

NBER WORKING PAPER SERIES

DOES LESS INCOME MEAN LESS REPRESENTATION?

Eric J. Brunner
Stephen Ross
Ebonya L. Washington

Working Paper 16835
<http://www.nber.org/papers/w16835>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
February 2011

We thank Robert Erickson, Alan Gerber, Joanna Lahey and seminar participants at RAND, Stanford GSB, University of Connecticut, UCLA's Anderson School, University of Maryland, and Yale's Institution for Social and Policy Studies for their suggestions. We thank Meredith Levine for superb research assistance. We thank the National Science Foundation for financial support. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

© 2011 by Eric J. Brunner, Stephen Ross, and Ebonya L. Washington. All rights reserved. Short sections of text, not to exceed two paragraphs, may be quoted without explicit permission provided that full credit, including © notice, is given to the source.

Does Less Income Mean Less Representation?

Eric J. Brunner, Stephen Ross, and Ebonya L. Washington

NBER Working Paper No. 16835

February 2011, Revised May 2011

JEL No. D72

ABSTRACT

We collect a novel dataset of matched legislative and constituent votes on 77 issues that allows for the first calculations of the extent to which legislative voting coincides with the majority view of low and high income constituents. We find that less income does not mean less representation. First, we show that the opinions of high and low income voters are highly correlated and that the legislator's vote represents the views of both groups of voters in his/her district. Second, we show that what differences in representation by income do exist, vary by legislator party. Republicans more often vote the will of their higher income over their lower income constituents; Democratic legislators do the reverse. Third, we find no evidence that higher or lower income voters are more influential in the legislator's decision function. While the views of low (high) income voters are more predictive of Democratic (Republican) legislator's voting decisions after controlling for the party's ideology, the legislator's personal ideology and the median voters' view on the particular issue, income differences in representation are significantly attenuated by controls for the view of the legislator's same party constituents. Republicans (Democrats) vote like high (low) income voters, not because the voters are high (low) income, but because these constituents are partisans.

Eric J. Brunner
Quinnipiac University
Department of Economics
275 Mount Carmel Avenue
Hamden, CT 06518
Eric.Brunner@quinnipiac.edu

Ebonya L. Washington
Yale University
Box 8264
37 Hillhouse, Room 36
New Haven, CT 06520
and NBER
ebonya.washington@yale.edu

Stephen Ross
University of Connecticut
Department of Economics
341 Mansfield Road, Unit 1063
Storrs, CT 06269-1063
stephen.l.ross@uconn.edu

An online appendix is available at:
<http://www.nber.org/data-appendix/w16835>

“You see, the rich are different from you and me: they have more influence. It’s partly a matter of campaign contributions, but it’s also a matter of social pressure, since politicians spend a lot of time hanging out with the wealthy. So when the rich face the prospect of paying an extra 3 or 4 percent of their income in taxes, politicians feel their pain — feel it much more acutely, it’s clear, than they feel the pain of families who are losing their jobs, their houses, and their hopes.”

--Paul Krugman (2010)

Do politicians better represent the interests of their higher income constituents? Perhaps because of the increasing costs of campaigns, or the greater participation of high income citizens in the political process or because politicians more often hail from the higher classes themselves, the popular belief is that the answer is yes. In fact the idea that United States political institutions are less responsive to the needs of the poor has been postulated as a mechanism for the lower level of redistribution in the US compared to other developed countries. (See for example Alesina and Glaeser, 2004; and Persson and Tabellini, 2003). In this paper we present the first direct empirical evidence on whether less income means less representation in legislative voting.

Previous work has been unable to answer the question of whether lower or higher income voters are better represented in legislative voting because of data limitations. Bartels (2008) regresses the DW Nominat score, a summary measure of the liberal/conservative leaning of a United States senator’s voting record, on the mean liberal/conservative leaning (seven point scale) of lower, middle and upper income survey respondents in the senator’s state. He finds that the ideology of the highest income group enters with a significantly larger coefficient than that of the lowest income group; he concludes that higher income state residents are better represented than their lower income counterparts. Bhatti and Erickson (2011) revisit Bartels’ analysis to address a weighting issue and sample size limitations. While in most specifications the authors find that the liberalness of higher income voters enters with a larger coefficient than that of lower

income voters, the difference is not statistically significant. In contrast to Bartels, these authors conclude that higher income constituents are not better represented.¹

Despite the innovations made by Bhatti and Erickson (2011) the limitation of both studies is that they do not have measures of constituents' preferences on legislative votes. This is a limitation of the majority of work on representation by constituent category (e.g., income, party). A constituent's view is represented in the legislator's vote when the legislator casts the vote that that individual would have cast, had that individual been in a position to do so. A group, such as the poor, is represented when the legislator casts the vote that the majority of the group would have cast. Thus to answer the question of whether the poor or the rich are better represented in terms of legislative voting, one needs three key variables, preferably for a variety of legislative votes: 1) whether the legislator voted yes or no; 2) whether the poor constituents wanted the legislator to vote yes or no; and 3) whether the wealthier constituents wanted the legislator to vote yes or no. As Matsusaka (2001) lays out in detail² the limitation of using proxy variables, such as liberal/conservative score, to stand in for an individual's vote choice, is that we lack the ability to map from that proxy to actual vote choice. Does a 3 on the 7 point liberal/conservative measure mean that the individual wants the legislator to vote in favor of extending affirmative action in granting government contracts? Does a score of 60 out of 100 on favoring increased abortion access mean that the individual wants the legislator to vote against increasing the waiting period for abortion access? Or do only those with scores above 70 favor a no vote? The problem becomes even more intractable when we allow for heterogeneity in respondents' views

¹ In addition to these two papers, there is a companion literature that takes the legislation, rather than the individual legislator as the unit of observation, and runs similar regressions with legislative outcome on the left hand side and proxies for high and low income voter views on an issue on the right hand side. See for example Gilens (2008), Rigby and Wright (2011), Ura and Ellis (2008) and Wlezien and Soroka (2011).

² Erickson, Wright and McIver (1993) cover this point briefly.

of the liberal/conservativeness of the status quo. If respondents who rate themselves 60 and 70 also rate current laws as 60 and 70 respectively then both prefer the status quo.

Without knowledge of the function that transforms proxy measures into vote desires, proxies cannot be used to measure legislative voting representation, overall or by income group. Thus previous work could not provide the most basic fact about representation by income group: On average, do legislators more often vote the desires of their higher income or their lower income constituents? As noted earlier, previous authors instead regressed legislative voting on the ideology of low and high income voters. Matsusaka (2001) further criticizes the authors of studies of this vein for drawing conclusions about average representation of different groups (in this case low and high income voters) based on the coefficients obtained from regressions since the estimated slope can only tell us about representation on the margin, but not on average. The more insurmountable issue, however, is that because we are unable to map from liberal/conservative self ratings to desired voting outcomes, we cannot make inferences about representation on the true margin of interest: The marginal increase in a legislator's probability of voting yes on an issue predicted from a one unit increase in the fraction of the poor (wealthy) who want the legislator to vote yes on the issue.

We overcome these data limitations by turning to the state of California. Because of the state's extensive use of ballot initiatives we are able to identify 77 times over the years 1991-2008 during which state legislators and the public voted on the same proposal.³ For these 77 votes we have the three key variables (how each legislator voted, how residents of the poorest neighborhoods in each legislative district voted and how the residents of the wealthiest

³ Our use of the term initiative and additional direct democracy terminology presented in the data section are based on the language used in the California constitution and statues. In some cases, these terms conflict with the traditional terminology used within the academic literature in Political Science and Political Economy. See Matsusaka (2005) for the standard terminology used in studies of direct democracy.

neighborhoods in each legislative district voted) necessary for a descriptive analysis of the relative representation of lower and higher income voters.

Using these data, we ask two questions about relative representation of lower and higher income voters. First, we ask whether legislators' more frequently vote with the majority of their lower or higher income constituents. Second, we ask whether lower or higher income voters are more influential in the legislator's decision function.

We present three key findings. First, we demonstrate that the majority of the time the legislator votes the will of both lower and higher income voters. The legislative vote choice matches his/her constituents' vote choice about 75 percent of the time; this finding is true of constituents residing in both higher and lower income neighborhoods. Representation of both groups is only possible because the views of the two groups are highly correlated.

Second, we show that whether legislators' votes more often coincide with the views of their lower or higher income constituents varies by legislator party. Republicans vote the desires of their constituents living in the highest income neighborhoods more often than the desires of their constituents living in the lowest income neighborhoods. For Democratic legislators the pattern is reversed and more striking. Their voting behavior more often coincides with the voting patterns of constituents living in the lowest income neighborhoods. Further Democratic legislators more often vote the will of lower income constituents than the will of the majority or median constituent. (For Republicans there is no significant difference between frequency of voting with the highest income and with the majority of the constituents.) While on average Republican legislators are only three percentage points more likely to vote the view of their highest income residents compared to their lowest income residents and Democratic legislators only five percentage points more likely to vote the view of their lowest income residents

compared to their highest income residents, for both parties, the differences are substantively significant in that they are more than half the magnitude of differences in representation by constituent party. We find that for legislators of both parties, the income representation pattern holds for taxation, an issue that puts higher and lower income voters at odds, and to times when, because of electoral pressures or the closeness of the vote, there is more at stake for the individual legislator. Finally, by comparing the votes of U.S. Senators to the views of constituents who responded to a unique survey on issues that came before the senate, we present evidence that our results are robust to moving away from the high income, high referenda use context of the state of California.

Finally, we find no evidence that either income group is more influential in the legislator's decision function. We examine in a regression framework whether the views of low income or high income voters better predict the legislator's vote. Compared to our results on average representation, we find a similar pattern, but much larger income differences in representation on the margin. This difference is robust to controlling for the legislator's party's propensity to vote liberally, the propensity for the legislator him/herself to vote liberally, the position taken by the district's median voter and high and low income voters' political participation. However, for politicians of both parties, the differences in the coefficients on the views of low and high income voters is attenuated substantially by the correspondence between high income voters' views and Republican voters' views and between low income voters' views and Democratic voters' views. Thus rather than providing evidence for the underrepresentation of the financially disadvantaged, our results serve to confirm for the first time using direct voting

preference data, the underrepresentation of the politically disadvantaged, those voters who find themselves represented by a politician of the opposing party.⁴

We present our findings in detail, after first detailing our data in the next session.

