Voting for a Founding: Testing the Effect of Economic Interests at the Federal Convention of 1787

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Previous work measuring the voting patterns of the delegates to the Constitutional Convention largely focused on either individual delegate positions for a handful of key votes or on state delegation positions for a far broader set of votes. We remedy this limitation by modeling the key first two months of the Convention including both some individual-level and all delegation-level voting, while simultaneously estimating the effect of various economic interests on that voting, controlling for various cultural and ideological factors. The findings suggest that economic factors mattered a great deal at the Convention. The effect of such interests vary however by the dimension of debate—representation, national institutional design, or federalism. We conclude that economic interests exerted a powerful influence on the deep structure of voting at Convention, though not consistently by issue or dimension. Specific interests only mattered on specific dimensions.

Understanding the voting patterns of the Federal Convention of 1787—more popularly known as the Constitutional Convention—has been a preoccupation of historians, political scientists, sociologists, and economists for well over one hundred years.[1] There is inherent interest in the views of such famous statesmen as James Madison, Benjamin Franklin, and George Washington, among others, but social scientists want to go beyond simply learning their respective views or even measuring their issue positions to a clearer explanation of what interests or ideas could have motivated them. To tackle this complex problem, we must realize that the Convention proceeded in stages. The early period—May through July—focused on key issues for creating a new government: the nature of representation, the internal design of a new national government, and how power would be distributed between the national and the state governments. These decisions had to be resolved before the Committee of Detail could pull together a draft of the compromises. Only then could the delegates proceed to other matters like trade, war powers, and other issues.

Without disputing the key role of ideas and and philosophies of government (e.g., Lockean liberalism or republican virtue), we focus on interests that may have shaped debate. Charles Beard (1913) first offered an "economic," or interest-based, theory of the Convention, arguing it was a conflict between two classes: the "personalty" and the "realty." Though Beard's specific thesis has fallen out of favor, the spirit of explaining the Constitution by examining the relationship between key groups and the pattern of votes remains strong whether via a historical narrative or a social science model. In the empirical literature, these efforts typically focus either on modeling coalitions (Jillson 2002; Slez

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and Martin 2007) or modeling the effect of economic interests on specific individual votes (Heckelman and Dougherty 2010; McGuire 2003). Our contribution is to attempt both elements simultaneously to test economic influence on the major dimensions of debate. Our model is not simply one about positions on votes but is more like a model of preferences or legislator ideal points, along with a regression to test the influence of economic interests on the Convention. The results suggest a picture of the Convention where economic interests matter. Beard's simplistic view of the Convention's interests may not hold, but a broader thesis about the importance of economic factors such as slavery, trade, and certain forms of wealth clearly is supported: each of our chosen variables has some significant influence on at least one of the dimensions of the estimated ideal points. Economic interests indisputably mattered for the deep structure of preferences and voting at the Philadelphia Convention.

THEORIES OF THE CONVENTION

Scholarship on the Convention is complicated because when scholars from different backgrounds and disciplines pose questions they will answer them in many different ways. Theories, methodologies, and standards of evidence are not always compatible. Before we can ask which interests explain voting, we need to have a clear idea of the dimensions of the early debate so as to know what to model. Narrative histories often speak about a debate over "nationalism" and a stronger central government—Clinton Rossiter actually titles his chapter about the opening of the Convention the "Assault of the Nationalists" (1966, 159). The problem with this labeling is that it obscures multiple, distinct dimensions to nationalism: representation, the design of the new government, and the strength of the new government relative to the states.

It is well known that Madison believed representation should be proportional to the population of the states (Rossiter describes this issue as the "one large thing" that "divided them" [180]). And there is not a narrative account of the Convention, with which we are familiar, that does not emphasize representation as central to the first two months of debate (Beeman 2010; Bowen 1966; McDonald 1965; Rakove 1996; Roche 1961). But this dimension was hardly the only element of nationalization. Accounts that lump the powers and design of the national government in with representation are suggesting that multiple issues can be described using the same dimension. So when Rossiter describes the "assault of the nationalists," he is really talking about multiple dimensions of conflict. In fact, we know that delegates explicitly recognized some of these distinct dimensions. Beeman writes of George Read's (DE) beliefs that

> any new constitution ought to give the new government explicit supremacy over those governments of the individual states and that the new national legislature should have a veto over any state laws that might conflict with those of the central government. . . . But while Read was prepared to grant the central government sovereign power over the individual states, he was unwilling to change the essential element of the Articles of Confederation that protected the sovereignty of those states. (2010, 72)

Equal state representation in the legislature was vital for Read. His position exemplifies how the debates had at least two distinct dimensions: proportional representation and the division of power between the national government and the states. What explains one dimension might have little to do with the other.

The discipline of building an empirical model of the Convention forces us to be clear about dimensions of debate, rather than simply treating them all as an example of "nationalism." Indeed, much of the empirical work on the Convention does utilize multiple dimensions (Dougherty and Heckelman 2006; Jillson 2002; Londregan 1999; Pope and Treier 2012; Slez and Martin 2007). However, the best empirical work on *economic interests* at the Convention does not focus on general dimensions. McGuire (2003) and Heckelman and Dougherty (2010) both address the question of how economic interests affected voting at the Convention. Both are largely limited to a small number of votes on specific economic issues, though McGuire does talk about the available set of votes as making up a "nationalism" dimension (see, e.g., 2003, 120–27). We are left with a situation where the best work on voting at the Convention suggests that there are multiple dimensions, but the empirical tests of how economic interests affected those dimensions either focus on specific votes or treat all of the votes as a single "nationalism" dimension. To test the influence of economic interests on the deep structure of voting at the Convention, we want a model of multiple dimensions that includes a regression component to test for economic interests across different dimensions.

As the first to explicitly offer an economic model of the Convention, Charles Beard is most famous for his simple thesis that the type of wealth mattered: personal wealth in liquid capital (the "personalty") worked against wealth in land and real estate (the "realty") to create a reformed constitution. Less well known is that Beard also offers some guidance on the dimensions of the Convention. In his sixth chapter, "The Constitution As An Economic Document,"

Beard lays out the case for how economic forces affected different dimensions of the document that would become the US Constitution. Beard opens this chapter with a discussion of how one needs to think about the Constitution and how *The Federalist* explains the economic content. Then he divides the rest of the chapter by several headings: "The Underlying Political Science of the Constitution," "The Structure of Government or the Balance of Powers," "The Powers Conferred Upon the Federal Government," and "Restrictions Laid Upon State Legislatures."

It is easy to see three dimensions that come out of this discussion: *representation*;[2] *national institutional design* or the balance of powers within the government; and *federalism* or the division between the federal government and the state governments. Beard's thesis appears to be that certain economic interests would take the same set of positions on all questions of reform: change the basis of representation to protect property rights; strengthen the national government's power; but also make sure property interests are powerful within that government by limiting the ability of a majority in the legislature to seize property.

Scholars have offered other dimensions. Londregan (1999) argues for representation and the scope and power of the national government. Jillson (2002) consistently reinterprets his throughout the convention depending on the time period using such labels as regionalism, state size, and presidential power among others. Consistent with Beard's delineation of the broad issue dimensions described above, we utilize a three-dimensional model of the Convention through the period we are studying. Though many authors use a two-dimensional framework (Dougherty and Heckelman 2006; Londregan 1999; Pope and Treier 2011), Pope and Treier (2010) suggest that a three-dimensional framework is the best fit to the Convention data, which also fits Beard's description of the major issues. Of course, Beard's proposed explanation of these economic interests was quite simplistic, with a focus on two classes of society. Beard's first class, the "personalty," holding liquid capital, wanted stronger "commercial regulations advantageous to personalty operations in shipping and manufacturing and in western land speculation" (1913, 50). In opposition to this group was the "realty," a class of farmers and debtors holding land that desired a more local government. Beard claims much more than an explanation for the commerce power or other economic issues. Beard bundles large economic interests, asserting that they oppose one another at the Convention on most issues.

