

## An Economic Interpretation of the Constitutional Convention of 1787 Revisited \*

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**Abstract.** Almost all empirical studies of *delegate* voting at the Constitutional Convention have been limited to sixteen roll call votes originally inferred by McDonald (1958) and later enhanced by McGuire and Ohsfeldt (1984, 1986). This paper re-examines various assumptions used in the collection of that sample. We first create a pooled baseline regression using a specification from McGuire and Ohsfeldt (1997), then we consider the effect of dropping delegates not in attendance, re-inferring the votes from primary sources, examining various sub-samples of the roll calls, and reconstructing constituency variables to include state districts. We find that the original results are generally strengthened by each of the changes to the data, except for the importance of constituent economic interests. This strengthens the interpretations of Beard ([1913] 2004), McGuire and Ohsfeldt (1997), and McGuire (2003). It further suggests that personal interests may have been more important for decision making at the Constitutional Convention than previously thought.

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## 1. Introduction

Beginning with two articles in this journal in the mid 1980s, Robert McGuire and Robert Ohsfeldt (1984, 1986) revitalized the economic interpretation of the Constitutional Convention of 1787. These studies, and several others (McGuire 1988; McGuire and Ohsfeldt 1997), form the basis for McGuire's (2003) recently published book *To Form a More Perfect Union*. The crux of the first half of the book is to show that the economic interests and ideologies of individual delegates at the Convention (and their constituents) played a key role in the formation of the Constitution. In other words, delegates were not the impartial decision makers often assumed in economic models of constitutional decision-making (Buchanan and Tullock 1962; Riley 2001) nor the disinterested participants claimed by historians (Bailyn 1967; Wood 1992). The second half of the book draws similar conclusions about the ratification process, which we do not focus on here.

McGuire and Ohsfeldt's analysis of the Convention draws on 16 roll call votes originally recorded by the historian Forrest McDonald (1958). McDonald inferred his data from primary sources, then used these inferences to show how voting patterns did not align with the Beard thesis. Beard's ([1913] 2004) classic claim was that Convention delegates voted in two blocks: those who primarily owned 'realty' against those who primarily owned 'personalty' or securities. Although McGuire and Ohsfeldt do not address the same question directly, they statistically analyzed the same votes to show that economic variables do matter at the margin. Chapters 3 and 4 of McGuire's book represent updates to the individual vote regressions in McGuire and Ohsfeldt (1986). These chapters adjust for minor data corrections, add several specifications, and provide a more detailed quantitative analysis which reinforces their earlier conclusions. Chapter

5 reprints statistical analysis from McGuire and Ohsfeldt (1997) which aggregates many of the roll calls to establish the percentage of times each delegate would have voted a particular way (pro-nationalistic).

Despite the arduous work and reams of regressions, potential questions still remain. First, each of the regressions include the same 53 delegates, whether the delegate was actually present or not. Thus, it is not clear if the analysis actually tests for factors which affected voting behavior. Second, because the actual votes of individual delegates were not recorded, delegate votes had to be inferred, as detailed below. McGuire and Ohseldt accept the initial inferences presented by McDonald (1958) and make additional inferences for other delegates, including those not in attendance. We reassess these inferences by making our own inferences from primary source data. Finally, the state boundaries used to construct constituency variables are potentially questionable because they exclude major districts that were listed separately in the 1790 census. For example, the district of Maine was listed separately from Massachusetts, even though it was part of the state.

We re-examine the effect of each research decision by first creating a pooled regression which has the same independent variables as one of the combined regressions listed in McGuire and Ohsfeldt (1997). The major difference in this specification is that McGuire and Ohsfeldt used the percentage of pro-national votes for each delegate as the dependent variable, which created a single collective observation for each delegate. We keep each of the votes separated in a pooled cross-section. The purpose is to have enough total observations to consider various subsamples of the data. Section 2.1 describes this regression as a baseline case. In each of the subsequent sub-sections, we make a change to the data and compare the change to the baseline.

In section 2.2, we consider the effect of limiting the study to the data originally inferred by McDonald, which includes observations for delegates in attendance only. In section 2.3, we reassess McDonald's inferences of delegate votes by inferring our own data from primary source material. In section 2.4, we examine sampling effects by studying the effect of dropping each of the different roll calls from the pool, one roll call at a time. In section 2.5, we consider the effect of including districts with their respective states in the independent variables.

The results of our baseline specification match McGuire and Ohsfeldt (1997) very closely. As each modification to the data is considered, we generally find that their original results are strengthened by each of the changes to the specification we make, except for the importance of constituent economic interests. We conclude that proxies for personal economic interests and personal ideology are better predictors of delegate voting behavior than the proxies for constituent economic interests and constituent ideology. This suggests that Beard's view about delegates promoting their personal interests may have been even more important than previously claimed.

