

State Bloc versus Individual Delegate Voting at the Constitutional Convention:
Did It Make A Difference?*

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Abstract. Voting at the 1787 Constitutional Convention followed the norm of the Continental Congress by requiring state votes to be determined by the majority vote of each state's present delegates, and the outcome of the vote to be decided by majority vote of the states. Yet in establishing the new legislature to replace the Continental Congress, the adopted Constitution set new rules such that voting in state blocs would no longer hold in either house; instead a simple majority of all present representatives would determine the outcome of each house vote. We investigate how Convention vote outcomes might have changed if delegates put this rule in place for the Convention as well. Using individual delegate vote inferences available through the Constitutional Convention Research Group dataset (Dougherty and Heckelman 2012), we use spatial models to identify cut points on 398 separate roll calls. Preliminary analysis suggests only 16 of the vote outcomes (4%) would have changed under individual delegate voting but those that were predicted to change included considering unequal representation in the Senate (i.e., similar to representation in the House) and requiring 2/3rds of states to ratify constitutional amendments. In addition, our analysis reveals that the Electoral College compromise might have likely been jeopardized by a shift to individual voting, while the Great Compromise, 3/5ths compromise, and all votes related to slavery would have resulted in identical outcomes under individual voting.

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1. Introduction

Past scholarship has speculated on how the first United States Constitution produced at the 1787 Constitutional Convention might have differed if delegates with alternative socio-economic characteristics had attended the Convention (Beard [1913] 2004, Ulmer 1966, McGuire and Ohsfeldt 1984, 1986, McGuire 2000, Heckelman and Dougherty 2007, 2008, 2010). We ask a related but different question. Here, we take delegate characteristics as fixed by actual attendance but consider instead how voting outcomes might have changed if the voting procedure differed. Delegates at the Convention voted in state blocs, similar to how votes were tallied in the Continental Congress. Yet the new Congress established by the new Constitution not only created two branches but also abolished state bloc voting. Votes in each branch of the newly created Congress were to be determined by simple majority of the present voters. We consider what impact this rule might have had on the Convention proceedings had delegates to the Convention adopted this rule for themselves as well.

Our line of inquiry fits within the general field of constitutional economics. Social choice theorists in particular recognize the importance of voting procedures in determining outcomes even when voters and preferences remain fixed. Typically, such analysis involves comparing alternative methods for aggregating individual voting profiles when there are more than two alternatives under consideration. Because most voting mechanisms collapse down to a variant of simple majority rule in the limiting case of binary decisions, little recent analysis has been spent on pure binary voting except for different thresholds of (super-) majority rules (e.g. Dougherty and Edward 2004).

In this paper we consider a comparison of two types of simple majority rule for binary voting at the Convention. State bloc voting entails a two-tiered system. First, delegates are

grouped by state and each state's vote is determined by its delegate majority. Second, the majority state vote determines the final outcome. Our counter-factual is the standard simple majority vote where only one vote is taken and the majority decision is determined when all delegates vote collectively. For simplicity, in the rest of the paper we designate the individual-level voting alternative as simple majority rule (SMR) to contrast against the two-tiered state bloc system.

Ideally, to answer this question we would tally the individual votes of all delegates by simply ignoring each delegate's state information. The problem is that while state votes were recorded at the Convention, delegate votes were not, with only rare exception. As noted by Gibson (2007), this has greatly hampered quantitative analysis of delegate voting. Partly in response to this dilemma, a new dataset of delegate vote inferences has been recently developed by the Constitutional Convention Research Group (CCRG, Dougherty and Heckelman 2012). Although this dataset far exceeds any prior delegate voting dataset (see Dougherty et al. (2012) for additional details), there are still far too much missing data to directly determine simple majority outcomes on any of the Convention roll calls. Instead, following from Heckelman and Dougherty (2013), we develop a single-dimensional spatial framework to predict outcomes based on the position of the median floor delegate(s). For each roll call, we determine median positions under both SMR and state bloc voting, and compare their relative positions to the roll call's cut point. In general, when the state bloc pivots and the SMR pivots are on opposite sides of the cut point, we predict a different outcome under state bloc and SMR voting.

Our analysis reveals that only 16 of the 398 sample roll calls in the CCRG dataset (4%) would have differed under simple majority rule. Yet, five of these were potentially quite important in affecting the power of the new federal government relative to the states. As several

studies have argued (Beard [1913] 2004, Jensen 1950, Ferguson 1969, Riker 1987, McGuire and Ohsfeldt 1997, Heckelman and Dougherty 2013), this may have been the fundamental issue at stake during the Convention.

The rest of the paper proceeds as follows. First, we present a brief background of the Convention and explore why it is reasonable to believe that the document produced by the Convention might look different if votes were tallied by individuals rather than by state blocs. Second, we outline the method we use to predict outcomes under state bloc and individual SMR voting. Third, we summarize the ideal point estimates used in this analysis, and identify pivotal delegates under state bloc and SMR voting for each roll call. Fourth, we compare predicted outcomes under state bloc voting and SMR, and describe in detail select outcomes we predict would have been decided differently under SMR. Finally, we conclude by summarizing the findings and suggest alternative lines of inquiry.

2. Background

The Continental Congress and the Articles of Confederation had a significant impact on the proceedings of the U.S. Constitutional Convention (Rakove 1982, Lutz 1990). Procedurally, the largest impact was on how issues were decided at the Convention. Issues at the Convention were decided in the same manner that they were in the Continental Congress. Although individuals motioned and debated issues, votes were tallied in state blocs. The size of each bloc varied by state depending upon the number of delegates each state sent to the Convention and the number of delegates attending. This ranged from two delegates for New Hampshire to eight delegates for Pennsylvania.¹ Each state was then called upon to vote with the northernmost state voicing its vote first, followed in geographic order down to the southernmost state, Georgia, always casting

¹ For a list all 55 delegates, see Table 1 below. Rhode Island did not send a delegation to the Convention.

the final vote. Each state's vote was determined by the yea and nay positions of their delegates. If a majority of delegates supported (or opposed) the motion then the state cast a yea (or nay) vote. If a state's delegates were equally split on a motion (which could only happen in an even-size delegation and were rare occurrences), the state would cast a vote of divided. The majority of state bloc votes determined if a motion passed or failed.²

[Table 1 here]

The Constitution might look significantly different if a majority of delegates, rather than states, decided outcomes at the Convention. Consider the extreme example presented in **Table 1**. Assuming complete attendance, it is possible that a motion could carry under state bloc voting if even less than one-third (18 out of 55) of the delegates voted yea.³ Under SMR an additional ten delegates would be required to cast a yea vote (28 of 55) in order for the hypothetical motion in **Table 1** to carry. Increasing the minimum threshold for a motion to carry suggests that several close roll calls might have fared differently under SMR – especially if the votes to determine each state's position were close.