McDonald's (1958) landmark study demolished the consensus around Beard's ideas, revealing far more complexity in the economic patterns than Beard had contemplated—literally pointing to dozens of separate interests in play at the Convention. Today some historians dismiss an economic interpretation entirely (often focusing more on a cultural approach); however that was hardly the end of this type of explanation. McGuire (2003) rehabilitated the economic thesis by breaking it down into multiple variables fit for a regression analysis with controls—specifically different measures of wealth and occupation that he argued denoted key economic interests. Instead of focusing on a simplistic version of two interests in opposition, McGuire conclusively demonstrates that several different "personal and constituent economic interests affected voting on particular issues" (91) and, that certain interests, like those living near centers of trade, were "more pro-national" (125). However, this work focuses on a small dataset of a few votes, which McGuire describes as "weak . . . and [leading to] imprecision in the estimated coefficients" (92);[3] furthermore, these votes occur later in the Convention, long after the basic structure had been decided. Heckelman and Dougherty (2010) come to a similar conclusion rejecting the narrow Beard thesis, but finding some support for economic motivations on a few key votes related to currency and debt issues.

The work of both McGuire and Dougherty and Heckelman are the best examples of empirical tests on the Convention. However, their work is necessarily limited in that it is typically about a few votes rather than about the general (multiple) dimensions of the Convention. For example, McGuire combines McDonald's 16 votes for a general powers dimension (see, in particular, chapter five, especially 118–25). Most of those votes collected by McDonald (1958) are about specific economic issues like trade and do not represent the broad dimensions. Only five of the 16 votes come in the period leading up to the Great Compromise (July 16) when the Convention was making the major decisions. Most of those known votes occur after the major issues have been settled and largely focus on very specific economic issues. To capture the deep structure of voting at the Convention, we focus on a much larger set of votes that more frequently deal with the most important changes to institutional design.

Gibson writes that "[w]hat is now needed is a comprehensive study of the relationship between the economic interests of the delegates and their roll call votes at the convention" (2010, 44), a process he describes as "arduous."

2. Writing about the underlying political science, he references Madison on representation.

3. Though this self-criticism is far more applicable to his analysis of the Convention than it is of the ratification debates.

Conventional logit or probit models require knowledge of essentially every single delegate's position—an impossible standard given the data. Though we have painstakingly reviewed the Convention records to increase our knowledge of delegate votes, there is *no* way to collect *all* of the positions necessary for a conventional model—many delegates never expressed a clear stand on a specific question. To deal with this complexity, we present a Bayesian estimation process of the ideological location of *both* the delegation and almost all individual delegates. Our model thus implements a scaling procedure that properly weights votes and accounts for changes in the agenda across multiple dimensions.

MODELING PREFERENCES

Some have already gone beyond cataloguing votes to a more comprehensive effort to model the voting patterns and coalitions at the federal convention of 1787: Jillson (2002) using a five-period two-factor analysis model on the state delegation votes (though he largely ignores individual delegates); Slez and Martin (2007) using multidimensional scaling (two dimensions across five periods) also on the delegation votes. Londregan (1999) in an unpublished paper discussing both delegation votes and a few individual positions fit a two-dimensional model of the voting. The most comprehensive effort is Heckelman and Dougherty (2013), which scales individual votes in a single dimension, using constituency variables to explain positions and identify medians. With the last paper as a partial exception, previous efforts to describe the convention fall short due to data limitations and the difficulty of modeling the complex voting procedure, where the delegation vote was a function of the debate and discussion *within* each delegation.

No theory, to our knowledge, fully takes this voting arrangement into account. How do we connect individuals to their delegations? Our solution is to make a simple assumption: that individual delegates are likely to be near their state delegation—at least in the absence of information about how a delegate differed from his delegation. Delegates represented a particular constituency with specific characteristics, and while they may have emphasized a part of Virginia (or Massachusetts, or Connecticut, etc.) they were still tasked with representing the state. Practically, in our Bayesian framework, we will assume that the prior mean for the individual delegate is simply the delegation's ideal point. In other words, if we learn nothing about an individual delegate's voting, we will assume he was no different from the position of the delegation. However, to the degree the historical record permits us to differentiate individuals from the delegation, we will do so. Our principle could be described as "silence is more likely to indicate consent than dissent."

This assumption is similar to the strategy originally pursued by McDonald (1958). He assumes that because delegates from Pennsylvania rarely spoke—other than Morris and Franklin—the delegation was fairly unified. With his assumption in mind, we remind the reader that our model focuses on the first period of the Convention, running through vote 230 on July 26. This takes us through the moment that they have finished the major decisions on the structure of the plan and how it would be ratified. At this point the Committee of Detail takes up the draft and produces a document harmonizing all of the previous agreements. The Convention breaks until August 6 and then takes up the "details" that remain to be decided at this point. Scholars typically divide the convention into as many as five different periods (Jillson 2002; Slez and Martin 2007). Our purpose is to focus attention entirely on the first period of the Convention to explain the key decisions and major issues decided when they were still building the framework of the new government.

Discerning Individual Votes

All of the delegation votes are available, and some delegate votes are known clearly (because they are recorded in the notes). To supplement the information in the model, we carefully went through the notes of the Convention to see where we could add information about specific individuals. This process, though laborious, can be described fairly quickly. It allows us to fit a model of preferences conditional on whether or not a delegate voted on any given vote with the goal of using as much information as possible, while still modeling the policy changes at the Convention (i.e., we drop procedural votes that do not appear to contain much information about changes to the proposed document). To achieve this goal, we follow a process similar to previous scholars (McDonald 1958; McGuire 2003) who have coded individual votes. First, we note the few instances when Madison personally records the votes of individual delegates. One particular case is the vote on July 16 to approve the Great Compromise (Farrand 1913). This source of information does generate a handful of votes, but it is only a beginning.

Second, we examine the notes on the debates for any indication that a delegate supported or opposed a proposal, coding their positions to the specific roll call for the proposal (Farrand 1913). The most common form of approval or disapproval was to make a motion or second a motion on a question. For instance, we read that Mr. Read motioned and Mr. C.C. Pinckney seconded a motion to amend one of Randolph's proposals about the form of government (Farrand 1913, 35). Such motions and indications are scattered throughout the notes. In other cases delegates made a speech that clearly indicated support or opposition to a

proposal. For instance, we read that Ellsworth favored a three-year term for representatives (214). He did not make the motion or second it, but he speaks in favor of it. Again this is similar to the process that McDonald (1958) and Heckelman and Dougherty (2013) use.

But even this small amount of data on each delegate's position can be combined with other knowledge about attendance to yield even more information. For instance, several delegations (such as Massachusetts) were relatively small and conveniently made up of an even number of delegates. In such cases we are occasionally able to calculate a delegate vote by knowing both attendance and some other votes. If we know that Massachusetts voted divided and that two delegates made a motion or spoke in favor of a particular question, we assume the other two delegates must have voted against the motion to produce the divided vote. Similar log-