## **2. Empirical methodology**

At the Convention, delegates voted in state blocks. The size of each block varied by state depending upon the number of delegates each state assigned to the Convention and the number of delegates attending. This ranged from two delegates for New Hampshire to eight delegates for Pennsylvania. Each state's vote was determined by the vote of a majority of delegates from that state. The Convention journal and Madison's notes recorded the vote of each state, but they did not record the vote of each delegate.

McGuire and Ohsfeldt (hereafter M&O) recast the Beard thesis in modern economic terms by attempting to see if economic variables mattered at the margin. To do this, they used the 16 roll call votes previously inferred by McDonald (1958). McDonald used attendance records, James Madison's notes, and other sources, to infer the position of voting delegates. Given the majority rule requirement for each state, McDonald was often able to infer positions of other delegates based on the state vote. For example, McDonald (1958, p. 98) notes that Alexander Hamilton of New York probably voted in favor of roll call 34 because it was part of the Hamilton Plan for government and one of Hamilton's co-delegates stated that Hamilton had voted for the same principle just a week earlier. With this information, McDonald inferred that the two remaining delegates from New York must have voted against the proposal since New York's vote was nay. Using this method of inferring delegate votes from primary source material and state votes, McDonald was able to infer votes for almost all of the delegates in attendance for 16 roll calls. He was not, however, able to infer the votes for the Pennsylvania delegates, and he did not infer votes for three of the four delegates from Delaware on roll call 559, the final vote he considered.

McDonald made inferences ranging from 31 to 40 delegates on any given roll call. He then computed the percentage of times each delegate's inference matched the Pennsylvania state vote, which he claims was the most nationalistic delegation. Using this data, McDonald handily rejected Beard's notion that delegates aligned themselves into two camps around the securities

and realty they owned. As limited as it was, McDonald's descriptive analysis remained the only quantitative work on *delegate* voting at the Constitutional Convention for three decades.<sup>1</sup>

Thirty years after McDonald's influential work, M&O (1984, 1986) recognized the opportunity for a more nuanced approach, using modern economic methodology and statistical techniques. Rather than seeking to determine if voting patterns could be matched by a simple categorization of whether a delegate owned realty or personalty, M&O investigated whether various factors influenced delegates at the margin using regression analysis. They wanted to consider a variety of factors and variables, but with so few observations for each vote, it was necessary to supplement McDonald's data by coding all the remaining delegates as well.<sup>2</sup> The additional inferences gave M&O fifty-three usable observations for each roll call.

For the Pennsylvania delegation, M&O simply assumed that the Pennsylvania delegates were always unanimous. They all represented personalty interests, they were all from Philadelphia, and evidence for their disagreement appeared limited. For the remaining uncoded delegates, M&O imputed positions by assuming: 1) all delegates who signed the Constitution, except three, would have voted with the majority on every issue; 2) the remaining three delegates who signed the Constitution (Bassett, Blount, and Patterson) voted with the minority; and 3) all the other delegates would have voted with or against the majority if Farrand (1966) stated they favored the Constitution or opposed it, respectively.

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<sup>1</sup> Quantitative studies of the *state* votes recorded in the Convention journal include Ulmer (1966), Jillson (1981), Jillson and Eubanks (1984), and Slez and Martin (2006).

<sup>2</sup> The exception is they did not infer votes for Wythe of Virginia and Houston of New Jersey who had left at the beginning of the Convention.

Using this expanded set of data, M&O (1986) applied logit analysis to each roll call separately. Even with the expanded sample, the maximum likelihood routine often would not converge due to insufficient variation. As a result, some of the explanatory variables had to be dropped. In M&O (1997)<sup>3</sup> their unit of analysis was the percentage of times a delegate was coded consistent with a pro-national position, where pro-national was defined as giving more power to the national government and less power to the states. Again M&O used all the inferences, whether or not the delegate was believed to have voted on a particular roll call. This seemed appropriate for their purposes because it prevented the possible percentages of pro-national voting from varying by delegates due to differences in attendance.

### *2.1 The basic specification*

In order to conduct our analysis we must first present a baseline case. As mentioned above, M&O's (1986) decision to include inferred positions for non-voting delegates was mostly likely necessitated by the relatively small number of voting delegates on each roll call. Even with the expanded sample, logit regressions often required dropping certain variables because all delegates with a certain characteristic were imputed to have voted the same on a given roll call.<sup>4</sup> Maximum likelihood procedures will not converge under such circumstances. In trying to replicate their results, we found that none of their specifications would converge if the sample

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<sup>3</sup> A similar presentation was given by M&O (1984) but in that study M&O only described their results. We focus on the 1997 study which presented specific regression estimates. These results are also presented in McGuire (2003, chapter 5).

<sup>4</sup> The variables which had to be dropped differ by roll call.

was limited to the delegates McDonald thought were in attendance. This was also true for the parsimonious regressions presented in McGuire (2003).

