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Changing Constituencies and Rising Polarization in the Congress

Three Essays

Jesse Aldous Sussell
Changing Constituencies and Rising Polarization in the Congress

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Jesse Aldous Sussell

This document was submitted as a dissertation in March 2014 in partial fulfillment of the requirements of the doctoral degree in public policy analysis at the Pardee RAND Graduate School. The faculty committee that supervised and approved the dissertation consisted of James Thomson (Chair), Win Boerckel, and Jeff Stonecash.
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Lastly I would like to thank my family—Molly, Charlie, and Maxine—for incredible and unwavering emotional support. Especially during qualifying exams.

Any mistakes that remain in this work are my own.
CHAPTER 1: NEW SUPPORT FOR THE BIG SORT HYPOTHESIS: AN ASSESSMENT
OF PARTISAN GEOGRAPHIC SORTING IN CALIFORNIA, 1992-2010

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ABSTRACT

This paper empirically examines the so-called “Big Sort hypothesis”—the notion that in recent years, liberal and conservative Americans have become increasingly spatially isolated from one another (Bishop 2009). Using block group-, tract-, and county-level party registration data and presidential election returns, I construct two formal indices of segregation for the period 1992-2010 within California, and evaluate those indices for evidence of growth in the segregation of Californians along ideological lines. I find evidence of rising geographic segregation between Democrats and Republicans for measures generated from both party registration and presidential vote data. This growth is statistically significant for 10 of the 12 segregation measures analyzed. In addition, many of the observed increases are practically significant, with estimates of growth in segregation during the observation period ranging from 2% to 23%.

INTRODUCTION

In 2008, journalist Bill Bishop published a book with a novel and controversial hypothesis. *The Big Sort: Why the Clustering of Like-Minded America is Tearing Us Apart* argued that over the last few decades, American migration patterns have increasingly produced geographic clusters of like-minded individuals: Liberals are increasingly more likely to be found in enclaves like San Francisco and New York City, while conservatives are clustering in places like Orange County and the suburbs of Dallas (Bishop 2009). According to Bishop, this geographic clustering along ideological lines imposes a cost on society: For most Americans in most American cities, the odds of encountering and interacting with someone of the opposite political persuasion have diminished greatly since the middle part of the previous century. Because exposure to contrary viewpoints has a moderating effect on our beliefs, Bishop argues, our
reduced access to those viewpoints (as a result of the sorting process) has made our collective beliefs more extreme and has contributed – perhaps significantly - to polarization of the mass electorate.

In many ways, the sorting hypothesis extends one of the more pervasive political memes of the previous decade - the “blue state/red state” partitioning of the nation popularized by media coverage of the 2000 and 2004 election cycles. As such, it is not surprising that The Big Sort was a big hit: it was mentioned regularly during the 2008 presidential election cycle, and received a ringing endorsement from former president Clinton (Abrams and Fiorina 2012).

Although popular with lay audiences, Bishop’s sorting hypothesis has received a mixed response from the academic community. The primary analysis used by Bishop to support his argument is a measured increase in the number of landslide counties over the last 30-40 years, where “landslide” is defined as one party winning the two-party vote in the presidential election by a margin of 20% or greater. This approach has been scrutinized on a number of fronts, with the general form of criticism being that the data selected for analysis (county-level presidential election results over time) may not be appropriate for making valid inferences about the geographic sorting of voters (McGhee and Krimm 2009; Abrams and Fiorina 2012). In particular, Abrams and Fiorina present three distinct caveats regarding Bishop’s analysis: first, that for the purposes of detecting polarization in the electorate, presidential vote data are not an ideal measure because votes taken in different elections over time are inherently a function of candidate-specific attributes as well as of the construct for which measurement is desired (voter preferences); second, that Bishop’s analytical strategy (totaling the number of landslide counties) is flawed, primarily because results are highly sensitive to the arbitrary choice of what constitutes a “landslide;” and third, that data compiled at the county level are not sufficiently granular to allow for detection of a phenomenon (sorting) that purportedly occurs at the neighborhood level. With respect to this last criticism they issue an explicit call for future research: “The simple fact is it will take much more detailed research to settle questions about geographic sorting one way or the other. In
particular, to examine the subject of residential polarization in a systematic manner requires data at a much lower level than the county level.” (Abrams and Fiorina 2012).

Using both a new analytical strategy and a new data source, I assess the validity of Bishop’s sorting hypothesis while addressing each of the criticisms raised by Abrams and Fiorina. In addition to presidential election returns, voter registration data are used as a measure of local ideological preferences. Instead of arbitrary classification of “landslide” areas, formal measures of geographic segregation are borrowed from the rich sociological literature in this area (Massey and Denton 1988). Finally, in addition to county-level data, I examine micro-geographic block group-and tract-level data for evidence of increasing clustering. As a result, this paper addresses the debate about how geographic sorting along ideological lines should best be measured, while simultaneously testing the hypothesis that such partisan sorting has increased over the last two decades in California.

DATA AND METHODS

This paper makes use of the voter registration and presidential vote data developed and maintained by the Statewide Database (SWDB) at the University of California (2011). The SWDB was originally created (and continues to serve) as the redistricting database for the state of California. As part of their work to support the redistricting process, SWDB researchers examine the spatial distribution of voters and registrants in California by using statistical methods to reallocate precinct-level data to US Census geographies, including Census blocks and block groups (McCue 2011). These data, which SWDB makes publicly available, present a unique opportunity to assess changes in the spatial distribution of political data over time, and to do so at an extremely granular level.
The broad approach used here is to compute measures of segregation for individual geographic units and for each year for which data are available, and to then ascertain whether those measures are increasing over time using statistical methods. Thus there are four underlying concepts in the analysis that require explanation: Measures of local ideology, computed measures of segregation, choice of geographic level of analysis, and statistical model specification.

Measures of Local Ideology

What is the best way to measure the ideological preferences of voters at the local level? An ideal survey dataset would be both deep, in the sense that it would ask a comprehensive battery of questions about voting behavior, party registration, and policy preferences from a representative sample of Americans (as does, for example, the American National Election Study (ANES) Time Series Survey), and broad, in the sense of having robust coverage of every micro-geographic unit within the study area. Unfortunately, the ANES study and others like it are intended to be representative only to large geographic areas such as individual states or the entire nation; as a result their relatively small sample size makes them inappropriate for local analysis (Johnston 2005).

Both party registration data (Jacobson 2004; McGhee and Krimm 2009; Abrams and Fiorina 2012) and presidential vote data (Bishop 2009; Einstein 2011; Kinsella 2011; McDonald 2011) have been used as proxies for ideological preferences within local geographic areas, although the validity of using presidential vote data (specifically the share of the two-party presidential vote) has been challenged, primarily because changes in voting patterns across elections are at least in part a function of changing candidates rather than being wholly determined by changes in the underlying distribution of voter preferences (McGhee and Krimm 2009; Abrams and Fiorina 2012). On the other hand, use of party registration statistics as a proxy for local preferences may be less than ideal because registration rolls are often outdated (McDonald and Popkin 2001; McGhee and Krimm 2009).
Because of the lack of consensus in the literature on whether party registration or presidential vote data are a better measure of local ideological preferences, the approach taken here is to construct separate sets of ideological segregation measures, with one set analyzing changes over time in the geographic segregation of Republican and Democratic voters in the presidential election, and the other set analyzing changes over time in the geographic segregation of registered Republicans and Democrats.

**Computed Measures of Segregation**

According to Erbe, there are two distinct elements to consider when measuring segregation – first, the extent to which populations within a geographic area deviate from an equal distribution, and second, the degree to which the residential contiguity of populations influences the likely rate of contact between different groups (Erbe 1975).

In their seminal article on racial/ethnic segregation, Douglas Massey and Nancy Denton describe five distinct dimensions of residential segregation: evenness and exposure (which correspond to the elements described by Erbe) as well as concentration, centralization, and clustering. They then evaluate the validity of existing computed measures of segregation and make formal recommendations as to which measures best capture each specific dimension (Massey and Denton 1988). I utilize two of the measures recommended by Massey and Denton: the Index of Dissimilarity ($D$)—a measure of evenness—and $\eta^2$, which measures the dimension of exposure.

