Determinants of congressional minimum wage support: the role of economic education

J. Brian O'Roark · William C. Wood

Abstract Much has been made about the lack of economic education among the public at large, yet little has been said about the limited education of Members of Congress. This paper examines the economic education levels of Members of Congress voting on the 2007 increase in the minimum wage. Controlling for a variety of characteristics of members and constituents, this study finds that members who majored in economics as undergraduates were less likely to vote for the minimum wage increase than their colleagues. No other major had a consistent influence. A large number of statistical specifications confirm the robustness of the finding.

Keywords Economic education · Congressional voting behavior · Minimum wage

JEL Classification A20 · D72 · J38

1 Introduction

Caplan's (2007) evaluation of the "rationally irrational" voter provides some frightening analysis for those who want to believe that democracy yields beneficial political outcomes. Even more disturbing, however, is the insight into the divide between economists and the public on economic issues. "The typical voter", Caplan claims, "to whose opinions politicians cater, is probably unable to earn a passing grade in basic economics" (p. 13–14).

Other studies have reached similar conclusions (Caplan 2002; Walstad and Rebeck 2002; Blendon et al. 1997; Gleason and Van Scyoc 1995). The general public's knowledge of economics is woefully lacking. But, living in a representative democracy, the irrational voter

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does not really need to know much. In contrast, one would think it would behoove policy makers to understand something about how the economy works. To rephrase Caplan, "would a legislator chosen at random be able to earn a passing grade?"

Little attention has been paid to the degree of economic acumen possessed by politicians. While empirical work has been conducted to examine what influences representatives' voting records on economic issues, the actual economic background of legislators has been overlooked. In voting on economic issues, shouldn't some respect be paid to those with a background on the issue at hand? The cynic would say that these former economics students are merely politicians, and as such, they will do what is necessary to get re-elected even if it means going against economic logic. This point has been granted to the cynics in the past, but there has heretofore been no empirical evidence to contradict it.

This paper investigates how members' backgrounds, and especially their education, may influence their legislative positions on the minimum wage. On the one hand, for those schooled in economics, it is difficult to argue that increasing the minimum wage is a "free lunch" with no costs to employers, employees or consumers. The harm done by substantial increases in the minimum wage is recognized across a broad spectrum of economists (Fuller and Geide-Stevenson 2003). Even among those unconvinced about the damage of small minimum wage increases, there is recognition of "massive problems" that would be involved in enforcing an unrealistically high minimum wage (Clement 2006). On the other hand, it may be relatively easy for those with less economic knowledge to confuse intensions with results and favor a higher minimum wage without inquiring into the unintended consequences of their position.

The Members of Congress with the deepest formal backgrounds in economics are the economics majors. The economics majors in Congress should therefore be in a better position to make well-informed decisions on economic topics. They may not be able to convince their colleagues or constituents of their positions, but their voting records should provide a means for identifying potential influences arising from their greater economic knowledge. Admittedly, a statistical association between education and minimum wage voting does not prove that greater economic knowledge causes the voting behavior. That is, majoring in economics could be associated with an unobserved influence that makes people skeptical about labor market intervention and, simultaneously but not causally, interested in the study of economics.

Still, it is useful to see whether those who majored in economics have systematically different voting patterns when they get to Congress. This study deals with the 2007 minimum wage bill, which won overwhelming support in both houses of Congress and was signed into law. The bill called for an increase in the minimum wage from $5.15 to $7.25 in three stages from 2007 through 2009. Among the universe of economic issues, the minimum wage is especially appropriate for study because it is covered in most basic economic classes and all major textbooks. (See Krueger 2001 for a survey.) All Members of Congress understand the simple appeal of voting for higher wages, but the economics majors among their number are better equipped to sort through the less visible effects on employment, benefits and resource allocation. Therefore, they should be less prone to vote to raise the wage floor. This paper proceeds as follows: Sect. 2 focuses on the congressional voting behavior literature, Sect. 3 presents the model, Sect. 4 provides analysis, and Sect. 5 concludes.

2 How members of Congress vote

The political science literature is replete with studies analyzing the voting behavior of Members of Congress. Primary among this literature is the spatial voting model. Introduced by

Downs (1957) and Davis and Hinich (1966), the model has been augmented by Ordeshook (1976), Hinich and Pollard (1981) and Enelow and Hinich (1984).[1] Poole (2007, p. 436) notes that "in a standard spatial model of congressional voting each issue is modeled as an ordered dimension of alternatives and each member is assumed to have an ideal point on, and single-peaked preferences over, each issue dimension". On one side of a critical point everyone votes in a particular way. On the other side of the split, everyone votes the opposite way. The winner is determined by the location of the critical point. Therefore, most votes can be represented by a mapping of the issues onto this continuum.