Pooling the roll calls seems like a natural way of increasing the degrees of freedom and introducing more variation into the sample.<sup>5</sup> It might even allow a more complete specification to be utilized. In order to pool, however, the dependent variable must contain a common characteristic.

Following M&O (1984, 1997) and McDonald (1954), we characterize each roll call based on whether passage would strengthen or weaken the national government relative to the state governments. McDonald assumed that Pennsylvania's vote always reflected the pro-national position, but M&O more reasonably reviewed the roll calls individually to determine the proper pro-national interpretation of each. M&O were able to classify each roll call, except for roll call 559 which does not appear to strengthen or weaken the national government in a discernable manner.<sup>6</sup> The description of each vote is given in Table 1. We accept M&O's interpretations, and code each delegate with a 1 if they voted in favor of a pro-national position on that vote. However, we treat the roll calls as a pooled cross-section, rather than aggregating them into the percentage of pro-national votes for each delegate, as done by M&O.

M&O (1984) report that McDonald's codes are inconsistent with several state votes for three roll calls: 30, 74, and 228. They were able to establish that roll call 228 was actually roll

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<sup>5</sup> Because of the small number of observations in a regression applied to a single roll call, M&O (1986) allow significance levels up to p-values = .30.

<sup>6</sup> As explained below, M&O (1997) do not use roll calls 30, 74, and 399 in their analysis and do not identify whether or not they consider support for these votes to be pro-national. McGuire (2003) adds the additional classifications for these votes in his book, which are presented in Table 1.

call 230 and based their interpretation on this roll call instead, but they could not correct roll calls 30 or 74. In addition, they note that roll call 399 was thought by constitutional historians to have been involved in a vote trade. As a result, M&O (1997) do not include roll calls 30, 74, 399 or 559 when calculating the percentage of pro-national votes for each delegate (recall, the last could not be classified as pro-national or pro-state).

For our baseline case, we also drop roll calls 30, 74, and 559. However, we do not initially drop roll call 399. Inferences on this roll call are most likely consistent with how each delegate voted despite the possible vote trade. This is because delegates who were allegedly parties to the vote trade always stated positions consistent with the vote trade they were about to cast or they remained silent. In section 2.4, we consider the robustness of the results to dropping this roll call, as well as other roll calls in turn.

Our explanatory variables are the same as the ones used in M&O (1997) and replicated in McGuire (2003).<sup>7</sup> They are presented in Table 2. Following M&O (1997) and McGuire (2003), the explanatory variables are grouped into four categories: personal economic interests (PE), personal ideology (PI), constituents' economic interests (CE), and constituents' ideological interests (CI). All the personal delegate variables are dummies except delegate age. All the constituent variables are ratios except for distance to navigable water which is in miles. See M&O (1997) and McGuire (2003, chapter 5) for additional details on the choice of these variables. For the baseline sample, we use all of the M&O inferences on every roll call except for 30, 74, and 559. This produces 689 individual observations.

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<sup>7</sup> Much of the data used in McGuire (2003) had been sent to us previously by Robert McGuire. These data contained all the variables in the M&O (1997) regressions. We thank Robert McGuire for sharing his data.

The same set of 53 delegates are included for every roll call, and the values for the explanatory variables for each delegate do not change across roll calls. Thus the only variation in the explanatory variables in our pooled sample is across delegates. Yet the mean values for voting pro-national vary considerably across roll calls, from a low of 0.39 (on roll call 392) to a high of 0.77 (on roll call 387). Thus there must be other factors that vary across roll calls which are not included in the independent variables. To address this, we include a set of roll call dummy variables to capture systematic variation across roll calls. The estimated marginal effects of the explanatory variables then represent the marginal impact of that variable on the deviation from the mean underlying tendency for delegates to vote pro-national on that particular issue. Because values for the explanatory variables do not vary across roll calls, we cannot include dummy variables for individual delegates.<sup>8</sup>

The first column of Table 2 presents logit estimates. The estimated coefficients are transformed into the marginal probabilities of voting pro-national, computed at the means of the other variables. To conserve space, the individual roll call dummy coefficients are not reported. These pooled results are very similar to those reported by M&O (1997). The only variables generating statistically significant coefficients are those indicating whether the delegate was in debt, whether he had been an officer in the Revolutionary War, and the distance of the delegate's county from navigable water. This matches M&O except they also found the percentage of English in the state to be significant at the 10% level. Thus the vast increase in degrees of freedom from treating the sample as a pooled cross-section rather than aggregating into a single

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<sup>8</sup> For this reason, treating the roll calls as a system of equations by using seemingly unrelated regression would not produce efficiency gains.

cross-section does not reduce the estimated standard errors enough to make a variable significant that previously was not.

Recall that M&O assume all the Pennsylvania delegates vote together on every issue. Therefore, all the Pennsylvania delegates will have the same value for the dependent variable. Since the Pennsylvania delegation represents the largest single state delegation (15% of the sample by themselves) and they all have the same values on the constituency variables,<sup>9</sup> assuming that they always voted together is likely to bias the results in favor of the constituency variables. This is somewhat less problematic when individual roll call dummies are included in a pooled sample, but it would probably not alleviate the concern altogether.