The Index of Dissimilarity is the most widely used measure of racial segregation (Massey and Denton 1988; Alba, Logan et al. 2000). It has also been used to model gender segregation across occupations (Jacobs 1989), and to measure the ideological segregation of individual media outlet users across the liberal-conservative spectrum (e.g. Fox News versus the Huffington Post) (Gentzkow and Shapiro 2011). There is also some precedent for its use as a measure of segregation between Democrats and Republicans in the United States: Glaeser and Ward generated a global $D$ statistic for the United
States (computed at the county level) for presidential elections between 1840 and 2004 (Glaeser and Ward 2006), while Einstein used it to compare precinct-level segregation across different MSAs (metropolitan statistical areas), again using presidential election data (Einstein 2011). It can be computed for any binary population, and in our case is calculated as follows:

\[ D = \frac{1}{2} \sum_{i} \left| \frac{dem_i}{DEM} - \frac{rep_i}{REP} \right| \]

Where \( dem_i \) and \( rep_i \) are the number of Democrats and Republicans, respectively, in the \( i \)th micro-geographic unit (block group, tract, precinct, etc.), and \( DEM \) and \( REP \) are the total number of Democrats and Republicans in the macro-geographic unit for which the statistic is being calculated (county, state, nation, et cetera).

\( D \) is indexed on \([0,1]\); a value of 0 indicates perfect integration (the ratio of Democrats to Republicans in each micro-district is identical to that of the macro district), while a value of 1 indicates perfect segregation. \( D \) has the desirable property of being independent of the cross-group proportion within the macro-geographic unit. In other words, the fact that Orange County has a higher proportion of Republicans than Los Angeles County will not confound a comparison of the \( D \) statistics calculated for each. \( D \) may be thought of as measuring “the percentage of a group’s population that would have to change residence for each neighborhood to have the same percentage of that group as the metropolitan area overall” (Iceland, Weinberg et al. 2002). In this sense, \( D \) reports the evenness of the distribution of the two groups by measuring the relative similarity of the micro-level proportions to the macro-level proportions.

Figure 1, below, portrays two hypothetical scenarios that would generate high and low values of \( D \). In the first example, each sub-geographic unit is either 100% Democratic or 100% Republican, while the overall proportion in the macro-geographic unit is 50/50. This scenario would yield a calculated \( D \) of
1—the maximum value. In the second example, each micro-geographic unit has a Democrat/Republican ratio of either 4/5 or 5/4, very close to the overall proportion in the macro area. This scenario yields a calculated $D$ value of 0.111, close to the index’s minimum value of 0.

By contrast, the dimension of *exposure* refers to the “degree of potential contact, or possibility of interaction, between minority and majority group members” (Massey and Denton 1988). This dimension was selected for inclusion because it closely mirrors one of the concepts underpinning the hypothesis of *The Big Sort* – that diminished levels of interaction between Democrats and Republicans contribute directly to an escalation of polarization along a liberal-conservative axis (Bishop 2009).
According to Massey and Denton, one of the primary measures of exposure is the isolation index, which estimates the degree to which group members within a macro population are exposed only to one another, and not to members of the other group. For our purposes, the isolation index, which was originally denoted $x^*_x$ by Lieberson (Lieberson and Carter 1982), is calculated as follows for the joint cases of Democratic and Republican isolation:

$$
\text{dem}^*_\text{dem} = \sum_i^N \left( \frac{\text{dem}_i}{\text{DEM}} \right) \left( \frac{\text{dem}_i}{\text{tot}_i} \right), \quad \text{rep}^*_\text{rep} = \sum_i^N \left( \frac{\text{rep}_i}{\text{REP}} \right) \left( \frac{\text{rep}_i}{\text{tot}_i} \right)
$$

Where $\text{dem}_i$, $\text{rep}_i$, and $\text{tot}_i$ are the total number of Democrats, Republicans, and individuals in the $i$th micro-geographic unit, and $\text{DEM}$ and $\text{REP}$ are the total number of Democrats and Republicans in the macro-geographic unit for which the statistic is being calculated.

The isolation index is also indexed on the interval [0,1], and has a similar interpretation to $D$ in the sense that everything else being equal, higher values imply greater levels of segregation. However, the isolation index differs from $D$ in that its calculated value is affected by the macro-level proportions of the groups being considered: ceteris paribus, the estimated isolation of Democrats from Republicans in Orange County will differ from that in Los Angeles County simply as a result of the differing percentages of Democrats and Republicans in those places. This characteristic becomes problematic if cross-geographic or intertemporal comparisons of isolation index value are attempted: relative differences in macro proportions across time and/or space will confound attempts to make inferences about increases or decreases in the cross-group level of exposure.

It is possible to adjust the isolation index to account for differences in macro-area population proportions in such a way as to allow for valid comparisons across time and space (Massey and Denton 1988; Iceland, Weinberg et al. 2002). This adjusted isolation index, also known as the Correlation Ratio or $\text{Eta}^2$, is calculated as follows:
\[ \text{Eta}^2 = [(x_{P_x^*} - P)/(1 - P)] \]

Where \( x_{P_x^*} \) is the isolation index described above (for \( X = \) Democrat or Republican), and \( P \) is the macro-level proportion of group \( X \). Following this adjustment, the measure of exposure becomes symmetric, i.e. \( \text{Eta}^2_{\text{dem}} = \text{Eta}^2_{\text{rep}} \). \( \text{Eta}^2 \) is similar to \( D \) in that it ranges on \([0,1]\), and also in that higher values are associated with higher levels of segregation. It is the second measure of segregation used in this paper.

Figure 2, below, illustrates the conceptual difference between high and low segregation as measured by \( \text{Eta}^2 \). In both scenarios, there are an identical number of Democrats (21) out of a total population of 144. In the high segregation scenario however, the Democrats are clustered in a way that reduces the probability of cross-group exposure, while in the low segregation scenario, they are dispersed throughout the macro-geographic area in a more even fashion; this increases the probability that a random Republican will encounter (and interact with) a Democrat, and vice versa. The high segregation scenario yields an \( \text{Eta}^2 \) value of 0.604, while the low scenario yields a value of 0.046.
Choice of Geographic Level of Analysis

Computation of the measures described in the previous section necessarily requires selection of micro and macro units of geography. However, neither the (robust) literature on segregation by race/ethnicity nor the (relatively sparse) literature on segregation by political ideology presents consistent guidance on the optimal geographic units of analysis. The measures described above have been used to assess segregation, variously, at the level of precincts within MSAs (Einstein 2011); block groups within cities (Collins and Williams 1999); tracts within counties and tracts within states (Massey and Hajnal 1995); counties within the United States (Glaeser and Ward 2006); and states within the country (Massey, Rothwell et al. 2009), to name a few of the combinations extant in the literature. Because of this diversity of approaches, and because Bishop’s hypothesis postulates that migration is
the dominant factor driving ideological sorting, I elect to analyze segregation within California across multiple levels of geography. Specifically, the two measures described above are computed and analyzed in three different scenarios which use block groups, tracts, and counties, respectively, as the micro-geographic unit, with the entire state as the macro-geographic unit: for each year in the observation period, a single statistic is calculated for the entire state. However, the practice of using county-level data (that is, the use of county as the micro-level unit of analysis) to make inferences about a phenomenon—the geographic sorting of voters—that purportedly occurs at the neighborhood level has been cautioned against (Abrams and Fiorina 2012). As Kinsella argues, doing so may lead to commission of the ecological fallacy: analysis of trends within units of observation that have large areal and/or population sizes (counties) may lead to incorrect conclusions about patterns at more microgeographic levels (Kinsella 2011).

Model Specification

Given two different measures of local ideology (presidential vote and voter registration data), two different computed measures of segregation (the Dissimilarity Index and $\eta^2$), and three different micro-geographical levels, there are 12 sets of results to be examined. My approach is to compute a segregation statistic for each combination of local ideology measure, segregation measure, and micro-geography, for each year in the data set, and to examine each of those time series for evidence of a statistically significant positive trend. The baseline year is 1992, because that is the first year for which SWDB data are available; I therefore look for evidence of increasing partisan segregation during the period 1992-2008 (for measures generated from presidential vote data) or 1992-2010 (for measures generated from party registration data).

Whether each of the 12 segregation indices is growing over time—and if so, whether those increases are statistically significant—is ascertained through the following two-step process. First, I
examine whether each series is growing over time by visually inspecting the calculated values of each index for each year. To ensure that any perceived increases are not artifacts of stochastic variation in the data, I generate a bootstrapped distribution (1,000 repetitions) for each index for each year, and examine the mean values from those distributions for evidence of an upward trend over time. Next, to evaluate whether any observed temporal trends are statistically significant, I examine whether the differences between the baseline year (1992) and non-baseline year index values are statistically different from zero. This is accomplished by performing a second bootstrapping procedure (again using 1,000 repetitions) to obtain a distribution for the inter-year difference statistic. In this framework, statistical significance is assessed by letting $\alpha$ equal the percentage of the 1,000 replications of this difference statistic that are greater than zero; then $(1 - \alpha)$ is equivalent to the $p$-value for rejecting the null hypothesis when $H_0$ is that the difference is greater than zero. This “difference” approach is preferred because it retains the stochastic element (i.e. the error distribution) of the estimates of the estimates of segregation index values for both the baseline and the current year.