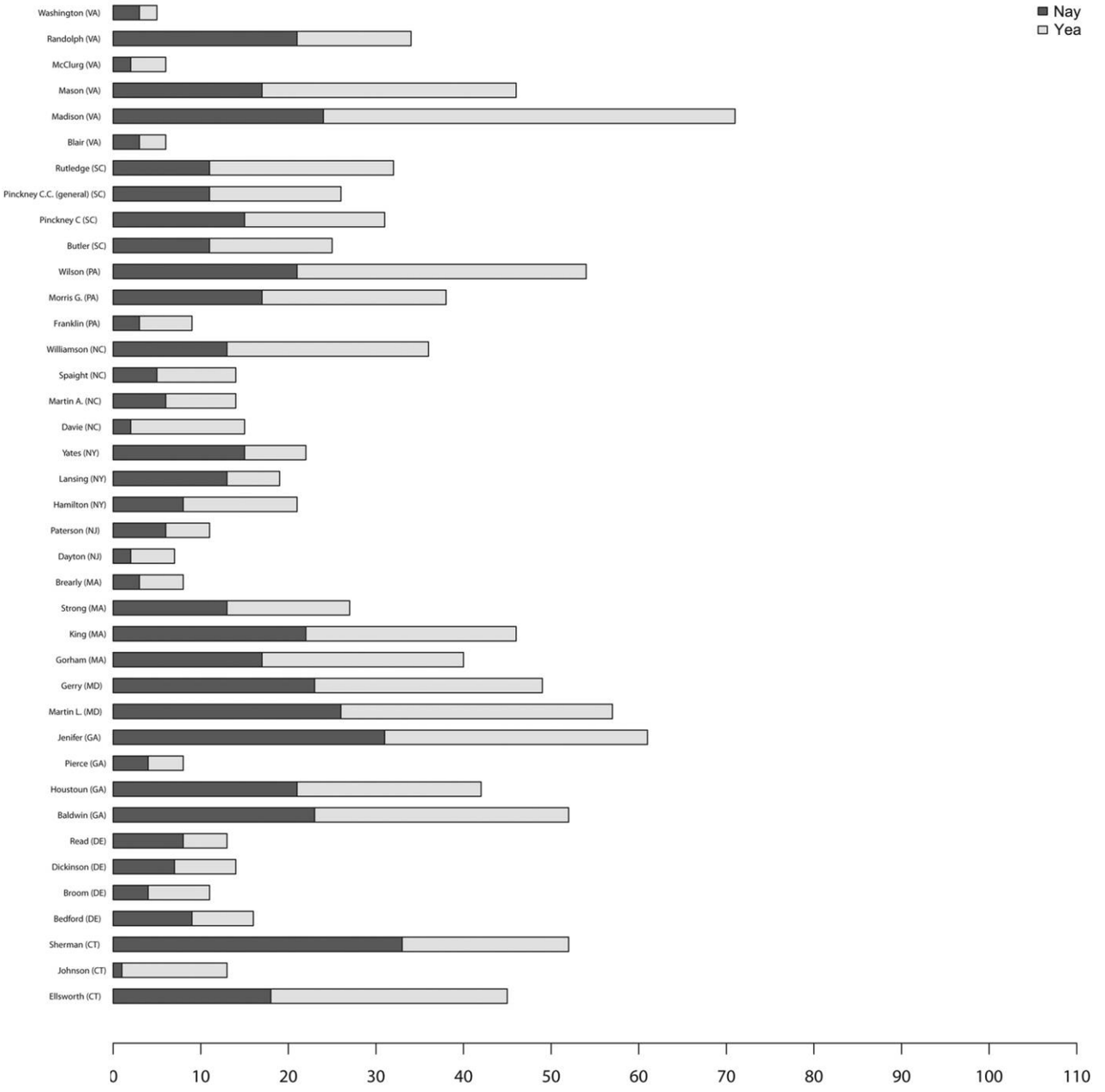

Figure 1. A graphical depiction of the data we have available based on the above inferences, for individual delegates. Though no delegate provides an exhaustive amount of information, several delegates provide a great deal. And all estimated delegates provide us with some information. Were we to simply use the individual votes and not include *any* delegation behavior, we would still have 92 votes to estimate positions.

ical rules were employed throughout the process to analyze the positions of delegates. Figure 1 displays the amount of data we have available, based on the above procedures, for each delegate. Obviously, it is an imperfect sample. Some delegates like Madison, Wilson, and Luther Martin among others have a great deal of additional information, while, for some delegates, the information is sparse.

We omit the following delegates: both New Hampshire delegates (and the entire delegation), Bassett (DE); Few (GA); Carroll, McHenry and Mercer (MD); Houstoun and Livingston (NJ); Blount (NC); Clymer, Fitzsimmons, Ingersoll, Mifflin, and R. Morris (PA); and Wythe (VA). In such cases we were unable to infer positions for any of them on any votes in this period, thus it seemed unlikely that we could discern anything about them. In a couple of cases, we could infer votes on one dimension but were unable to do so on another dimension, and the model simply returned the Bayesian prior for the position. Below, we have only retained delegates who had clear votes on all dimensions of the debate. This uses all of the information we have available for the estimation, even for delegates with relatively small numbers of known votes.

VARIABLES

Our model is designed to explain the two levels of voting—individual voting, but *within* delegations. Thus the model characterizes both constituency and personal influences. In a few cases, relatively similar concepts exist at both levels, but mostly that is not the case. These two different levels have to be examined separately by each dimension. State level variables tell us about how the states were represented while the individual level predictors reflect personal influences. Our focus is on identifying which economic interests explained the deep structure of voting patterns at the Convention, but we control for noneconomic explanations as well. Throughout we focus on Beard's original ideas and their later extensions and tests.

State-Level Predictors

Several predictors fit into the model at each level of voting and are summarized in Table 1, including references for data sources. At the delegation level, the key variables are slave holdings, the percentage of the state that is rural, the estimated per capita real estate wealth, and the white population of the state.

Table 1. Predictors of Delegation-Level Behavior and Delegate-Level Behavior.

State Predictors	Source	Mean	SD	Maximum	Minimum
White state population	1790 census	236166.7	134188.4	4420000	46000
Slave holdings, per 100 whites	McGuire	26.3	28.6	76	0
Percentage rural	1790 census	95.1	4.8	100	86.5
State wealth	Pitkin	46637067.95	34068192.64	102145900.90	6233412.25
Individual Predictors					
Personal slave holdings	McGuire	37.9	67.0	300	0
Distance to water	McGuire	54.4	53.2	200	0
Private securities	McGuire	2405.5	9308.6	52000	0
Public securities	McGuire	1078.5	2098.8	10000	0
Agricultural land holdings	McDonald	.56	.5	1	0.0
Western land holdings	McDonald	.22	.42	1.0	0.0
Farmer	McGuire	0.1	0.3	1.0	0.0
Merchant	McGuire	0.1	0.3	1.0	0.0
Age	Biographies	44.1	11.9	81.0	26.0
Service in the revolution	McGuire	.27	0.45	1.0	0.0
College	Heckelman and Dougherty	.68	.47	1.0	0.0
Hierarchical religion	Heckelman and Dougherty	0.68	0.47	1.0	0.0
Communitarian religion	Heckelman and Dougherty	0.17	0.38	1.0	0.0
English ancestry	McGuire & Biographies	0.49	0.51	1.0	0.0
Scottish ancestry	McGuire & Biographies	0.22	0.42	1.0	0.0

Note—Sources for each entry are listed at right. In the case of religion, we used Heckelman and Dougherty's classifications but then supplemented that with delegate biographies, chiefly Bradford (1982) and delegate biographies on the Library of Congress's website.

Beard is less than clear about how slavery fits into his schema of interests. He does include in his description of real property holders "slave-holders of the south" (1913, 29). But this really settled nothing because he later writes that "[t]he south had many men who were rich in personalty, *other than slaves*, and it was this type rather than the slaveholding planter as such, which was represented in the Convention that framed the Constitution" (30, emphasis added). Essentially Beard tacitly admits that slaveholders owned personal property that was closer to being "personalty" than "realty," and the types of southerners who appeared at the Convention had little connection to their "debt-burdened neighbors at the back door" (30). Because of this fact, "nationalism was created by a welding of economic interests that cut through state boundaries" (30). Beard's later discussion of slavery might suggest that slave state constituencies would prefer a weaker government (perhaps on both of the other two dimensions). However, it is also possible that slave state constituencies would have preferred a *stronger* national government so as to put down slave rebellions—something Beard (1913, 174) notes that Madison argues in *The Federalist*. Beard's ambiguity illustrates the importance of separating out different dimensions of conflict. Slavery may predict reform on one dimension but suggest preferences for the status quo on another. Without a model for different dimensions, we cannot distinguish these possibilities.