M&O test the relevance of each category by a series of non-nested tests. The more straightforward method is to test the joint significance of the variables in each category as presented at the bottom of the column. Under this method, we reject the null hypothesis of no relationship for personal economic interests, personal ideology, and constituents' economic interest, but not for constituents' ideological interests. Again, this matches M&O's findings except for the last. Thus our baseline case corroborates most of their findings and interpretations except we do not support the importance of constituent ideology. Thus while M&O stress the importance of each category in influencing delegate behavior at the margin, we might be inclined to place delegates' personal characteristics above that of their constituencies on the whole. We might also place the importance of economic interests above that of ideology. In other words, delegates may have been even more narrowly self-interested than M&O suggest.

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<sup>9</sup> Because each of the Pennsylvania delegates were from Philadelphia, they also had the same value for the county-level variable, distance from navigable water.

However, such a conclusion may be premature. As in M&O, the significance of each category is driven by the significance of one single variable. Consider for example the personal economic interest category. Out of seven variables total, only the debtor dummy is significant. Dropping the debtor variable does not make any of the other variables individually or jointly significant. Thus, the significance of PE under the joint test rests solely on the inclusion of the debtor variable. This is troubling because only 3 of the 53 delegates are classified as debtors. The debtor variable captures any characteristic that these three individuals might have in common which differs from the other delegates. Since so few individuals are in this group, the list of potential factors they have in common could be quite large and might have nothing to do with the delegate's debt.

We are therefore more cautious in attaching importance to any category when its significance is driven exclusively by one variable. The same is true of the PI and CE categories, and for M&O, the CI category as well. From this regression alone, our own conclusions regarding the influence of any of these categories is more tenuous than that of M&O.

## *2.2 Reducing the sample to voters only*

The M&O sample includes inferred votes for each delegate on every roll call, whether or not the delegate was in attendance for that roll call. To determine the importance of each category on delegate *voting* behavior, it would be ideal to limit the sample to those who attended. Pooling the roll calls creates enough total observations to allow the smaller sample to be analyzed. This was not possible when each roll call was examined in a separate regression (M&O 1986) or aggregated into a single percentage (M&O 1997).

For the estimates reported in the second column of Table 2, we remove the additional inferences made by M&O (1986) and limit the sample to the votes originally inferred by McDonald (1958). Recall that McDonald left the Pennsylvania delegates uncoded and did not infer votes for three of the Delaware delegates on roll call 559.<sup>10</sup> Otherwise, he inferred votes for every delegate he believed was in attendance and only for those delegates believed to be in attendance. This smaller sample includes 441 usable observations on the 13 roll calls studied.

Logit estimates for the McDonald sample are reported in the second column of Table 2. The results are similar to those in the first column, except for the number of slaves in a delegate's home state, which is now significant. The other measure of constituents' economic interests, distance to navigable water, weakens in its significance but is still considered statistically significant at the 10% level. The large decline in the t-statistic for this variable underscores the potential bias introduced by assuming that all the Pennsylvania delegates voted together (as assumed by M&O). Alternatively, the reduction may be due to a smaller sample size. Still, both variables in this category are now individually significant, perhaps strengthening the overall importance of the economic interest of constituents on delegate voting. The overall significance of the other variables and all the joint tests, remain the same. Our conclusions, therefore, are not greatly affected by limiting the sample to delegates in attendance. We might, however, have more confidence in stressing the importance of constituents' economic interests, because both variables in this category are statistically significant. In addition the potential bias in favor of the

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<sup>10</sup> M&O's inferences for the delegates from Delaware on roll call 559 are not consistent with the state's vote. This inconsistency has no bearing on M&O (1997) or the regressions presented here because that roll call is not included in the regressions. However, it is important for future researchers and does suggest caution in interpreting regressions which include roll call 559, such as those presented in M&O (1986) and McGuire (2003).

constituency variables has been lessened in this smaller sample (because the Pennsylvania delegates are no longer assumed to always vote with their state). However, as explained below, we believe a state level bias may remain inherent in McDonald's codes.

### *2.3 Revising inferences for voting delegates*

As noted, M&O found several inconsistencies between McDonald's inferred votes and the recorded state vote on three separate roll calls. Given this, we now re-examined primary source material to check McDonald's inferences as well. Our data gathering techniques match those of McDonald, but we have the benefit of materials published more recently (Hutson 1987, Kaminski and Saladino 1981; Bailyn 1993; 9 series of manuscripts; and 25 biographies) as well as electronic search mechanisms.<sup>11</sup> Unlike McDonald, we were able to occasionally infer votes for some members of the Pennsylvania delegation. Our inferences suggest that these delegates were not always unanimous in their agreement. Nevertheless, we were not able to infer as many observations in total as McDonald.

