzed with an alternative estimator?

Beta regression may better fit such data, as long as the dependent variable does not take on the value of zero or one, precisely. The Beta technique produces estimates of the mean of the dependent variable conditioned on the values of the three explanatory variables included in the

Table A1. Multivariate analysis of the incidence of external countermajoritarianism replicated with cascading levels of population discrepancy

Variables	Table 1	1%	3%	5%	10%
Population Gini	0.02	0.18	0.33	0.30	0.30
	(0.50)	(0.49)	(0.45)	(0.42)	(0.31)
Close votes	0.22***	0.22***	0.19***	0.14***	0.05
	(0.06)	(0.06)	(0.05)	(0.05)	(0.04)
Majority coverage	-0.31***	-0.28***	-0.25***	-0.23***	-0.13***
	(0.06)	(0.06)	(0.05)	(0.05)	(0.04)
Constant	-0.00	-0.00	-0.00	-0.00	-0.00
	(0.01)	(0.01)	(0.01)	(0.00)	(0.00)
Observations	116	116	116	116	116
R-squared	0.30	0.28	0.27	0.23	0.13

Standard errors in parentheses
*** p<0.01

Note: The dependent variable is the fraction of roll calls that were countermajoritarian during a two-year congress. The estimator is ordinary least squares, with all variables differenced.

model. See Paolino (2001) for background about the relative strengths of Beta regression for analyzing proportional evidence.

Table A2 replicates the results of the full model from Table 1, but this time relying on the Beta estimator with a logit link for the conditional mean model. The logit link ensures predicted values between zero and one. To rescale the conditional variance (necessary to guarantee predictions over zero), I rely on a log link, with the resulting parameter estimate included in column 2. Substantive claims rely on the entries of column 1. And in this case, variables are not differenced. As you can see, the results mirror those reported in Table 1. The Gini indicator of population dispersion across states remains statistically insignificant, while the parameter estimates for the other two explanatory variable are significant with signs in the expected directions.

It also is informative to consider the results of the multivariate analysis when only close votes are included.[3] As a roll call becomes increasingly lopsided, at some point it becomes mathematically impossible for that outcome to be characterized as countermajoritarian. There simply are not enough members – and thus states – on the losing side for it to represent most of the population. If such observations are dropped from the analysis, does the primacy of political context over population dispersion continue to hold?

The most straightforward approach to addressing the question is to restrict the analysis to roll calls that were close based on the definition used in the article (the deviation between the two sides was less than twenty percent). Table A3 reports the results of regressions with the evidence partitioned in this manner. For reasons of consistency, the independent variable tapping the incidence of close votes also is dropped. As you can see, the main conclusion advanced in the

[3] My thanks to Hong Min Park for emphasizing the point.

Table A2. Explaining the incidence of externally countermajoritarian Senate votes, 1789-2022, with Beta regression as the estimator

Variables	Main	Scale
Population Gini	-0.79	
	(1.13)	
Close votes	2.62***	
	(0.50)	
Majority coverage	-1.44***	
	(0.47)	
Constant	-1.79**	3.71***
	(0.76)	(0.13)
Observations	117	117
Log Likelihood	193.949	
Prob > Chi2	0.00	

Standard errors in parentheses
*** p<0.01, ** p<0.05

Note: The dependent variable is the fraction of roll calls that were countermajoritarian during a two-year congress. The estimator is Beta regression and variables are not differenced.

Table A3. Multivariate analysis of the incidence of external countermajoritarianism with only close votes included (and the associated explanatory variable discarded)

Variables	(1)	(2)	(3)
Population Gini	-0.05		0.21
	(1.19)		(1.09)
Majority coverage		-0.61***	-0.61***
		(0.13)	(0.13)
Constant	-0.00	-0.00	-0.00
	(0.01)	(0.01)	(0.01)
Observations	116	116	116
R-squared	0.00	0.16	0.16

Standard errors in parentheses
*** p<0.01

Note: The dependent variable is the fraction of roll calls that were countermajoritarian during a two-year congress. The estimator is ordinary least squares with the variables differenced.

text continues to hold – political context trumps any effects from the Gini measure of population dispersion.

Although the limited number of observations and the use of differenced evidence limits what we can infer substantively from the addition of multiplicative interaction terms, it still may be instructive to consider the effects of interactions between the three differenced explanatory variables analyzed in Table 1 of the article. The results of such a test are summarized in Table A4. As you can see, none of the interaction terms achieve statistical significance and the findings for the main effects resemble those reported in Table 1.