Despite Beard's ambiguity, later scholars have uniformly recognized that the economics of slavery led to serious contention at the convention which eventually settled on a bundle of compromises that came to be known as the 3/5 compromise (Ohline 1971). So we include state slave holdings in the model and use McGuire's recounting of slave holdings.[4] Given Beard's ambivalence about slaves—and the southern delegates who came to the Convention—he does not suggest a clear prediction, though conventional accounts would suggest that slave owners would prefer proportional representation (Beeman 2010; Bowen 1966; Rakove 1996). An area where Beard's predictions are clearer relates to the type of population: more rural states should be more likely to oppose reform. Supporting this claim, Maier writes of the Massachusetts ratifying convention that "[d]issidents [from rural counties] criticized the Massachusetts constitution of 1780 for giving too much power to the wealthy, mercantile east" (2010, 160). According to her, they wanted stronger representation in the government, feeling that areas far from the cities were being ignored, that the new powerful government would be more likely to serve the urban interest. If true, perhaps more rural states would have opposed innovation like the ones that were about to be put in place. The expectation is that more rural states would oppose the changes in the Constitution.

Obviously, we need to include a variable for state wealth. Though several narrative historians like Wood and Beeman, among others, imply that wealth mattered in some way, Beard explicitly argues that particular forms of wealth mattered for the final result, a proposition formally tested on a handful of votes by McGuire (2003) and Heckelman and Dougherty (2010). Though no data we know of breaks down wealth by type and across states, we employ a real estate state-level wealth measure to test whether or not wealthier constituents preferred a stronger centralized government (Pitkin [1816] 1967; Soltow 1989). While, unfortunately, it does not include personal property and livestock, it is the best available measure, with several advantages. In particular, it omits slaves, thus avoiding a conflation of the two separate forms of wealth. And although this census occurs after the Convention, proxy variables to capture effects have long been a mainstay of historical research, and this measure is relatively close in time (Fogel and Engerman 1974).[5]

The final variable we include at the delegation level is state population. Large state delegations favored representational rules based as much on population as possible. To test for the possibility of a population effect, we draw on the 1790 census estimate of white population.[6] Table 1 includes each of the above variables. It is divided into two classes by the level, given on the left-hand side of the table. The balance of the table reflects some summary statistics about each variable employed in the analysis.

Individual-Level Predictors

Coefficients on the delegation variables predict differences across the delegations. In contrast, coefficients on the individual-level variables predict commonalities across delegates. In that sense, the first part of the model is only about the differences across constituencies. In this second portion of the model we are asking what forces, regardless of the

4. Much of McGuire's data is from sources we also consulted (e.g., the 1790 census and McDonald 1958).

5. McGuire, noting that "contemporaneous measures of each state's wealth do not exist" (2003, 242), uses the Alice Hanson Jones measures drawn from probate records, averaged across (most) states from the year 1776 (Jones 1980). This measure not only has the drawback that it does not include any counties from New Hampshire or Georgia (requiring the substitution of regional averages), but it is also corrupted by including slaves in the measure. Finally, the variable has almost no variation whatsoever, the only difference being the two biggest slave states and every other state.

6. Alternative population specifications are available in the online appendix, including state square mileage as a proxy for the expected future population of a state.

delegation's overall position, had a common influence across delegates? Table 1 again summarizes the key variables—the economic variables being slaves, distance from navigable water, public and private wealth holdings, land holdings, and occupation.

Individual slave holdings are included in this level, though, again, Beard's ambivalence about slave holdings and the Convention precludes drawing a clear prediction from Beard about the sign on the coefficients. As described above, others have suggested that slave holdings would have an effect, at least on representation (Beeman 2010; Ohline 1971; Pope and Treier 2011; Rakove 1996).

Though it is difficult to estimate the "rural" character of a delegate's surroundings, we use McGuire's distance from navigable water, a measure about the delegate's home and environment. McGuire suggests that delegates nearer the coasts were "more pro-national than others" (2003, 123). He supports Beard's thesis about liquid capital by noting that residing near the coasts "increased support for the Constitution because such areas generally represented more commercial interests" (43). In the case of McGuire's proposed variable—distance from water—it is measured at the individual level (though McGuire uses it to represent constituencies).

Personal wealth is obviously crucial for any economic explanations, both the amount and the type matter. Beginning with Beard, but extending through McDonald and others, authors have generally distinguished between public securities (government bonds) and private securities (private debt). Beard placed much more emphasis on the holders of government bonds as holders of "stocks of the new government" (21). However, Beard's argument about wealth works for both classes: "creditors (public and private securities holders) . . . are expected to have supported the formation of a stronger federal national government" (McGuire 2003, 120). Heckelman and Dougherty (2010) argued that it has other interpretations "regarding direct financial incentives." Relying on Grubb's (2006) work, they go on to note that including both in the model "provides an indirect test of rent-seeking among delegates who were also shareholders in banks" (220). The idea is always the same: we would expect that on both private and public securities the coefficients would be positive. However, we may find a difference between the two types of wealth. Any difference might tell us something interesting about the nature of wealth and its relationship to the new government. Beard claimed that owners of public securities were "even more immediately concerned in the establishment of a stable national government" (1913, 32) than other forms of liquid wealth so our expectation should also be that it is more likely we will find evidence that public securities favored change.

The type of land holdings obviously also matter. In opposition to that elite "personalty" class, Beard speaks of a "realty" class made of up of debtors, farmers, and agricultural land holders—a group that would prefer greater local power and a relatively weaker national government. Presumably holding agricultural land should incline one against change and the reforms of the Constitution. We employ a dummy variable (drawn from McDonald) for holding agricultural lands, and we expect a negative coefficient on that variable if Beard is right. Beard speaks of the importance of speculation in western lands (Beard 1913, 23). However, it is McDonald (1958) that provides a variable for a test of the proposition that land speculators would prefer a stronger national government, presumably because they want to stabilize their investment in the west. Though this is not a liquid form of wealth, the speculation was a characteristic of the elite capitalists, and both Beard and McDonald are quite clear on the prediction here: a positive coefficient. Finally we include two occupational variables: farmers and merchants (omitting mostly lawyers). Farmers fit neatly into Beard's classification of the realty, while merchants care about liquid shipping wealth and capital resources. So Beard suggests merchants favored government reform *more* than farmers.

Taking all of these variables together we have a series of tests—across multiple dimensions—for Beard's claims about economic interests. With all of these variables in hand we expect to be able to test Beard's specific ideas about the nature of what wealth mattered for voting but also which *types* of wealth predicted voting more generally. It would be inappropriate to simply include these variables without employing any other control variables suggested by the literature. To that end, we employ as many cultural, personal, and ideological variables as we can find that will help explain the patterns of voting: age, revolutionary experience, college experience, religious identity, and ancestry.

Elkins and McKitrick (1961) argued for a generational approach to the Constitutional Convention. Younger men, less steeped in the revolution and less accustomed to the problems of a strong central government, were supposedly more pronational than their elder colleagues. They may have been less connected to their state politics and more willing to entertain a national politics. If this is true about centralizing power (as they argue), it might also extend to the other dimensions as well—though they do not explicitly argue that. Both Jensen (1964) and Rutland (1966) claimed that revolutionary war officers were more likely to have supported the Constitution. As members of the cultural elites, such officers could have favored a strong central government. There is a more prosaic, but possibly more motivating, reason such officers would have favored a strong centralized government or

strong executive power: the lack of clear executive authority during the revolution created intolerable conditions for the soldiers. To favor a stronger central government was partially to hope that any future military forces would never again face such hurdles. Heckelman and Dougherty (2013) suggest another possible personal background variable: a college education. Drawing on Main (1961), they argue that college educations were common only among the upper income families and therefore this background in ideas and liberal philosophy, common at the colleges of the period, could lead one to support the Constitution's changes—centralization and a change in representation.