Of the delegates both we and McDonald thought were in attendance for the 13 roll calls, McDonald inferred 156 observations that we could not infer (roughly 58% more than us). Since we devoted over 200 hours to the search and had significantly more sources available, it is not clear how McDonald was able to infer so many more observations than we did.<sup>12</sup> One possibility

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<sup>11</sup> For example, the Founders Constitution <<http://press-pubs.uchicago.edu/founders/>>. A list of the manuscripts and biographies used by the authors, as well as the data, are available upon request.

<sup>12</sup> In a letter to the authors, dated January 26, 2004, McDonald explains that he cannot recollect his exact method of inferring votes or whether he analyzed any other votes because "it has been nearly half a century now."

is that, unless presented with directly conflicting evidence, McDonald simply assumed each delegate voted the same as the vote recorded for their state. This is supported by two observations. First, among the over 150 observations that McDonald coded that we could not, only four times did he infer a delegate vote that differed from the recorded state vote. Second, McDonald inferred votes for *all* delegates in attendance except the delegates from Pennsylvania (all roll calls) and three delegates from Delaware on roll call 559. Delaware was recorded as divided on 559, and without additional information, McDonald could not determine which Delaware delegates voted on which side. It seems highly unlikely that he inferred votes from primary source material for all the other delegates in attendance on every other roll call in the sample. If our hunch is correct, and McDonald coded delegate votes based on the vote of their state unless he found information to the contrary, then this practice would again bias regressions in favor of the constituency variables. Again, this is because three out of the four constituency variables vary only by state.

In total, we were able to infer votes for 331 of the observations McDonald coded, including 267 of the 441 observations from the 13 roll calls. We also inferred votes for additional delegates McDonald did not code, including some of the Pennsylvania delegates on various roll calls, and other delegates that McDonald had marked as not present but for whom we found evidence suggesting they had attended. On the other hand, McDonald inferred votes in which Farrand's (1966) attendance records, and other sources, indicated the delegate was absent. Our voting inferences agree with McDonald on 84% of the overlapping delegates for which we both code (on all 16 roll calls), and 88% on the 13 roll calls included in the previous regressions. However, the remaining differences and missing observations may be important.

Logit estimates using our inferred votes appear in the third column of Table 2. These results differ substantially from the previous set of estimates. First, among the personal economic interests variables, we find western landowners and merchants were significantly different at the margin from those who did not own western land or were not merchants. The debtor variable remains significant as before. The joint test on the variables in the personal economic interest category remains significant, but with a larger  $\chi^2$  value than the previous column.

For the personal ideology variables, we now find that older delegates are significantly less pro-nationalistic at the margin. The revolutionary officer variable remains statistically significant, albeit to a lesser degree. The joint test for personal ideology is still significant at better than the 5% level.

None of the constituent economic interest variables are statistically significant, either individually or jointly. In contrast, the total white population, a proxy for the ideology of constituents, is now significant and the joint test for this category is also significant, but only at the 10% level.

Thus our conclusion from using our own set of inferences is that personal economic interests and personal ideology plays significant roles in affecting delegate voting at the margin. The evidence in favor of constituent ideological interests is stronger than before (although still weak), but we find no support for delegates being significantly influenced at the margin by their constituents' economic interests. In other words, these data more strongly support M&O's new economic interpretation of the Constitution, in terms of the importance of personal delegate interests, than the data they used in their own studies.

#### *2.4 Roll-call sample choice*

McDonald investigated 16 separate roll call votes, but only 13 were included in our regressions. M&O (1997) included 12. Roll call 559 was dropped because there is no clear interpretation about how its passage would impact the strength of the national government vis-a-vis the states. Roll calls 30 and 74 were dropped because McDonald's inferences for several delegates are inconsistent with the recorded state votes, thus he probably analyzed different roll calls but reported these numbers by mistake. The same was true for the fifth roll call which McDonald misidentified as 228, but M&O were able to ascertain the correct roll call as 230. Had they not figured this out, inferences on that roll call would have been dropped as well. Finally, M&O decided to drop roll call 399 because of allegations of a vote trade. We did not.

Thus the sample is driven by a variety of factors. First, McDonald's selection of these particular 16 roll calls out of 569 numbered roll calls at the Convention. Second, M&O's ability to correctly identify the roll call number on one of three roll calls which McDonald clearly had in error. Finally, concern about a potential vote trade involving roll call 399. All except the last involve a certain degree of arbitrariness, and we believe it is not necessary to drop roll call 399. Therefore, the actual sample of roll calls could have differed greatly from the set we have studied.