3. Methodology

To analyze delegate votes we rely on the newly constructed CCRG Dataset which contains inferred delegate votes on all substantive roll calls at the Convention based on the recorded debates found in Max Farrand's (1966) *The Records of the Federal Convention of 1787* and James Hutson's (1987) supplement to Farrand. Delegate votes were recovered based on attendance and recorded state vote (when only two delegates for a state were in attendance),

² Unlike the Continental Congress, a motion carried at the Convention if more states *in attendance* voted yea than nay. A state voting as divided did not count in the tally and was treated as if it were absent. In this sense, there was no built-in bias toward the status quo.

³ In reality, at no time did all 55 delegates simultaneously attend the Convention, nor did all 12 states.

delegate statements, motions, and seconds, and consistency coding (when enough delegate statements were coded a certain way to require the remaining attending delegates in that state to vote a specific way to achieve the recorded state majority vote). A more detailed explanation of the CCRG Dataset coding methodology is described by Dougherty et al (2012).

The CCRG Dataset contains a total of 5,121 ye or nay individual votes out of an estimated 25,928 potential votes cast on 620 substantive roll calls (not including motions to adjourn, etc.). The simplest way to address the counter-factual is to use the CCRG Dataset to tally the outcome of each roll call under of individual SMR voting and then compare those outcomes to the actual outcomes under bloc voting. Unfortunately, despite including over 5,000 inferred votes, the CCRG Dataset is still missing roughly 80% of the potential individual votes. As a result, we are limited as to how many roll calls can be analyzed in this way.⁴ Instead, we adopt the approach of Heckelman and Dougherty (2013) by assuming a single-dimensional issue space. We then estimate the cut point on each roll call, which represents the midpoint between the spatial location of the proposal and the status quo. This allows us to identify majority positions given the spatial locations of attending delegates.

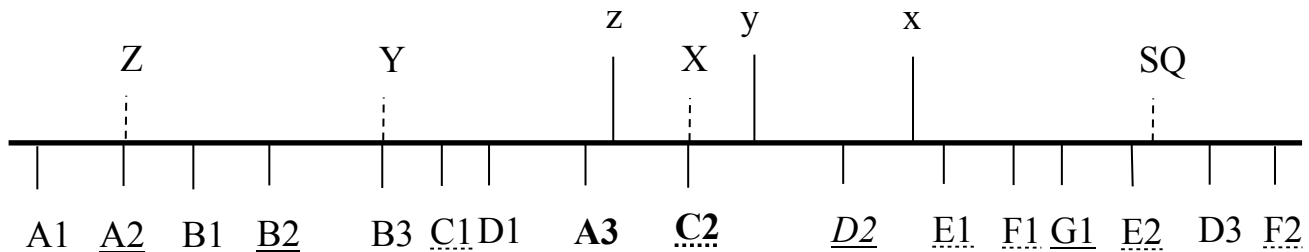
3.1 Model Assumptions

As standard in pure spatial modeling, we assume delegates have symmetric single-peaked utility functions. In the absence of strategic voting, delegates will maximize their utility by voting ye for the new proposal, or nay in favor of the status quo, depending on which is closer to their ideal point. These assumptions allow us to invoke the Median Voter Theorem to determine voting outcomes. Under state-bloc voting, we would first determine how the median voter of each state

⁴ Due to incomplete data on delegate inferences, roll calls where the state vote was more lopsided would be easier to determine how the SMR vote would have turned out than for those where the state vote was closer. For the former, the SMR vote would typically be predicted to match the state bloc outcome. We are more interested in determining those cases where the outcomes could differ.

voted, and then how a majority of the states voted based on which state held the median position of all the states (Heckelman and Dougherty 2013). For SMR, we simply need to determine how the floor median voted.⁵ For simplicity, we label the median delegate from the median state under state bloc voting, and the floor median delegate under SMR, as the “pivotal” delegates.

Figure 1 Hypothetical Spatial Roll Call Voting



For comparative purposes, Figure 1 depicts the outcome of a hypothetical roll call. In this simplified example, there are 16 delegates in attendance from seven different states, where the notation S_i represents the ideal point (or spatial position) for delegate i from state S . The median delegate for each state is underlined (for example, A_2); for those states with an even number of delegates, the state co-medians are underlined by dash (for example, E_1 and E_2). Under the distribution of delegates in Figure 1, state D represents the median state. The (co-)medians for states A , B , and C are all to the left of the state D median (D_2), and the (co-)medians for states E , F , G are all to the right of D_2 , making D_2 the state bloc pivotal delegate (italicized for emphasis in Figure 1). However, the co-medians among all the delegates present are A_3 and C_2 (bolded for emphasis in Figure 1), making them the SMR pivotal delegates. They are not only different delegates than the median of the state medians, but are from different states as well.

⁵ Due to changing attendance, the median for each state as well as the overall floor median, could differ across roll calls. Heckelman and Dougherty (2013) assumed complete attendance by all 55 delegates in determining state medians. We use attendance records to determine the median delegate for each specific roll call. See also Dougherty, Carlsen, and Bakker (2013).

Upper case letters above the line represent different potential proposals against the status quo (SQ) position. Consider first proposal X (perhaps put forth by delegate C2) which results in cut point x (halfway between X and SQ). All delegates on one side of the cut point vote opposite those on the other side. Specifically, delegates on the same side of the cut point as proposal X vote in favor of X, whereas those on the side of the cut point containing SQ vote against X (thereby supporting SQ). Thus, a majority of the states (A, B, C, D) support proposal X and it passes 4 – 3. Similarly, under SMR, a majority of delegates would support the proposal and it passes 10 – 6.

Now consider if instead proposal Y had been put forth resulting in cut point y . Both floor co-medians are on the opposite side of cut point y than is delegate D2. Thus, although a majority of the delegates favor the proposal so that it passes under SMR by a vote of 9 – 7, it fails under state bloc voting 3 – 4.

Finally, consider proposal Z and cut point z . Under state bloc voting, the proposal fails by the same 3 – 4 margin. However, with an even number of delegates, there is not one unique median voter on the floor, and cut point z resides between the two co-median delegates. Thus proposal z results in a tie vote under SMR with all voters left of **C2** voting for Z and all voters right of **A3** voting against Z. Because a majority is actually required in order to pass a proposal, it fails under SMR as well. If instead the positions of Z and SQ were reversed, keeping z in the same position, then every delegate who voted yea (nay) would switch to nay (yea). In this case, Z would pass under state bloc voting 4 – 3 but the proposal would still fail under SMR from the (reversed) tie vote. Thus, whether or not SMR outcomes differ from bloc voting for cut points between the SMR pivotal delegates depends on whether the median of the state medians is on the side of the cut point containing the proposal or the status quo.