5. Treaties and Nominations

Finally, the discussion in the article also raises certain questions about the disproportionate effects that treaty and nomination votes might have on the analysis at various points. Some readers, for instance, may be surprised by how common supermajority thresholds were in the antebellum period. As mentioned in the article, much of that internal countermajoritarianism derived from the consideration of treaties, which the Constitution stipulates must be ratified by a two-thirds vote. For perspective, consider Figure A4. Here, the trend for all supermajority motions reported in Figure 6 of the article is reproduced in black, while the fraction of roll calls that were treaty ratifications is presented separately in red. Prior to the Civil War, supermajority thresholds were relatively common on the Senate floor, and derived almost entirely from ratification roll calls. As shown in Figure 7 of the article, the spike in supermajority requirements that occurred during the modern era comes from very different sources – the decisions that Senators have made about cloture, budget waivers, and special orders.

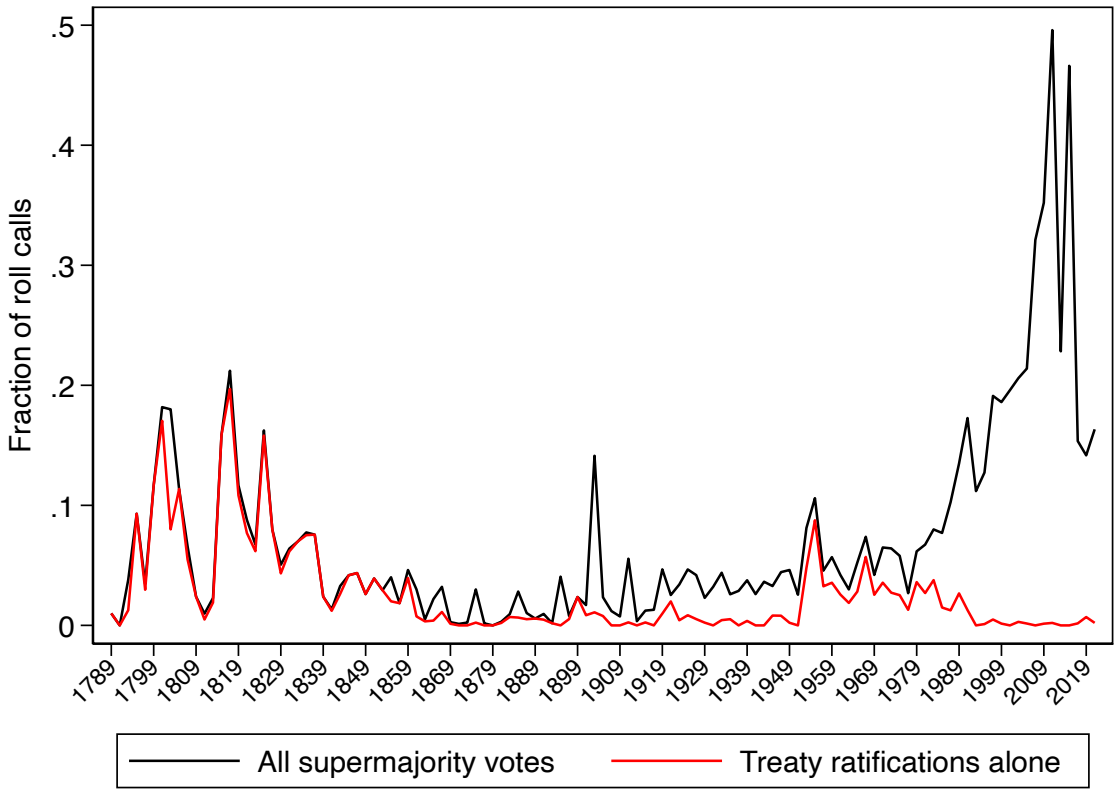
Table A4. Multivariate analysis of the incidence of external countermajoritarianism, with interactions added

Variables	(1)	(2)
Population Gini	-0.20	-0.14
	(0.54)	(0.55)
Close votes	0.23***	0.23***
	(0.06)	(0.06)
Majority coverage	-0.31***	-0.33***
	(0.06)	(0.06)
Population Gini*Close vote	-5.44	-4.02
	(4.86)	(4.99)
Majority coverage*Close vote	-0.14	-0.19
	(0.62)	(0.62)
Population Gini*Majority coverage		6.92
		(5.63)
Constant	-0.00	-0.00
	(0.01)	(0.01)
Observations	116	116
R-squared	0.31	0.32

Standard errors in parentheses
*** p<0.01

Note: The dependent variable is the fraction of roll calls that were countermajoritarian during a two-year congress. The estimator is ordinary least squares with the main variables differenced. Interactions are between the differenced variables.

