

Does Less Income Mean Less Representation?

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We assemble a novel dataset of matched legislative and constituent votes and demonstrate that less income does not mean less representation. We show 1) The opinions of high and low income voters are highly correlated; the legislator's vote often reflects the desire of both. 2) What differences in representation by income 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. 3) Differences in representation by income are largely explained by the correlation between constituent income and party affiliation.

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“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. However, the academic evidence on the topic has thus far been inconclusive. In this paper, we compile a unique dataset of legislative and constituent votes in order to 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 Nominate 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 Erikson (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 Erikson (2011) the limitation of both studies and of much of the work on representation by constituent category (e.g., income, party) is that the authors do not have measures of constituents' preferences on legislative votes. A constituent's view is represented in the legislator's vote when the legislator casts the same vote the 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. Therefore 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's vote, 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 Erikson, 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 or 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, 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.

We overcome these data limitations by turning to the state of California. Because of the state's extensive use of ballot measures we are able to identify 77 times over the years 1991-2008 during which state legislators and the public voted on the same proposal. 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 neighborhoods in each legislative district voted) necessary for a descriptive analysis of the relative representation of lower and higher income voters.

We use these data to provide two complementary descriptions of representation by income. First, we calculate congruence measures, indicators for whether the legislator's vote on a

particular issue matches the vote of the majority of his/her constituents. We use these measures to describe average differences in representation. We calculate congruence for different constituent income groups and ask whether the legislator's propensity to vote with different groups varies significantly. Second, we examine representation on the margin. We run legislative decision models that predict the legislator's propensity to vote liberally on an issue using the majority view of both the low and high income constituents as explanatory variables. Taken together, these measures allow us to describe both how frequently legislators vote in accordance with varying income groups and how likely the legislator is to favor one group over the other when two income groups disagree.

Using these complementary approaches, we present three key findings. First, our congruence measures 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 for 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 on average legislators are more likely to vote congruently with their lower income than higher income voters, but that representation by income varies by legislator party. Democratic legislators, more numerous than their Republican counterparts, vote with their median low income constituent about five percentage points more often than their median high income constituent. For Republican legislators the pattern is reversed; these legislators vote the will of their high income constituents about three percentage points more often than the will of their lower income constituents. These differences in the average

representation of higher and lower income constituents are small in part because of the high level of agreement between constituents across class lines.

Differences in representation at the margin, however, are quantitatively more substantial. Our legislative decision function models show that Democratic legislators' marginal propensity to vote liberally when lower income voters prefer such a vote is 28 percentage points higher than when higher income voters so desire. For Republican legislators the figure is 17 percentage points in favor of higher income voters. This basic pattern of Democrats' better representing low income voters on average and on the margin, and Republicans' votes better reflecting the views of high income voters is robust to varying definitions of high and low income voters.

Finally, we ask what explains the fact that representation of constituents of various income groups varies by legislator party. We augment our legislative decision function models to control for possible mechanisms. We rule out a correspondence between the median voter's views and high income voters' views in Republican led districts and between the median voter's views and low income voters' views in Democratic led districts. We similarly can rule out participation as the mechanism as participation is increasing in income in both Democratic and Republican districts. However, for politicians of both parties, the differences in the coefficients on the views of low and high income voters are attenuated substantially by the correspondence between high (low) income voters' views and Republican (Democratic) voters' views. Thus rather than providing evidence for the underrepresentation of the financially disadvantaged, our results serve to confirm the underrepresentation of the politically disadvantaged, those voters who find themselves represented by a politician of the opposing party.³

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

³ Fiorina (1974) makes the theoretical point. Levitt (1996) and Mian, Sufi and Trebbi (2010) provide empirical support. The theoretical section of Lee, Moretti and Butler (2004) discusses why politicians from a given party provide more representation of the views of constituents of the same party.

DATA

Our data section is divided into three parts. In the first sub-section, we describe our sample votes, note the strengths and limitations of our data and discuss generalizability. In the second sub-section, we describe how we categorize each piece of legislation as a liberal or conservative bill. In the final sub-section, we present descriptive statistics by income category.

Sample of Issues

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 include 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 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 1991-2008⁴ 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.⁵

While surveys occasionally ask how respondents would vote on a measure currently or formerly under consideration by the legislature,⁶ our matched pairs have significant advantages over survey responses. First, the number and variety of issues that we cover is much larger.

⁴ 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.

⁵ 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. 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.

⁶ 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.

Second, the number of individual opinions aggregated into district/income cells, is also larger⁷ 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.⁸

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 a public proposition, both houses of the legislature must approve the measure by a 2/3 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 ballot measures or through the legislative process. We identified these non-mandatory matches by reading through the contents of legislation and ballot propositions. For more details on how we chose our sample votes, please see the Data Appendix.