This last result highlights an important axiomatic property regarding majority rule. Although SMR is neutral for an odd number of voters (May 1954), it possesses a bias toward the status quo when the number of voters is even. For a similar reason, so does state bloc voting when there is an even number of states in attendance.⁶ State bloc voting also fails to be neutral even when there are an odd number of states, if there is an even number of delegates in at least one state. If, for example, there was an additional delegate D4 in attendance located to the right of x , then state D would vote ‘Divided’ because D1 and D2 support X and D3 and D4 are in opposition. This would result in a 3 – 3 – 1 state bloc vote causing X to fail. Thus for the purposes of determining the majority vote of the states, a single state voting ‘Divided’ had the same effect as voting ‘Nay’. This implies a bias in favor of the status quo under state bloc voting even when all delegates had strict preferences because a state could register “indifference” even when none of its delegates were actually indifferent.

Under pure spatial voting, when the state bloc pivot(s) and floor median(s) are on the same side of the cut point, the roll call outcome would be the same for both state bloc and SMR. When the state bloc pivot(s) and floor median(s) are on opposite sides of the cut point, the roll call’s outcome would be different under state bloc and SMR. Finally, when the cut point lies between two floor co-medians (two state bloc pivots), the voting rule will alter the expected outcomes if and only if the state bloc pivot(s) (floor median(s)) is/are on the same side of the cut point as the proposal.

⁶ There were typically 11 states in attendance for most of the Convention, but from July 11 – July 22 only 10 states voted (after the New York delegation had departed and prior to the arrival of the New Hampshire delegation). During this time, six states needed to support a proposal for it pass but only 5 states needed to oppose a proposal for it to fail. When 11 states were in attendance, the combination of five ‘Nay’s, five ‘Yea’s, and a ‘Divided’ would defeat a proposal. Such a result did, in fact, occur on five occasions. For example, vote 90 to establish a six year term for Senators initially failed by a 5 – 5 – 1 vote. (A vote the next day to establish a six year term for Senators along with 1/3 of the Senate seats up for election every two years passed by 7 – 4 margin.)

3.2 Caveats

As is standard for voting rule comparisons, we restrict our attention to whether the original outcome from a given vote would be affected. We implicitly assume that all delegate votes remain the same regardless of which rule was adopted. Only vote outcomes are allowed to be endogenous to the voting rule, not individual votes themselves. Because latent preferences on alternatives are independent of the voting rules, as long as delegates vote sincerely their pairwise votes will remain fixed. If delegates were strategic, their optimal strategy would depend on the rule in place. We cannot determine how delegates might vote if they were strategic. Our assumption of sincere voting is actually required because sincere voting was assumed to hold when vote inferences were developed for the CCRG dataset we rely on (see Heckelman and Dougherty (2013) for details and a defense of the sincere voting assumption). As the W-NOMINATE scores used here (detailed below) are based on the CCRG data, maintaining sincere voting for both the state bloc and SMR voting models is consistent with the data construction.

A related issue is that attendance could have been affected by altering the voting rule. We assume our population of delegate voters on each roll would not have changed from what was actually observed. It could be argued that if voting was not conducted in state blocs, states might have sent more delegates to gain greater weight in the outcomes and/or delegates might have tried to miss fewer votes in order not to dilute their state's impact on the outcome. Viewing attendance as endogenous to the vote rule is plausible, but we have reason to suggest such behavior might not have occurred. First, many more delegates were elected to the Convention than actually went. It is not well documented why certain delegates chose to attend when others did not, as very little scholarship has been devoted to this question. Some delegates, such as Patrick Henry, simply refused to attend. Others may simply not have cared enough to make the

trek to Philadelphia.⁷ Still others, such as George Wythe, initially attended but left due to illness or other problems at home. It is unlikely they would have remained under such conditions regardless of the manner in which voting was conducted. Second, the specific voting rule to be utilized at the Convention had not yet been established when state legislatures elected their slate of delegates to the Convention, and, in the days leading up to the Convention, the Pennsylvania delegates were urging the more populous states to unite in refusing the less populated states an equal vote (Farrand 1966). This suggests state decisions on which, and how many, delegates to send were independent of the state bloc rule. Third, we note the special case of New York, which sent a three-man delegation. Once Lansing and Yates left the Convention, New York was unable to cast any official votes (although Hamilton's vote was occasionally recorded and he was elected to the five-delegate committee of Style late in the Convention). No other delegates from New York arrived to take their place despite this state now having less weight (zero) than before.

More problematic in our view is recognizing the agenda might have changed due to the predicted vote outcome differences we identify. A change in the vote outcome alters the status quo and thus vote inferences on subsequent votes could also be affected, creating a "butterfly effect." For example, a series of votes were taken in early August to establish the eligibility requirements to serve in the Senate. Gouverneur Morris (PA) proposed replacing the four years of citizenship with 14 years. The proposal failed. Subsequent proposals for 13, 10, and 9 years, also failed. For each of these proposals, delegates were deciding against the current four year requirement. If we were to predict Morris' first proposal would have passed under SMR, then the status quo on the next proposal for 13 years would have changed. This vote would have been between a 13- versus 14-year requirement, whereas the actual vote was on a 13- versus 4-year

⁷ This could explain why Pennsylvania, the host state of the Convention, had up to eight delegates in attendance at once.

requirement. A change to the status quo (to 14) would also change the cut point. Voting for or against the 13-year requirement could very well depend on what was the status quo.

Furthermore, if the 14-year requirement had become the new status quo, a 13-year proposal might never have been made. Or instead an even longer requirement of 16 years may have then been proposed, and possibly passed. We are unable to incorporate these possibilities. Thus our modeling methodology potentially represents an underestimate of how different the final form of the Constitution might have been.

A final consideration relates to representativeness of our sample. Because we rely on W-NOMINATE to estimate cut points, we cannot include any roll calls where all delegate inferences for that roll call are identical.⁸ That is, roll calls require at least one delegate *yea* and one delegate *nay* position for inclusion. As a result, our roll call sample is limited to roughly half of the total roll calls taken at the Convention (398 of 797). One concern with any sample is whether it is reflective of the population. Dougherty et al. (2012) have categorized all roll calls in the CCRG Dataset into one of 26 primary categories. Table 2 compares the sample of 398 roll calls used in this analysis.

[Table 2 here]

The sample roll calls are fairly reflective of the 797 roll calls at the Convention. The issues of legislative powers, legislative apportionment, and executive selection are prominently represented in our 398 roll calls, just as they were in the Convention. The only category of roll calls that is significantly underrepresented in the sample is procedural motions. Procedural motions are defined as motions to adjourn, reconsider, commit, and postpone, which were not

⁸ This is a potential limitation due to missing data. If all delegates were inferred to have voted the same way, then the outcome would be the same regardless of what rule was in place. But if a majority of delegate inferences are missing on a particular roll call, it is still possible under certain distributions of known state votes for SMR outcomes to be unpredictable.

included in the CCRG dataset unless the motion to postpone was considered substantively important (Dougherty et al. 2012). Strictly procedural motions are not germane to our analysis.⁹ The under-inclusion of these sorts of roll calls does not represent a serious problem.