Because the numbers of block groups and tracts (both within individual counties and within the state as a whole) vary across time periods, year-specific segregation index values were produced from generated datasets in which observations were randomly resampled to ensure comparable numbers of block groups and tracts across years.

**RESULTS**

This analysis generally supports the hypothesis that partisan segregation—as measured within California and across the period 1992-2010—is increasing over time. For each of the 12 measures, there are two conditions that should jointly hold to conclude that evidence of rising partisan sorting has been found: First, somewhat obviously, the year-specific calculated segregation index values should be
increasing over time. Second, there should be evidence that these trends are statistically significant, and not just due to random variation in the data.

The first condition is assessed through visual inspection of the bootstrapped mean values of the different indices of segregation (table 1, below). A general upward trend is present for all of the statistics; although not dramatic, the magnitude of these growth paths also does not appear to be trivial. For example, when calculated at the level of block groups and tracts within the state, the $D$ measure rises by 9.3% and 7.4% between 1992 and 2010, respectively; for $Eta^2$ the figures are 10.7% and 2.1%. (The relative magnitude of these figures should be considered in light of the fact that because of limited data availability, the interval of analysis begins in 1992, roughly sixteen years after Bishop suggests that sorting first began: if Bishop is correct then the growth estimates in table 1 will understate the overall increase in partisan sorting by a significant amount.)

Although a general upward trend is present for all 12 measures across the full time period, the statistics generated using presidential election data demonstrate a significant drop-off between 2004 and 2008. No such drop off is present in the segregation measures generated from party-registration data. In summary, the first condition required for support of the sorting hypothesis appears to be met—weakly for segregation measures generated from presidential election results (largely because of the decline between 2004 and 2008) and strongly for measures generated from party registration data. The second condition for concluding support for the sorting hypothesis—statistical significance of any observed growth trends in the segregation statistics—is also indicated in table 1.
Table 1: Mean values of segregation indices by ideology measure, segregation measure, geographical combination, and year

<table>
<thead>
<tr>
<th>Measure of ideology</th>
<th>Measure of segregation</th>
<th>Sub geography within California</th>
<th>92</th>
<th>94</th>
<th>96</th>
<th>98</th>
<th>00</th>
<th>02</th>
<th>04</th>
<th>06</th>
<th>08</th>
<th>10</th>
<th>Growth, 92-08/10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Votes in the presidential election</strong></td>
<td><strong>Dissimilarity Index</strong></td>
<td>Block groups</td>
<td>0.291</td>
<td>0.307†</td>
<td>0.303†</td>
<td>0.321†</td>
<td>0.302‡</td>
<td>0.302‡</td>
<td>3.7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tracts</td>
<td>0.307</td>
<td>0.325†</td>
<td>0.319</td>
<td>0.330†</td>
<td>0.314</td>
<td>2.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Counties</td>
<td>0.211</td>
<td>0.226†</td>
<td>0.242†</td>
<td>0.265†</td>
<td>0.220†</td>
<td>4.3%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Eta²</strong></td>
<td>Block groups</td>
<td>0.119</td>
<td>0.133†</td>
<td>0.130†</td>
<td>0.140‡</td>
<td>0.122*</td>
<td>2.5%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tracts</td>
<td>0.125</td>
<td>0.140†</td>
<td>0.136 †</td>
<td>0.145 †</td>
<td>0.123</td>
<td>(1.6%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Counties</td>
<td>0.048</td>
<td>0.057†</td>
<td>0.062 †</td>
<td>0.082 †</td>
<td>0.055 †</td>
<td>14.6%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Party registration</strong></td>
<td><strong>Dissimilarity Index</strong></td>
<td>Block groups</td>
<td>0.289</td>
<td>0.289</td>
<td>0.295 †</td>
<td>0.297 †</td>
<td>0.301 †</td>
<td>0.305 †</td>
<td>0.302‡</td>
<td>0.314 †</td>
<td>0.316 †</td>
<td>9.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tracts</td>
<td>0.311</td>
<td>0.314</td>
<td>0.316</td>
<td>0.321</td>
<td>0.324*</td>
<td>0.323*</td>
<td>0.334‡</td>
<td>0.334‡</td>
<td>7.4%</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>Counties</td>
<td>0.200</td>
<td>0.200</td>
<td>0.212</td>
<td>0.207†</td>
<td>0.228†</td>
<td>0.220*</td>
<td>0.239†</td>
<td>0.232‡</td>
<td>0.246‡</td>
<td>0.236‡</td>
<td>18.0%</td>
</tr>
<tr>
<td></td>
<td><strong>Eta²</strong></td>
<td>Block groups</td>
<td>0.122</td>
<td>0.123</td>
<td>0.126†</td>
<td>0.127†</td>
<td>0.126†</td>
<td>0.129†</td>
<td>0.131†</td>
<td>0.128‡</td>
<td>0.134†</td>
<td>0.135‡</td>
<td>10.7%</td>
</tr>
<tr>
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<td>Tracts</td>
<td>0.140</td>
<td>0.137</td>
<td>0.141</td>
<td>0.142†</td>
<td>0.137</td>
<td>0.140</td>
<td>0.145</td>
<td>0.147</td>
<td>0.143</td>
<td>2.1%</td>
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<td></td>
<td></td>
<td>Counties</td>
<td>0.052</td>
<td>0.050</td>
<td>0.056</td>
<td>0.053</td>
<td>0.062*</td>
<td>0.059</td>
<td>0.068†</td>
<td>0.064‡</td>
<td>0.070†</td>
<td>0.064‡</td>
<td>23.1%</td>
</tr>
</tbody>
</table>

Notes:
(1) Both $D$ and $Eta^2$ are scored on the interval $[0,1]$, with higher values representing higher levels of segregation.
(2) Bootstrapped difference from calculated value for 1992: * - significant at 0.05. † - significant at 0.01. ‡ - significant at 0.001.
Results testing the second condition are mixed, but generally support the sorting hypothesis. Critically, all segregation measures generated from party registration data strongly support the hypothesis of increased sorting over time: At the block group, tract, and county micro-levels, the positive difference between later-year estimates of $D$ and of $\eta^2$ and the values from 1992 are highly statistically significant, with the null hypothesis of no difference rejected at $p = 0.01$ or less in all cases.

Interpretation of findings for statistics generated from presidential vote data is less straightforward. If the terminal year of this analysis had been 2004, both of the conditions for concluding support for the sorting hypothesis would have been universally met: First, both $D$ and $\eta^2$ are increasing (almost but not quite monotonically) at all levels of micro-geography on the interval [1992, 2004], and second, for all measures, the inter-year differences between 2004 and 1992 are highly significant. However, the terminal year of this analysis of presidential election data is not 2004 but rather 2008. As such — consistent with the pattern of a 2004-2008 drop off presented in table 1—only four of the six estimates of differences between presidential vote-based segregation statistics calculated in 2008 and 1992 achieve significance. Indeed, in one case ($\eta^2$ at the tract level) the 2008 point estimate is actually lower than the 1992 value (although this negative difference does not achieve statistical significance). This pattern could be a statistical “blip” – it could be the case that estimates generated from the 2012 election will show a reversion to the general trend of increased segregation seen between 1992 and 2004. It could also be an artifact of the previously discussed point made by Abrams and Fiorina – that presidential vote data are an inherently flawed measure of local ideology, subject to disturbance by candidate-specific effects. In any event, the analysis of segregation measures generated from presidential vote data is still sufficient to conclude limited support for the hypothesis of increased ideological sorting within California.
DISCUSSION

By examining California-specific microgeographic party registration and presidential vote data, this paper attempts to answer the question of whether partisan geographic segregation has in fact been rising in the United States. I find reasonably strong evidence to support the claim that it has. When presidential election returns are used to calculate statewide segregation statistics, findings are mixed but generally supportive of the sorting hypothesis; when party registration data are used results provide substantial support for the sorting hypothesis, with highly statistically significant upward trends present for indices calculated at all geographic levels.

The results presented here are subject to a number of important limitations. As previously mentioned, SWDB data are available only as far back as 1992; as a result trends in geographic segregation for earlier periods, including roughly half of the period (1976-present) in which Bishop argued that sorting has occurred cannot be assessed. Results are generated from a California-specific data set, and as such external validity to the rest of the country cannot be claimed. However, Bishop describes physical relocation as the primary mechanism through which ideological sorting occurs; If Americans are in fact moving as a result of local ideological preferences (or at least allowing those preferences to influence their decision process as they move for career or other reasons), there is no a priori reason to believe that this phenomenon is occurring only in California.