California's expansive use of direct democracy ensures that our sample of bills is broad. Because the state not only requires a large number of issues to be voted on by the public, but also

⁷ Bhatti and Erikson (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.

⁸ Finally, because the public never has the opportunity to vote on many of the issues that state and federal legislators do, it may be the case that constituents are more thoughtful about their vote choices than their survey responses.

makes it relatively easy for citizens to put initiatives on the ballot, our dataset includes votes on a variety of topics 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.

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, when asked directly voters do not name their representatives as being influential in their proposition voting.⁹ Second, 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

⁹ 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. 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.

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 knowledge¹⁰ in our sample of less salient votes conducted by a political body that receives less media attention.¹¹ Further, to the degree voters are knowledgeable about their representatives' behavior that knowledge is increasing in income amongst both Democrats and Republicans and amongst constituents in both Democratic and Republican districts.¹² Thus our average representation findings —Republican legislators voting more in line with high income voters and Democratic legislators voting more in line with low income voters—seem unlikely to be driven by differences in the propensity of high and low income voters 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 the pattern of average representation by income is robust to a focus on these votes in which the public could not have been influenced by observing their legislators' votes.

We recognize that despite the large number of matched pairs some readers may be concerned about the generalizability of a study that focuses on issues voted on by both the legislature and the public in a single direct democracy state. We briefly provide some background to suggest that our findings may generalize to other contexts. First, California is not alone; according to the Initiative and Referendum Institute¹⁴ over half of the states have provisions for direct democracy. Second, direct democracy does not provide legislators with

¹⁰ 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.

¹¹ 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 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.

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

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. Third, although we can only include in our sample those issues on which both the legislature and the public cast ballots, because of the continual threat of public referendum, incentives for a legislator to align his/her vote with the median vote, or more relevant to our study, the median high or low income constituent's vote, do not vary based on whether a public vote follows the legislative vote. Despite this suggestive evidence, we recognize that whether the results generalize beyond California is ultimately an empirical question for future research.

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 Coding

In order to address the question of how representation in legislative voting varies with constituent income, we collect data on legislative and constituent votes on each of the 77 issues. Vote choice (yes/no/abstention) 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.¹⁵

¹⁵ 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.

For ease of interpretation of 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 proposition. For each public vote we run the following regression:

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

where *PercentYes* is the percentage of yes votes among those voting on the proposition. 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 $\hat{B}_2 > \hat{B}_1$.^{16,17}

Summary Statistics by Income Tercile

We aggregate census tracts to assembly/senate district income terciles to create variables on the political views of the lowest, middle and highest income voters, or more specifically the views of 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,¹⁸ as configured when the legislature voted on the measure.¹⁹ In creating terciles, we

¹⁶ We classify observations in which legislators abstain (both because of absences and active abstentions) 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 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.

¹⁷ To examine the validity of our vote coding and our matching of voters to districts, we aggregated our data to the district/issue level and ran models of legislative vote on median vote. We know from previous work, for example, Snyder (1996) using California data, that our dependent and independent variables should be strongly correlated. As a validity check of our data assembly process we were comforted to find that this result was robust to leaving the votes in their original yes/no form, coding the votes liberally/conservatively, trimming the sample to exclude those votes that are least partisan and most likely to be misclassified, limiting the sample to either the hand matched or the mandatory matched votes and limiting the focus to the three issues on which the public voted first, which demonstrates that the correlation is not driven by voters copying their representatives. These results are detailed in the Data Appendix.

¹⁸ Our census data are 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 are created by tract level linear interpolation.

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 1 gives the mean minimum and maximum average household income for each tercile.

While our basic definition of high and low income is operationalized based on within district terciles, we also present results based on statewide terciles and within district quintiles and deciles to demonstrate robustness to more extreme definitions of high and low income. We use within district terciles as our basic specification because such terciles are defined for all districts in our sample²⁰ and are less subject to measurement error.²¹

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 designed to 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. While we do not have data on turnout in primaries for the highest office on the ballot for all years, we do note that proposition turnout in both primary and general elections is increasing in income, suggesting a positive income gradient even in the more highly partisan first round of voting.

In Table 1, we also show the well established correlation between income and conservatism:²² 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

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

²⁰ Not all districts include census tracts that fall in both the top and bottom income terciles statewide.

²¹ Because we construct percentiles based on average tract income rather than individual household income (which is not available linked to voting records) each percentile will include some misclassified voters, voters residing in tracts whose average income falls within a different percentile than their own household annual income does. As we decrease the size of the percentiles, we likely increase the number of misclassified households.

²² See for example Brunner, Ross and Washington (2011) and Leigh (2005).

participation and political preference patterns hold across all districts and within both Republican and Democratically led districts.

In the remainder of Table 1 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 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) his/her 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 1 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. Just as at the national level (Anscombe and Jones, 2010) California constituents' views are far less polarized than their legislators. In the next section, we detail how we use these unique California data to describe representation by income.