4. Ideal Point Estimates

Estimates for spatial positions for every delegate are taken from Heckelman and Dougherty (2013) based on over 4,000 individual delegate vote inferences across almost 400 roll calls.¹⁰ Their single-dimensional spatial estimates correctly classify 81% of the inferred yea or nay votes across the roll calls (comparable to the 80% Poole and Rosenthal (1997) correctly classify using a single-dimension for all Senate votes from 1789 – 1985) whereas they find that adding a second dimension improves classifications by only four percentage points. This suggests that a single-dimensional scaling represents a reasonable approximation for the Convention. The scaling, based on the W–NOMINATE procedure, runs from $[-1, 1]$. They interpret larger numbers to represent stronger federalist positions and smaller numbers to represent stronger anti–federalist positions. Their estimates are presented in Table 3.

[Table 3 here]

If all 55 delegates were in attendance, Ingersoll (PA) would represent the median delegate although Davie (NC) is the most centrist delegate on the federalist / anti-federalist spectrum. Under state bloc voting, Georgia and South Carolina would be the median states, with

⁹ The procedural motions included in our analysis are procedural motions of substantive importance, usually motions of postponement designed to kill motions currently on the table. See Dougherty et al (2012) for a further discussion of these roll calls.

¹⁰ There are 620 roll calls included in the CCRG dataset. Heckelman and Dougherty (2013) used W–NOMINATE to estimate positions for most delegates. As such, they could not include any roll calls where all inferences were identical. Delegates who had too few inferences to be included were estimated by out of sample forecasts using a double–censored Tobit model.

their co-medians represented by Baldwin and Few, and C.C. Pickney and Rutledge, respectively, each of whom is more nationalistic than either Ingersoll or Davie.

4.1 Identifying Median States under Bloc Voting

Under the assumption of full attendance, Heckelman and Dougherty (2013) determine that SC and GA would be the median states. This may or not accurately reflect Convention outcomes because, as they note, not all delegates (or even states) were present throughout the Convention. For each of the 620 roll calls in the CCRG dataset, we determine the median delegate for each state by using delegate attendance codes from CCRG and the delegate spatial ideal points presented in Table 3. Based on this, we subsequently determine which state was the median state on a particular roll call using the methodology explained previously.

[Table 4 here]

As shown in panel I of Table 4, we find that delegates from SC and GA were indeed often pivotal delegates,¹¹ with the SC delegates controlling the pivotal position for nearly every roll call after the arrival of New Hampshire. Our findings indicate the analysis from Heckelman and Dougherty (2013) properly identifies the median states for 97% of the Convention votes. Note that the overall median delegate identified in Table 3, Ingersoll (PA), is never the median delegate from the median state, and his state is never the median state.

4.2 Identifying Floor Medians under Individual SMR Voting

If individual votes were tallied using standard SMR, with an issue carrying if more delegates (rather than states) voted yea than nay, then the median delegate on the floor would always be on the winning side, and in theory (without strategic voting by other delegates) should be able to

¹¹ When there is an odd number of states and an odd number of delegates attending within each state, there is a unique median to identify. In all other cases, there can be from two to four potential co-medians. We identify the relevant co-medians as those with the largest and smallest values among the co-medians, and count each as being the median for $\frac{1}{2}$ the vote.

make proposals tailored exactly to his own preferences and still carry the vote. When an even-number of delegates was in attendance, any proposal position between the two SMR pivotal delegates would be an equilibrium. For comparative purposes, we identify the floor medians for each roll call based on attendance and summarize the results in the panel II of Table 4.

Of the nine delegates who were pivotal under bloc voting, only four would have been pivotal under SMR voting. These four delegates, all from GA or SC, would have been pivotal on only 62% of the votes, and the rate for each specific delegate varies greatly across the two rules. Furthermore, Rutledge, the delegate pivot most often under state bloc voting, would never have been pivotal under SMR. The overall median delegate, Ingersoll (PA), was the actual floor median for roughly 20% of the votes, second only to Baldwin (GA). Ingersoll's ideal point estimate suggests he was the least nationalistic of any of the SMR pivots, except for Johnson (CT). Not surprisingly, the five state bloc pivots who were never floor medians represent the most extreme delegates among the state bloc pivots: Bassett (DE) and Rutledge (SC) who were the most nationalistic, and Jennifer (MD), Sherman (CT) and Spaight (NC) who were the least nationalistic (but actually quite moderate overall). Meanwhile, the four SMR pivots who were never state bloc pivots (Johnson (CT), Ingersoll (PA), Blount (NC), and Wythe (VA)) were all closer to the least nationalistic of the remaining state bloc pivots (Baldwin (GA)) than were Jennifer (MD), Sherman (CT) or Spaight (NC). As such, the range of potential equilibrium outcomes was much more limited under SMR than state bloc voting (.346 versus .631), and the standard deviation was twice as small (.116 versus .240).

Two conclusions can be drawn from this comparison. First, fluctuating attendance might have had a much smaller impact on the Convention if SMR had been adopted. The floor pivots under bloc voting became increasingly pro-nationalist as the Convention progressed. This was

due largely to the departure of the New York delegation (a generally anti-federalist delegation, with the exception of Hamilton) and the arrival of the New Hampshire delegation (a nationalist delegation). As such, delegates who were pivotal early in the Convention (e.g., Sherman and Jennifer) were not pivotal later in the Convention while delegates who were pivotal later in the Convention (e.g., Rutledge and CC Pinckney) were not pivotal early in the Convention. In contrast, the departure of New York and the arrival of New Hampshire did not have such a noticeable impact on the location of pivots under SMR. Second, the design of the Constitution might have been less nationalistic under SMR because the most nationalistic state bloc pivots, Bassett (DE), Rutledge (SC), and CC Pickney (SC), would rarely have been pivotal under SMR, if at all. In the next section, we look directly at predicted vote outcomes to determine the extent different spatial positions for pivots under state bloc and SMR on any given roll call may have affected winning outcomes.

5. Comparison of State Bloc and SMR predicted outcomes

Under pure spatial voting, the cut point for each roll call should clearly divide all yea and nay voters on the single-dimensional spectrum. We use W-NOMINATE to estimate cut points at the Convention for those 398 roll calls in the CCRG dataset that have at least one yea and one nay inferred delegate position. The model predicts a proposal to lose whenever at least one state bloc pivot is on the same side of the cut point as the status quo for that vote.¹² The model predicts a proposal to win only when all the state bloc pivots for that roll call are on the same side of the cut point as the proposal.

¹² There were only 12 roll calls in which there was a state bloc pivot on both sides of the cut point. Of those 12 roll calls, there was only one in which the SMR pivots were on both sides of the cut point.

Our state bloc pivot model correctly predicts 75% of the roll call outcomes, which suggests the model performs reasonably well. We find that 16 of the sample roll calls (4%) would have a different predicted result if voting at the Convention had been conducted instead under SMR. The impact of these different outcomes ranged from nominal (defining piracy) to significant (requiring 2/3rds of states to ratify amendments). In the next section, we describe in detail the potential impact the alternative voting rules might have had on specific roll calls and speculate on the importance to the final form of the Constitution.