In addition, the fact that the analysis was limited to geographies within California creates a different kind of limitation: Consider the case of a liberal in a conservative rural tract of Fresno County who moves elsewhere in order to be among fellow liberals. A number of different cases are possible: He or she might move to a more liberal part of Fresno county (for example, the urban core of the city of Fresno), or to a liberal city in a different county in California, like Berkeley or Los Angeles, or, finally, to a liberal area in a different state, like Seattle or New York City. Ceteris paribus, the first two cases would
increase calculated statewide measures of partisan segregation. Because it involves an exit from the system, the third case would also increase measures of segregation (because the rural tract would become proportionally more conservative following our migrant’s departure), but with a smaller marginal effect than would be seen in the first two cases. If migration is one of the driving factors behind rising partisan geographic sorting, then measures calculated for individual states (such as those in this paper) will not fully account for the effect of partisan migration across state borders. Despite these limitations, this analysis provides fairly compelling evidence that between 1992 and 2010, Republicans and Democrats in California became increasing geographically isolated from one another; while by no means dispositive, my results are certainly consistent with Bishop’s original claim of a gradual geographic realignment of liberals and conservatives in the United States.

Whether or not partisan geographic segregation is broadly rising in the United States is not merely an academic question. If the spatial distribution of liberals and conservatives is in fact moving from a relatively diffuse structure to a more clustered one, an important consideration is the impact this might have on polarization in our legislative bodies, and by extension on their ability to generate meaningful policy solutions. Scholars generally agree that the voting behavior of legislators is in part a function of local constituency preferences (Jackson and Kingdon 1992; Brewer, Mariani et al. 2002; Gerber and Lewis 2004). If Bishop’s sorting argument is valid, then the widely-noted rise in congressional polarization may in part be a function of the fact that legislative districts have become increasingly ideologically homogenous over the last several decades.
REFERENCES


McCue, Kenneth F. 2011. Creating California’s Official Redistricting Database.
CHAPTER 2: YES TO THE BIG SORT: CHANGING CONSTITUENCIES AS A DRIVER OF RISING POLARIZATION IN THE US HOUSE OF REPRESENTATIVES
ABSTRACT

This paper addresses two questions: First, whether over the last 40 years the spatial distribution of the American electorate has become more geographically clustered with respect to party voting and socioeconomic attributes, and second whether this sorting process has contributed to rising polarization in the US House of Representatives. We find support for both hypotheses, and estimate that long-term geographical sorting of voters is responsible for roughly 30% of the increase in polarization in the House between the 93rd and 112th Congresses. An important ancillary finding is that the within-district percentage of adults who are married dwarfs other socioeconomic variables—including those measuring race, education, income, and urbanicity—as a predictor of local partisanship, as measured by both the party affiliation of the House representative and the presidential vote share.

INTRODUCTION

Virtually all observers of national American politics agree that there is a high degree of polarization between the Democratic and Republican parties. There is also a general consensus that this inter-party polarization has been increasing over time: the ideological gap separating the parties of Tip O’Neill and Gerald Ford in the 1970s may have been large, but it was smaller than the distance between the Clinton Democrats and the Gingrich Republicans in the 1990s, and smaller still than the gulf between the parties of Boehner and Pelosi today. There is much less consensus, however, as to the causes of this rising polarization. Many authors have noted the role of the so-called “Southern Realignment”—the gradual transition of the Southern congressional delegation (through attrition, replacement, and in some cases party-switching) from a Democratic to a Republican stronghold. Others have hypothesized, variously, that rising polarization in the Congress may be caused by gerrymandering, rising income inequality, closed primary elections, or poorly structured campaign finance laws.
Some scholars have claimed that rising polarization in the Congress has been driven at least in part by changes in the nature and distribution of the electorate. (Stonecash, Brewer et al. 2003) One theoretical model argues that the voting behavior of elected representatives is determined by four factors: the policy preferences of the members themselves, the preferences of the national political party to which they belong, the preferences of within-district constituencies, and the preferences of the within-district sub-constituency likely to support the representative. (Levitt 1996) In particular, the notion that the voting behavior of members of Congress is determined (in part) by the preferences of within-district voters has been fairly well-supported in the literature. (Miler 2009) Under the reasonable assumption that this relationship does hold – i.e. that on average, representatives from conservative districts tend to elect conservative members, and liberal districts liberal members— one possible explanation for rising polarization in the Congress is the “Big Sort.” This term describes the hypothesis—first proposed by Bill Bishop—that in recent decades, politically like-minded voters have become less diffuse and more clustered as a result of geographic sorting along economic, demographic, religious, and lifestyle lines. (Bishop 2009) Since members of the House represent specific geographic regions, clustering of like-minded voters into House districts could contribute to polarization as members respond to gradual changes in constituency preferences.

This paper is organized as follows: in the second section we provide evidence to support Bishop’s hypothesis by showing that clustering across Congressional districts has gradually increased along several lines – specifically income, education and marriage. In the third section we present results from three analytical models designed to test the hypothesis that this clustering has contributed to growing polarization in the US Congress since the mid-1970s. We conclude with a discussion of our findings and the implications they have for continued polarization and gridlock in the Congress.
The question of whether the American electorate has become more polarized in recent decades has been addressed by a number of authors and remains a matter of some dispute. In particular, in books with starkly different titles that imply starkly different conclusions, Morris Fiorina ("Culture War: The Myth of a Polarized America") and Alan Abramowitz ("The Disappearing Center: Engaged Citizens, Polarization and American Democracy") seem to agree on two key points: first, that the electorate as a whole is not as polarized as the Congress, and second that the politically engaged portion of the electorate is more polarized than the voting population as a whole and that polarization within this group is growing (Fiorina, Abrams et al. 2005; Abramowitz 2010). Politically engaged liberals have increasingly moved into the Democratic Party and politically engaged conservatives into the Republican Party. Abramowitz shows that polarization within the electorate has increased, and attributes this change to a significant increase over time in the fraction of voters who are politically engaged.

One way to measure this type of electoral polarization is to estimate the ideological gap between party identifiers: For example, what is the ideological “distance” between those who voted for the Democratic and Republican candidates in presidential elections, and has that distance been growing larger over time? According to data from the American National Election Survey (ANES), on an ideological scale ranging from 1 (very liberal) to 7 (very conservative), in 1972 the average voter for Democrat George McGovern self-identified as 3.46; the average voter for Republican Richard Nixon self-identified as 4.47, so the distance between the two average scores was 1.04. In 2008, the average scores...
for Obama and McCain voters were 3.59 and 5.03, respectively; the distance between these averages was 1.44, a statistically significant increase of 42%.

Fiorina and Abramowitz largely omit consideration of geography, which provides a related but distinct framework for thinking about the question of whether American voters are becoming more polarized over time. Imagine that between 1972 and 2008, liberals and conservatives (or Republicans and Democrats) became more and more clustered in different regions of the country: liberals in places like San Francisco and Brooklyn, and conservatives in places like Orange County and Kansas. Even in the absence of any changes to national-level averages in partisan ideological self-identification, this type of clustered electorate would be more geographically polarized than one with a relatively diffuse distribution.

This second type of polarization is precisely the type of change that Bill Bishop claims has occurred in the United States over the last several decades. In his 2008 book The Big Sort, Bishop argues that liberal and conservative voters in the United States have become increasingly spatially isolated from one another. His principal analysis in support of this claim is a comparison of county-level returns in the presidential election over time. To demonstrate that counties are becoming increasingly internally homogenous politically, Bishop divides counties into “landslide” and “competitive” counties, where “landslide” is defined as a margin greater than 20% for either the Republican or Democratic candidate. He makes the argument that sorting is occurring by comparing maps of the 1976 and 2004 Presidential elections for the 48 contiguous states, with each county coded as being either “landslide Democrat,” “Landslide Republican,” or “No Landslide.” We reproduce here in Figures 1 and 2 our own versions of these maps, with the 2008 election substituted for 2004, which was used in Bishop’s book.