Gillespie and Lienesch (1989) argue that conservative religions like the Episcopalians favored ratification in opposition to the Baptists and other dissenting sects of the time. Ideally, we would have information about their attendance and beliefs, but that is not available. We can use their denominational backgrounds. Relying on Bradford (1982), Heckelman and Dougherty (2013) write that certain religions embrace hierarchy and centralization more than others. They grouped religions using the following categories. *Hierarchical* religions are defined as Episcopalian or Roman Catholic. This is in contrast to clearly decentralized group of religions: Congregationalists, Deists, and Quakers. Other faiths are let in a middle ground. The simplest hypothesis would be that religionists from a hierarchical tradition would have been more sympathetic to centralizing power, presumably that could include preference for both a stronger central government and proportional representation—especially true since Episcopalians would have received a greater number of representatives from their localities under that plan. Ancestry is another variable. Brown describes the colonies as a "British melting pot" (1976, 468) where the Scots jointed with the English. This gives us the two major categories of ancestry worth consideration: Scottish ancestry and English ancestry that are also emphasized by McGuire (2003). Drawing on Main (1961), he argues the English "may have been more likely to favor the Constitution because they were more sympathetic to strong central governments (2003, 44). The Scots, perhaps drawing on their own Enlightenment, may have been more skeptical of centralization.

IDEAL POINT ESTIMATION

In spatial models of voting, the legislator considers two positions, the "Yea" (bill proposal) position $\boldsymbol{\omega}_j$ and the "Nay" (status quo) position $\mathbf{q}_j$, for $j = 1, \ldots, m$ roll calls. $\mathbf{q}_j$ reflects the positions of current policies (on d dimensions) in the ideological space when bill j is proposed. The proposal $\boldsymbol{\omega}_j$ indicates the positions, if passed, of the new policies in d dimensions. The legislator votes "Yea" if $U_i(\boldsymbol{\omega}_j) > U_i(\mathbf{q}_j)$. Following, Clinton, Jackman, and Rivers (2004) and Martin and Quinn (2002), the utilities include a random component and are specified as a quadratic loss function:[7]

$$U_i(\mathbf{q}_j) = -\|\mathbf{x}_i - \mathbf{q}_j\|^2 + \nu_{ij}, \quad (1)$$

$$U_i(\boldsymbol{\omega}_j) = -\|\mathbf{x}_i - \boldsymbol{\omega}_j\|^2 + \eta_{ij}; \quad (2)$$

where η_{ij} and ν_{ij} are error terms, which we assume are Type-I extreme value (for logit links), and $\mathbf{x}_i$ is a vector of ideological positions in a d dimensional space. The distance between the ideal points and status quo (bill) positions are measured by the square of the Euclidean norm $\|\cdot\|$.

Estimates of the proposal and status quo positions cannot be recovered from this model if there are two or more dimensions, since there is no accounting of the evolution of the agenda. Clinton and Meirowitz (2001, 2004) extend this model by incorporating changes (or lack of changes) in the status quo directly into the estimation. If proposal $\boldsymbol{\omega}_j$ passes, then the new status quo point equals this proposal: $\mathbf{q}_{j+1} = \boldsymbol{\omega}_j$. If $\boldsymbol{\omega}_j$ fails, then the status quo remains unchanged: $\mathbf{q}_{j+1} = \mathbf{q}_j$. Second, if a proposal does not concern dimension d, even if $\boldsymbol{\omega}_j$ passes, the coordinates of the status quo for irrelevant dimensions will remain unchanged: $q_{j+1,d} = q_{j,d}$. By imposing these constraints, one can directly estimate the status quo and proposal positions effectively recovering the unfolding agenda. The parameters $\mathbf{q}_j$ and $\boldsymbol{\omega}_j$ are represented as $\boldsymbol{\theta}$, indexed by $y(j)$ and $n(j)$, where $\mathbf{q}_j = \boldsymbol{\theta}_{n(j)}$ and $\omega_j = \boldsymbol{\theta}_{y(j)}$. The estimated model, in utility differences, is

$$y^*_{ij} = \|\mathbf{x}_i - \boldsymbol{\theta}_{n(j)}\|^2 - \|\mathbf{x}_i - \boldsymbol{\theta}_{y(j)}\|^2 + \varepsilon_{ij}. \quad (3)$$

Aggregation is a complication and requires caution when discussing the "ideal point" of state k. An estimate of $\mathbf{x}_k$ with a low-score representation and federalism reflects a state delegation that supports equal voting among states and a limited national government.[8] We consider the recovered position as simply the reflection of a representative (and artificial) individual actor with a position consistent

7. Poole and Rosenthal's (1985) NOMINATE specify a Gaussian loss function.

8. This position is not necessarily a central or average position among the delegates, nor is there any expectation of symmetry of delegates around this position. We do expect the position to be interior to the configuration of delegate positions though. In part, this is because for most of the votes (94 of 124), the proposal changes only one of the three issue dimensions. In such one-dimensional decisions, the equilibrium position is the dimension median. This preponderance of one-dimensional decisions will likely result in an interior and perhaps more central position (but not necessarily a multidimensional median or average).

with the voting record of the state. Our minimum requirement in connecting this position with the individual delegates is that if the delegates of the state have identical preferences, then this common preference will be represented in the estimated position of this representative actor. This holds since we assume identical (quadratic) utility functions for all delegates and also assume this artificial actor perceives the votes the same way as individual delegates; i.e., that the vote parameters $\boldsymbol{\omega}$ and $\mathbf{q}$ are constant across individuals and states. The latter assumption implies that the issue space is the same for states and individuals, consistent with research by historians, who do not often distinguish the two levels of voting. The assumption would fail if the vote by a delegation did not reflect the majority opinion. That would occur if delegates strategically misrepresented their preferences. In our context though, we assume (quite reasonably, and typical of all ideal point estimation) sincere voting, and in any case, delegates within a delegation on a particular vote cannot manipulate an agenda determined separately by the entire convention of delegates.

It is also possible for states to become deadlocked on any particular vote. How should these votes be addressed? If divided votes are treated as missing, as in all previous analyses, one loses important information about the states' revealed positions. Following Pope and Treier (2011), we express the stalemate as the delegation split evenly between "Yea" and "Nay" positions. The resulting behavior results in a revealed position close to the cutline, the closeness measured by parameter δ. Since some states are more likely to be divided than others, we estimate separate δ_k for each state. One obvious factor was whether the delegation was small or large, odd or even. Also, some delegations had several opposing state political factions represented, whereas others were more homogenous. Consequently, if two states have the same x_k, the state with the larger δ_k will be more likely to vote "Divided." The approach incorporates the model of Sanders (1998, 2001) within the quadratic utility measurement model, with a decision rule:

$$y_{kj} = \begin{cases} \text{"Yea"} & \text{if } U_{kj}(\omega_j) - U_{kj}(\mathbf{q}_j) > \delta_k \\ \text{"Nay"} & \text{if } U_{kj}(\omega_j) - U_{kj}(\mathbf{q}_j) < -\delta_k \\ \text{"Divided"} & \text{if } -\delta_k \leq U_{kj}(\omega_j) - U_{kj}(\mathbf{q}_j) \leq \delta_k. \end{cases}$$

This is equivalent to an ordered model with state specific thresholds τ that are common across votes, with the restriction that $\tau_1 = -\tau_2$. As long as the state has been divided on a roll call at least once, δ_k is estimable.