To check the robustness of our results, we re-estimate each regression, while dropping one of the 13 roll call votes one at a time. The results of the joint tests for each category are summarized in Table 3. Only the personal ideology variables are statistically significant (at the 10% level) in every iteration, regardless of the data used. Thus we can reaffirm the importance of this category in affecting delegate behavior. The other interesting difference between our data

and McDonald's data concerns constituent interests. Different sample iterations on McDonald's data find that constituents' economic interests are always jointly significant and constituent ideology is never significant. Our data produces virtually the opposite result. This is true with the full sample of 13 votes presented in Table 2 or with alternative samplings of the 13 votes presented in Table 3. Thus conclusions regarding the importance of constituents' economic interests depends on whether McDonald's data or our data are used. Conclusions based on M&O's data (which again represents a supplement of, but no alterations to, McDonald's inferences) are the most fragile to the sample of roll call votes considered.

### *2.5 Construction of the constituency variables*

Among the constituency variables, only distance to navigable water, calculated from the delegate's county, is delegate-specific. The other variables, slaves per 100 whites, percent English ancestry, and total white population, are measured at the state level. To create these variables, M&O used the states listed in the 1790 census. However, state boundaries included several districts at the time that were enumerated in the census separately. At the time of the Convention in 1787, Maine was a district of Massachusetts, Kentucky was part of Virginia, the Southwest Territory (later to become Tennessee) was claimed by North Carolina, and both New York and New Hampshire claimed land which formed the state of Vermont.

The question is which areas did the delegates think they represented. To the extent they could foresee future state boundaries, using states without the separately enumerated districts would be appropriate. However, if delegates considered inhabitants in areas claimed by their state to be part of their constituency as well, then it would make sense to include state districts

where appropriate. Without knowing the delegates' positions, it is not clear which is the best way to proceed. But there is reason to believe the states took their additional land claims seriously and expected them to last. For example, in 1784 several counties in North Carolina ceded from the rest of the state and petitioned for admittance to the United States as the independent state of Franklin. The new state did not receive enough votes from the other states for admittance. At the time of the Constitutional Convention, Franklin was not officially part of the state of North Carolina nor part of the new republic. But the following year in 1788, the North Carolina militia entered Franklin and arrested its governor and forced him to swear allegiance to the state of North Carolina. Once the land was firmly back under control of North Carolina, the former governor of Franklin was elected to represent that area in the state legislature. By the time of the census in 1790, North Carolina ceded all claims to these lands to the federal government. These lands became the Southwest Territory. During the census, the population of the Southwest Territory was listed separately from the rest of the North Carolina as the state of Tennessee. Thus the relevant population for determining the constituency of the state of North Carolina at the time of the Convention is unclear. Similar issues arise for whether or not to include Maine as part of Massachusetts, Kentucky with Virginia, and Vermont with New York or New Hampshire.

Our final alteration to the data is to recalculate variables based on boundaries which include these districts. For the slaves, English heritage, and white population, we add the census values for Maine to those of Massachusetts, Kentucky to Virginia, and Tennessee to North Carolina. However, we keep Vermont distinct. Despite New Hampshire and New York failing to recognize it's sovereignty, Vermont acted independently as far back as 1777. It elected its own governor, issued its own currency, and even exchanged ambassadors with several nations,

including the United States. Our choice of which states to combine is merely an exercise to consider how important these decisions might be to interpreting the regression analysis. We do not necessarily endorse it as the “correct” data construction. Reasonable arguments could be made to consider fewer combinations or more.

Because the slaves and English variables are ratios relative to the white population, adding state districts has very little impact. However, the total white population of the combined areas does alter the original values quite a bit. Virginia, which was already the most populous state at the time, becomes larger. Massachusetts, with the inclusion of Maine, replaces Pennsylvania as the second largest state. North Carolina is much larger than New York with Tennessee included but much smaller than New York without it.

The final three columns of Table 2 present the new logit estimates for M&O’s data, McDonald’s data, and our data, using the alternative state boundaries. The results suggest that the same general patterns emerge. The only discernable difference is that the white population variable is now borderline significant when using all the delegates under the M&O data whereas originally it was not significant. In total, using the demographics as best reflected in 1787, rather than the state names appearing in the 1790 census, generates at least one variable as statistically significant in each category under the M&O method. However, the small magnitude of the white population effect, coupled with the complete lack of significance of the English variable, still results in insignificant results for the joint effect of the constituent ideology category. All other joint tests, for each method, remain the same. Thus we conclude that the choice of how to treat the state populations in 1787 does not have a strong effect on the results – at least not for the specification examined here.

### 3. Conclusion

Several studies have used state votes from the Constitutional Convention to analyze the structure of coalitions (Ulmer 1966; Jillson 1981; Jillson and Eubanks 1984; Slez and Martin 2006). We have good reason to believe that there was sizable disagreement among delegates from the same state, which suggests that this approach may be misleading. Analyzing state level data assumes away the differences within delegations and inherently biases regressions in favor of state level effects.