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1 See the technical annex for details.
2 Fiorina does include a chapter on the “Red State/Blue State Divide” and concludes that – among all voters – voters in Red states did not have significantly different political attitudes from those in Blue states, a striking finding, given the growing polarization in the Senate.
Figure 1: 1976 Presidential Election: County Voting in the Contiguous 48 States
Bishop’s evidence of an increase in sorting was the obvious and dramatic increase between the two elections in the number of counties classified as “Landslide.” Also obvious is the Southern realignment, as the blue band of 1976 has largely been replaced by a red band of counties across the “Bible Belt”, an effect that may have been accentuated by the fact that the 1976 Democratic candidate, Jimmy Carter, was a Southerner. Also noteworthy is the fact that all but one of the coastal counties of California was competitive in 1976. But in 2008 (and 2004), almost all the counties north of Orange County were solidly behind the Democratic candidate. Similarly, aside from a few rural counties, all Kansas counties were competitive in 1976. Almost none were in 2008, with most Kansas counties having become solid supporters of the Republican candidate. This general trend is consistent with the
observation that the number of “Swing States” has declined in Presidential elections. California, for example, was considered a Swing State until the 1990s.

Bishop’s conclusions about political sorting have been disputed by some members of the academic community. In particular, Samuel Abrams and Morris Fiorina have criticized the “Big Sort” along several dimensions, one of which was the choice of only two Presidential elections to demonstrate the political effects of geographic sorting. In their article “The Big Sort That Wasn’t: A Skeptical Reexamination,” they argued that Bishop’s choice of only two elections had two major flaws: First, presidential election returns are vulnerable to the effects of different candidates on the outcome; for example, Republican Gerald Ford may not have attracted the same voters as George W Bush (in 2004) or John McCain (in 2008). Second, the choice of beginning and ending points exaggerated the differences because “1976 was the low point for the percentage of the population residing in landslide counties in the post-World War II period and 2004 the high point.” (Abrams and Fiorina 2012)

A final limitation of Bishop’s map-based approach is that strictly visual analysis tends to disproportionally weight counties with large land areas and small populations. Consider Elko County, in the northeast corner of Nevada, and Kings County, New York (Brooklyn). Both counties were landslides in the 2008 presidential election (Elko County for McCain and Kings County for Obama). However, while the population of Kings County is more than 50 times greater than the population of Elko County (2.5 Million to 50,000), it is the large land area of Elko county that visually dominates the map, and Kings County that is essentially invisible.

This state of affairs suggests two questions that remain to be addressed: First, in light of the criticisms raised by Abrams and Fiorina, was Bishop correct in asserting that a widespread geographic political sorting has taken place since the 1970s? What evidence do alternative empirical approaches
provide? And second, if sorting is in fact a real phenomenon, what are the underlying processes that might be causing it?

Re-reconsidering the Sorting Question

We propose an alternative method for testing for the existence of sorting in the electorate, which is to calculate and compare the population-weighted standard deviation of the percentage of votes for the Republican presidential candidate across counties for elections since World War II. Standard deviation is a measure of the dispersion of the distribution of a variable – the average degree to which individual values in a population differ from the population average.

Conceptually, a distribution in which most observations are extreme (e.g. 90% or 10% Republican) will have a higher standard deviation than a distribution in which most observations are close to the distribution’s center (e.g. 55% or 45% Republican). An increasing standard deviation over time would thus indicate a growing geographic dispersion of Republican voting (and by extension of Democratic voting) measured across counties, and would therefore be consistent with Bishop’s sorting hypothesis.

This approach addresses the criticisms described above. Instead of comparing results from two elections, we examine data for each of the 16 presidential elections in the postwar period: cherry-picking is impossible when data from all years in the relevant period are examined. Using population weighted-data resolves the third problem: our analysis correctly assigns a much greater weight to Kings County and a much lower weight to Elko County.

Abrams and Fiorina’s first and most important criticism – that presidential voting data are an inherently flawed measure of preferences because of candidate-specific effects—remains valid. It is difficult to remedy this shortcoming because presidential voting data are the only measure of political

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3 See technical annex for details.
preference that is consistently available both historically and at a relatively small unit of geography (counties or county equivalents) with complete coverage for the entire country. However, we note that the degree of concern with the validity of this measure is probably lessened when 16 elections are compared, instead of just two: Concern regarding the confounding effect of candidate-specific effects is lessened when a steady trend is evident across multiple decades of data.

Figure 3 shows the results of our analysis: the population-weighted standard deviation of the two-party Republican vote share in the presidential election (PREP) for every election between 1948 and 2008:

Figure 3: Weighted Standard Deviation of Average PREP across Counties
Two points stand out. First, Abrams and Fiorina were correct to point out the anomaly of the 1976 election. The geographic dispersion of PREP was at its postwar low in that election. Second, there is clearly an upward trend since 1976 or 1980 and especially since 1992.

As an alternative to PREP, Abrams and Fiorina examined party voter registration statistics in the 21 states for which voter registration data were available for both 1975 and 2008. They classified each county as being “landslide” or “not landslide” according to three different definitions: an advantage of 60% to 40% or greater (as Bishop used), a less stringent 55%/45% and a simple majority for one party. They do not find an increase in the number of landslide counties in the bulk of the states. In most states, in fact, the number has declined, evidence, they say, of declining as opposed to growing regional polarization. Further, they provide data suggesting that the missing 29 states produce county-level election results similar to those in the 21, suggesting that inference about trends in the country as a whole from an analysis of those 21 states would not be unreasonable. They also point out that when party registration statistics are analyzed, the conclusion is not that counties are becoming more Democratic and more Republican, but rather that they are becoming more Republican and in particular more Independent. This increase in independent voters (technically those who list their party registration status as “independent,” “decline to state,” or “other”) could easily produce a decline in the number of landslide counties according to registrations. However, this does not necessarily suggest a reduction in geographic polarization, as Abrams and Fiorina imply. As Abramowitz and other scholars have shown, registered independents are frequently partisans, and the terms “moderate” and “independent” should not be used interchangeably. (Petrocik 2009) Most independents are so-called “leaners” who vote fairly consistently for one party or the other in Presidential elections.4 For example,
in a 2010 national survey of the electorate, 26.7% of Tea Party identifiers listed their party identification as “Independent, leaning Republican;” (Maxwell 2010) it seems reasonable to assume that very few of them voted for Obama in 2012. Admittedly, both PREP and party-registration statistics have weaknesses as measures of local geographic political preferences. Despite its problems, PREP is the only one that classifies “leaners” based on revealed preference.

Bishop describes sorting as a neighborhood-level phenomenon. As Abrams and Fiorina point out, an additional (and important) critique of his original analysis is that as a geographical unit, counties are a relatively poor fit for the concept of “neighborhood.” In an alternative effort to look for political clustering at sub-county levels of geography, one of us has also examined block group-, tract-, and county-level of both PREP and party registrations in California using two statistical indices developed for studies of racial segregation. (Sussell 2013) This study provides strong evidence for the sorting hypothesis, albeit only in California. There is evidence of sorting across both indices, both political measures and all three geographic levels. The evidence is especially strong at the county level and, at the county level, stronger for registrations than for PREP, the opposite of Abrams’ and Fiorina’s conclusion. Other authors have recently used a variety of methods to demonstrate that micro-geographic partisan sorting has increased in Texas, (Myers 2013) Cincinnati, (Kinsella 2011) and Minneapolis. (Walker 2013)

**Beneath the Surface: What Might Be Causing the Observed Increase in Geographic Political Homogeneity?**

We feel that the trend in standard deviation shown in figure 3, in combination with the works cited earlier, provides reasonably strong support for the hypothesis that partisan geographic sorting is increasing, even in the face of the criticisms raised by Abrams and Fiorina.

have been a landslide in any of the years. If the independents had consistently voted more heavily for the Democratic candidate than for the Republican, the county would have produced a landslide in PREP in 2008.
But what are the reasons why this might be happening? What can we infer from the fact that many places in this country are increasingly demonstrating overwhelming Republican or Democratic partisanship? One possibility is migration, which was in fact one of the central elements of Bishop’s sorting hypothesis. He believed that sorting might be occurring because political ideologues share similar “lifestyle” preferences, and argued that if people make migration decisions based on lifestyle choices (e.g. preferences for fair trade coffee or strong religious communities), an unintended consequence of these decisions, aggregated over decades, would be an increase in internal political homogeneity at the local level. While there is some evidence to support the notion that ideological migrants have a preference for similarly-minded communities, (McDonald 2011) we believe two other factors besides migration are probably contributing to the observed patterns in the data.

The first (“replacement”) would occur if the ideologies of new generations of voters differ within region from those of older cohorts. The second (“realignment”) would occur if individuals changed their voting patterns or party registration status over time, for example switching from voting for Democrats to Republicans in the presidential election. Realignment could occur if an individual’s ideology changed over time: someone who becomes markedly more liberal might switch to voting for the Democrat in presidential elections. Realignment could also occur with individuals whose policy preferences are fixed over time. If the national parties and their candidates are systematically changing which constituencies to target (by altering the policy positions they espouse), then some individuals might switch parties without experiencing any personal ideological shift. The Reagan Democrat is a canonical example of this type of realignment.