Most previous analyses have focused either on the delegations or on the individuals. We will estimate ideal points of individual delegates, using inferred votes, jointly with the state position model. The estimated model, in utility differences, is

$$y^*_{ikj} = \|\mathbf{d}_{ik} - \boldsymbol{\theta}_{n(j)}\|^2 - \|\mathbf{d}_{ik} - \boldsymbol{\theta}_{y(j)}\|^2 + \varepsilon_{ikj}, \qquad (4)$$

where $\mathbf{d}_{ik}$ is a matrix of ideological positions in a d dimensional space. The model is a straightforward representation of the binary-choice Clinton-Meirowitz (2004) model. We connect the individual model to the state model in the following manner. First, the vote paramters $\boldsymbol{\omega}$ and $\mathbf{q}$ are constant across individuals and states. Second, the individual delegate ideal points are connected to the state positions hierarchically; the position of the state delegation $\mathbf{x}_k$ is the prior mean for delegate ideal point $\mathbf{d}_{ik}$: $\mathbf{d}_{ik} \sim N(\mathbf{x}_k, 1)$, with $\mathbf{x}_k \sim N(0, 1)$. Without any additional information, our prior belief is that the individual delegate is the same as the representation of the state. If the delegate's votes are in complete congruence with state, the delegate will have approximately same position as the state. If the delegate contradicts the vote of the state frequently, then the delegate ideal point will deviate substantially from the state position.[9]

The agenda is series of votes debated one at a time. With only a few exceptions, the delegates simply revised the text, clause-by-clause, hence the status quo was only changed incrementally—sometimes on all of the dimensions but often only on one or two dimensions. In the model, all of the votes are precategorized by germaneness to each dimension (all labelled in the replication file). In order to identify this model, we fix vote positions to constants on specific dimension. We anchor the representation dimension by setting vote 40 to -1 (implying equal representation in the Senate) and vote 41 to 1 (proportional representation in the Senate). On federalism, vote 29 is set to 1 -1 (state legislatures, instead of ordinary voters, would elect representatives) and vote 34 to 1 (a national negative on state laws). For the national institutional design, vote 183 is set to 1 (president chosen by elections) and vote 215 set to -1 (a change in selection of the presidents from electors to legislature). The initial status quo for the Articles of Confederation is also anchored at (-1.5, -1.5, -1.5).

This hierarchical model substantially reduces problems with missing individual votes.[10] While 97 of the 124 votes have enough coded positions for us to estimate an individ-

9. This hierarchical approach is identical to formulation where individual estimates are simply deviations from a state component (a mixed model where a common state component plus individual "random effect" constitutes the ideal point).

10. Note, missing votes are not imputed in this analysis. Due to local independence of the ideal point model (conditional on the positions of delegates, status quo, and proposal), individual delegates (and states) appear in the analysis only on votes for which we have recorded positions.

ual delegate only model, the state data permits us to estimate include the other 27 votes (and provide better estimates of the status quo and proposal positions). Furthermore, in absence of contrary voting behavior by the delegate, we expect the delegate's position to be related to the state. Nevertheless, we still allow for these positions to deviate substantially from the state position. The posterior distribution for this model is $f(\mathbf{x}, \mathbf{d}, \boldsymbol{\theta}, \boldsymbol{\delta}|\mathbf{y})$

$$= \prod_k f(\mathbf{y}_k|\boldsymbol{\theta}, \boldsymbol{\delta}_k, \mathbf{x}_k) \prod_{i=1}^{n_k} \prod_k f(y_{ik}|\boldsymbol{\theta}, \mathbf{d}_{ik}) f(\mathbf{d}_{ik}|\mathbf{x}_k) f(\mathbf{x}_k) f(\boldsymbol{\theta}) f(\boldsymbol{\delta}).$$

Finally, in order to determine the effects on economic and ideological characteristics on the positions of the states and individual delegates, individual ($\mathbf{w}_{ik}$) and state ($\mathbf{w}_k$) covariates are in a regression model[11]:

$$\mathbf{x}_k = \mathbf{w}_k\boldsymbol{\lambda} + \boldsymbol{\kappa}_k,$$
$$\mathbf{d}_{ik} = \mathbf{x}_k + \mathbf{w}_{ik}\boldsymbol{\gamma} + \boldsymbol{\kappa}_{ik},$$

with $\mathbf{d}_{ik} \sim N(\mathbf{x}_k + \mathbf{w}_{ik}\boldsymbol{\gamma}, \mathbf{I})$ and $\mathbf{x}_k \sim N(\mathbf{w}_k\lambda, \mathbf{I})$, and a posterior distribution:

$$f(\mathbf{x}, \mathbf{d}, \boldsymbol{\theta}, \boldsymbol{\delta}, \boldsymbol{\lambda}, \boldsymbol{\gamma}|\mathbf{y}) = \prod_k f(\mathbf{y}_k|\boldsymbol{\theta}, \delta_k, \mathbf{x}_k, \boldsymbol{\lambda}) \prod_{i=1}^{n_k} \prod_k f(y_{ik}|\boldsymbol{\theta}, \mathbf{d}_{ik}, \gamma) \times f(\mathbf{d}_{ik}|\mathbf{x}_k, \gamma) f(\gamma) f(\mathbf{x}_k|\boldsymbol{\lambda}) f(\boldsymbol{\lambda}) f(\boldsymbol{\theta}) f(\boldsymbol{\delta}).$$

States with similar economic and ideological characteristics are expected to have similar positions and in the directions suggested in the literature. Delegates with similar characteristics will also vote together. The baseline level is the state delegation position, determined in part by state-level characteristics. Thus, the individual characteristics predict the extent to which the delegates deviate from the state positions. As a result, we can separate the effects of personal economic and ideological considerations and factors common to the entire delegation representing the state. Inspection of the posterior distribution of the coefficients will allow us to make statements about the probability of the coefficients on the various factors.

ESTIMATES AND RESULTS

The ideal point estimates are not our primary focus but can be used as a test of the model's face validity. Figure 2 plots each of the arrays of ideal points. Greater values on each axis indicate a stronger preference for reform. Thus, looking at the question of proportional representation (seen, for instance, in the x-axis of the bottom left-hand panel) individuals like George Washington, Charles Pinckney, or Richard Spaight are estimated to be the strongest proponents of proportional representation (and all of its attendant issues like counting slaves, etc.). On the National Institutional Design dimension (see, e.g., the y-axis of the bottom right panel), Gouverneur Morris and John Dickinson voted the most consistently in favor of shifting power away from the legislature and toward a president. Finally, on the federalism dimension (y-axis of the upper-left-hand panel) James Wilson and Alexander Hamilton take the strongest positions favoring shifting power away from the states and toward the national government. One key point to take away from the figures is the variation between positions on dimensions. As discussed above, delegates may have been interested in significant change and reform on one dimension but not on other dimensions. Despite model differences, we can still say that the figures are roughly similar to previous efforts (Dougherty and Heckelman 2006; Londregan 1999; Slez and Martin 2007). There are minor differences, probably due to the different time frame being estimated in different studies.

Small states pushing for an equal state vote in the upper chamber were intransigent. Rakove says "the supporters of the equal-state vote grew impervious to appeals for justice, however eloquent . . . On this issue there was little left to say" (1996, 70). The strength of their position is revealed in the picture of their positions in the lower left-hand panel of Figure 2. The small-state coalition was, in general, relatively unified against shifting power away from the states and against proportional representation in the Senate—some delegates extremely so, like Lansing and Yates.[12] The large state coalition is less unified, especially on the question of centralization. Many delegates like Wilson, Hamilton, and Madison favor much more centralized power, but they were balanced by another set of delegates (especially from Georgia and South Carolina) far less supportive of a strong central government. The large states were simply less unified across dimensions.

A complete catalogue of delegate positions is beyond the scope of the analysis, but it is worth commenting on a few other notable individuals for face validity. Madison, a leader of the federalist coalition at this point in history but shortly to become a leader of the anti-Federalist party, is clearly in the camp of leaders pushing for a stronger central government with greater proportional representation, though his position is not quite as extreme as some other prominent

11. Since estimated simultaneously with the ideal-point model, the uncertainty in the positions of the delegates and states are directly accounted for in the uncertainty of the regression coefficients.

12. The results for this delegation suggest the model is capturing voting dynamics. The New York delegation median is approximately midway between the two factions in that state, leaning a bit more closely to Lansing and Yates. If the model were simply tying every delegate too closely to the state position, the delegates would be placed much closer together. Given that they are not, we are confident the model is working as we hope.