METHODOLOGY

The goal of our investigation is to describe how legislative representation varies by income. To do so, we characterize the degree to which legislative voting represents constituent views in two complementary ways. First, we ask on average are legislators more likely to vote with one income group more than another? To answer this question 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 constituents.²³ We calculate this measure for different constituent income groups and ask whether the legislator's propensity to vote with different groups varies significantly.

The second way in which we characterize relative representation by income is on the margin, an approach more familiar to and more typical of political economists. Specifically, we run legislative decision function models of the form of (2):

²³ Besley and Coate (2008) also employ this definition of representation in their theoretical examination of how direct democracy affects representation.

$$(2) \quad \text{Legislator_vote_Liberal} = \delta_0 + \delta_1(\text{Constituency_vote_Liberal_Top}) \\ + \delta_2(\text{Constituency_vote_Liberal_Bottom}) + \omega$$

Where *Legislator_vote_Liberal* is an indicator for whether the legislator voted liberally on the legislation and *Constituency_vote_Liberal_Top(Bottom)* are indicators for whether the majority of constituents in the top (bottom) income group voted liberally.²⁴ δ_1 and δ_2 then measure the degree to which the higher and lower income groups appear to “influence” the legislator’s vote. If $\delta_1 - \delta_2 > 0$, this is evidence that the legislator weighs the higher income group’s opinions more heavily in the decision function. If $\delta_1 - \delta_2 < 0$, this suggests that the lower income group is more influential. We employ indicators for constituent view rather than continuous measures so that the interpretation of $\delta_1(\delta_2)$ is the marginal impact of the median higher (lower) income voter’s support for the legislation.²⁵ Taken together, these measures allow us to describe both how frequently legislators vote in accordance with varying income groups and how likely the legislator is to favor one group over the other when two income groups disagree.

REPRESENTATION

Does representation vary by income?

Before we examine how representation varies with constituent income, we first note the overall levels of representation as measured by congruence. Legislators vote the will of their median constituent 76 percent of the time, we show in the second column of the first row of Table 2 Panel A. This table presents measures of the frequency with which the legislator votes congruently with low income (first column), all (second column) and high income (third column)

²⁴ Standard errors are clustered by legislator/chamber. Thus, for legislators who serve in both the assembly and the senate during the sample time period, votes cast in each of the two chambers are in separate clusters.

²⁵ With continuous measures of constituent support, correlations between legislator vote and constituent view may be driven by variation in constituent view far from the 50% threshold. Consequently, utilizing continuous measures may lead one to find that the group that appears to more greatly influence the legislator is the group that is actually less well represented on average. Further, the discrete measure is the empirical operationalization of our definition of representation: voting with the majority of the constituency.

constituents. In the first row of the table the income groups are defined by terciles. The .771 in the first cell shows that on average legislators vote with the majority of the bottom income tercile of their constituency 77 percent of the time and with the top 75 percent of time. Even when we stratify the congruence measures by legislator party we see that the lowest congruence measure (between Democratic legislatures and high income voters) is 74 percent. Differences between congruence with residents of the district's highest and lowest income neighborhoods differ by only 5.2 percentage points for Democrats (Panel B) and 2.5 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' majority opinion is 0.81. This correlation is driven neither by the small size of the districts²⁶ nor by great homogeneity in terms of district income or political beliefs, that may result from the state districting process. 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 0.77 and .73 when we examine the co-movement in opinions of the top and bottom quintiles and deciles, respectively.²⁷ Thus our first finding is that the opinions of high and low income voters are highly correlated and that the legislator's vote typically represents the views of both groups of voters in his/her district.

As to the issue of whether representation varies by income, Table 2 demonstrates that the answer depends on party. As shown in Panel A, overall, voters in the lowest income tercile are

²⁶ 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.

²⁷ Similarly, Hajnal, Gerber and Louch (2002) document that minority voters in California are on the winning side of a majority of ballot measures and conclude, therefore, that they are not disadvantaged by direct democracy.

significantly more likely to see their legislator vote their will than the will of their higher income counterparts. (P values for t-tests of the difference in congruence for top and bottom terciles are found in the fourth column of the table.) However, when we divide the sample by party in the subsequent panels, we see that the relatively higher representation of lower income voters is driven by the more numerous Democratic legislators, who vote congruently with high income voters 74 percent of the time and with low income voters 79 percent of the time. Democratic legislators are significantly more likely to vote with the median low income voter than with the median voter overall. (See the next to last column of the table for the p-value on the test of equality.) The Republican pattern, on the other hand, is reversed. Republican legislators vote with their high income voters 77 percent of the time and with their low income voters 74 percent of the time. For Republican legislators there is no significant difference in congruence with the median voter in the highest income tercile and the median voter overall.