Utilizing the spatial voting model to analyze congressional roll call voting, Poole (2007) observes that ideology is a driving force in voting. Specifically he notes that Members of Congress are not likely to change their minds on issues over the course of their political careers. However, Poole also notes that what Converse (1964) calls constraint—the bundling of issues used to predict other issue positions—can be short-circuited. For instance, gun control does not fit neatly into either a social or economic category. If it is a social issue, the parties appear to be on the wrong side of the matter. In order to be ideologically consistent, Republicans should be in favor of more control and the Democrats should be in favor of fewer restrictions. In the case of the minimum wage, therefore, it may be that ideology is not the sole driving force. Perhaps the backgrounds of Members of Congress provide a stronger motivation when they vote.

In the economics literature the connection between voting and economic education is more fully explored. Fuller and Geide-Stevenson (2007) provide insight into how economics affects the mindset of politically active Republicans and Democrats. They surveyed 1000 national delegates to the 2000 party conventions on 39 questions of economic policy importance. They additionally surveyed 1000 economists taken from the rolls of the American Economic Association. Curiously, Republican and Democratic respondents agreed on 18 issues, while Republicans and economists only agreed on nine issues. Democrats and economists agreed on only seven. When asked about the minimum wage, economists and Republicans agreed upon the following statement at levels of 73.4% and 71.6% respectively: "minimum wages increase unemployment among young and unskilled workers". Democrats, on the other hand, disagreed with this statement by 82.3%.

Studies in the public choice literature focusing on congressional voting behavior are plentiful. Various factors come into play, but the research shows that the guiding forces depend in great deal on what is actually being voted on. For instance, trade votes appear regularly in the literature (see Baldwin and Magee 1998; Dennis et al. 2000; Hasnat and Callahan 2004; and Gai 2005). One of the reasons for this is the bipartisan support and opposition for these bills. This provides an avenue to examine the role party plays on these votes. A second, and more economically interesting, reason is that trade is a particularly economic topic.

Pjesky and Sutter (2002) propose a background theory to explain congressional voting behavior, as opposed to the traditional focus on constituent interests, interest group pressure, and legislators' personal policy preferences. They examine the pre-political background effects of Members of Congress on votes of interest to the U.S. Chamber of Commerce. Specifically, they look at the business background of the Members of Congress and find that House votes are significantly affected by a business background, controlling for party affiliation and corporate and labor campaign contributions. A business background is insignificant for Senate voting.

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[1]For more detail on the spatial voting model see Poole and Rosenthal (1997). A concise explanation of the model appears in Poole (2007), while a more accessible version appears in Ellenberg (2001).

Pjesky and Sutter do address the issue of education, but they examine only whether the representative has a B.A., a law degree, or another graduate degree. They do not specifically examine college majors. If the background of a Member of Congress is important in forming voting patterns, then a more complete understanding can be gained by analyzing those members' college majors. Similarly, Rocca et al. (2008) look at the impact of education on Latino Members of Congress' voting records. They only examine the degree earned, but find that those with higher educational attainments voted in a more liberal fashion.

3 The model and the data

Before the 2006-midterm elections, Democratic congressional leaders announced a legislative agenda for the first 100 hours if they gained voting majorities. Part of that platform was to raise the minimum wage to $7.25 per hour, up from the $5.15 that it had been since September 1997. The Fair Minimum Wage Act of 2007, H.R. 2, passed the House 315-116 in January 2007. A revised version with tax cuts for small businesses was passed 94-3 by the Senate in February 2007. Final passage came in May 2007, when the minimum wage provision was added as a rider to H.R. 2206, the U.S. Troop Readiness, Veterans' Care, Katrina Recovery, and Iraq Accountability Appropriations Act of 2007. The final measure was signed into law on May 25, 2007.

The multiple components of H.R. 2206 make it difficult to know exactly what position a Member of Congress was taking by voting "yes". A vote in favor of H.R. 2206 might have been a statement favoring military aid rather than the minimum wage increase. A vote against H.R. 2206, on the other hand, might have been a protest about tax changes rather than opposition to the minimum wage increase. In the end, H.R. 2206 attracted 360 positive votes across the two chambers, well below the 409 votes for the straight up-or-down minimum wage increase manifested in H.R. 2. In H.R. 2 we have a clean vote on the minimum wage alone, which makes it ripe for analysis.[2]

A natural first test of association is to conduct a simple cross-tabulation of Members of Congress by minimum wage vote and undergraduate major. This test shows that both economics majors and business and accounting majors were statistically more likely than other majors to oppose the 2007 increase in the minimum wage. Among the economics majors, 33% opposed the increase, while 37% of business and accounting majors were in opposition. This is compared with 22.6% of the overall congressional sample. Those members majoring in government, political science and related fields, along with those who majored in human services, were statistically more likely to support the minimum wage hike. These results are shown in Table 1 along with the percentage of members who fall into each college major classification. The results indicate that there are systematic differences across undergraduate majors of Members of Congress in their willingness to support minimum wage legislation.

This simple cross-tabulation does not, however, exclude the possibility that the economics majors, or any other major for that matter, opposed the minimum wage because of some influence other than their educational background. For example, if conservative individuals are likely to major in economics, it could be conservatism alone that drives the minimum wage vote.