We observe that some places are more and more likely to overwhelmingly identify with either the Republican or Democratic parties (as in figures 1-3), and we know that the cause must be some combination of these three factors: migration, replacement, and realignment. However, while
discerning the relative contributions of each of these is an fascinating question in its own right, it is beyond the scope of this analysis. We are primarily concerned with demonstrating that places in America have become more and more dissimilar over time, and with how those changes might be affecting the Congress, rather than the question of how or why these dissimilarities have arisen.

We don’t have good measurements of many of the dimensions along which Bishop argued sorting was occurring: Even in 2013, things like preferences for hunting, or vegetarian food, are not reliably measured at meaningfully small levels of geography, and there is much more data available today compared with 40 years ago. Denominational religious affiliation is similarly not well measured at smaller geographic levels, particularly when looking backwards in time. However, a number of variables which may serve as very general proxies for Bishop’s concept of cultural and lifestyle differences are reliably measured in the decennial US Census, with accurate data available at the county level across several decades. We are particularly interested in trends over the decades in average educational attainment, median family income, and marriage prevalence, because it is reasonable to think that these things are associated with both lifestyle choices and with political preferences. Observed clustering along these lines (i.e. more and more places with high and low values over time) would be consistent with Bishop’s hypothesis.

We begin with a county-level analysis of educational attainment. It is well known that the last 40 years have brought significant increases in educational attainment in the United States: according to data from the 1970 US Census, 10.7% of the total population age 25 and above had earned a bachelor’s degree or higher; by 2010 the figure had risen to 27.4%, an increase of 16.7 percentage points. This time period—from 1970 to the present—corresponds with the interval during which Bishop argues that sorting has occurred. What is interesting about the increase is that the gains were not distributed evenly across the country, as figure 4 demonstrates:
The first frame of figure 4 shows the actual weighted distribution of college attainment across counties in 1970. In the average county, about 10% of adults had attained a college degree, but there was also a fair degree of dispersion – in many places the figure was lower or higher, and in a few places it was much higher, above 25%.

The second frame shows the actual weighted distribution of educational attainment across counties as observed in 2010—40 years after the data in the first frame. Two changes are evident: first, the mean is equal to 27.4%, a significant increase over the 1970 mean. Second, the overall level of dispersion in the distribution has also increased dramatically.

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5 We used the same population weighting as described in note 3.
Our interest is in isolating the first change from the second, and this is what is pictured in the third frame: A hypothetical scenario in which the national gains in educational attainment between 1970 and 2010 were distributed evenly across all counties—in other words, a scenario in which every county saw its educational attainment rise by 16.7 percentage points. The mean of this distribution is 27.4% (equal to the true mean value in 2010), but the shape and overall level of dispersion is identical to those of 1970.

What is clear in this comparison is that the overall gains in education in the United States have not been distributed uniformly with respect to place. Some counties have seen a dramatic increase in educational attainment (like Suffolk County, MA, which went from 9.8% college degree attainment in 1970 to 38.9% in 2010). Others have barely budged (like Echols County, GA, which went from 1.2% in 1970 to 4.9% in 2010).

We can conduct a similar analysis for the overall rate of marriage prevalence – the percentage of persons age 15 and above who are married. As with educational attainment, the national-level trend is well known: marriage prevalence has been falling. In 1970, 61.5% of persons over 15 were married; by 2010 the figure had fallen to 50.2%. And again as with educational attainment, this shift over time did not occur equally in all areas of the country, as is seen in figure 5:
As with the distribution of educational attainment, the actual distribution of marriage prevalence (2nd frame) has a greater level of dispersion than the hypothetical distribution (3rd frame) – there is more density in the tails and less in the center of the distribution. Revisiting our previous examples, the marriage prevalence in Suffolk County, MA fell from 45.1% to 30.8%; in Echols County, GA it fell by a much smaller amount, from 63.2% to 58.8%.

We can make our analysis more precise by computing numerical measures of the dispersion we are describing (the standard deviation of the population-weighted distribution), and comparing values across time, as we did with PREP. Figure 6, below, shows the value of this statistic, generated at the
county level for college attainment, adult marriage prevalence, and inflation-adjusted median family income. The values are normalized to 0 in 1970, so that percentage changes since 1970 are pictured.

Figure 6: Percentage Change in Population-Weighted County-Level Standard Deviation of Education, Marriage, and Income, 1970-2010.

Each of the normalized dispersion statistics grows significantly between 1970 and 2010: the largest growth is in the standard deviation of college attainment, which more than doubles over the time frame, but the indices derived from income and marriage prevalence grow significantly as well. This figure suggests that the degree to which different parts of the country are dissimilar with respect to average education, income, and rates of marriage has been increasing over the last four decades.
Just as was the case with the county-level presidential vote data, multiple factors are likely to be contributing to these trends. The marriage prevalence rates in Suffolk County, MA and elsewhere in the country likely fell in part because newer generations of long-term resident families were less likely to marry than their forebears. It is also possible that migration of unmarried individuals (or individuals less likely to marry) played a role. Again, we cannot determine the relative contribution of each of these, but this is not the objective of this paper. Our ultimate goal is to demonstrate that these changes are occurring, and having done that, estimate how they might be affecting polarization in the House of Representatives. 6

Our first step toward this second goal is to change the geographic unit of our analysis, from county to congressional district (the meaningful unit for understanding polarization in the House of Representatives) and to examine whether the trends of growing dispersion that we’ve just described persist at that level of geography. In Figure 7, below, we reproduce the results in Figure 6, but calculate the standard deviation at the level of congressional districts as opposed to counties:

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6 Our analysis focuses on the House of Representatives both because of the larger number of observations per congress (435 vs. 100) and because House districts, particularly in urban areas, conform more closely to the idea of local place.
Figure 7: Percentage Change in Congressional District-Level Standard Deviation of Education, Marriage, and Income, 1970-2010.

The results are remarkably similar to the county-level time-series. Each of the measures sees a significant increase in overall dispersion over time, with the largest increase occurring in college attainment. The consistency of these trends across two levels of geography is important because it is evidence against the claim that these changes being driven by the boundary drawing process: gerrymandering is not the culprit here.

We can also examine trends over time in the standard deviation of PREP at the congressional district level:
The figure resembles figure 3, the plot of the weighted standard deviation of PREP across counties: there is a local trough in 1976, and a general upward trend following, especially since 1992.

Congressional districts are similar to counties in some ways—they are both “medium” sized geographies, larger than census tracts but smaller than states. On the other hand, there are 3,140 counties and only 435 districts in the United States. Another key difference is that while county boundaries are almost entirely static over time, congressional district boundaries are redrawn every 10 years (with states winning or losing seats) following the decennial census. Perhaps the most important difference is that congressional districts are intended to have roughly equivalent populations, while counties are not: For example, the sparsely populated state of Montana has 56 counties but only a single congressional district.
The observation of the same pattern at two different levels of geography—one of which undergoes a significant redesign of its borders every 10 years—strengthens the claim that a widespread, gradual geographic sorting of the electorate is in fact being observed, and reduces the likelihood that random noise is being mistaken for a trend, or that the redrawing of congressional district boundaries is causing the trend. We observe the same patterns of a fairly dramatic increase in the relative dispersion of income, education, marriage, and party voting over time, at both levels of geography. We conclude this section by stating that these findings are entirely consistent with Bishop’s sorting hypothesis: if Americans were not gradually becoming clustered along political, educational, income, and marriage lines, we would expect the indices portrayed in figures 3, 6, 7, and 8 to be relatively flat over time. Instead they are rising dramatically.