While the differences in congruence with lower and higher income voters are small for legislators of both parties, we can gain a sense of their economic significance by comparing these differences to differences in representation by constituent party. In specification 6, we calculate legislative congruence with voters, not by income, but by party terciles. For Democratic (Republican) legislators the top tercile column now shows congruence between the legislative vote and the neighborhoods in the top third of the distribution in fraction Democratic (Republican) registrants. Consistent with Fiorina's (1977) dual constituency hypothesis which posits that legislative voting is more heavily influenced by their support constituency than by their remaining constituents, we see that Democratic legislators are nine percentage points more likely to vote with voters in their most Democratic neighborhoods and that Republican legislators are three percentage points more likely to vote the will of voters in their most

Republican neighborhoods. Thus our findings on the difference in representation by income, which are over half the size of the difference in representation by party for Democrats and over 2/3 the size of the difference in representation by party for Republicans, are sizable relative to the most important dichotomy—party—in American politics.

In Table 3, we quantify the differences in representation by income in another way. Here, we turn to regression models of the form of (2). Because the coefficients in the regression are identified by variation in the views of higher and lower income constituents, the decision function regressions can be used to quantify the difference in the marginal propensity for the legislator to vote liberally with the median low or high income voter, when these two voters' views are at odds. In the “Basic Terciles” section of the table we see that overall legislators are 32 percentage points more likely to vote liberally if the lowest income tercile wants a liberal vote, but only 26 percentage points more likely to vote liberally when the highest income voters so desire. But this difference is not statistically significant, we see in the row “Test of Equality”.

However, when we examine the question by party, we find larger and statistically significant differences. When low income voters prefer a liberal vote, Democratic legislators are 40 percentage points more likely to vote in that direction, but when their highest income constituents want such a vote, they are only 12 percentage points more likely. For Republican legislators we see the reverse, with marginal associations of 20 and 36 percentage points for lower and higher income voters, respectively.²⁸ Like the difference in average representation by income, the differences in marginal representation by income are both statistically and economically significant in that they are similar in magnitude to differences in legislative

²⁸ 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 coefficients on the income tercile variables are sensitive to coding. However, our results are not driven by our coding. Leaving both the independent and dependent variables in their uncoded yes/no form we still find that the influence of high (low) income voters on Republican (Democratic) legislative voting is significantly greater than the influence of low (high) income voters.

representation of constituents of the same and the opposition parties.²⁹ The 28 and 17 percentage point absolute differences in income representation, for Democrats and Republicans respectively, between the coefficients on the bottom and top 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 also serves to illustrate Matsusaka's (2001) warning on the danger of inferring average representation based on coefficients from models of legislative voting decisions.

In the second section (top, middle) of Table 3 we augment the model to include an indicator for whether the median voter overall prefers a liberal vote on the issue. Consistent with previous empirical work, the median view is a positive (significant, except in the case of Democratic legislators) predictor of the legislator's vote.³⁰ However, the inclusion of this control does not change the basic pattern of our findings. The robustness to the inclusion of the median view is not surprising for the overall and Democratic legislator results given that we saw in Table 2 that legislators overall (driven by Democratic legislators) vote significantly more congruently with the median low income voter than the median voter overall. In fact, while the addition of the median voter's view to the Democratic specification results in both coefficients falling by about 3 percentage points, the difference between the marginal associations of the

²⁹ Coefficients (standard errors) in regressions of Democratic [Republican] legislative liberal voting on the median view in the neighborhoods with their highest and lowest fraction of same party registrations are highest: .435 (.023) [.361 (.028)] and lowest .091 (.020) [.203 (.029)].

³⁰ See for example Gerber and Lewis (2004), Levitt (1996) and Stratmann (1995, 1996)

legislative vote to the views of low and high income voters remains large (26 percentage points) and statistically significant. For Republicans, on the other hand, who we saw in Table 2 vote the high income view no more often statistically speaking than the median view overall, the addition of the median view shrinks the low income coefficient by 7 percentage points and the high income coefficient by 11 percentage point, clearly attenuating the difference in the marginal association of the legislative vote with the views of high over low income constituents.

Nonetheless, the remaining difference, 13 percentage points, is statistically significant. Thus Table 3 demonstrates that while there are small differences in representation by income when measured by congruence, we see large differences (that vary by legislator party) in the relative weight of the two groups in the legislator's decision function.

One concern about both our congruence and regression results is that they may be sensitive to the construction of our income groups. Thus far we have defined income terciles within congressional districts. But because of gerrymandering or residential segregation, the variation in income within district may not be reflective of the variation in income within the state. In fact in the final year of our sample, 12% (16%) of low income terciles included tracts that had greater average household income than the mean (median) of minimum income in high income terciles. In the third specification in Table 2 we examine robustness to creating 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.³¹ Sample size decreases in these specification because not all districts have neighborhoods in both the lowest and highest statewide income tercile. Results are robust to a change from district to statewide income terciles. The Democratic congruence with low over high income terciles increases by about a percentage point. Republican congruence with high over low income terciles remains both qualitatively and quantitatively unchanged.