We first briefly summarize each roll call for which our two models predicted different outcomes. (The next section presents a more detailed accounting.) The first column of Table 5 identifies the roll call number assigned to each vote by the Convention's secretary. For each vote listed, our state bloc model correctly predicts the actual recorded outcome for passing or failing, but the SMR model predicts the opposite result would have occurred if votes had been tallied instead as the simple summation of individual delegate votes.

[Table 5 here]

6. Potential Impact on the Constitution

Although there are relatively few roll calls that we predict would have been reversed under SMR, many of the issues decided by these roll calls could have had strong implications for the final form of the Constitution. We describe our interpretation on these specific roll calls below.

6.1 Payment of Legislators

The first roll call predicted to be impacted by SMR is 80, which was recorded on June 23rd.

Under bloc voting, roll call 80 failed, the result of which continued to require states to pay the salaries of their respective national legislators. This could have severely limited the power of the

federal legislature relative to the states. If the Constitution specified that states would pay the salaries of their national legislators, legislators might be unwilling to vote against their state's interests in order to protect national interests. However, almost two months later on August 14, a majority of states passed a proposal (roll call 292) explicitly requiring that all members of both houses would be paid by the national treasury instead of the state governments, which was also predicted to have passed under SMR. Several delegates who spoke on that day expressed concern that payment of national legislators by their home states would prevent the national legislature from being a truly national body because legislators who feared that their salary might be denied would vote solely for the interests of their states (Farrand 1966, 2: 292). Some of these delegates had not been present at the earlier vote (in fact, New Hampshire was not represented at all, and New York had not yet lost its delegation).

Two observations can be gleaned from this. First, a different outcome under SMR would have simply meant that the delegates agreed to payment of national legislators by the national treasury in June instead of August; the consequence of which would have likely had no impact on the course of the Convention or the final constitution. Second, attendance had a noticeable impact on state bloc votes. The state bloc votes on essentially the same question for roll calls 80 and 292 are inconsistent, depending greatly on which particular delegates (and states) were in attendance and/or possibly being influenced by events in between, whereas the SMR outcome was predicted to be the same even with a different set of delegates voting.

6.2 Apportionment

The Committee to Reconsider Original Apportionment, formed on July 9th, prepared a report which specified how many legislators each state would receive in the first branch of the national

legislature once the constitution was adopted (Farrand 1966, 1:557).¹³ Due to expected future expansion from new states and demographic changes, a census was declared to be needed to set apportionments for future Congresses. A series of votes beginning with roll call 134 was taken which required a regular census but differed on who was to be included, and how often it would be conducted. The states passed Williamson's (NC) proposal that the census be conducted of *free* inhabitants, thereby including free blacks but excluding slaves. We predict this would have failed under SMR. But after much debate, a later proposal to include 3/5ths of blacks for the purposes of both apportionment and direct taxes, eventually passed. We predict the famous "3/5ths Compromise" (roll call 147) would still have passed under SMR. This same proposal also established the requirement of a census to be held within the first six years of the new government and every 10 years thereafter.¹⁴

In addition, a series of votes were taken to alter the initial apportionment set by the Committee to Reconsider Original Apportionment.¹⁵ Proposals were made to reduce by one the number of representatives for New Hampshire and South Carolina, and to increase by one the numbers for Georgia and North Carolina. Each of these four proposals was rejected. Our model predicts that the proposal regarding New Hampshire would have passed, thereby further reducing its power in the House. Interestingly enough, no delegate from New Hampshire was yet in attendance.¹⁶

¹³ On July 6th the floor elected a five-delegate committee to apportion the first branch of the national legislature, which would be in effect until a census was conducted. The committee's report was read to the floor on July 9th and immediately rejected. An eleven-delegate committee, with each state appointing one committee member from its delegation, was formed that day to report a more favorable plan of apportionment. Hence the name "Committee to Reconsider Original Apportionment."

¹⁴ Initially, a census was to be required every 15 years when roll call 138 passed. An alternate proposal for 20 years then failed (roll call 143) before the 10 year requirement was adopted (by passing roll call 144). Our SMR model also predicts these same outcomes.

¹⁵ See Article I, Section II of the Constitution.

¹⁶ The only other state not in attendance was Rhode Island. They were allocated only one representative (the same as Delaware).

As shown by roll calls 155 and 156 in Table 5, state bloc voting also passed the requirement for equal representation in the second branch, which we predict might not have happened under SMR. Our model suggests a majority of attending delegates favored at least discussing unequal representation in both chambers (155) or possibly opposed equal representation in the second branch (156).

In fact, much earlier (roll call 41) the states had already passed a motion that the ratio of representation in both branches would be equal. But we also predict that roll call 207, which set the number of Senators as equal to 2 for all states (immediately after rejecting 3 Senators per state) would have passed under either state bloc or SMR. Strictly speaking, the passing of roll call 207 supersedes the failure of roll call 156 and we still predict the Constitution would have established equal representation in the Senate for every state. However, it is important to keep in mind that our prediction of a majority of delegates supporting roll call 207 is based on the true status quo of equal representation of undetermined size, rather than what the counter-factual status quo would have been for unequal representation. Many of the delegates might very well have not supported roll call 207 if it would have set, rather than simply confirmed, equal representation in the Senate.

6.3 Selection of the Executive

Much like legislative apportionment, how the national executive would be selected was a contentious issue at the Convention. However, unlike the issue of apportionment, the delegates did not seriously consider the method of executive selection until late in the Convention.¹⁷

¹⁷ Executive selection might not have surfaced as an issue until later in the Convention perhaps because delegates realized that the interests of the more and less-populous states would likely collide. Perhaps delegates feared that bringing up the issue of executive selection earlier in the Convention would undo all the work done to achieve the Great Compromise.

The first serious discussion commenced when the Committee of Detail, chaired by Rutledge and tasked with taking everything that had been agreed upon prior to July 23rd and working it into a single document, reported that the President “shall be elected by ballot by the Legislature” (Farrand 1966, 2:401).

On August 24th, Rutledge (SC) moved to amend this clause by inserting the word “joint” before ballot.¹⁸ Rutledge envisioned that each Representative and each Senator would get one vote for president and neither chamber would be able to veto the other. Such a method was very much in alignment with the interests of the large state coalition.¹⁹ Wilson (PA) supported Rutledge’s motion and “urged the reasonableness of giving the larger States a larger share of apportionment, and the danger from a disagreement of the two Houses” (Farrand 1966, 2:402). Langdon (NH) agreed with Wilson’s latter point, noting, “the Negative of the Senate would hurt the feelings of the man elected by the votes of the other branch” (Farrand 1966, 2:402). Langdon later noted that he supported Rutledge’s proposal even though it was “unfavorable to N. Hampshire as a small State” (Farrand 1966, 2:402). Rutledge’s motion passed under state bloc voting, but according to our model would have failed under SMR.