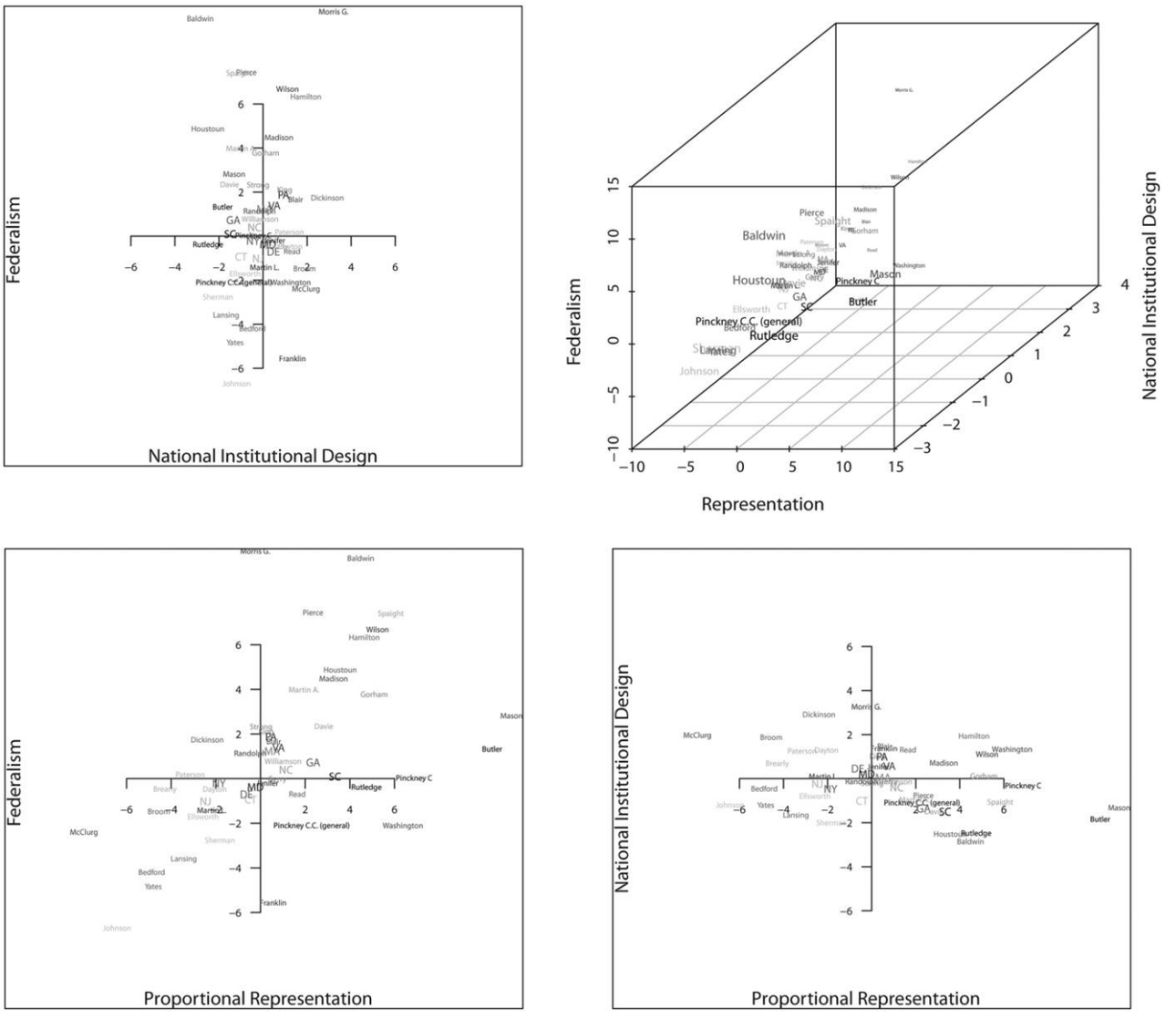

Figure 2. Figure plots estimates for delegates in three dimensions. Panels in the upper and bottom-left, as well as the bottom right plot the positions in two dimensions (labeled on the graph). The upper-right panel displays all three dimensions. The size of the name indicates the position relative to the third dimension: national institutional design. Greater values on each axis indicate a stronger preference for reform. Note that in the online version, each delegation is color-coded. The estimate for the state is plotted as well.

leaders on some dimensions. George Washington only spoke twice at the convention (though he did preside). But Madison records his vote on a few issues, and his position relative to the Virginia delegation is interesting. Like Madison, he favors proportional representation (see the lower left-hand panel, for example), and he does appear to favor executive power over the legislature (see the lower right-hand panel, for example), but the model does not suggest he wants to increase the power of the national government relative to the states as much as many of his colleagues. What must be clear, based on these results, is that the Convention was hardly a unified group even though it is sometimes described that way. And no delegate appears to have gotten their way on every single dimension. Wood notes that "Madison and Wilson lost the battles over the congressional veto of state laws and proportional representation in both houses, [but] they and the other Federalists . . . had essentially won the war over the basic nature of the central government" (2003, 158). Without disagreeing that the government's nature changed, these figures show complex preferences where no delegate or group dictated the result.

Of course, given the quality of the data, there are uncertainties, but the model does permit meaningful comparisons. For instance, there are 55 possible state delegation

comparisons across the three dimensions. Seventy-eight percent of the estimates can be distinguished from one another with a 90% probability or greater. Given that some delegations are simply very close together, we would not expect precision that would distinguish *all* comparisons, and this level is encouragingly high. With respect to individuals, the percentage of comparisons that can be distinguished falls only slightly: 73% for comparisons on the representation dimension, 56% on the national institutional design dimension, and 58% on the federalism dimension. Regression estimates reflect the uncertainty in each delegate's position leaving us confident that the model is revealing clear patterns.

As our main focus is on the relationship between economic interests and the estimated preferences, we turn to a discussion of the regression portion of the model that describes how delegation and delegate economic interests predict patterns of voting. Table 2 displays the model for both levels. The top panel contains coefficients for the state delegations. The bottom half is divided into two groups. The top group are the economic variables described above. The bottom half are the cultural control variables. Our analysis here focuses most on the economic variables for obvious reasons, though we do briefly discuss other variables.

At the delegation level, the influence of slavery is obviously important. Delegations from slave states strongly favored proportional representation ($p = 0.997$). The prediction for slavery on National Institutional Design is negative but not quite clear (the probability of being positive is only 0.225). Delegations from states with relatively more slaves probably favored shifting power away from the states ($p = 0.835$). The percentage of the state that was rural is generally negative and the effect appears to be quite pronounced on the federalism dimension (probability of being positive is only 0.113). This is quite consistent with an interpretation that states with a more rural population feared shifting power away from the states and toward the national government. However, the effect of real estate wealth appears to be null (though it is suggestively negative on the question of national institutional design). Finally, white population does matter, but somewhat surprisingly, the relationship is not relative to representation but rather to national institutional design and to federalism.[13] Higher white-population states had a higher value on the national institutional design dimension *and* on the federalism dimension meaning they favored a stronger national executive (relative to the legislature) *and* shifting power away from states to a national government.

Turning to the individual level's economic variables, we begin again with slavery, and here the preference for proportional representation is also quite clear. Slave owners appear to have favored proportional representation ($p = 0.999$), but at this level it becomes more clear that they opposed shifting power away from Congress to this new branch: the presidency (the coefficient at the delegation level was negative but not overwhelmingly so). The preference of southern states against a strong presidency can also be seen in Figure 2. And, again, we see that the slave interest favored a stronger central government. Strikingly similar to the slave-owning interest, delegates living further from the coasts and trade favored reform on the representation and federalism dimensions but opposed creating a strong national executive.

Regarding the wealth variables, holding private securities clearly predicts a preference for *both* a stronger central government *and* a stronger president within that government. Individual holdings in *public* securities are different; the only clear result is a preference *against* a stronger centralized government. This runs exactly opposite to expectations, not only in the sense that the coefficient on public securities is negative, but also because Beard claimed that owners of public securities were "even more immediately concerned in the establishment of a stable national government" (1913, 32) than other forms of liquid wealth. Holdings in public securities actually predicted a preference for strong *state* governments. As for the type of delegate land holdings, they are influential only on the representation dimension. We find that holding agricultural land[14] predicts a strong preference *against* proportional representation. This prediction is clearly in the direction Beard suggested as holding farmland would have clearly placed delegates in Beard's "realty" class. Another prediction that goes as Beard would have suggested is holding western lands. Those who may have hoped to profit by speculation appeared to favor changing the basis of representation, though their preferences on the other variables are not as clear. Concerning the variables representing occupation, merchant, and farmer (which are relative to an "other" category that is essentially lawyers), merchants are more likely to support proportional representation (probability of 0.981) and centralized power ($p = 0.999$) than farmers, but less likely to favor a stronger president at the expense of the Congress ($p = 0.190$). The positive coefficients on representation and federalism for farmers are inconsistent with Beards ideas and so is the lone negative coefficient for merchants.