DATA

Our data section is divided into three parts. In the first sub-section, Sample of Issues, we describe our sample votes, note the strengths of our data and address the potential limitations of generalizability and legislator influence on constituent voting. In the second sub-section, Legislation and Constituent Vote Matching and Coding, we describe how we categorize each piece of legislation as a liberal or conservative bill. We then present evidence from univariate regressions to address concerns about our coding and our approach more generally. In the final sub-section, Summary Statistics, we present descriptive statistics by income category. We first address the generalizability of our California voting data by presenting descriptive statistics on political participation and preference by income that mirror previous work. We end the section by describing the variables that are unique to our dataset.

Sample of Issues

As noted in the introduction, previous work has been unable to answer the question of whether lower or higher income voters are better represented in legislative voting because of data limitations. In order to assess the relative degree to which the views of various constituencies are represented by their legislator's voting, we need data on legislative votes that includes three variables: 1) how the legislator voted; 2) how low income voters wanted the legislator to vote on the issue and 3) how high income voters wanted the legislator to vote on the issue. While the legislator's vote is public record, knowing how the constituents would have voted had they been

⁴ Fiorina (1974) makes the theoretical point. Levitt (1996) and Mian, Sufi and Trebbi (2010) provide empirical support.

in a position to vote directly is more elusive. We turn to the state of California for our analysis because in California the constituents, through ballot propositions, were in such a position. Over the nine two-year legislative sessions that span the years 1991-2008⁵ we identify 77 times when the same issue was voted on by both representatives on the floor of the legislature and the public in either a general or primary election.⁶ (Sixty-six bills were voted on by both chambers; while eight were voted on by the lower house, the assembly, alone and three were voted on by the upper house, the senate, alone.)

While surveys occasionally ask how respondents would vote on a measure currently or formerly under consideration by the legislature,⁷ our matched pairs have significant advantages over survey responses. First, the number and variety of issues that we cover is much larger. Second, the number of individual opinions aggregated into district/income cells, is also larger⁸ than in a survey and thus the public vote is less prone to classical measurement error. Third, the match between the legislative vote and the public vote is quite precise (many times worded identically) so the public vote is likely a better measure of the public's desired outcome on the legislative vote than the response to a survey question's simplified version of a legislative issue.

Our 77 votes can be classified into two matching types: mandatory (56) and non-mandatory (21) matches. Mandatory matches occur when the legal process requires that voters vote on the same issue with the same wording that legislators voted on previously. In order to pass a bond act, make a change to the constitution or amend legislation passed through public ballot proposition, both houses of the legislature must approve the measure by a 2/3

⁵ Our sample period begins with the first congressional session whose electoral data are available in the Statewide Database and ends with the last session available at the time of data collection.

⁶ With the exception of measures that the public voted on in the 2002 and 2004 primary elections for which electronic data are not yet available.

⁷ For example, Matsusaka (2010) uses National Election Studies questions with dichotomous response choices to examine whether citizen's preferences are better reflected in state law in states with direct democracy.

⁸ Bhatti and Erickson (2011) have 150,000 individuals overall and 15,000 in California, we have approximately 150,000 (300,000) individuals 18 and over who cast a ballot on each of our issues in each assembly (senate) district.

supermajority and the public must pass the measure by a simple majority. The second type of mandatory match happens when voters wish to overturn a law passed by the legislature. Voters collect signatures to get the measure placed on the electoral ballot and then need a simple majority vote to overturn. Non-mandatory matches, in contrast, are not stipulated by law. They generally arise because a group works to pass the same legislation through both ballot initiative and through the legislative process, either simultaneously or sequentially. Laws, that do not amend the constitution, can be passed through either public or legislative initiative. We identified these non-mandatory matches by reading through the contents of legislation and ballot initiatives. For more details on how we chose our sample votes, please see the Data Appendix.

One potential criticism of our data is limited generalizeability. In order to measure public opinion on legislative votes, we limit our focus to legislation on which both legislators and the public cast ballots. This raises the concern that legislative voting on these pieces of legislation is not representative of California legislators' voting overall. However, we note that the threat of a law being overturned by the public means that California legislators face the same incentive to align their votes with the desires of the public on legislation whether or not the issue is eventually voted on by their constituents. In fact, Gerber (1996, 1999) and Matsusaka (2010) show that across a variety of issues, states that allow for public initiative (i.e., allow voters to propose and vote legislation into law) more frequently have laws that match the desires of the majority of the public than states that do not allow for public initiative.

That the threat of direct democracy is associated with a closer match between public laws and public desires suggests that our sample of votes is representative of California legislation as a whole, but raises the concern of generalizeability beyond the state. While we hope that the behavior of the legislators of the most populous state in our union is interesting in and of itself,

we make a case for greater generalizeability by noting first that California legislators are not alone in being under the threat of direct democracy. According to the Initiative and Referendum Institute,⁹ in twenty other states voters can make use of both the initiative (propose and vote on their own law) and referendum (vote to repeal current law) processes. Six additional states allow one of the two procedures.

Second, as to generalizeability beyond the direct democracy context, we note that while direct democracy may give a greater incentive to vote the will of the majority of voters, it does not provide an incentive to favor the wealthy over the poor, or vice versa. The process does not provide legislators with additional information on voters' views, and certainly not differentially for one income group over another, as voters cast their ballots a median time of 187 days after representatives. In both states with and without direct democracy (and in California on legislative bills with and without an accompanying public vote) legislators gather information on constituent opinion through direct communication with voters and through their own polling. Further, because California law requires a public vote on any bills that involve the issuance of bonds or a legislative constitutional amendment, our dataset includes votes on a variety of issues including courts, education, elections, employment, energy, the environment, health, infrastructure and taxation—issues that are decided on by legislative bodies throughout the nation up to the national congress. For example, our dataset includes votes on issues such as raising the minimum wage, increasing the top marginal income tax rate, requiring employers to provide basic health care coverage and establishing a single payer health care system, all issues that have been debated and voted on by many state legislatures and at the national level.¹⁰

⁹ Website http://www.iandrinstitute.org/statewide_i%26r.htm accessed on April 7, 2011.

¹⁰ The bills associated with these issues are AB1184 (1998) on increasing the minimum wage, AB83 (1998) on raising the top marginal tax rate, AB2001 (1992) and SB2 (2004) on requiring employers to provide basic health care coverage, and SB308 (1994) on establishing a single payer health care system. In addition to these bills, our

Finally, we make use of a unique survey on respondents' preferred outcomes on issues voted on by the United States senate to present evidence that our results generalize beyond the direct democracy context of the state of California.

In 74 of our 77 matched pairs, the legislature votes before the public. This timing raises the concern that a citizen's vote on an issue may be influenced by the legislative vote on that same issue cast by his/her state representative. If that were the case then our measure of public opinion would not be a good proxy for public opinion at the time the legislative vote occurred. If low and high income voters were differentially influenced by the votes of their representatives, then our measure of the difference between low and high income representation would be biased by the difference in the degree to which these two groups copy the behavior of the representative. However, the idea that constituents vote according to the preferences of their legislators seems improbable for two reasons. First, constituents are unlikely to know how their state legislators voted. The 2006 Cooperative Congressional Election Survey (CCES) asked respondents how their US senators voted on six high profile issues during the 2005-06 congressional session: stem cell research, Iraq withdrawal, immigration reform, minimum wage increase, capital gains tax increase and the Central American Free Trade Agreement. The average fraction correct was 49% which is clearly an upper bound for knowledge¹¹ in our sample of less salient votes conducted by a political body that receives less media attention. Songer (1984) demonstrates that Oklahoma voters' knowledge of the policy positions of their state legislators is less than half their knowledge of the positions of their federal representatives. In

dataset also contains votes on issues related to providing bond financing for the modernization and construction of K-12 and higher education school facilities, issues that are voted on by many state legislatures.

¹¹ Knowledge includes correct inference based on legislator characteristics, such as party. The 49% rate is better than what would be expected with random guessing because there was a "don't know" option.

fact Hogan (2004) argues that because of voters' lack of knowledge about state politics, policy responsiveness is less important for the reelection of state legislators than for those at the federal level. Further, to the degree voters are knowledgeable about their state representatives' behavior that knowledge is increasing in income amongst both Democrats and Republicans and amongst constituents in both Democratic and Republican districts.¹² Thus the pattern of our average representation results —Republican legislators voting more in line with high income voters and Democratic legislators voting more in line with low income voters—seems unlikely to be driven by one income group being more likely to copy the voting behavior of their representative. And while we have only three matched vote pairs in which the public voted first,¹³ we note that both the correlation between the majority view and the legislator's vote and the pattern of average representation by income group are robust to a focus on these vote pairs on which the public vote could not have been influenced by observing their legislators' votes.

The second reason it seems unlikely that constituents mimic the votes of their representatives is that when asked directly, California voters do not name their representative as being influential in their proposition voting. In a 1990 California Field Poll, reported on in Bowler and Donovan (1998), voters were asked in an open ended format what sources they turn to when deciding how they will vote on statewide ballot propositions. Their own representative was not amongst the top ten most frequently cited answers.¹⁴

¹² Authors calculations using the 2006 CCES.

¹³ The bills are AB1184 (1998) on increasing the minimum wage, AB83 (1998) on raising the top marginal tax rate and AB118 (2008) on a proposed a tax whose revenues would be used to promote alternative energy.

¹⁴ The top ten were ballot pamphlet (54%), newspaper editorials (47%), TV editorials (33%), friends (22%), TV ads (21%), direct-mail ads (20%), newspaper ads (18%), radio editorials (10%), radio ads (6%), and the League of Women Voters (2%). The ballot pamphlet gives pro/con views on the issue from noted politicians who are generally known statewide, but does not list the votes of the state legislators.

A final caveat about our data is that we capture only the views of those who cast ballots. Just as with survey data, to the extent that the views of nonparticipants differ from political participants, our results speak only to the differential representation of political participants.

Legislative and Constituent Vote Matching and Coding

In order to address the question of whether legislative voting better represents the views of constituents from higher or lower income areas of a district, we collect data on legislative and constituent votes on each of the 77 issues. Vote choice (yes/no/abstention¹⁵) for the 80 assembly members and 40 senators in the legislature at the time of the vote was obtained from web sources and state archives, as detailed in the Data Appendix. Constituent vote choice on corresponding ballot issues at the census tract level, was obtained from The Statewide Database, maintained by the Institute of Governmental Studies (IGS) at the University of California at Berkeley.¹⁶

For ease of interpretation and to be able to meaningfully add controls such as legislative fixed effects to our regression models, we recode both legislative and public votes from yes or no to liberal or conservative. We determine whether the yes or no side of each vote is the liberal side by turning to the tract-level returns from the ballot initiative. For each public vote we run the following regression:

$$1) \quad \textit{PercentYes} = B_1(\textit{Percent Registered Democrats}) + B_2(\textit{Percent Registered Republicans}) + \upsilon$$

where *PercentYes* is the percentage of yes votes among those voting on the initiative. We

classify a yes vote as a liberal vote if $\hat{B}_1 > \hat{B}_2$ and a yes vote as a conservative vote if $\hat{B}_2 > \hat{B}_1$.¹⁷

¹⁵ Abstentions include both absences and active abstentions.