³¹ The average range for the low (high) state income terciles in 2006 dollars is \$6,401-\$59,373 (82,911-\$454,934).

Looking at representation on the margin we again find that results are robust to moving from district to state terciles. (See Table 3, top right panel.) While the absolute differences in the top and bottom income view coefficients shrinks for legislators of both parties, we still find in the Democratic specifications that the low income coefficient is significantly larger. For Republicans we continue to find that high income voters appear to have significantly greater weight in the decision function.

A second concern about our income terciles³² is that they may be too large and therefore mask differential treatment of the very rich and very poor. We address this concern by defining high and low income based on quintiles and then deciles. As we move to finer percentiles the high and low income groups become more distinct. The difference in mean income between top and bottom terciles is \$55,000; the figure grows to \$73,000 and then \$94,000 as we move to quintiles and then deciles.³³ If a focus on these finer percentiles reveals representation patterns that differ from those we find using 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 exacerbates the differences in congruence by income. The difference in Democratic legislator congruence (bottom over top income group) grows from 5.2 percentage points with income terciles to 6.8 percentage points using income quintiles and finally to 8.5 percentage points using deciles. The Republican difference (top over bottom income group) in congruence grows from 2.5 to 3.1 and finally to 3.5 percentage points.

Both the pattern and the magnitude of the regression results are also robust to finer income definitions as shown in the left and middle bottom panels of Table 3. Differences in the

³² A third concern is that economic well-being can vary within income depending on household size. However, we note that results are robust to measuring well-being using poverty status, which accounts for household size.

³³ The means are in 2006 real dollars. The mean differences are 55, 72 and 93 thousand dollars for Democratic-led districts and 56, 74 and 94 for Republican-led districts.

marginal association between legislative vote and the views of the top and bottom income groups grow for both Democratic and Republican legislators as we move from terciles to quintiles. As we move to deciles, the greater responsiveness of Democrats to low income voters is basically unchanged compared to quintiles; however the greater marginal association between high over low income voters and Republican legislative voting shrinks slightly, but remains statistically significant.³⁴ Thus we find no evidence that either our average or marginal representation findings are driven by coarse income groupings. Given the similarity in our findings to varying the definition of income, in the interest of brevity and to reduce measurement error, in the remainder of the paper we focus on within district terciles.

Thus far we have examined all issues collectively. In the final specification of both Tables 2 and 3, we ask whether the representation patterns we find extend to the issues on which high and low income voters have the highest levels of disagreement. We classify bills as high or low disagreement based on the difference in the propensity of voters in the highest and lowest state-level income terciles to vote liberally on the legislation. In other words, we ask for the state overall, on which propositions did high and low income voters vote the most differently? We classify as high disagreement those matched bill-propositions in which the constituent disagreement by income was at the 75th percentile of disagreement or higher.³⁵

³⁴ The pattern of quintile and decile results for both Democratic and Republican legislators is robust to controlling for the views of the middle three (eight) quintiles (deciles) separately in place of the view of the median voter. However because of the high collinearity across quintiles (deciles), between 0.88 and 0.95 for adjacent quintiles and deciles, coefficients on the middle quantiles are generally small and insignificant. Whenever the estimates for middle quintiles (deciles) are significant, the estimated effect sizes are monotonic and fall between the estimates for the top and bottom quintiles (deciles), but this only occurs for the Republican subsample where the correlations between quintiles (deciles) are lower,

³⁵ The median difference in the fraction of high and low income voters statewide voting liberally is .036; the 75th percentile is .067. The minimum is .001 and the maximum is .131. Mean disagreement in the high disagreement sample is .096; the mean is .048 in the sample overall. Results are robust to classifying high disagreement as a difference above the median or to a subjective coding of the bills whose primary subject is taxation. The six taxation bills are 1) AB 2181(1991-1992 session) which sought to impose sales tax on previously exempt articles, 2) AB 83 (1997-1998) which sought to raise the top marginal tax rate, 3) ACA 10 (1997-1998) which outlined criteria for local jurisdictions to enter into sales tax revenue sharing agreements, 4) ACA 22 (1997-1998) which sought to allow