Given that the status quo (executive selection by the national legislature) does not make into the final constitution, it is easy to assume that a different outcome for roll call 356 would not have impacted the course of the Convention or the final document. However, Rutledge’s motion was perhaps part of a larger compromise on the issue of executive selection. Massachusetts, Pennsylvania, Virginia, North Carolina, and South Carolina all voted in favor of Rutledge’s

¹⁸ Immediately before Rutledge’s motion the states rejected a proposal made by Carroll (MD) to strike out “legislature” and insert the word “people” by a vote of nine states to two. There was no debate on the issue.

¹⁹ The large state coalition included Massachusetts, Pennsylvania, Virginia, North Carolina, South Carolina, and Georgia; North Carolina and Georgia had small populations but anticipated population booms in the near future. The small state coalition was comprised of New Hampshire, Connecticut, New York, New Jersey, Delaware, and Maryland.

motion while Georgia, the only remaining state in the large state coalition, voted nay. With the exception of New Hampshire and Delaware, all of the small state coalition voted against Rutledge's motion. Immediately following roll call 356, the states voted on a motion made by Dayton (DE) to specify that each state would have one vote when the national legislature elects the President. This roll call failed, with all members of the large state coalition, with the exception of Georgia, registering a nay vote. (Connecticut, New Jersey, Delaware, and Maryland all voted in favor of Dayton's motion.) Dayton's motion would have also failed under SMR.

Perhaps fearing that the small state coalition, who just suffered a considerable blow, might deadlock the Convention over executive selection, and drawing from their past experiences regarding the debate leading up to the Great Compromise, the delegates moved on to other issues and referred executive selection to the eleven-delegate committee on Remaining Matters, which was chaired by Brearley of New Jersey, on August 31st. Delegates might have felt confident that a committee could reach a mutually beneficial compromise, similar to the one proposed by the 11-delegate Committee on Representation that laid the groundwork for the Great Compromise. Such a compromise was ultimately proposed by the Committee on Remaining Matters in the form of the Electoral College, which made its way into the final constitution. Given the intricacies of the Electoral College, it is unlikely that a similar compromise would have been reached on the floor (Vile 2006).²⁰ An opposite outcome for Rutledge's motion might have had a possible "butterfly effect" on the entire debate that followed his motion, and the subsequent commitment of the issue of executive selection.

²⁰ Executive selection was briefly debated on July 19th as delegates made their way through the Virginia Plan; these debates, however, were not contentious. Interestingly, one roll call (182) related to these debates was to determine that the national executive would be chosen by electors. This roll call passed, but is predicted to have failed under SMR. Perhaps the Committee on Remaining Matters reported the Electoral College compromise because states had *already* voted favorably on the notion of electors choosing the executive in the past. That is, the Committee realized that there was already some support for the notion of electors. If 182 had failed, as predicted under SMR, the Committee might have been hesitant to propose the Electoral Compromise.

6.4 Constitutional Amendments

At the very end of the Convention, the states took up the procedure for amending what would become the new constitution. Madison (VA) complained that the existing procedure was vague in requiring states “to call a Convention for the purpose” as it left open how a convention would be formed or what rule would be used to decide (Farrand 1966, 2: 558). Sherman (CT) proposed to add the following language: “or the legislature may propose amendments to the several States for their approbation, but no amendments shall be binding until consented to by the several States”. Thus, amendments would require unanimous consent of the states. Wilson (PA) moved to amend Sherman’s proposal by requiring only 2/3rds of the states’ approval for amendment ratification. Wilson’s motion failed but we predict it would have passed under SMR. Wilson then made a substitute motion to require 3/4ths of the states to ratify an amendment. This passed without debate, and was also predicted to pass under SMR. No further motions on the amendment procedure occurred. However, if SMR was in place, and Wilson’s first motion had passed as predicted, there is no reason to expect he would have made a second motion against his first. Unless another delegate would have made this same motion, it is likely the lower threshold of 2/3rd majority would have become part of the Constitution. This difference may have come into play fairly recently. The Equal Rights Amendment (ERA) was passed in 35 of the 50 states, surpassing a 2/3 threshold, but never reached the 38 necessary to meet the 3/4th requirement. Had SMR been the Convention rule, ERA might have been ratified in 1973.

6.5 Piracy

Other expected differences, such as from roll calls 308 and 309a, were not dramatic and would not have had a significant impact on the constitution even if they were not later reversed. There was no talk of piracy at the Convention until the Committee of Detail reported that the

national legislature would have the power “to declare the law and punishment of piracies and felonies committed on the high seas” (Farrand 1966, 2:182). The delegates took up this clause on August 17th, and Gouverneur Morris (PA) proposed striking out the words “declare the law” and insert “punish” before “piracies.” There was no debate on the issue, and the motion passed. We predict Gouverneur Morris’ motion would have failed under SMR voting. Such an outcome, however, would have been insignificant – the change of wording did not change the main thrust of the clause, and because no one spoke for or against the reported clause or G. Morris’ proposal, delegates did not appear to view the issue as contentious.

7. Conclusion

Perhaps following from the rule utilized by the Continental Congress, delegates at the Constitutional Convention voted in state blocs. Yet these same delegates established a new Congress where decisions were required to be decided by tallying the individual votes of each legislator, regardless of which state they represented. We considered what impact the simple majority rule might have had on the Convention itself. Our analysis of 398 of the Convention roll calls reveals that only 16 would have resulted in a different outcome under individual SMR voting compared to the state bloc procedure actually utilized. The impact of these different outcomes ranged from nominal (defining piracy) to significant (requiring 2/3rds of states to ratify amendments and reducing New Hampshire’s representation in Congress).

However, the Constitution that was approved by state bloc voting looks very similar to the constitution that we predict would have been approved by majority vote of individual delegate votes. Many of the compromises that were made to keep the Convention from dissolving would have been unaltered by a transition to tallying the votes of individual delegates.

In other words, the Great Compromise, the 3/5th compromise, and various taxation compromises would still have been agreed to.²¹ Yet, a few notable differences might have occurred. In particular, New Hampshire's representation in the first House might have been lessened (future apportionments were established by the census, beginning in 1790). In addition, the amendment procedure would likely have been established at a lower 2/3rd requirement, rather than the 3/4th threshold actually adopted.

We considered an alternative of simple majority rule at the Convention because the delegates replaced the state bloc voting from the previous Congress with simple majority rule for the new Congress. Alternative rules were also possible. Gouverneur Morris, along with the rest of the Pennsylvania delegates, pushed for states to be assigned votes proportional to each state's population. Future research could investigate the impact of bloc voting on outcomes at the Convention by exploring what might have happened if the Pennsylvania delegation was successful in implementing a state proportional voting rule.

²¹ Reconciling this claim with the predicted outcome of roll calls 155 and 156 under SMR rests on two issues. First, 155 was a motion to postpone current debate in order to consider whether there should be unequal representation in the second branch of the national legislature, thereby killing the current topic. Hence, passage of 155 would not mean that delegates were agreeing to unequal representation in the second branch, but rather that they were agreeing to debate unequal representation in the second branch. Second, 156 is a quasi-omnibus motion involving original apportionment, the need for a census, the origination of money bills, and equal representation in the Senate. It is impossible to ascertain which clause was the reason for 156's predicted failure under SMR.