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[2]No Members of Congress voted in favor of H.R. 2206 who did not also vote in favor of H.R. 2. Following the pattern of the results presented later in this paper, we tested a model in an effort to identify why a member chose to vote against H.R. 2206. While interpretation is difficult due to the multi-faceted nature of the bill, it does appear that members with a lower ADA score were more likely to change their votes, all else equal. Undergraduate major played no role in this decision.

Table 1 Percentage positive vote on H.R. 2 by undergraduate major[b]

Major area	Proportion positive vote	t-statistic[a]	Percentage of Members of Congress majoring in a category[b]
Economics	0.667	1.4047[*]	6.7%
Business or accounting	0.628	2.0660[**]	8.2%
Government, political science and related fields	0.833	−2.3147[**]	30.5%
Humanities	0.729	1.0968	18.1%
Vocational	0.647	1.0831	3.2%
Human service, including education and medical	0.905	−1.9985[**]	3.9%
Science and technology	0.769	0.0690	7.5%
Entire sample	0.774		
χ^2	15.5172[**]		

[*]Indicates statistical significance at the 10% level

[**]Indicates statistical significance at the 5% level

[a]Statistics are from t-test of difference of means tests assuming unequal variances between each major and the rest of the sample; χ^2 test of statistical independence for entire sample

[b]Total percentage does not add up to 100 due to Members of Congress whose major could not be determined or had a major that did not fit one of these categories

Due to this concern we conduct a number of a priori tests to determine what, if any, selection effect might exist between economics majors and their political predisposition. The former economics majors in Congress have no statistically significant differences from their colleagues in measured conservatism. The small differences that do exist are actually in favor of a more liberal bent, contrary to what was expected. This is illustrated in Fig. 1. The graph shows the predicted probability of a vote on the minimum wage plotted against the members' ideology scores as assigned by the Americans for Democratic Action. As expected, the curve for both economics and non-economics majors slopes upward, reflecting the greater tendency for those with higher ADA scores to support the minimum wage increase. However, the curve for economics majors is significantly displaced below the curve for non-economics majors. The vertical difference between the two lines illustrates that for any ADA score, an economics major is less likely to vote for the minimum wage hike. Being a former economics major is comparable to being measurably "less liberal" on this issue.[3]

There is, of course, a possibility that the former economics majors in Congress are themselves unusual or come from statistically unusual districts. The vote against the minimum wage could simply be masking some underlying trait of either the member or the district.

To check for this possibility, we conduct a test of equality of means to determine whether the characteristics of the members and their constituents differ systematically between eco-

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[3]Further evidence of economists' liberalism is provided by Klein and Stern (2007). Academic economists, although not as liberal as their counterparts in other social sciences, still vote Democratic in extremely high percentages. Klein and Stern find a 2.5 to 1 Democratic to Republican voting record. While this applies to academic economists, the more liberal influence of college professors in nonetheless relevant.
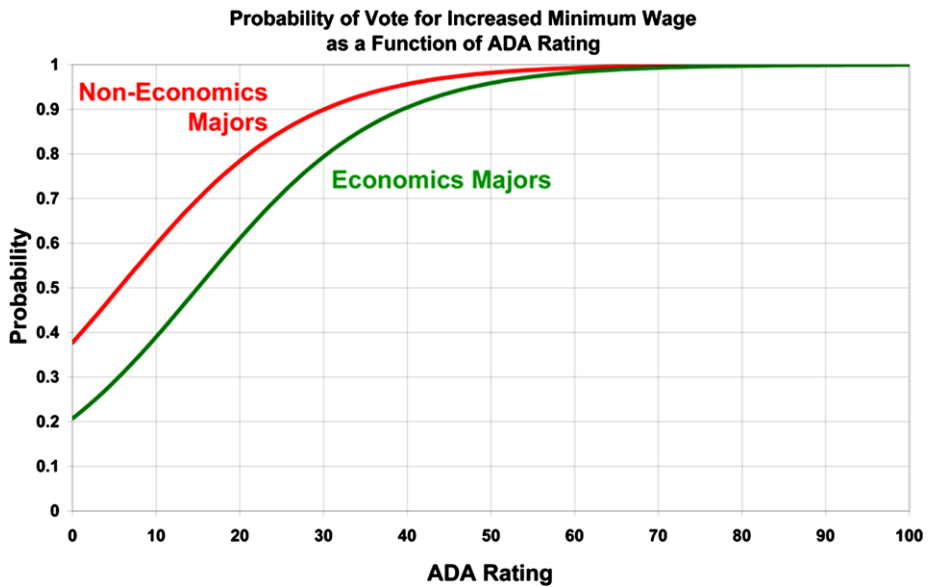
Fig. 1 Probability of vote for increased minimum wage as a function of ADA rating

nomics and non-economics majors. The control variables are defined in Table 2, and the t-test results are displayed along with the summary statistics in Table 3. We find that the former economics majors have no statistically significant differences from their colleagues in any measured characteristic except the percentage of the vote they received. A former economics majors' margin of victory averaged 61.8 percent, compared with a 66.5 percent average margin for non-economics majors. Additionally, of the constituent characteristics only the percentage of African-American constituents, 7.6% for the former economics majors and 11.9% for their non-economist colleagues, is statistically significant. This may suggest that an economics major represents a constituency less inclined to support the minimum wage. Therefore, special attention must be paid to these two control variables.