**IS GEOGRAPHIC SORTING OF VOTERS DRIVING RISING POLARIZATION IN THE CONGRESS?**

Before beginning our discussion of the relationship between geographic sorting of people (and therefore of voters) and polarization in the Congress, we must first decide how we aim to measure the latter construct. In the abstract, one way to think about congressional polarization is as the ideological “distance” between the average Democrat member of Congress and the average Republican. If we are interested in estimating polarization in this way, we must first decide on a quantitative measure of individual legislators’ ideologies, or “ideal points.” Imagine a score in which legislators are assigned a value according to how liberal or conservative they are, with 0 being perfectly liberal and 100 being perfectly conservative. If the average value for the Democratic caucus is 20, and the average value for the Republican caucus is 80, then we can operationalize the concept of congressional polarization as 60, the difference between the two party means.
There are several competing measures for the construct of individual legislator ideology, including scores produced by interest groups such as the American Conservative Union and Americans for Democratic Action, as well as several measures created by the academic community, including those estimated from roll-call votes (Clinton, Jackman et al. 2004) and from the sources of individual members’ fundraising. (Bonica 2013) In this paper we use the DW-NOMINATE (Dynamic Weighted Nominal Three-step Estimation) scores developed by Nolan McCarty, Keith Poole and Howard Rosenthal (MPR). (Poole and Rosenthal 2001)

These DW-NOMINATE estimates of ideological positions are derived from analyses of almost all recorded roll call votes throughout US history (except for unanimous and near unanimous votes). In the DW-NOMINATE framework, each legislator receives a multidimensional score; this permits any number of political dimensions (or ideological tendencies) to influence votes in the Congress. To explain what is meant by dimensions, consider a measure in which each legislator receives a single, unidimensional score: this would classify legislators along a single liberal-conservative axis. By contrast, a two-dimensional score would allow for distinctions such as “socially liberal, but fiscally conservative.” For most of US history only two dimensions have been sufficient for the correct classification of the vast majority of roll-call votes; since the end of the civil rights struggle only one has sufficed. (Poole 2008) That first dimension originally captured the traditional left-right differences over the role of the government in the economy. The method was spelled out in Poole and Rosenthal’s book “Ideology and Congress.” (Poole and Rosenthal 2011) We selected the 1st dimension DW-NOMINATE score as the measure of legislator ideology to be used in this paper for two reasons: First, because it is the most widely used in the academic literature and second because the scores are constructed in such a way as to permit valid comparisons across time.
MPR have used the DW-NOMINATE measure and its variants to document the extent to which the Republican and Democratic Congressional delegations have become polarized. In their 2006 book, “Polarized America”, (McCarty, Poole et al. 2006) they established that the trend toward increase polarization in the House of Representatives began around the mid-1970s. In updates to their estimates published on Poole’s website, www.voteview.com, they demonstrate that the trends have continued up to today and that – at the end of the 112th Congress -- polarization in the House is now at an all-time (post-Civil War) high.

Figure 9 portrays one way of thinking about the recent growth of polarization. Each frame shows the distribution of House members’ ideal points on the first dimension of the DW-NOMINATE score (hereafter “NOM”). The first four frames are the NOM scores for the first Congresses elected after reapportionment and district realignment following the decennial censuses of 1970, 1980, 1990, and 2000, respectively. The fifth and sixth frames are for the 111th and 112th Congresses.  

From the 1970s through the 1990s there was a (shrinking) overlap between the two parties – some Democrats were ideologically positioned to the right of some Republicans. The 107th Congress was the last Congress with any overlap – Republican Jim Leach of Iowa was slightly to the left of (then) Democrat Ralph Hall of Texas. The distributions of the two parties have pulled apart. The difference in the average NOM score of each distribution provides a historical view of the march of polarization through post-Civil War history (see Figure 10).

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7 The DW-NOMINATE scores for this figure were taken from www.voteview.com on February 22, 2013.
As we have previously described, the facts of increased Congressional polarization are clear both to the informed observer and the political scientist, but the sources of this trend are less so. One key factor, of course, was the “Southern Realignment”, which was kicked off when the Voting Rights Act (VRA) of 1965 disrupted the status quo that had permitted Southern Democrats (or “Dixiecrats”) to maintain an iron grip on politics. (Pildes 2011) To the degree that it existed, much of the ideological overlap between Republican and Democratic members prior to the passage of the VRA, was due to the Dixiecrats being relatively more conservative than their non-Southern Democratic brethren: the “bump” on the right side of the Democratic distribution in the first frame of Figure 9 largely consisted of Southern Democrats. The post-VRA Era marked the beginning of a process in which the South gradually shifted from being a Democratic stronghold to a Republican one; in Congress this process was largely gradual, as retiring members were replaced by Republicans, although in a few instances sitting members
changed parties or were defeated. As this occurred, the average of the Democratic distribution shifted left. But over the past forty years the Republican shift to the right has been considerably larger than the Democratic shift to the left. In fact, about three times larger.\(^8\) More has been going on than the Southern Realignment.

In addition to their examination of the Southern Realignment, MPR examined in *Polarized America* several alternative explanations for rising polarization, including institutional changes within Congress, House redistricting ("gerrymandering") and closed primaries. They were unable to find evidence that these had measurable effects on the trend. They subsequently conducted a more detailed study of the gerrymandering hypothesis, probably the most popular explanation for polarization among pundits. They concluded that gerrymandering was responsible for at most 15% of the increase in post-1970’s polarization in the House. (McCarty, Poole et al. 2009) Of course, in any case, polarization in the Senate—which has grown at a level comparable to that of the House—cannot be explained by gerrymandering.

Figure 10, below, displays indices of political polarization for the House of Representatives and the Senate for the period 1870-2010.\(^9\) Consistent with figure 9, there is strong evidence that polarization has risen dramatically since the 1970s.

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\(^8\) See technical annex for details.

\(^9\) The measure in question – the difference in party means of first dimension DW-NOMINATE scores – is discussed in detail in the next section.
Our question of a possible link between changing constituencies and rising polarization is motivated by the high degree of colinearity between the relative dispersion of congressional-district level preferences (as measured by the standard deviation of PREP) and polarization in the Congress.

Figure 11, below, displays both of these trends over time: The dashed red line is our calculation of the standard deviation of the average of PREP across Congressional districts;\textsuperscript{10} the solid blue line is a subset of the same index of House polarization that is displayed in figure 10.

\textsuperscript{10} We did not weight the PREP values by population since Congressional districts contain roughly equivalent populations by design.
Figure 11: Geographic Polarization in Presidential Voting and Polarization in Roll Call Votes in Congress.

Clearly the lines are correlated ($R = 0.94$). In and of itself, this correlation is not sufficient to establish causality in either direction. What it does establish is that the question of causality originally posed by Bishop is one worth investigating: Are a set of underlying social, economic, demographic or way-life-trends combining with geographically contested elections to promote polarization in the Congress? In the next section, we describe three different analytical techniques for answering this question, and present evidence on the possible relationship between constituency sorting and rising polarization in the House of Representatives.

This is a difficult question—no perfect method exists for answering it. Our approach is to use three different models and to compare the results produced by each of them. Each model suffers from significant limitations, but each also has a relatively distinct methodological approach. If the three
models yield results that are consistent with one another—that is, if our results are robust to the choice of model—then our confidence in any findings of a link between clustering in the electorate and polarization in the Congress will be bolstered.

In the sections that follow, we provide brief methodological details for each of these three approaches and emphasize the empirical findings; in the technical appendix we provide complete specifications for the design and implementation of each model.

**Method 1: The Regression Discontinuity Model**

One way to estimate the effect of changes in constituency attributes on polarization in the Congress is through the use of simple regression analysis, and in fact this approach has been taken by two previous authors. (McCarty, Poole et al. 2006; Abramowitz 2010) The basic idea is to regress the first dimension DW-NOMINATE score (the measure of legislator ideology) on an indicator for political party plus a vector of district-level covariates – things like race, education, income, or the within-district presidential vote share. If the model is properly specified, then an estimate of the upper bound of the contribution of constituency variables can be calculated as the difference between total polarization (the difference in party means of the DW-NOMINATE score) and the coefficient on the political party indicator, which can be thought of as measuring the effect of political party on legislator ideology after district-level attributes have been controlled for.

The trouble with this approach is that it is generally not possible to know if the model is properly specified. In cross-sectional regression models such as these, there is simply no way to guarantee this because it is not possible to control for all of the other relevant factors that might influence legislator ideology; this problem is known as “omitted variable bias.”

Regression discontinuity presents a potential solution to this problem. Regression discontinuity designs work when the variable whose effect is to be measured is determined by a cutoff point in some
assignment variable. In this case, we are interested in the effect of political party identification on legislator ideology, and the political party of legislators is completely determined by their share of the two-party vote in the district election. Districts that vote for 50.1% (or greater) for the Democratic candidate are assigned Democrats; districts that vote the other way are assigned Republicans.

We can visualize this assignment process, and how it allows for an unbiased estimate of the effect of political party on legislator ideology, in Figure 12, below.

**Figure 12: DW-NOMINATE Scores and District Election Republican Vote Share, 108th Congress.**

The regression discontinuity approach allows us to generate a quasi-random estimate of the effect of political party on legislator ideology—conceptually this estimate is the vertical distance between the smoothed lines on either side of the discontinuity. With this in hand, we can create and
compare estimates across time of the upper bound of the effect of constituency sorting on House
polarization.  