Because we focus on those bills on which high and low income voters disagree, there is of course less opportunity for legislators to vote the will of both groups at the same time. Given the large differences we have found in the full sample between average and marginal representation, we expect to find larger differences in average representation as we move to the subsample of votes on which high and low income voters disagree. And in fact we see that the difference in congruence with top and bottom income groups grows, as we show in specification 5 of Table 2. The Democratic difference in congruence with low income relative to high income groups more than doubles (from .052 to .117). The Republican difference in congruence increases just as notably (from .025 to .065). Marginal results, already identified off of instances where low and high income groups disagree even in the full sample, show less change as we hone in on bills in the top quarter of disagreement. The pattern of our regression results is robust, but because of the smaller sample size significance levels are not. We continue to find that Democratic legislators have a significantly higher propensity to vote liberally when low income voters prefer such a vote, relative to when high income voters so desire. For Republicans we also continue to see the same pattern as previously—that the marginal association between the median high income voter’s preferences and the legislative vote is greater than the marginal association between the median low income voter’s preferences and the legislative vote. However the ten percentage point difference is not statistically significant in this smaller sample.³⁶

the transfers of assessed property value to new property if original was environmentally contaminated, ACA 40 (1991-1992) which concerned property tax exemptions and SCA 4 (2003-2004) which sought to restrict state control over local property tax revenue. One concern about this test is that the issues on which high and low income voters have the largest difference in propensity to vote liberally are not necessarily the same votes on which the median high and low income voters differ. But in fact all of the issues on which the median high and low income voters disagree statewide are included in the above median disagreement sample.

³⁶The significantly greater weight of high income voters in Republican legislators’ decision functions is robust in terms of magnitude and significance if we do not control for the median voters’ view.

Overall the results of Tables 2 and 3 point to two key findings: 1) Legislators vote the views of both their high and low income voters about 75 percent of the time. The legislators are on average able to represent both types of voters because the opinions of high and low income voters are highly correlated. 2) What differences there are in representation by income vary by legislator party. On average and on the margin Democratic legislators are more likely to vote the will of their low income voters. Republicans legislators' votes are more likely to track the views of their higher income voters.

Why does representation by income vary by legislative party?

While the results of Tables 2 and 3 tell us that representation varies by legislator party, they do not provide any indication of why. Democratic legislators may better represent low income voters because of shared political view. The views of higher income voters may be better represented by Republican legislators because Republican legislators are responsive to the fact that higher income voters are more politically active.

We explore potential mechanisms in Table 4. We return to models of marginal differences in representation (equation 2) and ask whether the addition of control variables drawn from the legislative voting literature explains away the differences in representation by income. For comparison we present the basic model with median voter control (Table 3, top middle specification) as our Table 4 baseline model. Given that our basic pattern of results is robust to the inclusion of the median voter's view we can rule out the prediction, based on the median voter theorem (Downs, 1957), that the high correlation between median voter view and high (low) income voter view in Republican (Democratic) led districts is the reason for our pattern of representation by income.

In Table 4 we eliminate the full legislature specification and focus only on the specifications that isolate Democratic and Republican legislators separately. We limit the focus to these two groups because the fact that representation by income varies by legislative party is informative as to potential mechanisms.³⁷ Namely, we can rule out the possibility that our representation patterns are explained by variation in political participation across income groups.³⁸ Given that political participation is increasing in income in both Democratic and Republican led districts, in both primary and general elections, participation is unlikely to explain the fact that Democratic legislative voting is better predicted by the views of their low income voters. Participation is a more viable explanation for our Republican findings. In specification 2 of Table 4, we augment our equation 2 specification with controls 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.³⁹ Not surprisingly, we see that the difference between Democratic representation of the top and bottom tercile grows. Holding participation constant, the difference between Democratic representation of high and low income voters is more stark. More notably, there is no attenuation (in fact there is a nonsignificant increase) in the difference between the top and bottom view coefficients in the Republican specification.⁴⁰ Thus the results

³⁷ Running regressions separately by party also fully controls for average party caucus view.

³⁸ 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.

³⁹ We also control for year fixed effects in this specification to account for yearly variation in interest in the election. 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 at least on the extensive margin campaign contributions are increasing in income and thus like other forms of participation is a more likely explanation for the Republican results.

⁴⁰ 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 participation controls.

of the second specification in Table 4 confirm that differences in representation by income cannot be explained away by differences in participation by income.

The pattern of our results while suggesting against participation as an explanation for differences in representation by income, suggest in favor of partisanship. 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. Given that constituent Republican (Democratic) affiliation is increasing (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.⁴¹

In the final specification 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 nearly 2/3 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

⁴¹ Stadelman and Portman (2011) find that party explains gender differences in the congruence of Swiss parliament members and the median voter nationally.

legislator's voting. The difference between the marginal representation of lower and higher income voters in the Democratic specifications shrinks by more than 2/3. This difference is also no longer statistically significant. 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 pattern of results is further robust to defining top and bottom income and support constituency percentiles using quintiles or deciles.⁴² The results of specification 4 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 these constituents are highly partisan.

The importance of party over income can also be seen in their impact on congruence. We showed in Table 2 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 ttests for the congruence between income tercile view and Republican support constituency view. Similarly, the Democratic legislature congruence difference falls from .052 to .013, but remains statistically significant.⁴³ (Please see Appendix Table 1 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.