¹⁶ Located at <http://swdb.berkeley.edu/>, the Statewide Database provides data on aggregate vote outcomes and voter registration for statewide primary and general elections held in California since 1990.

¹⁷ We classify observations in which legislators abstain as missing. Largely because of abstentions and to a small degree because of vacancies we lose about 10 percent of our target sample of 8680. (80 assembly members * 74 votes + 40 senators * 69 votes = 8680). There are 809 abstentions and 58 votes missing due to vacancies. While we

We know from previous work that the views of the legislator and the constituency should be positively correlated.¹⁸ To verify the validity of both our vote coding (liberal/conservative) and our matching of voters to districts, Table 1 examines the relationship between a legislator's tendency to vote liberally on an issue and his or her constituents' desire for that legislator to vote liberally. We aggregate our data to the district/issue level and run models of the form:

$$2) \quad \text{Legislator_vote} = \gamma_0 + \gamma_1(\text{Constituency_vote}) + \varepsilon$$

where *Legislator_vote* is an indicator for whether the legislator voted liberally (or yes in the uncoded specification) and *Constituency_vote* is an indicator for whether the majority of voters in the district who voted on the corresponding ballot measure voted liberally (yes). We construct the *Constituency_vote* by aggregating tract level voting returns on an issue to the assembly (or senate) district as configured when the legislature voted on the measure.¹⁹ Standard errors are clustered to allow for a lack of independence of the disturbance term within legislator/chamber.²⁰

The point estimate of 0.307 in the first column of Table 1 indicates that the likelihood that the legislator votes in favor of the legislation is 31 percentage points greater when the majority of the voting constituents favor a yes vote. The figure increases when we move from predicting yes votes to predicting more meaningful liberal votes. A majority of voting constituents in favor of a liberal vote is associated with a 53 percentage point increase in the likelihood that the legislator votes liberally on the issue.²¹ Our coding system is most likely to

find that Democrats are more likely to abstain the more conservative their constituents are on the issue and Republicans are more likely to abstain the more liberal their constituents are on the issue, we find that representatives of both parties are less likely to abstain when there is an above median difference of opinion between low and high income areas in their district. Thus we do not believe that abstentions are biasing our results.

¹⁸ For instance Snyder (1996) demonstrates this fact for California state legislators in an earlier time period.

¹⁹ Because of redistricting this may differ from the configuration of the districts when voters voted on the initiative.

²⁰ Clustering by legislator/chamber means that for legislators who serve in both the assembly and the senate in our time period, votes cast in the two chambers are in separate clusters.

²¹ While the frequency with which the legislator votes in agreement with the constituents is the same whether we code bills as yes/no or liberal/conservative, the coefficient changes between specifications presented in Table 1 columns 1 and 2 because regression is sensitive to the distribution of those agreements [between 0,0 (in the first case

misclassify those bills that are the least partisan, those for which Democratic and Republican registrants vote similarly. Thus it is comforting that our results are robust to dropping more moderate bills, in particular the 13 bills for which $|\hat{\beta}_1 - \hat{\beta}_2| < 0.1$, as shown in column 3. One might also be concerned that legislative bills that we hand matched to ballot items are not as close a match in terms of bill content as the mandatory ones. We demonstrate in column 4 that these hand matches are not driving our Table 1 findings; results are robust to their exclusion.²²

As we noted earlier, the fact that on 74 of 77 issues the public votes after the legislature raises the concern that constituents' votes are influenced by those of their legislators. Such influence would invalidate our use of the constituent vote as a measure of constituents' desires on the issue at the time of the legislative vote. If constituents' copying their representatives is driving our Table 1 results, then when we limit our focus to the matched pairs in which the public voted before the legislature we should see a smaller association between legislative and constituent voting. However, as shown in column 5 of Table 1, when we limit focus to this sample the coefficient on the constituent vote increases in magnitude, although not significantly.

In the final four columns of the table we show that the relationship between constituent and legislator support holds across parties and chambers.

Summary Statistics by Income Tercile

Table 1 demonstrates that the majority constituent view is strongly correlated with legislative voting. Our primary interest, however, is on whether representation varies by constituent income. We aggregate census tracts to district income terciles to create variables on

no, no and the second case conservative, conservative) and 1,1 (in the first case yes, yes and the second case liberal, liberal)] and disagreements. When the constituents want a no (yes) vote the legislator votes no 42% (88%) of the time. However when the constituents want a conservative (liberal) vote the legislator votes yes 66% (87%) of the time. Thus, the constituents' liberal/conservative desires are more predictive of the legislator's vote than the constituents' yes/no desires. The difference in slope between columns 1 and 2 underlines Matsusaka's (2001) point that it is impossible to infer the frequency with which the legislator votes the will of the constituents from regression coefficients.

²² The coefficient for the hand matched sample is a significant 0.370.

the political views of the lowest, middle and highest income voters, or more specifically the views of the voters residing in the lowest, middle and highest income neighborhoods, in each district. Income terciles are created based on average household income for the tracts within the district.²³ We weight by share of residents who are citizens aged 18 and over so that each tercile has an equal number of eligible voters, and therefore equal electoral power. The header row of Table 2 gives the mean minimum and maximum average household income for each tercile.

In the remainder of the table we provide summary statistics by income terciles. In Panel A we present a variety of measures of political behavior that demonstrate that relationships between income and political behavior that the literature has identified previously hold in our dataset. We see that participation (as measured by registration, turnout for propositions or turnout for the highest office on the ballot) is increasing in income. We also show the well established correlation between income and conservatism:²⁴ registration for the Republican Party is increasing in income; support for the Democratic Party in terms of registration and vote choice is decreasing in income. Both the participation and political preference patterns hold across all districts and within both Republican and Democratically led districts.

In the remainder of Table 2 we present the variables we use to measure representation by income group. Previous studies have employed proxies such as self identification on a seven point liberal/conservative scale or a five point pro choice/pro life scale to stand in for vote preference on a particular issue. Matsusaka (2001) points out that such variables do not allow a researcher to measure representation. While a score of 6 out of 7 on a conservatism scale tell us that the individual rates him/herself as fairly conservative, what the measure cannot tell us is how

²³ Our census data is based on 2000 tract definitions using Summary Table Files from the 1990 and 2000 Decennial and the American Community Survey 2005-2009. For the 1990 Decennial Census, we use estimates for 2000 tract definitions provided by Geolytics, Inc. Non-census year income data is created based on linear interpolation at the tract level.

²⁴ See for example Brunner, Ross and Washington (in press) and Leigh (2005).

conservatively the individual rates the status quo policy. Without this second piece of information, we do not know whether the individual would prefer for his/her representative to vote for the more liberal or the more conservative side of the issue. To analyze to what extent a legislator represents (votes according to the wishes) of the constituency one must know both: 1) how the legislator voted and 2) how the constituency wanted the legislator to vote on the issue. Our matched legislative/constituent vote pairs provide this information for 77 issues.

In Panel B we present these key variables. In the first row of the panel we see that in 60 percent of our legislator/issue observations the legislator votes the liberal side of the issue. This is not surprising; Democrats are a majority in both bodies in all of our legislative sessions. Democratic legislators vote liberally 74 percent of the time; Republican legislators do so 39 percent of the time. Overall and in both Democratic and Republican-led districts, constituents' propensity to vote liberally on an issue, like their propensity to vote for a Democratic candidate, is decreasing in income. However, we note that the income conservatism gradient is far less steep for issues than for candidates. Just as at the national level (Stimson, 2011), Table 2 shows that in California, across income groups, party polarization is greater than issue polarization.

In the next row of Panel B we provide summary statistics on an indicator for whether the majority of the focal group favored the liberal view on the legislation. This variable is directly comparable in units to Legislator Voting Liberally, also an indicator variable. Comparing these two rows we see that voters residing in Democratic and Republican-led districts hold views that are much closer to each other than do Democratic and Republican legislators. Democratic legislators have a higher propensity to vote liberally than their constituents of any income

category and Republican legislators have a lower propensity than their constituents, again regardless of income.²⁵ Constituents' votes are far less polarized than their legislators.

Despite the difference in polarization, legislators more often than not vote the will of the majority of their constituents. In the final row of Panel B we calculate what political scientists term congruence, an indicator that varies by legislator/issue for whether the vote of the legislator matches the vote of the majority of his/her constituents²⁶ which because of the binary nature of the vote choice also indicates whether the vote coincides with the will of the median voter. We use the congruence measure to determine how frequently legislators vote the will of their constituents or what we term average representation. We see in the first cell of the row that legislators vote the will of the majority/median 76 percent of the time, far more often than the 50% that would be expected if legislative voting were random with respect to the median voters' views. We examine whether congruence differs by income in the results section.

RESULTS

In a representative democracy voters do not vote on each issue directly, but rather elect political leaders to make decisions on their behalf. Thus for legislative voting we define representation as the extent to which the legislator votes in the way that the constituency would have voted had the constituency been in a position to do so directly. For our 77 matched pairs the constituents did have this opportunity. We use the matched pairs to answer two questions about the relative representation of lower and higher income voters. First, on average, do legislators more often vote the will of their higher or lower income constituents? And secondly, do legislators vote the will of their higher or lower income constituents on the margin? In other

²⁵ Ansolabehere and Jones (2010) find the same at the national level; Senators are more polarized than constituents.

²⁶ Besley and Coate (2008) employ this definition of representation in their theoretical examination of how direct democracy affects representation.

words, is there evidence that lower or higher income voters have more influence on the legislator's decision making?

Average Representation

We begin by returning to the congruence measures to address the question of average representation. We saw in the final row of Table 2 that legislators vote the will of the majority of their constituents 76 percent of the time. Continuing to the right in that table, we see that this figure varies little across income terciles. Legislators vote like their lower income residents 77 percent of the time and like their higher income residents 75 percent of the time. Even when we stratify by legislator party we see that the differences between congruence with residents of the district's highest and lowest income neighborhoods differs by only five percentage points for Democrats and three percentage points for Republicans.