Examining delegate votes is preferred, but few delegate level votes have been recorded. In this paper, we re-examine 16 votes which have formed the basis of almost all studies of delegate behavior at the Constitutional Convention.<sup>13</sup> The popularity of these data has shaped our current understandings of the motivation of the framers more than any other data set. However, just as there are good reasons to be concerned with biases toward state level effects in studying blocks of delegates, we have shown that the method of inference used by McDonald and M&O may have biased the data in favor of state, and thus constituency, effects as well. For example, if McDonald coded delegate votes the same as their state's vote unless he had information to the contrary, he may have biased the data in favor of constituent effects. M&O may have added to this bias when they assumed all members of the Pennsylvania delegation had voted together on these roll calls and coded them the same as their recorded state vote.

They may have also biased the data in favor of state affects when they filled in votes for non-attending delegates assuming that all delegates who signed the Constitution, except three,

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<sup>13</sup> The two exceptions that we are aware of are the unpublished studies by Dougherty and Heckelman (2006) and Heckelman and Dougherty (2006).

would have voted with the majority on every issue, the remaining three delegates who signed the Constitution (Bassett, Blount, and Patterson) voted with the minority, and all the other delegates would have voted with or against the majority if Farrand stated they favored the Constitution or opposed it. Farrand (1966, 3: 586-590) claims that only seven delegates were opposed to the Constitution or did not sign it. With Bassett, Blount, and Patterson added to the total, only 10 of the 53 delegates voted against the majority; 43 delegates voted with the majority (81%). Since 70% of the states voted with the majority of states on average across our 13 roll calls,<sup>14</sup> M&O coded roughly 81% of the delegates the same as their state in roughly 70% of the cases. Such biases would not appear in the progressive results made here because we do not know the true positions of the non-attending delegates and could not make such comparisons.<sup>15</sup>

We made several adjustments to the data. For each of the adjustments, other than the last, we seem to have eliminated a bit of the potential bias in favor of state/constituency effects. Our final adjustment was to include state districts, which is not expected to have such an effect. As a result of our modifications, we found that both personal economic interests and personal ideology increased in importance. The marginal effects of these variables strengthened as well as

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<sup>14</sup> There were 10.7 states in attendance on average across the 13 roll call votes, 7.7 of which voted with the majority.

<sup>15</sup> There is no reason to assume that this procedure *must* have biased votes in favor of the votes recorded for state blocks. Among the 13 roll calls votes we used in this study, we were able to code an additional 27 votes for delegates not in attendance (not attending according to both our records and McDonald's). Our inferences disagreed with the codes produced by M&O's algorithm in only 10 out of the 27 cases. In the cases where we disagreed, M&O's algorithm produced only one vote consistent with the state vote, whereas our inferences produced 5 votes consistent with the state vote. The state did not vote in the remaining cases. This very loosely suggests that delegates not in attendance may have been even more inclined to vote with their state than M&O's algorithm would imply. Of course, we may have been more capable of finding positions for delegates not in attendance that agreed with their state simply because they agreed with their state, so it is an imperfect benchmark.

the joint significance of variables in each of these two categories. At the same time, constituent economic interests became less important. This provides further reason for scholars to question the postulate that the delegates were disinterested, as assumed in some models of constitutional decision-making and claimed by some prominent historians. On the contrary, this study strengthens the modern interpretation of the Beard thesis and leaves us with the conclusion that the interests of the delegates affected their voting.

Future research should look into a wider set of delegate level votes and consider specifications more directly related to the specific issues voted upon. Moving in these directions should help us understand the motivation of the framers more broadly and how these motivations affected economic clauses in that document.

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**Table 1. McDonald's 16 Roll Calls**

<b>Issue</b>	<b>Roll Call</b>	<b>Description</b>	<b>Pro-national position</b>
1	30	To add a clause requiring a degree of national judicial consent for the use of the executive veto.	no
2	34	To broaden the national legislature's veto power over states, giving it absolute veto power over all state laws	yes
3	74	To adopt a clause allowing national legislators to determine their own compensation instead of adopting a clause specifying fixed stipends determined by the states.	yes
4	203	To strike a clause specifying direct election of delegates to state ratifying assemblies and replace it with a clause specifying ratification by state legislatures.	no
5	230	To disqualify individuals indebted to the national government (public debtors) from serving as national legislators.	no
6	268	To set a quorum of the national legislature at no less than a majority, preventing passage of laws by a minority.	no
7	336	To prohibit the national legislature from enacting export tariffs	no
8	345	To give the national government the power to organize and arm state militias and to control the militias when they are called out at the national level.	yes
9	387	To prohibit states from issuing bills of credit	yes
10	391	To prohibit states from passing any bills of attainder or ex post facto laws.	yes
11	392	To prohibit states from enacting trade embargoes	yes
12	393	To strengthen an existing clause conditionally prohibiting state import tariffs, making the prohibition absolute	yes
13	394	To add a prohibition on state export tariffs to an existing clause prohibiting state import tariffs	yes
14	399	In favor of a clause requiring a two-thirds majority for the national legislature to enact navigation acts	no
15	415	To give the national government the responsibility for protecting each state from invasions and, at the request of the state government, for protecting each state from domestic violence	yes
16	559	To strike a clause permitting the Constitution to be amended.	?