13. See the appendix for additional measures and discussion of this variable.

14. Note that this is distinct from actually working as a farmer.

Table 2. Estimated Coefficients and Positive Probabilities

	Representation		National Institutional Design		Federalism	
State-Level Variables	Estimate	Probability +	Estimate	Probability +	Estimate	Probability +
Slaves per 100 whites in the state	0.041	0.997	−0.011	0.225	0.014	0.835
Percent rural	−0.850	0.285	0.094	0.529	−1.781	0.113
Estimated per capita state wealth in the state (in thousands of dollars)	−2.092	0.371	−4.014	0.243	2.074	0.640
White population in hundreds of thousands	1.213	0.669	3.063	0.896	4.664	0.957
	Representation		National Institutional Design		Federalism	
Individual–Level Variables	Estimate	Probability +	Estimate	Probability +	Estimate	Probability +
Economic Variables						
Number of slaves	0.039	0.999	−0.009	0.059	0.011	0.839
Miles from navigable water	0.023	0.998	−0.009	0.065	0.034	0.941
Private securities owned in thousands	0.015	0.646	0.050	0.948	0.154	0.964
Public securities owned in thousands	−0.122	0.272	0.057	0.673	−0.462	0.043
Agricultural land holdings	−1.734	0.082	0.276	0.640	−0.432	0.394
Western lands holder	1.767	0.946	−0.138	0.418	−0.855	0.318
Farmer	1.791	0.888	0.447	0.673	4.930	0.997
Merchant	3.472	0.981	−0.971	0.190	7.895	0.999
Noneconomic Variables						
Age	−0.118	<0.001	0.009	0.678	−0.152	<0.001
Served in the revolution	3.310	0.991	1.196	0.950	1.120	0.769
Attended college	−2.268	0.039	−0.219	0.346	2.560	0.996
Hierarchical religion	1.412	0.942	0.165	0.610	1.858	0.908
Communitarian religion	3.134	0.994	0.431	0.730	4.036	0.999
English	1.734	0.933	−0.158	0.400	−1.299	0.280
Scottish	7.074	>0.999	0.541	0.713	4.839	0.999

Note—The regression portion of the model of state delegation and individual delegate positions at the Federal Convention of 1787. The estimates are the regression coefficients, accompanied by the probability that the coefficients are positive.

We simply note the estimated effects of the noneconomic variables. Age has a negative effect on two dimensions, meaning older delegates opposed proportional representation and stronger national power at the expense of the states. Service in the revolution appears to predict a preference for proportional representation and also for a stronger president ($p = 0.950$). Attendance at college predicts a preference for equal state representation, but also for a stronger national government. Both religion variables are positive on both representation and the federalism dimensions relative to the moderately hierarchical groups, showing few differences between these groups, with the communitarian denominations more likely to support more reformist positions on representation ($p = 0.994$) and centralized power ($p = 0.999$). With respect to ethnicity, those with Scottish heritage were more likely to take nationalist positions on each dimension, while the English took such positions most clearly on the representation dimension.

DISCUSSION

The first few weeks of the Convention saw some of the most crucial decisions that would occur that Philadelphia summer, laying the foundation for a much stronger central government. Our aim was to test which interests mattered for which dimensions of debate in this early key period. The goal was not to just produce evidence of a marginal effect of economic interests on some votes, but a marginal effect of economic interests on the deep structure of prefer-

ences at the Convention. Where does this leave the economic thesis?

Beard's narrow thesis about two dominant interests finds little support. We find little evidence that anything like a "personalty" influence was powerful at the Convention in this period. In particular, our results contradict Beard's claim that those who held public securities were in a prime position to profit from the new government as they "brought their papers to the . . . Treasury to have them recorded and transformed into the stocks of the new government" (Beard 1913, 21). There are many specific points in the model that reject Beard's narrow thesis. Those living near the coasts and closer to trade appear to have taken a dim view of the Constitution's proposed changes to representation. Public securities not only do not have a positive estimated coefficient, they have a negative estimate. Farmers appear to have favored most every element of the Constitution, and merchants appear to have a preference for weaker national power. Each of these findings, to some degree, contradicts Beard's claims, at least as they are applied to the Convention (we remind the reader that ratification is a separate issue we plan to take up in future research). However, his broader point about the importance of economic interests to voting—in this case to the preferences of the delegates and delegations—finds a great deal of support.

Beard's broad claim that "it was an economic document drawn with superb skill by men whose property interests were immediately at stake; and as such it appealed directly and unerringly to identical interests in the country at large" (1913, 188) gains a surprising amount of traction. It is not a complete explanation, but it sheds significant light on voting. While this analysis cannot speak to the motivations of those men, as Beard does, we do agree that economic interests played a clear and important role in organizing the deep structure of voting in Philadelphia. More rural delegations opposed giving power to a centralized government. Those living further from trade appear to have opposed strengthening the presidency. Private securities have a clear effect on both National Institutional Design and Federalism and, as suggested by Beard, that interest favored reform. Agricultural land owners were clearly voting against changing the basis of representation. Holdings in western lands predict a preference for reforming the basis of representation, and while merchants have a negative coefficient on one dimension, the coefficients are positive on both representation and federalism. Beard gets enough correct that one cannot really dismiss his claims about the importance of economic interests—but one most consider different dimensions of the conflict.

We emphasize that this story is novel. Previous efforts typically focused either on modeling coalitions (Jillson 2002; Slez and Martin 2007) or modeling the effect of economic interests on specific votes (Heckelman and Dougherty 2010; McGuire 2003). Heckelman and Dougherty (2013) went further by modeling votes in a single dimension using constituency data as well. This is the first study to attempt a multilevel model of interests across individual and delegation voting patterns in multiple dimensions. Only by attempting both elements of the model—delegate and delegation positions along with a model of preferences—can we really test the claim of economic influence across the dimensions of debate. We find that, in a sense, the historians were right. Beard's parsimonious claims were too simple. A multidimensional approach allows us to see which interests mattered on which dimensions. In fact every economic variable matters on some dimension, but the document ultimately created was far from a victory for any particular coalition, and economic interests hardly ruled the day in all cases.

The broader point may be that complexity was a key feature of the preferences (see the figures above). When your coalitions are as complicated as this analysis shows, there is not likely to be one clear class that "won" at the Convention. The resulting ideal-point estimates make clear that the variation and heterogeneity is not constant across coalitions or dimensions. Small state delegates were, on average, less sympathetic to centralized power, but there were exceptions like Dickinson and Dayton who were about as enthusiastic on this point as many other delegates. And the large states were divided on some questions like the nature of the presidency and how far to push centralizing power. A few Southerners such as Baldwin and Pierce may have taken strongly pronational positions, but others like Rutledge and the Pinckney's were far more cautions (see Figure 2). It is an exaggeration to portray a tidy meeting of the minds in Philadelphia where demigods called "Founders" agreed on the set of principles that would guide the young nation.

Ironically for the slave interests, the government ultimately created was much stronger—and had the potential to become even more stronger—than they probably imagined. The implicit alliance between slave holders and parochial interests living far from centers of trade may have won the debate over changing representation, but the new government and the president within that government became much more powerful than some slave owners preferred. This pattern certainly fits the received wisdom of a bundle of compromises. Simplistic views of what the "Founders" believed are far from the complex truth; a crucial historical event can only be approached with a rather complex expla-

nation. The birth of the American government may not have been a result of one particular form of wealth or privilege dominating the debates, but it was the result of pluralism and compromise between representatives of different economic interests and ideas.

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