References

- Beard, Charles A. [1913] 2004. *An Economic Interpretation of the Constitution of the United States*. New York: Dover Publications.
- Keith Dougherty, Paul Carlsen, and Ryan Bakker. 2013. "The Power of the South: A Multidimensional Analysis of the Philadelphia Convention." Working paper, University of Georgia.
- Dougherty, Keith L., and Julian Edward. 2004. "The Pareto Efficiency and Expected Costs of k-Majority Rules." *Politics, Philosophy & Economics* 3: 161-189.
- Dougherty, Keith L., and Jac C. Heckelman. 2012. *Delegate Positions on All Substantive Roll Calls at the United States Constitutional Convention, 1787*. ICPSR33865-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor]. doi:10.3886/ICPSR33865.v1.
- Dougherty, Keith L. and Jac C. Heckelman. 2008. "Voting on Slavery at the Constitutional Convention." *Public Choice* 136: 293-313.
- Dougherty, Keith, Jac Heckelman, Paul Carlsen, and David Gelman. 2012. "A New Dataset of Delegate Positions on All Substantive Roll Calls at the U.S. Constitutional Convention." *Historical Methods: A Journal of Quantitative and Interdisciplinary History*, 45(3): 135-141.
- Farrand, Max. 1966. *The Records of the Federal Convention of 1787*. Westford: Yale University Press.
- Ferguson, E. James. 1969. "The Nationalists of 1781–1783 and the Economic Interpretation of the Constitution." *The Journal of American History* 56: 241-61.
- Gibson, Alan. 2007. *Understanding the Founding: The Crucial Questions*. Lawrence, KS: University Press of Kansas.
- Heckelman, Jac C. and Keith L. Dougherty. 2013. "A Spatial Analysis of Delegate Voting at the Constitutional Convention." *Journal of Economic History*. Forthcoming.
- Heckelman, Jac C. and Keith L. Dougherty. 2010. "Personalty Interests at the Constitutional Convention: New Tests of the Beard Thesis." *Cliometrica* 4: 207-228.
- Heckelman, Jac C. and Keith L. Dougherty. 2007. "An Economic Interpretation of the Constitutional Convention of 1787 Revisited." *Journal of Economic History* 67: 829-848.
- Hutson, James H., ed. 1987. *Supplement to Max Farrand's The Records of the Federal Convention of 1787*. New Haven: Yale University Press.

- Jensen, Merrill. 1950. *The New Nation: A History of the United States during the Confederation, 1781–1789*. New York: Knopf.
- Lord, Clifford L. 2002. *Roll Calls of the Continental Congresses and the Congresses of the Confederation, 1777-1789*. ICPSR07537-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [distributor]. doi:10.3886/ICPSR07537.v1
- Lutz, Donald S. 1990. “The Articles of Confederation as the Background to the Federal Republic.” *Publius* 20: 55-70.
- May, Kenneth O. 1954. “Intransitivity, Utility, and the Aggregation of Preference Patterns.” *Econometrica* 22: 1-13.
- McGuire, Robert. 2003. *To Form a More Perfect Union*. New York: Oxford University Press.
- McGuire, Robert and Robert L. Ohsfeldt. 1984. “Economic Interests and the American Constitution: A Quantitative Rehabilitation of Charles A. Beard,” *Journal of Economic History* 44: 509–19.
- McGuire, Robert and Robert L. Ohsfeldt. 1986. “An Economic Model of Voting Behavior over Specific Issues at the Constitutional Convention of 1787.” *Journal of Economic History* 46: 79–111.
- McGuire, Robert and Robert L. Ohsfeldt. 1997. “Constitutional Economics and the American Founding.” *Research in Law and Economics* 18: 143–71.
- Poole, Keith T. and Howard Rosenthal. 1997. *Congress: A Political-Economic History of Roll Call Voting*. New York: Oxford University Press.
- Rakove, Jack. 1982. “The Legacy of the Articles of Confederation.” *Publius* 12: 45-66.
- Riker, William. 1987. “The Lessons of 1787.” *Public Choice* 55: 5-34.
- Ulmer, Sidney S. 1966. “Sub-group Formation in the Constitutional Convention.” *Midwest Journal of Political Science* 10: 288-303.
- Vile, John R. 2006. “The Critical Role of Committees at the U.S. Constitutional Convention of 1787.” *The American Journal of Legal History* 48:147-176.

Table 1 Hypothetical Roll Call

	Delegate Vote	State Vote
New Hampshire		Yea
Nicholas Gilman	Yea	
John Langdon	Yea	
Massachusetts		Yea
Elbridge Gerry	Yea	
Nathaniel Gorham	Yea	
Rufus King	Yea	
Caleb Strong	Nay	
Connecticut		Yea
Oliver Ellsworth	Yea	
William Samuel Johnson	Yea	
Roger Sherman	Nay	
New York		Yea
Alexander Hamilton	Nay	
John Lansing	Yea	
Robert Yates	Yea	
New Jersey		Nay
David Brearley	Nay	
Jonathan Dayton	Nay	
William Churchill Houston	Nay	
William Livingston	Nay	
William Paterson	Nay	
Pennsylvania		Nay
George Clymer	Nay	
Thomas Fitzsimons	Nay	
Benjamin Franklin	Nay	
Jared Ingersoll	Nay	
Thomas Mifflin	Nay	
Gouverneur Morris	Nay	
Robert Morris	Nay	
James Wilson	Nay	
Delaware		Nay
Richard Bassett	Nay	
Gunning Bedford	Nay	
Jacob Broom	Nay	
John Dickinson	Nay	
George Read	Nay	
Maryland		Nay
Daniel Carroll	Nay	
Daniel of St. Thomas Jennifer	Nay	
Luther Martin	Nay	
James McHenry	Nay	
John Mercer	Nay	
Virginia		Nay
John Blair	Nay	
James Madison	Nay	
George Mason	Nay	
James McClurg	Nay	
Edmund Randolph	Nay	
George Washington	Nay	
George Wythe	Nay	
North Carolina		Yea
William Blount	Yea	
William Davie	Yea	
Alexander Martin	Yea	
Richard Spaight	Nay	
Hugh Williamson	Nay	
South Carolina		Yea
Pierce Butler	Yea	
Charles Pinckney	Yea	
Charles Cotesworth Pinckney	Yea	
John Rutledge	Nay	
Georgia		Yea
Abraham Baldwin	Yea	
William Few	Yea	
William Houston	Yea	
William Pierce	Nay	
Outcome	Failed (18 to 37)	Passed (7 to 5)