Figure A4. Treaty ratifications as a source of supermajority thresholds, 1789-2022

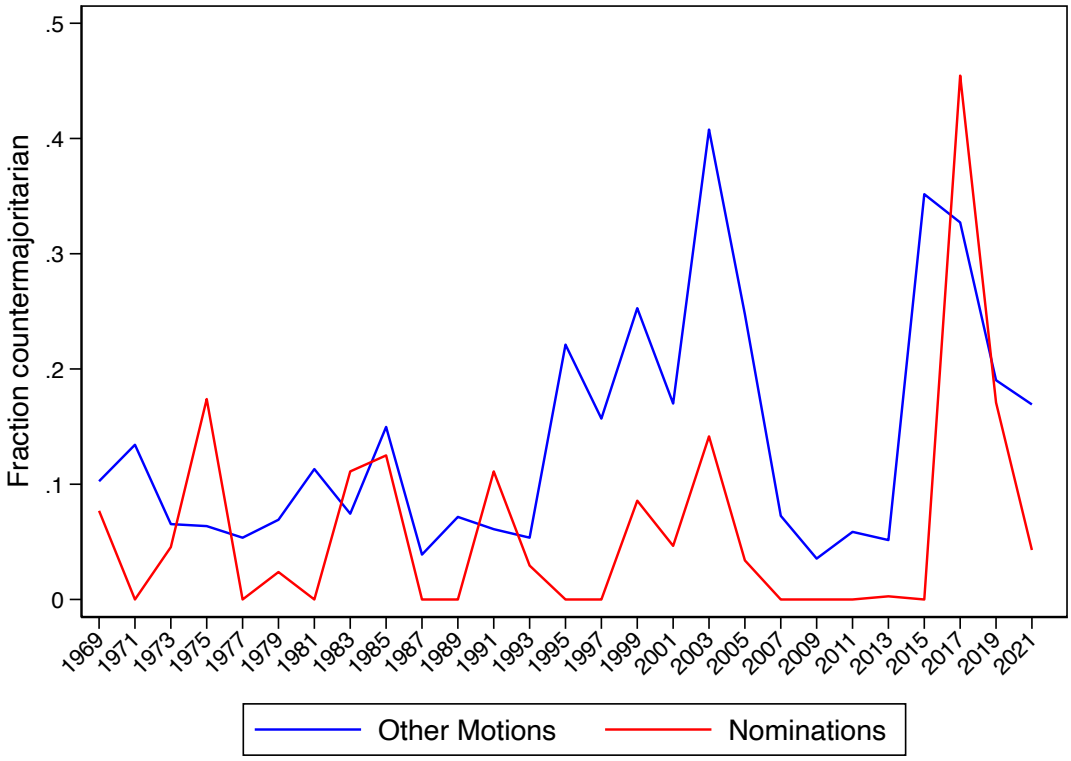


That said, the antebellum treaty ratifications were crucially important for American political development. Many of these treaties concerned Native American tribes, and thus were highly significant for civil liberties and the process of westward expansion. Especially prior to the 1830s, as Senators and executive branch officials developed norms and expectations about what constitutes "advise and consent," the debates and decisions that occurred within the chamber had significant consequences for institutional development and public policy. The congressional politics of these decisions, including the effects of the supermajority thresholds, merits further research.

Other questions may relate to the impact of nomination votes on my treatment of countermajoritarianism in the 2000s. As mentioned in the article, during that period roll calls concerning the confirmation of executive branch and judicial nominees comprised a large portion of the Senate floor agenda – over fifty percent of roll calls cast during 2013-22 concerned nominations of one sort or another. Are the trends in external countermajoritarianism reported for the period largely a product of nomination politics and the intense partisanship that has come to characterize the confirmation process?

Figure A5 shows the incidence of externally countermajoritarian roll calls since 1969, distinguishing between nominations and all other matters. Prior to the 1990s, systematic differences between the two trend lines are not apparent. Over the next two decades, as partisan polarization ramped up within the Congress, countermajoritarianism was systematically less prevalent on nomination votes. From 2013 onward, however, and the shift to majority cloture, it is more difficult to draw sharp distinctions between the two trend lines. Countermajoritarianism was especially common on nomination votes in 2017-18, for instance, but that also was the case

Figure A5. Proportion countermajoritarian, nominations versus other motions, 1969-2022



for other motions. As with the other issues addressed in this appendix, the increased presence of nominations in the roll call record does not appear to distort the main conclusions of the article.

Works Cited

Burnham, Walter Dean. 1986. "Those High Nineteenth Century Voter Turnouts: Fact or Fiction?" *The Journal of Interdisciplinary History* 16: 613-44.

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