In the literature, there are two separate but complementary ways of analyzing congressional votes: a spatial approach common in political science and a regression approach favored by economists. Our model follows the economic tradition and is similar to that of Pjesky and Sutter (2002). We construct a logit model using a representative's vote on the minimum wage legislation proposed in H.R. 2 as the dependent variable: one for "yea", zero for "nay".

We proceed through an extensive series of logit regressions to test various hypotheses related to the votes of the members. The data are tested over three samples: House members only, House Republicans, and finally Republicans in both houses.[4] In all samples there is a proviso that not all members of the House or Senate actually voted on H.R. 2. The first sample includes only members of the House of Representatives. Using 2006 data, the sample size is 428. Although the scope of H.R. 2 is sufficiently narrow, in order to follow conven-

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[4]We also tested the model on a sample of the full Congress. A concern was raised that this might be misleading as the Senate bill was slightly different from the House bill. The results in the full Congress sample are consistent with the samples reported here.

Table 2 Definitions of variables

Member characteristics	
BUSACCO	First or second major provided was in business or accounting
ECONMAJ	First or second major provided was in economics
GOVETC	Major in government, political science, foreign affairs, international affairs, public administration, pre-law or urban studies
HUMANITIES	Major in American studies, art history, religion, communication, English, French, general studies, history, journalism, philosophy, Spanish, speech, Far Eastern languages, music education or social studies
HUMANSERVICE	Major in education, nursing, pharmacy, pre-dental, pre-med or social services
SCITECH	Major in a science or technical field
VOCATIONAL	Major in agriculture, home economics, mortuary science or criminal justice
1STTERM	Year of the member's first term
ADA	Ideology score based on the voting records tabulated by American's for Democratic Action adjusted using Anderson and Habel
BUSOWN	Dummy for Members of Congress that clearly were or are business owners
GENDER	Gender of Member of Congress
HIGHST	Dummy = 1 if the state has a minimum wage above $5.15
NONWHITEC	Race of Member of Congress: non-Caucasian
PCTVOTE	Percent of vote in the most recent election
SENHOU	Dummy = 1 if Member of Congress is a Senator

District and state characteristics	
BLACK	Percent of the population who are African American
HS	Percent of population with high school diploma
P2564	Percent of the population under 25 and over 64
POP	Population of district or state
UNION	Union membership percent of state (district data not available)
URBAN	Percent of the population in a district or state in urban area

tion, we run a sample with the two chambers split. Due to the overwhelming support for the bill in the Senate, we cannot run a Senate-only sample.

The sample of just House Republicans offers an attempt to circumvent any party unanimity problems. Since this was a signature issue of Democrats, it is possible that significant pressure was put on all members of the caucus by the leadership to vote in favor of the increased minimum wage. Only Republicans, therefore, would be free to vote their true preference. Because of Democrat unanimity on this vote including a control for party (as is typical in studies of congressional votes) means we would have a variable that perfectly predicted voting behavior, making inferences from other variables unreliable.

The final sample includes Republicans in both chambers where 130 members voted for the initial increase in the minimum wage and 116 voted against. This sample provides a clean test of the possible influence of a senator or representative's major on the recorded vote. Comparing legislative votes across chambers can be a bit messy and is unconventional; thus we turn to our ideology variable to assist in making this cross-chamber analysis as discussed below.

Table 3 Variables' means (standard deviation listed below means)[a]

Variable	Economics n = 36	Non-Economics n = 499	Full sample n = 535	t-test values[b]
Individual characteristics of Members of Congress				
1STTERM	1995.639	1996.469	1996.413	0.493
	9.810	9.100	9.143	
ADA	36.440	30.639	31.029	−0.807
	41.747	40.185	40.278	
BUSOWN	0.083	0.166	0.161	1.673
	0.280	0.373	0.368	
GENDER	0.917	0.835	0.841	−1.646
	0.280	0.372	0.366	
HIGHST	0.528	0.545	0.544	0.198
	0.506	0.498	0.499	
NONWHITEC	0.111	0.151	0.148	0.717
	0.319	0.358	0.356	
PCTVOTE	61.819	66.467	66.153	2.760[*]
	9.473	13.051	12.887	
SENHOU	0.333	0.176	0.187	−1.926
	0.478	0.382	0.390	
District and state characteristics				
BLACK	0.076	0.119	0.117	3.033[*]
	0.076	0.144	0.141	
HS	0.184	0.187	0.187	0.729
	0.051	0.042	0.042	
P2564	0.118	0.125	0.125	1.324
	0.029	0.030	0.030	
POP	2657767	1496733	1574859	−1.163
	5935743	2999681	3284131	
UNION	12.542	11.872	11.917	−0.711
	5.408	6.079	6.034	
URBAN	0.768	0.777	0.776	0.292
	0.182	0.193	0.192	