*Note:* Adopted from McGuire (2003, Table 3.2 and Table 5.1).

**Table 2. Regression analysis**

	1790 census without state districts			1787 state boundary claims		
	All delegates (M&O)	voting delegates (McDonald)	voting delegates (our data)	All delegates (M&O)	voting delegates (McDonald)	voting delegates (our data)
N	689	441	302	689	441	302
mean, dep. var	0.611	0.596	0.572	0.611	0.596	0.572
<u>Personal Economic Interests (PE)</u>						
Western landowner	-0.061 (1.042)	-0.068 (0.807)	-0.330** (2.995)	-0.070 (1.195)	-0.080 (0.943)	-0.337** (2.982)
Merchant	0.029 (0.378)	0.072 (0.623)	0.248** (2.037)	0.025 (0.329)	0.069 (0.601)	0.238** (1.965)
Farmer	-0.004 (0.039)	-0.047 (0.366)	-0.079 (0.338)	0.004 (0.037)	-0.039 (0.302)	-0.068 (0.291)
Private securities owner	-0.014 (0.312)	0.011 (0.198)	-0.071 (0.954)	-0.015 (0.332)	0.009 (0.148)	0.073 (0.981)
Public securities owner	0.064 (0.992)	0.084 (0.966)	0.092 (0.941)	0.062 (0.972)	0.085 (0.974)	0.098 (1.011)
Slaveowner	-0.067 (0.865)	0.069 (0.650)	-0.081 (0.510)	-0.061 (0.791)	0.078 (0.735)	-0.048 (0.302)
Debtor	-0.300** (2.841)	-0.452** (2.977)	-0.360** (2.169)	-0.285** (2.732)	-0.445** (2.920)	-0.344** (2.074)
<u>Personal Ideology (PI)</u>						
English	0.062 (1.215)	-0.107 (1.514)	-0.161 (1.528)	-0.068 (1.349)	-0.115 (1.630)	-0.166 (1.575)
Revolutionary Officer	0.186** (3.777)	0.233** (3.381)	0.167* (1.732)	0.188** (3.823)	0.236** (3.420)	0.167* (1.724)
Age	0.002 (0.242)	-0.003 (1.245)	-0.007** (2.008)	0.002 (0.271)	-0.003 (1.256)	-0.006* (1.887)
<u>Constituents' Economic Interests (CE)</u>						
Distance to navigable water	-0.002** (4.155)	-0.002* (1.769)	0.001 (0.705)	-0.011** (4.273)	-0.002* (1.890)	0.001 (0.733)
Slaves per 100 whites	-0.002 (1.420)	-0.004** (2.337)	-0.001 (0.370)	-0.010 (1.587)	-0.005** (2.514)	-0.002 (0.621)

Constituents' Ideological Interests (CI)

English ancestry percentage	-0.001 (0.601)	-0.001 (0.286)	-0.002 (0.358)	-0.007 (0.773)	-0.001 (0.294)	-0.003 (0.644)
Total white population	0.000 (1.524)	0.000 (0.544)	0.001** (2.166)	0.001* (1.762)	0.000 (0.626)	0.001** (2.055)
pseudo R <sup>2</sup>	0.147	0.167	0.195	0.149	0.169	0.195
<u>Joint tests</u>						
PE = 0 ~ $\chi^2(7)$	13.808*	13.252*	19.661**	13.201*	12.937*	19.552**
PI = 0 ~ $\chi^2(2)$	16.774**	15.530**	12.329**	17.730**	16.316**	12.176**
CE = 0 ~ $\chi^2(2)$	18.302**	7.396**	0.643	19.443**	8.449**	0.945
CI = 0 ~ $\chi^2(2)$	3.370	0.370	5.808*	4.094	0.463	5.173*

*Notes:* Estimation by logit analysis. The dependent variable is binary indicating if the delegate's position is pro-national. Regressions include dummies for each of the 13 roll calls included, which are not reported in the table. Estimated marginal effects are calculated at the mean of the other variables. The absolute value of the t-statistics appear in parentheses.

\* significant at  $p \leq .10$

\*\*significant at  $p \leq .05$

**Table 3. Roll Call Samples and the Joint Significance of Each Category**

<b>joint test</b>	<b>Delegate sample</b>		
	<b>All delegates (M&amp;O)</b>	<b>voting delegates (McDonald)</b>	<b>voting delegates (our data)</b>
PE = 0	11	9	13
PI = 0	13	13	13
CE = 0	11	13	0
CI = 0	5	0	10

*Note:* Figures denote the number of times the joint test is statistically significant at 10% or better when one of the roll calls is dropped from the regression, one roll call at a time.