⁴² Using quintiles, the difference in the top and bottom income coefficients in Democratic specifications shrinks by 68% (remaining significant at only the 10 percent level) and in Republican specifications shrinks by 85% and is no longer statistically significant. Using deciles, the figures are 47% (remaining statistically significant at only the 10 percent level) for Democrats and by 93% (no longer statistically significant) for Republicans.

⁴³ Again results are robust to using quintiles and deciles. The difference in the top and bottom income group falls by 79% (Republicans) and 72% (Democrats) using quintiles. The figures are 78% (Republicans) and 69% (Democrats) using deciles. As with terciles, the Democratic, but not the Republican, difference remains statistically significant.

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 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. While differences in congruent voting with high and low income voters are small (for both Democratic and Republican legislators), differences in representation on the margin are more substantial. Democratic legislators show a 28 percentage point greater marginal association between their votes and the views of low income voters than between their legislative votes and the views of

higher income voters. The difference is 17 percentage points in favor of higher income voters views for Republican legislators.

Differences in representation by constituent income, on average and on the margin, are however, greatly attenuated by controls for 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 providing evidence for the underrepresentation of the financially disadvantaged, our results confirm the underrepresentation of the politically disadvantaged, those voters represented by a politician of the opposing party.

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.

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Table 1: 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) |
| 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 2: Average Congruence by Constituent Income and Legislator Party

| | | Bottom Percentile | Overall (Median) | Top Percentile | Ttest Top v Bottom | Ttest higher percentile vs. median | N |
|-----------------------------|-----------------------------------------|-------------------|------------------|----------------|--------------------|------------------------------------|------|
| <i>Panel A: Full Sample</i> | | | | | | | |
| 1 | Basic Terciles | .771 (.420) | .764 (.425) | .750 (.433) | .00 | .03 | 7813 |
| 2 | State Income Terciles | .768 (.423) | .760 (.423) | .740 (.439) | .00 | .05 | 7288 |
| 3 | Quintiles | .771 (.420) | .764 (.425) | .744 (.437) | .00 | .05 | 7813 |
| 4 | Deciles | .773 (.419) | .764 (.425) | .737 (.440) | .00 | .02 | 7813 |
| 5 | High Class Disagreement Votes, Terciles | .759 (.428) | .752 (.432) | .718 (.450) | .00 | .42 | 2125 |
| 6 | Party Terciles | .721 (.448) | .764 (.425) | .785 (.411) | .00 | .00 | 7761 |
| <i>Panel B: Democrats</i> | | | | | | | |
| 1 | Basic Terciles | .790 (.408) | .762 (.426) | .738 (.440) | .00 | .00 | 4589 |
| 2 | State Income Terciles | .785 (.411) | .756 (.430) | .720 (.449) | .00 | .00 | 4163 |
| 3 | Quintiles | .795 (.404) | .762 (.426) | .727 (.445) | .00 | .00 | 4589 |
| 4 | Deciles | .803 (.398) | .762 (.426) | .718 (.450) | .00 | .00 | 4589 |
| 5 | High Class Disagreement Votes, Terciles | .783 (.413) | .727 (.446) | .666 (.472) | .00 | .00 | 1224 |
| 6 | Party Terciles | .714 (.452) | .762 (.426) | .799 (.401) | .00 | .00 | 4589 |
| <i>Panel C: Republicans</i> | | | | | | | |
| 1 | Basic Terciles | .743 (.437) | .766 (.423) | .768 (.422) | .00 | .75 | 3172 |
| 2 | State Income Terciles | .742 (.437) | .767 (.423) | .767 (.423) | .00 | 1.0 | 3073 |
| 3 | Quintiles | .736 (.441) | .766 (.423) | .767 (.423) | .00 | .89 | 3172 |
| 4 | Deciles | .730 (.444) | .766 (.423) | .765 (.424) | .00 | .75 | 3172 |
| 5 | High Class Disagreement Votes, Terciles | .726 (.446) | .790 (.408) | .791 (.407) | .00 | .91 | 889 |
| 6 | Party Terciles | .732 (.443) | .766 (.423) | .764 (.425) | .00 | .64 | 3172 |

Notes: T-test standard errors clustered by legislator/body. Party tercile N smaller in full sample because party terciles cannot be calculated for independents.