The high level of congruence with both high and low income voters on these 77 issues is the result of great congruence between the lower and higher income voters' views themselves. In fact, the correlation in the two groups' opinions is 0.81. This correlation is driven neither by the small size of the districts²⁷ nor by great homogeneity in terms of district income. The correlation is similarly high for assembly and senate districts despite the fact that senate districts are twice as large. The correlation is still high (0.77) when terciles are defined relative to state, rather than district income. The key is that the opinions of voters of varying incomes move together across issues. In fact the correlation is 0.73 when we ignore district boundaries and compare the views of the top and bottom income tercile of voters across the state.²⁸

²⁷ In fact California legislative districts are large relative to other states. A California assembly person represents 3.5 times as many people as a New York assembly person and 4.6 times as many as a member of the Illinois assembly. California's state senate districts are larger than US House districts.

²⁸ Similarly, Hajnal, Gerber and Louch (2002) document that minority voters in California are on the winning side of a majority of initiatives and conclude, therefore, that they are not disadvantaged by direct democracy.

As to the issue of whether residents of lower income neighborhoods receive significantly less representation than their higher income counterparts, Table 3 demonstrates that the answer depends on party. The table reports, by party, the mean congruence between the legislator and 1) voters in the lowest tercile 2) the median voter and 3) the highest income tercile.²⁹ The Republican means provide support for the popular view that legislators more often represent the will of their higher income voters. Republican legislators' voting is congruent with the view of the top income tercile 76.8 percent of the time, but congruent with the view of the bottom income tercile only 74.3 percent of the time. As noted in the table, the difference is statistically significant. To get a sense of the economic significance of these results, in Panel B of the table we calculate congruence measures by constituent party. For Republican (Democratic) legislators tercile 3 now represents the top third of neighborhoods in fraction Republican (Democratic) of total registrants. Consistent with Fiorina's (1977) dual constituency hypothesis which posits that legislative voting is more heavily influenced by their support constituency than their remaining constituents, we see that Republican legislators' voting is three percentage points more likely to be congruent with the view of the residents of the neighborhoods with the highest fraction of Republican voters over the neighborhoods with the lowest fraction of Republican voters. Given that the difference in Republican congruence with voters from higher and lower income neighborhoods is also three percentage points, we conclude that the differences in representation by income tercile are both economically and statistically significant.

But we cannot conclude that residents of lower income neighborhoods receive less representation generally because for Democratic legislators the pattern is reversed. These legislators vote with the highest income tercile 73.8 percent of the time and with the lowest

²⁹ These tests do not require coding of bills into conservative or liberal because the test is based simply on the level of congruence and so results are invariant to the coding of bills.

income tercile 79.0 percent of the time. Again, the difference remains statistically as well as economically significant, as it is more than one half of the difference in representation by constituent party. In fact, as the results of Table 3 indicate, Democratic legislators vote the will of the residents of the lowest income neighborhoods more often than they vote the will of the majority of district residents, just as Democrats vote the will of their most Democratic neighborhoods significantly more than their median voter. (For Republicans there is no statistical difference between congruence with the highest income tercile and the median nor between congruence with the highest Republican tercile and the median.) Thus the first row of Table 3 does not support the popular view that lower income voters receive less representation overall; in fact the party that lower income voters are more likely to choose, provides those voters with significantly more representation.

In order to interpret these differences in congruence by income as the average relative representation of residents of higher and lower income voters, we assume that our constituent view variables represent the views of the constituents at the time of the legislative vote and that those views are not influenced by the voting behavior of the legislator. As we stated in the data section, we assume this primarily because of the low level of knowledge that voters have of legislator voting. To the extent that voters are knowledgeable, knowledge is increasing in income which would serve to bias our tercile 3 congruence upward, a bias that could explain away the relative representation pattern we find for Republican legislators, but not for Democratic legislators. In the second row of the table we provide a formal test of this assumption. We calculate congruence measures only for those votes on which the public voted first. If our row 1 findings are driven by voters' desires to vote the will of their legislator rather than the other way around, then in row 2 we would expect to see a smaller difference in congruence with the top and

bottom terciles, particularly for Republican legislators. But in fact we observe larger differences in congruence for legislators of both parties. And despite the dramatic decline in sample size, those differences remain statistically significant. Thus this test provides no evidence that our findings are driven by voters being influenced by the behavior of their legislators.

A second concern about our results is their generalizability. Our public opinion measures are drawn from voters' participation in direct democracy which Besley and Coate (2008), Gerber (1996, 1999) and Matsusaka (2010) have shown alters legislators' incentives to represent the majority will. Since we are looking at relative representation within a district, the impacts of direct democracy on representation would only bias our results if direct democracy led to increased incentives to represent one income group over another. This does not seem likely. However, to address this issue we shift our focus from the California state legislature to the United States Senate. Pooling data from the 2006 and 2008 Cooperative Congressional Election Studies which asked respondents how they felt about 13 high profile congressional votes,³⁰ we find that the patterns of congruence at the national level are similar to those we find in California. As shown in row 3 of Table 3, Democratic legislators vote the view of the majority of their state's lowest income residents 70.8 percent of the time and of their highest income residents only 57.3 percent of the time. For Republican senators the level of representation is much lower—these particular votes appear to have been cast largely along party lines— however the pattern remains that Republicans are a significant 12 percentage points more likely to vote

³⁰ The votes concern stem cell research (both 2006 and 2008), Iraq withdrawal, immigration reform, minimum wage increase (both 2006 and 2008), capital gains tax cut, CAFTA, overseas eavesdropping, public health insurance for children, housing assistance, the bank bailout and the extension of NAFTA.

the will of the majority of their state's highest income voters than their lowest.³¹ The national analysis demonstrates that our findings generalize outside of the direct democracy context.

In the remaining rows of Table 3, we examine the robustness of our findings to different measures of income. One concern with mean income as a measure of economic well being is that income may be mechanically increasing in household size. In the fourth row of the table we demonstrate that our results are robust to terciles based on within district poverty, a measure that accounts for household size. For this specification we reverse the tercile definitions so that the highest poverty tercile is tercile 1 and the lowest is tercile 3 making results directly comparable to the other rows of the table. Results are robust to a change from income to poverty.

Thus far in the analysis, the cutoffs for high and low income terciles have varied within year across districts. In fact in the final year of our sample, 11% (16%) of low income terciles included tracts that had greater average household income than the mean (median) high income tercile. Using these relative income terciles, we have shown that Democratic legislators vote more like their low income constituents and Republicans vote more like their higher income constituents. But we may also want to know whether Democratic voting looks more like low income voters in an absolute sense. In the fifth row of the table we create terciles based on state income. Within a year the cut offs for low and high income are the same across all districts for these terciles.³² Results are robust to a change from relative to absolute income terciles.

A final concern about our income terciles is that they may be too large and therefore may mask differential treatment of the very rich and very poor. For example, perhaps only the super

³¹ Because of the gross categorical nature of the income variable, we cannot create equal sized terciles within state. Instead we define low income as below \$40,000 and high income as \$80,000 and above and use the American Community Survey to create controls for the percent of state residents who fall into each income category. We include these controls in our tests for the difference in mean congruence between top and bottom terciles.

³² The average range for the low (high) income state terciles in 2006 dollars is \$6,401-\$59,373 (82,911-\$454,934). Like with the national data, because these state income terciles do not include an equal number of voting eligibles we control for the fraction of the district population in each tercile in our difference of means tests.

rich have the type of influence that Krugman writes about and that both Democratic and Republican legislators are most congruent with say the top 5 percent of their constituents in terms of income. In the sixth row of the table we address this concern by dividing voters into quintiles rather than terciles. If a focus on the top and bottom quintiles reveals congruence patterns that differ from those we find using the top and bottom terciles then this would suggest that large income groupings may be masking differential representation of those in the income tails. But in fact the movement to quintiles only strengthens our patterns. The difference in Democratic legislator congruence (bottom over top income group) groups grows from 5.2 percentage points with income terciles to 6.7 percentage points using income quintiles. The Republican difference (top over bottom income group) in congruence grows from 2.5 to 3.2 percentage points. Our results do not seem to be driven by coarse income groupings.

We have found evidence that Republican legislators more often vote the will of their higher income constituents and Democratic legislators more often vote the will of their lower income constituents. In rows seven and eight of the table we examine whether the pattern of our results is robust to the key issue that pits the rich against the poor: taxation. We define tax bills in two ways. First in our more subjective coding we identify, based on our reading of the legislation, six bills whose primary focus is on tax policy or bond issuance. A good example of such a bill is AB83 in 1998 which proposed a change to the top marginal income tax bracket and a change to state and local tax revenue sharing. (For more details on our coding please see the Data Appendix.) Our second more expansive, and more objective coding measure categorizes issues as tax or non-tax based simply on whether the word “tax” or “bond” appears in the text of the final bill in a manner that indicates the bill concerns taxation.³³ We identify 38 tax issues in

³³ For example we omit SCA 18 in the 1995-96 session because although the assembly floor analysis refers to “bond acts and other ballot measures,” this is the only mention of taxation in the bill.

this fashion. A good example of bills that fall into the second category, but not the first would be our three education bond acts. Results are robust to a focus on tax issues, by either coding.

Results are also robust to bills which are higher stakes for the legislator. We define higher stakes in four ways: 1) An election year for the legislator's seat when the legislator has not reached the term limit; 2) Not having hit the term limit; 3) Representing a district in which the legislator's party does not comprise a majority of voters and 4) Close vote—those for which the outcome would change if one legislator changed his/her vote.³⁴ As shown in rows 9-12, the pattern of results is robust to the four definitions. However, the significance between the difference in first and third tercile congruence for the Republican election year specification is .14. For the remaining specifications the difference is significant at the five percent level or better. For Democratic legislators we continue to see that their voting congruence with the lowest income tercile is significantly greater than their congruence with the median voter.