[*]Significant at the 1% level

[a]Values are missing for some variables, making $n < 535$ total in those cases

[b]Statistics are from t-test of difference of means tests assuming unequal variances between former economics majors and the rest of the sample

The model takes the following form:

$$VOTE = \alpha \mathbf{E} + \beta \mathbf{M} + \phi \mathbf{C} + \mu \tag{1}$$

where VOTE is a dummy variable equal to 1 if a representative or senator votes yes on the minimum wage increase and zero otherwise. **E** is a vector of dummies for the college majors

of Members of Congress. **M** is a vector of personal characteristics of the members, and **C** is a vector of constituent characteristics, while μ is an error term.

Data points for our analysis come from a variety of sources. Demographic characteristics for each state and congressional district come from the Census bureau. The district data is based on the 2000 Census, and has been retabulated as redistricting has occurred. The percentage of the work force in unions is available only at the state level. We nevertheless use this as a proxy for the congressional district. Spillover effects would inevitably make this a difficult value to quantify, as it is not uncommon for individuals to live and work across congressional district lines. Information about individual Members of Congress comes from their personal websites and from the Congressional Staff Directory (Congressional Staff Directory) issued by Congressional Quarterly. We grouped members into educational major categories based on the definitions shown in Table 2. The percentage of the vote received by each member is for the most recent election. This would be in 2006 for all House members, but varies for senators, as only one third of the Senate stands for election at any one time. Thus, the election results cover either 2002, 2004 or 2006 for Senate candidates.

The most difficult variable to verify is the business ownership variable. Some Members of Congress clearly were business owners, as listed in their biographies. For example, Sen. James W. DeMint (R-S.C.) owned a marketing company before running for Congress. Others have clearly never run a business. They may have been in the military, or have been career public servants, or worked for someone else, but they were never in the position to meet payroll. Examples include Senators Hillary Clinton (D-NY) and John McCain (R-Ariz.). There is another subset of Members of Congress who leave the question of business ownership a bit more unsettled. Some may have simply not listed any previous experience from which to draw a conclusion, or, more commonly, they became partners of law firms. To reduce measurement error, our business owner dummy variable, BUSOWN, includes only those Members of Congress who could clearly be identified as business owners. This variable was constructed using the biographies of members as posted on the House or Senate websites, and from examining the financial disclosure statements of members.

Over the past 40 years, as Poole and Rosenthal (1997), McCarty et al. (2006), and Poole (2007) have shown, the one single dimension that has most accurately predicted the votes of a Member of Congress is their ideological position. We therefore use an ideology measure rather than a control for party.

The ADA score of Fig. 1 is a commonly used measure of ideology (see Groseclose et al. 1999; and Lopez and Ramirez 2008). The ADA compiles an annual voting record to determine the degree of political liberalism of the Members of Congress. The ADA's ratings of Congress for 2006 cover 20 votes that would distinguish between conservative and liberal members. A higher score for this ideology measure signifies a more liberal voting record. This variable is a finer measure of conservatism or liberalism than a control for party because it can vary between 0 and 100. Using this scale also makes the results easier to interpret.

It should be noted, however, that there is some debate over whether ideological scores such as the ADA actually represent ideology per se or rather portray the revealed preferences of legislators. Poole (2007) leans in favor of an ideological interpretation, while Dougan and Munger (1989), Coates and Munger (1995), and Lopez and Ramirez (2008) favor a revealed preference interpretation. We will refer to the ADA scores as ideology measures here for convenience's sake, but this measure could be viewed from either perspective without altering the conclusions.

There is an additional concern in the literature over whether interest group measures are inherently biased. The selection criteria of the votes used in the ranking may be made to make legislators appear to be leaning in one particular ideological way or another (Fowler

1982; Jackson and Kingdon 1992; Snyder 1992; Reeher 1996; Brunell et al. 1999; Lowry and Shipan 2002). These measures tend to be particularly limited in scale and therefore may not fully capture the ideological tendencies of the legislator. This limits the ability of the score to measure subtleties between Members of Congress.

Accordingly Groseclose et al. (1999) attempt to correct for problems inherent in the ADA measure. Their concern is that due to a lack of continuity of votes across chambers and years ADA scores can shift and stretch making inter-chamber and intertemporal comparisons problematic. To address this concern they construct an adjusted ADA score. The index works like an inflation adjustment index correcting for the differences in the votes used across chambers, and essentially adjusting the ADA scores to make them reflect the Member of Congress's ideological leanings over time. Anderson and Habel (2009) update the scores through 2007.