Table 3: Marginal Congruence by Constituent Income and Legislator Party
 Outcome: Legislator Votes Liberally

| | Basic Terciles | | | Basic Terciles | | | State Terciles | | |
|-----------------------------------------------|----------------------|-----------------------|----------------------|----------------------|-----------------------|----------------------|-------------------------------|-----------------------|----------------------|
| | All | Democrat | Republican | All | Democrat | Republican | All | Democrat | Republican |
| Indicator: Majority of Group Voted Liberally: | | | | | | | | | |
| Bottom Income Percentile | 0.320*** (0.0224) | 0.399*** (0.0256) | 0.192*** (0.0323) | 0.251*** (0.0264) | 0.372*** (0.0294) | 0.115*** (0.0355) | 0.267*** (0.0259) | 0.379*** (0.0308) | 0.132*** (0.0321) |
| Average/Median | | | | 0.147*** (0.0299) | 0.0511 (0.0342) | 0.189*** (0.0426) | 0.120*** (0.0296) | 0.00120 (0.0306) | 0.189*** (0.0435) |
| Top Income Percentile | 0.256*** (0.0211) | 0.115*** (0.0220) | 0.362*** (0.0305) | 0.181*** (0.0251) | 0.0917*** (0.0283) | 0.254*** (0.0400) | 0.199*** (0.0252) | 0.146*** (0.0296) | 0.247*** (0.0402) |
| Test of Equality, Top and Bottom | .13 | .00 | .01 | .09 | .00 | .03 | .10 | .00 | .04 |
| N | 7813 | 4589 | 3172 | 7813 | 4589 | 3172 | 7288 | 4163 | 3073 |
| | Quintiles | | | Deciles | | | High Class Disagreement Votes | | |
| Indicator: Majority of Group Voted Liberally: | All | Democrat | Republican | All | Democrat | Republican | All | Democrat | Republican |
| Bottom Income Percentile | 0.242*** (0.0248) | 0.389*** (0.0266) | 0.111*** (0.0300) | 0.258*** (0.0233) | 0.409*** (0.0240) | 0.118*** (0.0275) | 0.222*** (0.0370) | 0.340*** (0.0377) | 0.116** (0.0453) |
| Average/Median | 0.171*** (0.0271) | 0.0425 (0.0286) | 0.202*** (0.0404) | 0.173*** (0.0250) | 0.0331 (0.0241) | 0.213*** (0.0379) | 0.201*** (0.0438) | 0.0542 (0.0400) | 0.236*** (0.0640) |
| Top Income Percentile | 0.174*** (0.0220) | 0.0927*** (0.0228) | 0.254*** (0.0372) | 0.169*** (0.0200) | 0.100*** (0.0194) | 0.245*** (0.0351) | 0.195*** (0.0343) | 0.0854*** (0.0288) | 0.218*** (0.0616) |
| Test of Equality, Top and Bottom | .07 | .00 | .01 | .01 | .00 | .01 | .62 | .00 | .22 |
| N | 7813 | 4589 | 3172 | 7813 | 4589 | 3172 | 2125 | 1224 | 889 |

Notes: Standard errors are clustered by legislator/body. State tercile specification includes controls for share of district population in each tercile and the interactions of those shares with the tercile view. Coefficients in these specifications are shown for population shares of 1/3.

***denotes significance at the one percent level

**denotes significance at the five percent level

*denotes significance at the ten percent level

Table 4: Explaining Differences in Representation

| | (1) Democrats | (1) Republicans | (2) Democrats | (2) Republicans | (3) Democrats | (3) Republicans |
|-----------------------------------------------------|-----------------------|----------------------|--------------------------|--------------------------|----------------------|----------------------|
| Indicator: Majority of Group Voted Liberally: | | | | | | |
| Bottom Income Percentile | 0.372*** (0.0294) | 0.115*** (0.0355) | 0.458*** (0.0412) | 0.0608 (0.0443) | 0.144*** (0.0544) | 0.108*** (0.0366) |
| Average/Median | 0.0511 (0.0342) | 0.189*** (0.0426) | 0.0788*** (0.0287) | 0.170*** (0.0418) | 0.0239 (0.0328) | 0.176*** (0.0429) |
| Top Income Percentile | 0.0917*** (0.0283) | 0.254*** (0.0400) | 0.0974*** (0.0251) | 0.261*** (0.0379) | 0.0639** (0.0260) | 0.164*** (0.0596) |
| Top Same Party Percentile | | | | | 0.295*** (0.0525) | 0.119** (0.0545) |
| Additional Controls: | | | Turnout Last Election | Turnout Last Election | | |
| Test of Equality Top and Bottom | .00 | .03 | .00 | .00 | .19 | .46 |

Notes: Sample size is 4589 for Democrats and 3172 for Republicans. Standard errors are clustered by legislator/body. Specification 3 includes controls for turnout in last election (terciles 1 and 3) and these variables interacted with majority vote liberally (terciles 1 and 3 respectively). Coefficients in these specifications are shown for values of turnout at the mean.

***denotes significance at the one percent level

**denotes significance at the five percent level

*denotes significance at the ten percent level

Appendix Table1: 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 $\text{Legislator_Group_Congruent} = \delta_0 + \delta_1(\text{Top_Income_Tercile}) + \delta_2(\text{Bottom_Income_Tercile}) + \omega$ 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