Marginal Representation

The results of Table 3 demonstrate that less income does not mean less representation on average. Republican legislators more often vote the will of their constituents living in high income areas; Democratic legislators do the reverse. While congruence measures tell us to what extent the voting of the legislature and the constituents' coincide, they do not provide any indication of the relative weight of the constituency in the legislator's decision function. Congruence measures cannot answer the question of whether high income voters have more influence than lower income voters. To answer that question, we model the legislator's decision function using linear probability models of the form:

³⁴ Close vote would ideally be measured before the legislative vote. We interpret the ex-post measures as merely suggestive; however, examining the close vote results with the results of the other measures of vote importance provides evidence that differential congruence by income is robust to legislators' important votes.

$$3) \quad \text{Legislator_vote} = \delta_0 + \delta_1(\text{Constituency_vote_Top}) \\ + \delta_2(\text{Constituency_vote_Bottom}) + \omega$$

where an observation is a district/issue. *Legislator_vote* is an indicator for whether the legislator voted yes (or liberally when we run models using our coding of legislation as liberal or conservative). *Constituency_vote_Top* is an indicator for whether the majority of voters living in the top income areas voted liberally (or yes) on the issue. *Constituency_vote_Bottom* is the same variable calculated for residents of the lowest income tracts in the district.³⁵

Because our constituent vote variables represent constituents' actual preferred voting outcome on each issue, our coefficients are directly interpretable as the percentage increase in the legislator's propensity to vote yes (liberally) when the majority of the top (bottom) income constituency prefers a vote of yes (liberal), holding constant the views of the bottom (top) income constituency. In terms of describing representation, this is a marked improvement over studies that use proxies such as an average liberal/conservative self rating of different income groups since those proxies only allow the researcher to conclude that voters who rate themselves as more liberal are associated with legislators who vote more liberally. From such proxy analyses we do not learn how well voters are represented because we don't know if the self-described liberals wanted the legislator to vote more liberally than status quo on any or all issues.

We begin by estimating equation 3 with no controls and no coding of votes as liberal or conservative. Instead we leave the votes of the legislators and the constituents in their original yes/no form. The .0607 in the first cell of Table 4 indicates that when the majority of the lowest income tercile prefers a yes vote the Republican legislator is six percentage points more likely to vote yes, holding the view of the top income tercile constant. In contrast, there is a 42 percentage

³⁵As in Table 1, standard errors are clustered by legislator/chamber. Results are robust to probit specifications and to using continuous measures of the constituent voting variables.

point increase in the probability of a Republican voting yes when the majority of the top income tercile desires a yes vote. For Democrats we observe the reverse. These legislators are 22 percentage points more likely to vote yes when the majority of the bottom income tercile prefers a yes vote and an insignificant 3 percentage points less likely to vote yes when the majority of the top income tercile prefers it. For both parties the difference between the coefficient on the top and bottom income tercile view is significant. Like the congruence results, this finding is robust to taxation, high stakes votes, varying the income metric, and the context of the US Senate.³⁶

The pattern is also robust to our coding as demonstrated in specification 2, in which we predict whether the legislator votes for the liberal side of the legislation, instead of whether s/he votes yes.³⁷ This specification is more meaningful economically. For example, the estimates of the constants .185 and .438 now tell us that when both their top and bottom income constituents prefer a conservative vote, Republicans have a 19 percent probability of voting liberally whereas the more liberal Democrats have a 44 percent probability of doing so. Moving to our independent variables, we find that Republican legislators are 36 percentage points more likely to vote liberally when the majority of their highest income tercile prefers a liberal vote *ceteris paribus*, but only 19 percentage points more likely to vote liberally when their lowest income tercile prefers that outcome. For Democratic legislatures the figures are a 40 percentage point association with the lower income tercile's view and a 12 percentage point association with the higher income tercile's view. The significant 17 and 28 percentage point absolute differences, for Republicans and Democrats respectively, between the coefficients on the bottom and top

³⁶Appendix Table 1 presents regressions of the form of equation 3 for all Table 3 specifications. These regression results are less robust as sample size falls. Results are not robust to the Republican specification estimated off of the three votes when the public votes before the legislators or to the Democratic specification estimated off of the 6 subjective taxation votes. The Republican close vote specification (5 votes) is robust in the pattern but not the significance of the results; p value = .15. Apart from these small sample specifications, our findings fail robustness on just one specification: the Democratic legislator party not a majority.

³⁷ Results are robust to excluding those votes that our coding system is most likely to misclassify.

income terciles give a sense of how large the differences in average representation would be if the top and bottom income groups always disagreed on their policy position. That we showed in Table 3 that absolute differences in average representation were 3-5 percentage points highlights the high frequency with which there is agreement across income groups on preferred policy. The difference between average and marginal representation results serves also to illustrate Matsusaka's (2001) warning on the danger of inferring average representation based on coefficients from models of legislative voting decisions.

Republican legislative voting is better predicted by the views of their higher income constituents; for Democrats we find the reverse. Why? Clearly the results of Table 4 cannot be interpreted causally. The views of high income voters may be more predictive because of their correlation with the Republican legislators' personal ideology. The views of lower income voters may be better represented on the margin because of their correlation with the median Democratic district resident's view. We now turn to the literature on the legislator's decision function to examine whether correlation of high or low income views with any of these previously identified decision factors can help us explain these income differences in marginal representation.

One of the most important, if not the most important, predictors of a legislator's voting decision is that legislator's party affiliation. (See for example Ansolabehere, Snyder and Stewart, 2001; Snyder and Groseclose, 2000; Lee, Moretti and Butler, 2004.) For this reason, we run our regressions separately for Republican and Democratic legislators. Once we have coded our dependent variable to liberal/conservative, the separate specifications by party allow our constant to control for the average ideological (liberal/conservative) position of the legislator's party.

Thus we first note that our column 2 specifications rule out average party ideology as the explanation for our income differences in marginal representation.³⁸

We also rule out the possibility that our representation patterns are explained by variation in political participation across income groups.³⁹ Given that political participation is increasing in income in both Democratic and Republican led districts, participation is unlikely to explain the fact that Democratic legislator's voting is better predicted by the views of their low income voters. Participation is a more viable explanation for our Republican findings. In specification 3 of Table 4, we control for first and third tercile turnout in the most recent general election, as well as the interaction of turnout with the tercile's liberal view indicator.⁴⁰ Not surprisingly, we see that the difference between Democratic representation of the top and bottom tercile grows. The .605 coefficient implies that if tercile 1 residents voted at the sample mean rate, a Democratic legislator would be 61 percentage points more likely to vote the liberal position when tercile 1 residents preferred a liberal policy position on an issue. More interestingly, the tercile 3 coefficient in the Republican specifications is not significantly attenuated by the addition of turnout controls. The robustness to the inclusion of participation controls is further evidence that our findings are not driven by legislative voting influencing constituent views. Those who participate most tend to be the most knowledgeable; if their acting on this knowledge were driving our results, results would be attenuated by the participation control variables.

³⁸ In contrast, average party view does significantly attenuate our US senatorial results, reducing the significant difference in the high and low income coefficients in the Democratic legislator specifications completely.

³⁹ Greater political participation may mean that the voters have a greater opportunity to select a representative who is like minded; it may mean that the legislator is more aware of the group's policy desires; or it may mean that the group is more likely to punish the politician for deviations from those desires. Griffan and Newman (2005) provide evidence that in the US Senate the views of voters are significantly better represented than the views of non-voters.

⁴⁰ We also control for year fixed effects in this specification to account for yearly variation in interest in the election. Results are robust to measuring participation using share registered. Unfortunately we are unable to attain data on a third participation metric, campaign contributions, for two reasons: 1) The addresses in public contribution records do not have to be one's home address and thus a match to tract of residence becomes problematic and 2) Campaign contributions under \$200 are not publicly available and thus measurement error is greater for the lower income tracts than for the higher. We know from National Election Studies data that campaign contributions are increasing in income and thus like other forms of participation is a more likely explanation for the Republican results.

Recent scholarship has argued that legislators in large part vote their personal views. Levitt (1996) showed that nearly half of the weight in a legislator's decision function is placed on his/her own ideology, as modeled by a fixed effect.⁴¹ Thus one possible explanation for our findings is that Republican (Democratic) legislator's voting is better explained by voters from high (low) income areas because these legislator's views happen to be more in line with voters from these particular areas. We test for this possibility by adding legislator (within chamber) fixed effects to our model. Results are robust to this addition; see specification four of Table 4. Even conditional on their own political leaning, Republican legislators' voting is better explained by the views of high income voters and for Democratic legislators the reverse remains true.⁴²

The median voter theorem (Downs, 1957) makes the strong prediction that the preferences of this single voter receive 100% of the weight in the legislator's decision function; Gerber and Lewis (2004), Levitt (1996) and Stratmann (1995, 1996) all provide evidence that the average or median voter is one factor among many receiving positive weight in politician's decision function. Thus another possible explanation for the differential marginal representation of income groups is that in Republican led districts the views of higher income voters coincide with the views of the median voter while in Democratic led districts the views of lower income voters coincide with the views of the median voter. In specification 5 we explore this possibility by adding an indicator for whether the majority of the district (which includes the median voter) voted the liberal side of the issue.⁴³ Coefficients on the top and bottom income tercile view are attenuated by this addition, demonstrating the correlation between the median view and both the

⁴¹ See also Ansolabehere, Snyder and Stewart (2001), Kau and Rubin (1979, 1983), Kalt and Zupan (1984), Peltzman, Sam (1984), Poole and Rosenthal (1996) and Snyder and Groseclose (2000) for evidence on personal ideology and legislative voting.

⁴² One concern about the legislator fixed effect specification is that legislators may have different ideological views on different issues. For example a legislator might be conservative on fiscal issues, but liberal on moral issues. Therefore we also run the legislator fixed effect specification using only the tax votes (objective coding). Results are robust to this change in sample.

⁴³ We continue to include legislator fixed effects in the model.

top and bottom income terciles' views in Republican-led districts and to a smaller extent in Democratic-led districts. The basic pattern of our results, however, remains unchanged. Conditional on both legislator ideology and the median voter issue specific view, Republican legislative voting is better predicted by the view of their high income than the view of their low income constituents (although this difference is significant only at the .11 level). Democratic legislative voting is better predicted by the view of their lower income constituents, a difference that is significant at conventional levels. Like previous empirical work, we find that the median voter's views are predictive of legislator's voting, but is not the sole predictor. In fact for neither Democrats nor Republicans, is median view a better predictor, *ceteris paribus*, than the bottom or top income view, respectively.

Finally we investigate partisanship as an explanation. The dual constituency hypothesis (Fiorina, 1977) theorizes that the preferences of the legislator's support constituency (those who are most likely to vote for the legislator) weigh more heavily in the legislator's decision function than do the views of other district residents. Levitt (1996) estimates that same party constituents receive three to four times the weight in the legislator's decision function than constituents who support the opposing party. More recently, Mian, Sufi and Trebbi (2010) demonstrate that the votes of Republican House members on the American Housing Rescue and Foreclosure Prevention Act of 2008 are better explained by the mortgage default rate in their districts' Republican neighborhoods than by default rates in their districts' Democratic neighborhoods. Using our own data, we document, for what we believe is the first time, that empirical evidence for this hypothesis is robust to measuring constituent views with actual voting data. We run models of the form of equation 3 where we substitute constituent views by party terciles for views by income terciles and continue to control for legislative fixed effects and the marginal

viewpoint. As shown in specification 6, we find that the marginal increase in a Republican legislator's propensity to vote liberally is 22 percentage points when the most Republican neighborhoods desire a liberal vote *ceteris paribus*, but only 13 percentage points when the least Republican neighborhoods so desire; a difference that is significant at the .09 level. For Democrats, the difference is even greater in magnitude and significance: 41 percentage points when the most Democratic neighborhoods desire a liberal vote and only five percentage points when the least Democratic neighborhoods so desire.