Bishin (2003) creates a test measure to evaluate the legitimacy of the adjusted ADA score and finds that this score provides a reasonable estimate of legislator ideology. Therefore, we correct the ADA scores using the shift factor calculated by Anderson and Habel in order to allow for cross-chamber comparisons. We can therefore compare the vote across chambers more accurately while still relying on the commonly used ADA measure. In testing for the influence of ideology, we expect the adjusted ADA measure to possess a positive sign. This would mean that more liberal Members of Congress are prone to vote in favor of the minimum wage increase.

We also run versions of the model using the DW-NOMINATE score and the American Conservative Union (ACU) rankings to test for robustness. DW-NOMINATE (Carroll et al. 2009) is a score that reflects a Member of Congress' ideological position over time using a liberal-conservative continuum between -1 and $+1$ with a higher score indicating a more conservative position. The ACU ranking is based on a 25 issue voting record and is also commonly used in research (see Hasnat and Callahan 2004; Pjesky and Sutter 2002; and Mohai and Kershner 2002). A higher score here means that the member is more conservative. In the interest of space, we do not include these results in this paper, but they are nearly identical to those using ADA's numbers. These results are available from the authors upon request.

3.1 Characteristics of members of Congress

The primary variable of interest is the educational background of the Members of Congress. In all specifications of the model, we include eight major classifications. To maintain consistency with prior studies we control, where appropriate, for House and Senate membership by including a variable equal to 1 (SENHOU) for senators. We expect the coefficient on this variable to be positive due to the large majority of Senators voting in favor of the minimum wage legislation. We also test for the possible influence of race and gender on minimum wage votes. Women and minorities in Congress are generally thought to be more liberal; among Republicans, females vote for more liberal policies than their male counterparts (Sobel and Wagner 1998).[5]

When the particular Member of Congress actually comes to Washington is also of interest (Lopez and Sutter 2004; Kahn 2005). The more recent members might have run on a particular issue, such as getting an increase in the minimum wage, or they might be kowtowing to the leadership. If either case is true one's tenure in office might be instructive. Those

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[5]Additionally, as Lott and Kenny (1999) show, congressional voting has become more liberal as a result of granting women the right to vote.

with longer service in office are less likely to be voted out by constituents for opposing a popular minimum wage increase. We therefore expect a positive sign on the coefficient for 1ST TERM. This would suggest that newer Members of Congress would be more likely to vote for the minimum wage bill.[6] We include the percentage of the vote earned, with no strong prior on the sign of the coefficient. The sign could be negative as support for the minimum wage tips a marginal candidate into the winner's column. The coefficient could also take on a positive sign, as support for the wage floor expands the percent of the vote garnered by the winner.

As noted, we control for business ownership. Business owners have had more first-hand experience in trying to control costs of production, and therefore we would expect these members to be more reluctant to push an increase in costs onto other businesses. Thus, the coefficient on this variable is expected to be negative.

Finally, we include a control equal to one if a state already had a minimum wage higher than the federal minimum of $5.15. At the time of vote on H.R. 2, 24 states had raised their wage floors above the national level. The Members of Congress from these states may be less likely to vote to raise the nationwide floor since their states had already done so and their citizens would be unaffected. Thus, we expect the coefficient on this variable to have a negative sign.

3.2 Constituent characteristics

The second list of control variables in Table 2 focuses on the characteristics of constituents. Population is included, although for House districts this number does not show much variation. Following Lopez and Sutter (2004) and Mohai and Kershner (2002), we include a variable for the percentage of the population that lives in an urban area. We expect this number to have a negative sign because in many urban areas average starting wages were already above the existing minimum of $5.15. Thus, an increase in the wage should have little effect on the incomes of those citizens.

We also take into account the percentage of the population under the age of 25 and over the age of 64. This is the portion of the population who are most likely to be working at minimum wage jobs. Studies have shown that minimum wage workers are usually those in their high school years, who are just starting to get experience in the workforce (Neumark and Nizalova 2004; Neumark and Wascher 1995). Additionally, retirees who reenter the workforce frequently take minimum wage jobs. Thus, we expect the larger the portion of the population under 25 and over 64 in a district or state, the more likely the Member of Congress would be to vote for the minimum wage hike.

Race is also of interest here. Minority workers often receive lower wages than their white counterparts for a variety of reasons. We therefore expect that the coefficients on our variables for the percentage of the population who are African Americans to possess a positive sign.[7] The greater these numbers, the more likely it is that the Member of Congress would have to be seen as supporting higher wages.

We also examine the education level of the voters. Lower levels of education will usually mean lower paying jobs. Thus, the percentage of the population with only a high school

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[6]Although not reported, we also check this by taking a look at the age of the representative or senator (Lopez and Sutter 2004; Mohai and Kershner 2002). Here, if the prior logic holds, a younger member should be more likely to vote for the measure; thus, the sign is expected to be positive.