Table 2 Comparison of Roll Call Categories

Vote Category	All Roll Calls (%)	Sample Roll Calls (%)
Judicial Composition & Process	18 (02.26)	11 (02.76)
Judicial Powers	22 (02.76)	5 (01.26)
Judicial Selection	3 (00.38)	2 (00.50)
Qualifications of Judges	1 (00.13)	0 (00.00)
Legislative Composition & Process	101 (12.67)	58 (14.57)
Legislative Powers	119 (14.93)	71 (17.84)
Legislative Selection	20 (02.51)	14 (03.52)
Qualifications of Legislators	27 (03.39)	18 (04.52)
Legislative Apportionment	59 (07.40)	42 (10.05)
Executive Composition & Process	38 (04.77)	25 (6.28)
Executive Powers	44 (05.52)	25 (06.28)
Executive Selection	38 (04.47)	24 (06.03)
Qualifications of Executive	6 (00.75)	5 (01.26)
Powers of the State Government	35 (04.39)	20 (05.03)
General Power of the National Government	23 (02.89)	12 (03.02)
Defense Policy	8 (01.00)	6 (01.51)
Regulation	3 (00.38)	1 (00.25)
Spending and Taxation Policy	20 (02.51)	11 (02.76)
Monetary Policy	6 (00.75)	2 (00.50)
Other Policy	1 (00.13)	1 (00.25)
Rights and Responsibilities of Citizens	1 (00.13)	1 (00.25)
Qualifications of Electors	9 (01.13)	3 (00.75)
Amendments and Ratification	31 (03.90)	18 (04.52)
Procedural Motion	119 (14.93)	9 (02.26)
Other	30 (03.76)	16 (04.02)
Vote Content Could Not be Identified	15 (01.88)	0 (00.00)
Total	797 (100.00)	398 (100.00)

Table 3 Estimated Delegate Positions

Delegate	State	Spatial position	Delegate	State	Spatial position
Read	DE	1.000	Johnson	CT	0.020
Washington	VA	1.000	Davie	NC	0.002
King	MA	1.000	Jenifer	MD	-0.056
Madison	VA	1.000	Sherman	CT	-0.125
Wilson	PA	1.000	Williamson	NC	-0.165
Pinckney, C	SC	0.913	Spaight	NC	-0.165
Hamilton	NY	0.870	Carrol	MD	-0.188
Mifflin	PA	0.848	Butler	SC	-0.239
Morris, G	PA	0.804	McHenry	MD	-0.276
Clymer	PA	0.741	Ellsworth	CT	-0.309
Broom	DE	0.713	Dayton	NJ	-0.420
Fitzsimons	PA	0.696	Pierce	GA	-0.467
Morris, R	PA	0.686	Houston	NJ	-0.472
Gorham	MA	0.644	Franklin	PA	-0.524
Blair	VA	0.596	Randolph	VA	-0.530
Gilman	NH	0.578	Mercer	MD	-0.563
Langdon	NH	0.578	Mason	VA	-0.710
Strong	MA	0.487	Bedford	DE	-0.733
McClurg	VA	0.472	Livingston	NJ	-0.760
Basset	DE	0.466	Dickinson	DE	-0.803
Rutledge	SC	0.393	Yates	NY	-0.953
Pinckney, CC	SC	0.366	Martin	NC	-0.973
Houstoun	GA	0.296	Martin	MD	-1.000
Few	GA	0.274	Gerry	MA	-1.000
Baldwin	GA	0.273	Lansing	NY	-1.000
Wythe	VA	0.258	Brearley	NJ	-1.000
Blount	NC	0.160	Paterson	NJ	-1.000
Ingersol	PA	0.095			

Source: Heckelman and Dougherty (2013).

Table 4 Median States and Delegates under Alternative Voting Rules

Delegate	I. State Bloc			Delegate	II. Individual SMR		
	State	Ideal Point	Frequency (%)		State	Ideal Point	Frequency (%)
Rutledge	SC	0.393	41.0	Baldwin	GA	0.273	35.5
Pinckney, CC	SC	0.366	34.3	Ingersoll	PA	0.095	19.6
Baldwin	GA	0.273	10.5	Few	GA	0.274	16.4
Few	GA	0.274	9.8	Blount	NC	0.160	14.2
Sherman	CT	-0.125	2.2	Pinckney, CC	SC	0.366	6.0
Houstoun	GA	0.296	1.5	Houstoun	GA	0.296	4.1
Spaight	NC	-0.165	0.4	Johnson	CT	0.020	2.8
Bassett	DE	0.466	0.2	Wythe	VA	0.258	1.4
Jennifer	MD	-0.056	0.1				

Table 5 Roll Calls with a Different Expected Outcome under State Bloc and SMR Voting

Roll Call	Issue description	State Bloc Outcome	SMR Outcome
80	To agree to a clause that gives adequate compensation to members of the national legislature out of the national treasury, as opposed to fixed stipends paid by states.	FAILED	PASSED
82	To make members of the first branch of the national legislature ineligible to any office under the authority of the U.S. during their term of service, and for one year after their term ends for all offices created during their tenure in the national legislature.	FAILED	PASSED
124	To reduce the number of votes given to New Hampshire in the first branch of the national legislature from three to two.	FAILED	PASSED
134	That a census will be taken of the free inhabitants of each state in order to determine changes in apportionment.	PASSED	FAILED
137	To agree that a census will be taken within the first year after the new government has been adopted.	PASSED	FAILED
142	To agree that a census will be taken within the first six years after the new government has been adopted.	PASSED	FAILED
155	To postpone current debate and consider whether the second branch of the national legislature shall have 36 members, of which NH will have 2, MA 4, RI 1, CT 3, NY 3, NJ 2, PA 4, DE 1, MD 3, VA 5, NC 3, SC 3, and GA 2.	FAILED	PASSED
156	To agree to the amended report from the Committee to Reconsider Original Apportionment, which establishes original apportionment in the first branch of the national legislature, why a census is needed, that money bills will originate in the first branch of the national legislature, and that the second branch of the national legislature shall have equal representation. All of these subjects had previously been agreed to individually.	PASSED	FAILED
182	To establish that the national Executive shall be appointed by a group of electors instead of the national legislature.	PASSED	FAILED
291	To consider whether members of the national legislature will be incapable of holding any office under the U.S., other than legislator, for which they receive a salary.	FAILED	PASSED
308	To remove the power of declaring punishment for pirates from the Senate.	PASSED	FAILED
309a	To give the Senate the power to define and punish piracies and felonies committed on the high seas.	PASSED	FAILED
356	To establish that the President shall be elected by joint ballot of the national legislature, with each legislator receiving one vote and no chamber having veto power.	PASSED	FAILED
393	To strengthen an existing clause conditionally prohibiting state import tariffs, making the prohibition absolute.	FAILED	PASSED
439	To specify that no elected official can hold an elected position and an administrative position that was created while he was serving as an elected official.	FAILED	PASSED
503	To require the agreement of 2/3rds of the states for ratification of constitutional amendments.	FAILED	PASSED

Note: Vote 309a was not assigned a number by the Convention's secretary, but was taken between votes 309 and 310.