Given that constituent Republican affiliation is increasing in income, while constituent Democratic affiliation is decreasing in income, the dual constituency hypothesis provides a potential explanation for the robust pattern that Republican legislative voting better reflects the views of higher income voters and Democratic voting better reflects the views of lower income voters. In specification 7 of Table 4 we explore this potential explanation by adding an indicator for whether neighborhoods in the top tercile of share Republican (Democratic) registrants support the liberal side of the proposition. With the addition of this control, the difference between the coefficients on the top and bottom income tercile falls by 94% in the Republican specification. Controlling for support constituent views, the views of lower and higher income neighborhood voters are statistically equally predictive of a Republican legislator's voting. The difference between the marginal representation of lower and higher income voters in the Democratic specifications shrinks by 66%, a smaller drop percentage-wise, but larger in absolute value. The difference remains statistically significant, but only at the 6 percent level. The pattern and significance level of these results is robust to operationalizing support constituency based on votes for the legislator in his/her most recent election. The results of specification 7 indicate that Republican legislators appear more responsive to the views of their higher income district

residents and Democrats to their lower income constituents, not because these voters are high or low income, but because (or at least in large part in the case of Democrat legislators) these constituents are highly partisan.

The importance of party over income can be seen another way. We showed in Table 3 that Republican legislators vote congruently with the highest income constituents 2.5 percentage points more often than with the lowest income tercile. That difference falls to 0 when we control in our tests for the congruence between income tercile view and Republican support constituency view. Similarly, the Democratic legislature congruence difference falls from .052 to .013. (Please see Appendix Table 2 for these results.) Thus once we control for party view, our results rather than providing empirical support for the underrepresentation of the financially disadvantaged, serve instead to confirm previous findings of the underrepresentation of the politically disadvantaged, those voters on the losing end of the legislative election, who find themselves represented by a politician of the opposing party.

CONCLUSION

Constituents are represented in legislative voting to the degree that the legislator votes the will of the constituents. In order to measure the relative representation of voters by income, one needs data on how the legislator voted, how the lower income constituents wanted the legislator to vote and how the higher income constituents wanted the legislator to vote. Previous research on representation by income, like most previous research on representation by constituent categories (e.g., income, party) lacked measures of constituents' preferred legislative outcome. We collect a novel dataset of matched legislative and constituent votes that allows us to provide the first evidence on the relative representation of high and low income voters.

Contrary to popular view, we do not find that less income means less representation. Analyzing the voting behavior of state legislators on 77 proposals on which both the legislature and the public cast ballots, we find first that the opinions of higher and lower income voters within a district are highly correlated on these issues and thus it is impossible to represent the views of one group and not also represent the views of the other. What differences there are in average representation do not result in lower income voters' consistent disadvantage. While Republican legislators more frequently vote congruently with the view of their highest income constituents, Democrats are more likely to vote the view of their lowest income constituents. In fact Democrats vote the lower income view more often than the median view. In terms of relative weight in the legislator's decision function, we show that controlling for the legislator's party's ideology, the legislator's personal ideology, the median voters' view on the issue and differences in political participation of lower and higher income voters, Republican legislative voting is better predicted by their higher income voters and for Democratic legislators the predictive value of the views of the lower income voters is significantly greater.

Differences in representation by constituent income, on average and on the margin, are however, significantly attenuated by controls for the congruence between the income tercile's view and the party view. Republican legislators are more likely to vote the view of their highest income constituents because the viewpoint of high-income voters is often the Republican constituent viewpoint. Similarly, Democratic legislators are more likely to vote the view of lower income constituents because the viewpoint of low-income voters often coincides with the viewpoint of Democratic constituents. Thus rather than finding evidence to support the contention that representation is increasing in income, we find instead the first evidence using direct measures of voters legislative preferences that representation is increasing in partisanship.

We note that our results are descriptive and cannot be interpreted causally. The legislative vote and the same party constituent vote may coincide because the legislator follows the constituents' lead or because the same party constituents choose a candidate whose views they share.⁴⁴ What is clear is that our findings on representation by income group have more to do with party than with income.

Finally we caution that our work focuses on just one type of representation: voting on bills that make it to the legislative floor. The preferences of high income voters may be more influential in determining the legislative agenda. Or the legislator may provide higher income voters more political pork, public goods or constituent services. Whether or not constituent income predicts performance on these legislator behaviors remains a question for future research.

⁴⁴ One explanation for the legislator's voting being better explained by their same party constituents than by their remaining constituents is the polarizing effect of partisan primaries (Burden, 2010). Interestingly California voters, in a June 2010 ballot initiative, voted to end partisan primaries. Therefore it will be interesting to reexamine the relevance of dual constituency to California legislative voting in the future.

References

- Alesina, Alberto and Edward Glaeser (2003). *Fighting Poverty in the United States and Europe: A World of Difference*. Oxford: Oxford University Press.
- Ansolabehere, Stephen and Philip Edward Jones (2010). "Constituents' Responses to Congressional Roll-Call Voting." *American Journal of Political Science*, 54, 3, 583-597.
- Ansolabehere, Stephen, James Snyder and Charles Stewart (2001). "The Effects of Party and Preferences on Congressional Roll-Call Voting." *Legislative Studies Quarterly*, 26, 4, 533-572.
- Bartels, Larry (2008). *Unequal Democracy: The Political Economy of the New Gilded Age*. New York: Russell Sage.
- Besley, Timothy and Stephen Coate (2008). "Issue Unbundling Via Citizens Initiatives." *Quarterly Journal of Political Science*, 3, 4, 379-397.
- Bhatti, Yosef and Robert Erickson (2011). "How Poorly are the Poor Represented in the US Senate?" In *Who Gets Represented?* Peter Enns and Christopher Wlezien, Eds. New York: Russell Sage.
- Bowler, Shaun, and Todd Donovan, *Demanding Choices: Opinion, Voting, and Direct Democracy* (Ann Arbor: University of Michigan Press, 1998).
- Brunner, Eric, Stephen L Ross and Ebonya Washington (In Press). "Economics and Policy Preferences: Causal Evidence of the Impact of Economic Conditions on Support for Redistribution and other Ballot Proposals. *Review of Economics and Statistics*, forthcoming.
- Burden, Barry (2001). "The Polarizing Effects of Congressional Primaries." In *Congressional Primaries and the Politics of Representation* Peter Galderisi, Marni Ezra and Michael Lyons, Eds. Lanham, MD: Rowman & Littlefield Publishers Inc.
- Downs, Anthony (1957). *An Economic Theory of Democracy*. New York: Harper and Row.
- Druckman, James and Lawrence Jacobs (2011). "Segmented Representation: The Reagan White House and Disproportionate Responsiveness." *Who Gets Represented?* Peter Enns and Christopher Wlezien, Eds. New York: Russell Sage.
- Erickson, Robert, Gerald Wright and John McIver (1993). *Statehouse Democracy*. Cambridge, England: Cambridge University Press.
- Fiorina, Morris (1974). *Representatives, Roll Calls and Constituencies*. Lexington, MA: Lexington Books.
- Gerber, Elisabeth (1996). "Legislative Response to the Threat of Popular Initiatives." *American Journal of Political Science*, 40, 1, 99-128.
- Gerber, Elisabeth (1999). *Populist Paradox*. Princeton NJ, Princeton University Press.
- Gerber, Elisabeth and Jeffrey Lewis (2004). "Beyond the Median: Voter Preferences, District Heterogeneity, and Representation." *Journal of Political Economy*, 112, 6, 1364-1383.
- Gilens, Martin (2005). "Inequality and Democratic Responsiveness." *Public Opinion Quarterly*, 69, 5, 778-796.
- Griffin, John and Brian Newman (2005). "Are Voters Better Represented?" *Journal of Politics*, 67, 4, 1206-1227.
- Hajnal, Zoltan, Elisabeth Gerber and Hugh Louch (2002). "Minorities and Direct Legislation: Evidence from California Ballot Proposition Elections." *Journal of Politics*, 64, 1, 154-177.

- Hogan, Robert (2008). "Policy Responsiveness and Incumbent Reelection in State Legislatures." *American Journal of Political Science*, 52, 4, 858-873.
- Kalt, Joseph and Mark Zupan (1984). "Capture and ideology in the Economic Theory of Politics." *American Economic Review*, 74, 3, 279-300.
- Kau, James and Paul Rubin (1979). "Self-Interest, Ideology, and Logrolling in Congressional Voting." *Journal of Law and Economics*, 33, 1, 103-31.
- Kau, James and Paul Rubin (1983). "Ideology, Voting and Shirking." *Public Choice*, 76, 1-2, 151-172.
- Krugman, Paul (2010). "The Angry Rich." *The New York Times*, September 19.
- Lee, David, Enrico Moretti and Matthew Butler (2004). "Do Voters Affect or Election Policies? Evidence from the US House." *Quarterly Journal of Economics*, 119, 2, 807-859.
- Leigh, Andrew (2005). "Economic Voting and Electoral Behavior: How Do Individual, Local and National Factors Affect the Partisan Choice?" *Economics and Politics*, 17, 2, 265-296.
- Levitt, Steven (1996). "How Do Senators Vote? Disentangling the Role of Voter Preferences, Party Affiliation and Senator Ideology." *American Economic Review*, 86, 3, 425-441.
- Matususaka, John (2010). "Popular Control of Public Policy: A Quantitative Approach." *Quarterly Journal of Political Science*, 5, 133-167.
- Matususaka, John (2005). "Direct Democracy Works." *Journal of Economic Perspectives*, 19, 2, 185-206.
- Matususaka, John (2001). "Problems with a Methodology Used to Evaluate the Voter Initiative." *The Journal of Politics*, 63, 4, 1250-1256.
- Mian, Atif, Amir Sufi and Francesco Trebbi (2010). "The Political Economy of the US Mortgage Default Crisis." *American Economic Review*, 100, 5, 1967-1998.
- Peltzman, Sam (1984). "Constituent Interest and Congressional Voting." *Journal of Law and Economics*, 27, 1, 181-210.
- Persson, Torsten and Guido Tabellini (2003). *The Economic Effects of Constitutions*. Cambridge, MA: MIT Press.
- Rigby, Elizabeth and Gerald Wright (2011). "Whose Statehouse Democracy? Policy Responsiveness to Poor versus Rich Constituents in Poor versus Rich States." *Who Gets Represented?* Peter Enns and Christopher Wlezien, Eds. New York: Russell Sage.
- Snyder, James (1996). "Constituency Preferences: California Ballot Propositions 1974-1990." *Legislative Studies Quarterly*, 21, 4, 463-488.
- Snyder, James and Tim Groseclose (2000). "Estimating Party Influence in Congressional Roll-Call Voting." *American Journal of Political Science*, 44, 2, 193-211.
- Songer, Donald (1984). "Government Closest to the People: Constituent Knowledge in State & National Politics." *Polity*, 17, 2, 387-395.
- Stimson, James (2011). "The Issues in Representation." *Who Gets Represented?* Peter Enns and Christopher Wlezien, Eds. New York: Russell Sage.
- Stratmann, Thomas (1995). "Campaign Contributions and Congressional Voting: Does the Timing of Contributions Matter?" *Review of Economics and Statistics*, 77, 127-136.
- Stratmann, Thomas (1996). "How Reelection Constituencies Matter: Evidence from Political Action Committees' Contributions and Congressional Voting." *Journal of Law and Economics*, 39, 603-635.