[7]In non-reported results we include the percentage of the population of Hispanic origin. This variable is not significant in any specifications.

diploma is expected to be in favor of an increase in the minimum wage, as this could mean a direct financial benefit to them. Therefore, we expect that a higher number of constituents with a low level of educational attainment would lead to greater support from the Member of Congress for the minimum wage increase.[8]

Additionally, we include a variable that focuses the percentage of the population who are in a union. The percentage of the population in a union is expected to be positively related to the vote as unions are traditionally in favor of higher minimum wages.

While our list of variables is long, the analysis must be conducted carefully to avoid any interaction between the variables that might lead us to issues of multicollinearity. Thus, as the regressions are run, and the specifications of the model change for each reported outcome, not all variables can legitimately be included.[9]

4 Results

The results presented in this section have been reduced significantly from the dozens of logit regressions we ran. The results for our economics major variable, ECONMAJ, are robust across all specifications of the model. For the sake of brevity we include one table of results. Each of the three columns comes from the samples noted above. The coefficient on percent of the vote primarily holds a positive sign implying that those in safer districts would vote in favor of the minimum wage increase. Even safe Republicans, it would seem, find this a politically palatable vote; however, the result is nowhere significant. The coefficients on all other variables posses the expected sign.

4.1 House members sample

Table 4, Column 1 provides the results from the House sample. The coefficient on ECON-MAJ has a negative sign and is statistically significant at the 1% level indicating that an economics major is likely to vote against raising the minimum wage. Since the raw logit coefficients are rather difficult to interpret, marginal effects on the probability of a positive vote are discussed. In the House, a former economics major is 15.15% more likely than other majors to vote against the increase in the minimum wage.

The only other major category that appears significant is business and accounting. While not as strongly significant, this major group votes consistently against the minimum wage. They are 7.43% more likely to vote against the minimum wage than other major categories.

ADA is also significant and posses a positive sign, confirming that those with higher ADA scores—those who are more liberal—are more likely to vote to increase the minimum wage. For each one-point increase in the ADA score, the likelihood of a yea vote to raise the minimum wage increases by 0.30%. For perspective, note that in this specification, being a former economics major has about the same impact as being 50 points more conservative on the ADA scale.

In this sample we also see that NONWHITEC is statistically significant. Racial minority House members are more likely to vote to raise the minimum wage, as indicated by the

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[8]We include a measure for higher levels of education by looking at the percentage of the population with a bachelor's degree. The results are not presented in this paper but are available upon request. The variable was not significant in any specification.

[9]To this point, the limited nature of our reported results and concerns of multicollinearity preclude us from including per capita income and the unemployment rate in the findings. These variables are never significant in any specification.

Table 4 Regression results. Dependent variable is vote on H.R. 2 equal to 1 if Member of Congress voted yes z-stat in parentheses

	House only	House rep only	Rep only
ECONMAJ	−1.857[***]	−1.738[**]	−1.508[**]
	(−3.01)	(−2.09)	(−2.23)
BUSACCO	−1.231[**]	−0.852	−0.893
	(−2.40)	(−1.52)	(−1.62)
GOVETC	−0.120	−0.150	−0.251
	(−0.28)	(−0.32)	(−0.54)
HUMANITIES	−0.398	−0.599	−0.628
	(−0.87)	(−1.09)	(−1.20)
VOCATIONAL	−0.626	−0.306	−0.188
	(−0.95)	(−0.40)	(−0.26)
HUMANSERVICE	1.377	1.241	1.145
	(1.17)	(0.73)	(0.68)
SCITECH	0.043	−0.470	−0.349
	(0.07)	(−0.68)	(−0.56)
ADA	0.082[***]	0.087[***]	0.090[***]
	(6.79)	(3.25)	(3.32)
SENATE			3.969[***]
			(5.01)
HIGHST	−0.125	−0.078	−0.148
	(−0.32)	(−0.16)	(−0.31)
NONWHITEC	2.235	2.260	2.156[***]
	(3.11)	(3.00)	(2.82)
GENDER	−0.108	−0.347	−0.530
	(−0.25)	(−0.75)	(−1.20)
PCTVOTE	−0.001	0.010	0.018
	(−0.05)	(0.41)	(0.83)
BUSOWN	−0.780[**]	−0.793[*]	−0.629
	(−2.08)	(−1.76)	(−1.51)
1ST TERM	0.055[**]	−0.015	−0.020
	(2.34)	(−0.57)	(−0.84)
POP	−1.87e–06	−3.80e–06	5.16e–08
	(−0.48)	(−0.76)	(0.77)
URBAN	−0.217	−0.895	−0.669
	(−0.21)	(−0.72)	(−0.56)
P2564	16.571[**]	16.288	14.057
	(2.04)	(1.63)	(1.43)
UNION	0.084[**]	0.078[*]	0.080[**]
	(2.32)	(1.88)	(2.02)
BLACK	3.814[**]	4.972[**]	4.169[*]
	(2.18)	(2.07)	(1.87)
HS	10.056	9.005	9.594
	(1.64)	(1.37)	(1.48)

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Table 4 (*Continued*)

	House only	House rep only	Rep only
CONSTANT	−113.629[**]	27.074	35.135
	(−2.37)	(0.52)	(0.73)
Wald χ^2	81.50	40.89	60.61
Percent correctly classified	87.15	77.16	80.33
Observations	428	197	244

[*]Significant at the 10% level

[**]Significant at the 5% level

[***]Significant at the 1% level

positive sign on the variable. The magnitude of the effect is less than the effect of being a former economics major, with the racial minority effect being an estimated 4.84% greater probability of favoring the minimum wage increase.