Ura, Joseph and Christopher Ellis (2008). "Income, Preferences, and the Dynamics of Policy Responsiveness." *PS: Political Science and Politics*, 41, 4, 785-794.

Wlezien, Christopher and Stuart N. Soroka (2011). "Inequality in Policy Responsiveness?" *Who Gets Represented?* Peter Enns and Christopher Wlezien, Eds. New York: Russell Sage.

Table 1: Relationship between Legislator Vote and Mean Constituent Vote

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Outcome:	Vote Yes	Vote Liberally	Vote Liberally	Vote Liberally	Vote Liberally	Vote Liberally	Vote Liberally	Vote Liberally	Vote Liberally
Majority of District Voters Voting Yes	0.307*** (0.016)								
Majority of District Voters Voting Liberally		0.530*** (0.012)	0.483*** (0.014)	0.565*** (0.016)	0.581*** (0.053)	0.463*** (0.015)	0.511*** (0.017)	0.559*** (0.015)	0.554*** (0.021)
N	7813	7813	6405	5994	232	4589	3172	4798	2312
Sample:	Full Sample	Full Sample	More partisan bills	Mandatory Matches	Citizens vote before the legislators	Democratic Legislators	Republican Legislators	Assembly Votes on Bills Voted on by Both Chambers	Senate Votes on Bills Voted on by Both Chambers

Note: Each column shows the coefficient from a regression of a binary on how the legislator votes on a binary variable for whether a majority of district voters cast their ballots for yes (the liberal side) on the associated ballot proposition. The first column contains estimates based on a yes/no coding of the legislative and popular vote and the second column contains estimates using the liberal/conservative coding of these pairs. The third column is estimated on the subsample of votes for which we have the most confidence in our liberal/conservative coding. The fourth column is estimated on the subsample in which the match between bill and proposition is exact because the ballot proposition was based on a specific piece of legislation. The fifth column includes only the vote pairs in which the ballot proposition vote occurred before the legislative vote. The last four columns examine subsamples based on legislator's party and chamber. Robust standard errors clustered by legislator/chamber in parentheses.

***denotes significance at the one percent level

Table 2: Summary Statistics, by Legislator Party and Income Tercile

Districts:	All	All			Democratic Legislators			Republican Legislators		
Constituent Household Income Terciles (Average Ranges in Thousands of 2006 dollars):	Full Sample	Low (32-62)	Middle (63-81)	High (82-191)	Low (30-61)	Middle (61-79)	High (80-189)	Low (35-65)	Middle (65-85)	High (86-192)
<i>Panel A</i>										
Proposition Turnout	.39 (.12)	.29 (.10)	.35 (.12)	.41 (.13)	.28 (.10)	.34 (.11)	.39 (.13)	.30 (.10)	.38 (.11)	.43 (.14)
Turnout for Highest Contests on Ballot in Most Recent Last Election (of Citizens 18 and older)	.40 (.10)	.30 (.08)	.37 (.09)	.43 (.11)	.29 (.09)	.35 (.10)	.41 (.11)	.31 (.08)	.39 (.09)	.45 (.11)
Share Registered (of Citizens 18 and older)	.72 (.09)	.70 (.08)	.77 (.08)	.83 (.09)	.70 (.08)	.76 (.08)	.82 (.09)	.69 (.08)	.78 (.07)	.84 (.08)
Share Registered Democratic (of those Registered)	.48 (.11)	.53 (.12)	.48 (.12)	.43 (.11)	.60 (.09)	.55 (.09)	.49 (.10)	.44 (.08)	.38 (.07)	.33 (.06)
Share Registered Republican (of those Registered)	.35 (.12)	.29 (.11)	.34 (.12)	.41 (.12)	.22 (.08)	.27 (.09)	.34 (.10)	.39 (.06)	.45 (.06)	.52 (.06)
Share Voting Democratic in Most Recent State Legislative Election (of two party vote) ^{1,2}	.56 (.21)	.63 (.21)	.58 (.22)	.52 (.21)	.77 (.12)	.72 (.14)	.66 (.15)	.43 (.14)	.37 (.12)	.32 (.11)
Share Voting Democratic in Most Recent Gubernatorial Election (of two party vote)	.51 (.16)	.58 (.17)	.52 (.16)	.47 (.15)	.68 (.13)	.62 (.14)	.55 (.14)	.44 (.10)	.39 (.09)	.35 (.09)
Share Voting Democratic in Most Recent Presidential Election (of two party vote) ¹	.58 (.14)	.66 (.14)	.60 (.15)	.54 (.14)	.75 (.10)	.69 (.11)	.62 (.12)	.52 (.09)	.46 (.07)	.41 (.07)
<i>Panel B</i>										
Legislator Voting Liberally	.60 (.49)	.60 (.49)			.74 (.44)			.39 (.49)		
Constituent Proportion Voting Liberally	.48 (.17)	.50 (.18)	.48 (.17)	.47 (.17)	.54 (.18)	.51 (.17)	.50 (.17)	.45 (.16)	.43 (.16)	.42 (.16)
Constituent Majority Voting Liberally Dummy	.49 (.50)	.54 (.50)	.50 (.50)	.46 (.50)	.61 (.49)	.58 (.49)	.54 (.50)	.43 (.50)	.38 (.48)	.35 (.48)
Congruence: Legislator Votes with Majority of Constituency	.76 (.42)	.77 (.42)	.76 (.43)	.75 (.43)	.79 (.41)	.77 (.42)	.74 (.44)	.74 (.44)	.76 (.43)	.77 (.42)
N	7813	7813	7813	7813	4589	4589	4589	3172	3172	3172

Notes: The columns in order present sample means for the entire sample, subsamples by tract income terciles, and tract income tercile separately by legislators party. Sample includes only those bill/legislators on which legislators actually voted. Standard deviation in parenthesis.

¹1988 presidential and legislative votes missing so sample sizes are smaller for those variables.

²We do not have data on special elections. Thus the legislative election data is always drawn from the most recent general election. Fewer than 4 percent of the legislative votes are cast by a member elected in a special election.

Table 3: Congruence by Constituent Income and Legislator Party, Robustness

		Democrats						Republicans					
		Tercile 1	Overall (Mean/Median)	Tercile 3	Ttest 1vs 3	Ttest 1 v med	N	Tercile 1	Overall (Mean/Median)	Tercile 3	Ttest 1vs 3	Ttest 3 v med	N
	<i>Panel A</i>												
1	All votes	.790 (.407)	.762 (.426)	.738 (.439)	.00	.00	4589	.743 (.437)	.766 (.423)	.768 (.422)	.00	.75	3172
2	People Vote First	.896 (.306)	.756 (.431)	.593 (.493)	.00	.00	135	.656 (.477)	.844 (.365)	.927 (.261)	.00	.00	96
3	National Data	.708 (.455)	.685 (.464)	.573 (.495)	.00	.06	607	.386 (.498)	.410 (.492)	.507 (.500)	.00	.00	673
4	Poverty Terciles (reversed)	.791 (.407)	.762 (.426)	.734 (.442)	.00	.00	4589	.742 (.438)	.766 (.423)	.765 (.424)	.00	.80	3172
5	State Income Terciles	.785 (.411)	.757 (.430)	.720 (.449)	.00	.00	4163	.742 (.437)	.767 (.423)	.767 (.423)	.00	.95	3073
6	Quintiles	.794 (.404)	.762 (.426)	.727 (.445)	.00	.00	4589	.735 (.441)	.766 (.423)	.767 (.423)	.00	.89	3172
7	Taxation (Subjective)	.688 (.464)	.653 (.477)	.634 (.483)	.00	.02	352	.681 (.467)	.776 (.418)	.764 (.425)	.01	.58	263
8	Taxation (Objective)	.865 (.342)	.835 (.371)	.798 (.401)	.00	.00	2357	.664 (.472)	.696 (.460)	.691 (.462)	.02	.49	1546
9	Election Year	.849 (.358)	.821 (.384)	.806 (.396)	.00	.00	1837	.752 (.431)	.774 (.419)	.767 (.423)	.14	.32	1457
10	Not Term Limited	.774 (.419)	.746 (.435)	.726 (.447)	.00	.00	3325	.739 (.439)	.767 (.423)	.763 (.425)	.00	.36	2330
11	Party Not Majority	.809 (.393)	.778 (.416)	.744 (.436)	.00	.00	1535	.751 (.433)	.778 (.417)	.776 (.417)	.00	.93	2518
12	Close Vote	.537 (.499)	.497 (.501)	.465 (.499)	.00	.02	374	.649 (.479)	.674 (.470)	.725 (.447)	.00	.04	233
	<i>Panel B</i>												
1	Party Terciles	.714 (.452)	.762 (.426)	.799 (.401)	.00	.00	4589	.732 (.443)	.766 (.423)	.764 (.425)	.00	.64	3172

Notes: The first three columns present the fraction of district-vote observations for which the Democratic legislator's vote is the same as the majority vote of low income tercile tracts, the district overall, and high income tercile tracts, respectively. The Ttests's compare 1) the low income and high income tercile means and 2) the low income tercile and district overall means. Standard errors for Ttests are clustered by legislator/body or by state in the case of national senate data. On the right side of the table the first column

presents the fraction of district-vote observations for which the Republican legislator's vote is the same as the majority vote of low income tercile tracts, the district overall, and high income tercile tracts, respectively. The Ttests's compare 1) the low income and high income tercile means and 2) the high income tercile and district overall means. The first row presents the means for the entire sample; the second row presents the results for the three votes for which the referenda preceded the legislative vote; the third row presents results for the national survey data; the fourth row uses poverty terciles (tercile 1 is the highest poverty); the fifth row uses income terciles defined state wide; the sixth row uses the top and bottom income quintile of tracts in each district; the next six rows investigate various subsamples to capture high stakes votes; and the final row presents results for the entire sample using legislators' party terciles. Ttests for National Data and State Income tercile 1 vs 3 differences are run using specifications that control for percent of state (district) population in tercile.