House members who have owned a business (BUSOWN) vote against the wage increase in statistically significant levels as well. A former business owner is 3.67% less likely to vote to raise the minimum wage. First term members, on the other hand, are more likely to cast a ballot in favor of raising the minimum wage, although the marginal effect is very small, 0.20%.

Regarding the characteristics of the constituency, we find that the coefficient on the percentage of the population under the age of 25 and over the age of 64 (P2564) is positive and significant, suggesting that a district with a larger portion of its population who fit into the expected age category of minimum wage workers will be more likely to have a Member of Congress voting in favor of the minimum wage increase. Additionally, UNIONPCT, the percentage of the population who are members of labor unions, is also significant and the coefficient has a positive sign. This indicates that a higher percentage of workers represented by unions in a congressional district leads a Member of Congress to vote in favor of the minimum wage. These two results are of particular interest as they support the traditional views on who benefits from the minimum wage.

Finally, the percentage of the population who is African American (BLACK) is statistically significant and holds the expected positive sign. From our earlier t-test results it was noted that this could possibly be a smokescreen for constituencies who might otherwise be against a minimum wage. In all versions of the model however, the economics major variable maintains its positive sign and significance. That is, even though the former economics majors represent smaller proportions of African-American voters, once we control for racial composition they are still less likely to vote for the minimum wage.

4.2 House Republicans sample

Column 2 reports the results for the sample of only House Republican members. For the most part we find the outcome to be consistent with that of Column 1. The coefficient on ECONMAJ has a negative sign and is statistically significant at the 5% level. The magnitude of the coefficient implies that in the House, a Republican economics major is 29.78% more likely than other college majors to vote against H.R. 2. ADA maintains its sign and significance. A one-point increase in the ADA score leads to a 2.05% increase in the probability a Member of Congress would vote for the increase in the minimum wage.

For the member characteristics variables we find that NONWHITEC and BUSOWN possess the expected signs and are statistically significant, as are the constituent characteristics of UNION, and BLACK.

4.3 Republicans in both houses

The outcomes in terms of statistical significance for the Republicans in both houses sample follow previous results closely and appear in Column 3. The coefficient on ECONMAJ retains its negative sign and statistical significance. Across both chambers a Republican former economics major is 34.91% more likely to vote against the minimum wage increase than a Republican non-economics major. The coefficient on ADA has a positive sign, which confirms that those Republicans with higher ADA scores—those who are more liberal—are more likely to vote for the minimum wage increase. The positive sign on the SENHOU variable shows that Senate members are more likely to vote for the minimum wage increase. NONWHITEC, UNION, and BLACK continue to be significant.

4.4 Summary

Several durable conclusions appear in our statistical analysis. After controlling for a number of factors, the former economics majors in Congress were more likely than their colleagues in any other college major grouping to vote against the minimum wage increase of 2007. The negative sign associated with former economics majors was persistent and robust. No major other than economics reliably retained a statistically significant relationship. Apparently in this regard economics is unique in the way that it affects, or reflects, policy positions.

A number of control variables show a consistent pattern. More conservative Members of Congress are more likely to vote against increasing the minimum wage. Minority and first term Members of Congress are more likely to vote in favor of increasing the minimum wage. In regards to the constituency, the percent of the constituency in a labor union, and the percentage of African Americans in a district positively affected the votes of Members of Congress.

5 Conclusion

Sobel (1999) shows that congressional action surrounding the minimum wage is not consistent with the stated objective of the 1938 Fair Labor Standards Act. Rather, the actions of Congress fit an interest group theory model in which changes are made close to elections and those changes fail to lift a family above the poverty line. Former economics majors do not participate in this political gamesmanship as fully as do their colleagues. The Members of Congress with the most extensive education in economics—those who were undergraduate economics majors—were more likely to vote against the minimum wage increase of 2007. The statistical findings are impressive, controlling for a large variety of possible influences other than undergraduate major. The robustness of the results of this study lends significant support to the importance of economic education, especially in the area of public policy. Members of Congress with a background in economics appear to carry that knowledge over into their decision making on the issue of the minimum wage. Unfortunately, they are not convincing their colleagues of the problems inherent in raising the wage floor. The minimum wage debate is a particularly political one, but just as the opinions of doctors on medical issues are deserving of special consideration, we believe that the opinions of the most economically literate on the minimum wage should be carefully considered by policymakers and the public. As Caplan (2007) suggests, "there is no reason, then, to deny economists a normal level of deference in their field of expertise" (p. 83).

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