Table 4: Predicting Legislator's Vote

	(1)	(1)	(2)	(2)	(3)	(3)	(4)	(4)
	R	D	R	D	R	D	R	D
Majority of Bottom Income Vote Yes (Liberally)	0.0607** (0.031)	0.216*** (0.025)	0.192*** (0.032)	0.399*** (0.026)	0.191*** (0.040)	0.605*** (0.040)	0.216*** (0.032)	0.420*** (0.025)
Majority of Top Income Tercile Vote Yes (Liberally)	0.418*** (0.027)	-0.0301 (0.020)	0.362*** (0.031)	0.115*** (0.022)	0.325*** (0.030)	0.0585** (0.023)	0.345*** (0.031)	0.0980*** (0.022)
Constant	0.558*** (0.016)	0.376*** (0.018)	0.185*** (0.011)	0.438*** (0.014)	0.226*** (0.023)	0.352*** (0.027)	0.181*** (0.007)	0.434*** (0.010)
Additional Controls:					Turnout Last Election	Turnout Last Election	Legislator Fixed Effects	Legislator Fixed Effects
Test of Equality Bottom and Top Terciles	.00	.00	.01	.00	.03	.00	.03	.00

Table 4 (continued): Predicting Legislator's Vote
Outcome: Legislator Vote Liberally

	(5)	(5)	(6)	(6)	(7)	(7)
	R	D	R	D	R	D
Majority of Bottom Income Vote Liberally	0.139*** (0.036)	0.386*** (0.030)			0.132*** (0.036)	0.153*** (0.055)
Majority of Top Income Tercile Vote Liberally	0.236*** (0.038)	0.0670** (0.027)			0.138*** (0.051)	0.0428* (0.025)
Majority of District Vote Liberally	0.189*** (0.042)	0.0667* (0.035)	0.222*** (0.038)	0.0752** (0.030)	0.176*** (0.042)	0.0369 (0.034)
Majority of Bottom Party Tercile Vote Liberally			0.131*** (0.030)	0.0486** (0.023)		
Majority of Top Party Tercile Vote Liberally			0.221*** (0.036)	0.408*** (0.032)	0.126** (0.050)	0.299*** (0.055)
Constant	0.180*** (0.007)	0.434*** (0.010)	0.178*** (0.008)	0.421*** (0.010)	0.181*** (0.008)	0.419*** (0.010)
Legislator Fixed Effects	Yes	Yes	Yes	Yes	Yes	Yes
Test of Equality Bottom and Top Terciles	.11	.00	.09	.00	.93	.06
Test of Equality Top (Bottom) Income Tercile and Top Party Tercile					.89	.17

Notes: Each pair of columns shows the coefficients from a regression of a binary on how the legislator votes on binary variables for whether a majority of the top income tract tercile voters and bottom income tract tercile voters cast their ballots on the associated proposition for the Republican and Democratic legislator subsamples. The first specification contains estimates based on a yes/no coding of the matched legislative vote/proposition vote pair, and all following specifications contain estimates using the liberal/conservative coding. The first and second specifications include no additional controls; the third specification includes controls for turnout in the top and bottom tercile tracts, the interaction of these controls with majority of top and bottom voted liberally, and year fixed effects. Coefficients in this specification are shown for values of turnout at the mean. The fourth and all following specifications include legislator fixed effects (within chamber), the fifth and all following specifications include controls for how the majority of the district voted, and the last two specification include

controls for how the district voted by tract terciles defined using registration for the political party of the legislator. Sample size is 4589 for Democrats and 3172 for Republicans. Standard errors are clustered by legislator/body.

***denotes significance at the one percent level

**denotes significance at the five percent level

Appendix Table 1: Relative Marginal Impact of Opinions by Income Tercile in Legislator's Decision Function
 Outcome: Legislator Yes Vote

	Democrats				Republicans			
	Coefficient on Majority Bottom Tercile Vote Yes	Coefficient on Majority Top Tercile Vote Yes	Test of Difference of Top/Bottom Coefficients P value	N	Coefficient on Majority Bottom Tercile Vote Yes	Coefficient on Majority Top Tercile Vote Yes	Test of Difference of Top/Bottom Coefficients P value	N
<i>Panel A</i>								
All votes	0.216*** (0.025)	-0.0301 (0.020)	.00	4,589	0.0607** (0.031)	0.418*** (0.027)	.00	3,172
People Vote First	0.223** (0.110)	0.0178 (0.027)	.08	135	0.0357 (0.036)	-0.0357 (0.036)	.32	96
National Data	0.430*** (0.034)	-0.203*** (0.037)	.00	585	-0.035*** (0.055)	.118* (0.069)	.00	664
Poverty Terciles (reversed)	0.253*** (0.024)	-0.0679*** (0.018)	.00	4,589	0.0429 (0.033)	0.425*** (0.028)	.00	3,172
State Income Terciles	0.202*** (0.025)	-0.013 (0.021)	.00	4,163	0.0896*** (0.030)	0.403*** (0.027)	.00	3,073
Quintiles	0.225*** (0.024)	-0.0348** (0.018)	.00	4,589	0.0566** (0.027)	0.424*** (0.024)	.00	3,172
Taxation (Subjective)	-0.162*** (0.045)	-0.203*** (0.037)	.53	352	-0.0918* (0.055)	0.404*** (0.067)	.00	263
Taxation (Objective)	0.307*** (0.028)	0.0276 (0.017)	.00	2357	0.0254 (0.039)	0.333*** (0.033)	.00	1546
Election Year	0.252*** (0.035)	-0.0521* (0.027)	.00	1,837	0.0583 (0.042)	0.364*** (0.035)	.00	1,457
Not Term Limited	0.164*** (0.030)	-0.00573 (0.025)	.00	3325	0.0398 (0.034)	0.422*** (0.030)	.00	2330
Party Not Majority	0.133*** (0.044)	0.0313 (0.035)	.17	1535	0.0611* (0.035)	0.428*** (0.029)	.00	2518
Close Vote	0.092 (0.063)	-0.255*** (0.058)	.00	374	0.109 (0.080)	0.320*** (0.083)	.15	233
<i>Panel B</i>								
Party Terciles	-0.0814*** (0.017)	0.276*** (0.022)	.00	4,589	0.0322 (0.029)	0.440*** (0.025)	.00	3,172

Notes: Each row shows the coefficients on two regressions: On the left hand side, coefficients are from a regression of an indicator variable for legislator yes vote on indicator variables for majority of tercile 1 favors yes and majority of tercile 3 favors yes for Democratic legislators. On the right hand side the same regression is run for Republican legislators. The first row presents the means for the entire sample; the second row presents the results for the three votes for which the referenda preceded the legislative vote; the third row presents results for the national survey data; the fourth row uses poverty terciles (tercile 1 is the highest poverty tercile); the fifth row uses income terciles defined statewide; the sixth row uses the top and bottom income quintile of tracts in each district; the next six rows investigate various subsamples to capture high stakes votes; and the final row presents results for the entire sample using legislators' party terciles. National data and state income tercile rows also include controls for fraction of district (state) population in the tercile and fraction of district (state) population in tercile interacted with an indicator for whether the majority of the tercile voted yes. For these specifications coefficients on the main effect indicator variables (majority of tercile1 vote yes and majority of tercile 3 vote yes) represent the marginal association of these variables evaluated at fraction of district(state) population in the tercile equals 1/3. Robust standard errors clustered at the legislator/chamber level.

***denotes significance at the one percent level

**denotes significance at the five percent level

*denotes significance at the ten percent level

Appendix Table 2: Relative Congruence with Lower and Higher Income Constituents, Controlling for Income Tercile Congruence with Support Constituency View

	No Controls for Support Constituency View (1)		Controls for Support Constituency View (2)	
	R	D	R	D
Bottom Income Tercile Dummy	-0.0233*** (0.005)	0.0277*** (0.004)	-0.0073 (0.005)	0.00779** (0.003)
Top Income Tercile Dummy	0.00126 (0.004)	-0.0238*** (0.004)	-0.00956** (0.004)	-0.00517* (0.003)
Tercile-Party Congruence			0.318*** (0.032)	0.596*** (0.026)
Test of Equality Bottom and Top Terciles, P value	.00	.00	.61	.00
Constant	0.766*** (0.008)	0.762*** (0.009)	0.470*** (0.030)	0.201*** (0.024)

Notes: In specification 1 we re-present the results of Table 3 row 1, using OLS. We reshape the data so that we have three observations for each legislator/issue: one for the top income tercile, one for the bottom income tercile and one for the majority view. Using the reshaped data, we estimate linear probability models of the form of $Legislator_Group_Congruent = \delta_0 + \delta_1(Top_Income_Tercile) + \delta_2(Bottom_Income_Tercile) + \omega$ where an observation is a district/issue/constituent group. *Legislator_Group_Congruent* is an indicator for whether the legislator voted the same way on the issue as the group (bottom income, top income or entire district) while *Top_Income_Tercile* and *Bottom_Income_Tercile* are indicators for the third and first income terciles respectively. In the no controls specification the constant provides mean congruence with the entire district. The coefficients on the bottom (top) income tercile dummies give the difference in congruence between the bottom (top) terciles and the mean/median district voter, and adding these differences to the constant term in columns 1 and 2 yields the congruence values shown in Table 3 row 1. The difference between congruence with the top and bottom terciles is found by differencing the top and bottom tercile dummy variables. In specification 2, we control for congruence between the constituent group (high income, low income, or all constituents) and the legislator's support constituency operationalized as the highest tercile of voters registered for the legislator's party. Sample size is 9,516 for Republican specifications and 13,767 for Democratic specifications.. Robust standard errors clustered by legislator/body.

***denotes significance at the one percent level

**denotes significance at the five percent level

*denotes significance at the ten percent level