Method 2: The Rescaling Model
Our second strategy for estimating the contribution of sorting to polarization in the Congress
centers around the question of what the geographic distribution of socioeconomic variables might look
like if sorting had not occurred. The first step in this model is to generate rescaled or simulated
distributions of the constituency variables described that we earlier: Race, educational attainment,
income, and so on. The goal of this procedure is to create new distributions of covariate values that
allow the major demographic changes of the last several decades (growing Hispanic populations; rising
average education (as pictured in figure 4); falling marriage prevalence (as pictured in figure 5), and so
on) to occur, while fixing the relative dispersion of observations at the 1970 level. 

The second step is to use regression analysis to model legislator ideology as a function of
district-level covariates, fitting one model for each of the 93rd, 98th, 103rd, 108th, 111th and 112th
Congresses (the Congresses immediately following reapportionment after the last four censuses plus the
two most recent Congresses.) The coefficients from these models theoretically capture the relationships
between legislator ideology and district-level attributes.

The final step is to estimate what polarization would have been in the absence of sorting. This is
accomplished by combining the rescaled distributions of constituency attributes from the first step with
the regression coefficients from the second step, and then generating predicted values for legislator
ideology for the scenario in which sorting does not occur.

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11 See the technical annex for a more detailed discussion of the regression discontinuity approach.
12 More details on how this is accomplished are available in the technical annex.
By comparing these predicted values with predicted values generated from the original regression models, we can estimate the overall contribution of demographic sorting to polarization in the House of Representatives.

**Method 3: The Multi-Stage Model**

Our third approach for assessing the relationship between constituency sorting and polarization in the Congress begins by acknowledging that NOM, PREP, and the political party of House legislators are all correlated, both with each other and with within-district constituency attributes.

We began by regressing PREP and an indicator for whether the legislator was a Republican (“R”) separately on a vector of constituency variables, using OLS regression for PREP and logistic regression for R. This is similar to the approach taken by MPR, (McCarty, Poole et al. 2006) however we were able to expand the set of variables used in their original analysis: In addition to the race, education and income variables, as well as an indicator for district presence in the South, we included (from the Census) variables associated with marital status (percent married, divorced, etc.), the percent of each district that is urban and the population density of each district. We fit one such model for each of the 93rd, 98th, 103rd, 108th, 111th, and 112th Congresses.

We next fit a series of regression models—one for each of the aforementioned Congresses—with NOM as the dependent variable and PREP and R as the explanatory variables. Both coefficients were positive and highly significant in all years: it should surprise no one that the within-district Republican vote share and membership in the Republican caucus are highly predictive of conservative ideology.

The question that remains is how to isolate the effect of the constituency attributes on legislator ideology from the effect of PREP and R, and to examine how much of the growth in House polarization has been driven by changes over time in constituency attributes.
We attempt to do this through the use of a multi-stage regression model, in which the predicted values from first-stage regressions (of PREP and R on constituency attributes) were substituted into a second-stage regression (of NOM on PREP and R). The effect of this procedure is to generate estimates of the degree of House polarization attributable to constituency variables, with the confounding effect of PREP and R controlled for.\textsuperscript{13} By comparing the growth in this index over time with the growth in the index of actual polarization in the House, we generate our third estimate of the contribution of constituency changes to House polarization over the last four decades.

**Findings**

The results of our three models are consistent with each other, and are presented in table 1, below. The models estimate that between 23.4\% and 31.1\% of the growth in House polarization between 1972 and 2012 is attributable to changes in the distributions of constituencies over time.

**Table 1: Summary of Model Estimates: Contribution of Constituency Sorting to Rising Polarization in the House of Representatives, 93\textsuperscript{rd}-112\textsuperscript{th} Congress**

<table>
<thead>
<tr>
<th>Method</th>
<th>Growth in House Polarization Attributable to Constituency Sorting</th>
<th>Percentage of Growth in House Polarization Attributable to Constituency Sorting</th>
<th>Percentage of Total Polarization in the 112\textsuperscript{th} Congress attributable to Constituency Attributes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression Discontinuity\textsuperscript{14}</td>
<td>0.151</td>
<td>31.1%</td>
<td>18.0%</td>
</tr>
<tr>
<td>Rescaling of District Covariates</td>
<td>0.123</td>
<td>23.4%</td>
<td>NA</td>
</tr>
<tr>
<td>Multi-Stage</td>
<td>0.156</td>
<td>29.5%</td>
<td>45.7%</td>
</tr>
</tbody>
</table>

It is natural to ask *which* constituency attributes matter most – that is to say, of the dimensions included in our models, which appear to contribute the most to rising polarization in the House? Of

\textsuperscript{13} See the technical annex for more details on the multi-stage model.

\textsuperscript{14} RD estimates are for the change in polarization between the pooled 93\textsuperscript{rd}/94\textsuperscript{th} Congresses and the pooled 111\textsuperscript{th}/112\textsuperscript{th} Congresses.
course the regression discontinuity model cannot answer this question – it does not distinguish between individual attributes, but rather estimates a theoretical upper bound for the joint contribution of all district-level characteristics. However, the other two models do allow a means for exploring it.

We fit a version of the multi-stage model in which only a single covariate – the marriage prevalence rate – was used on the right hand side of both first stage equations. The increase in polarization predicted from this restricted model is similar in magnitude to the increase predicted from the full model. This suggests that within the component of House polarization growth estimated to be attributable to constituency sorting (roughly 30% of total polarization), a substantial portion may be related to sorting along marriage lines. Estimating the specific contribution of marriage sorting to rising polarization in the House is not possible in the context of the multi-stage model; however by revisiting the rescaling model we can make a somewhat crude attempt at isolating the individual effect of marriage sorting.

The rescaling model functions by first modeling legislator ideology as a function of constituency attributes, and then by predicting new ideology scores derived from hypothetical distributions of covariates in which sorting (operationalized as an increase in the dispersion of each distribution) did not occur. Polarization in these predicted ideology scores is compared to polarization in the predicted values derived from the actual covariate distributions. In this framework, we can estimate the incremental effect of marriage sorting on congressional polarization by generating a third set of predicted ideology scores in which the actual values of marriage prevalence are used alongside the rescaled values of all other covariates. This is analogous to allowing sorting to occur with respect to marriage but not with respect to other factors, and allows us to estimate the contribution of the marriage dimension as the difference between the two indices. Using this method, we estimate that sorting along marriage lines is responsible for the vast majority (85%) of the increase polarization attributable to changes in
constituencies between the 93rd and 112th Congresses, and therefore for approximately 20% of the overall increase in House polarization.\textsuperscript{15}

The increasingly strong relationship between marriage prevalence and politics can also be demonstrated in a more intuitive way. Table 2 shows the proportion of districts within the top and bottom quartiles of marriage prevalence represented by Republican and Democratic members, as well as the average NOM score within those districts.

<table>
<thead>
<tr>
<th></th>
<th>93</th>
<th>98</th>
<th>103</th>
<th>108</th>
<th>111</th>
<th>112</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Percentage of seats and average member ideology for districts in the top quartile of marriage prevalence</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Democrats</td>
<td>41.3%</td>
<td>45.9%</td>
<td>33.0%</td>
<td>15.6%</td>
<td>33.0%</td>
<td>15.6%</td>
</tr>
<tr>
<td>Republicans</td>
<td>58.7%</td>
<td>54.1%</td>
<td>67.0%</td>
<td>84.4%</td>
<td>67.0%</td>
<td>84.4%</td>
</tr>
<tr>
<td>Average ideology</td>
<td>0.076</td>
<td>0.109</td>
<td>0.223</td>
<td>0.438</td>
<td>0.349</td>
<td>0.551</td>
</tr>
<tr>
<td><strong>Percentage of seats and average member ideology for districts in the bottom quartile of marriage prevalence</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Democrats</td>
<td>85.3%</td>
<td>80.7%</td>
<td>89.9%</td>
<td>91.7%</td>
<td>94.5%</td>
<td>91.7%</td>
</tr>
<tr>
<td>Republicans</td>
<td>14.7%</td>
<td>19.3%</td>
<td>10.1%</td>
<td>8.3%</td>
<td>5.5%</td>
<td>8.3%</td>
</tr>
<tr>
<td>Average ideology</td>
<td>-0.262</td>
<td>-0.283</td>
<td>-0.367</td>
<td>-0.359</td>
<td>-0.389</td>
<td>-0.346</td>
</tr>
</tbody>
</table>

The results are striking. In every time period, Republicans held the majority of districts in the top quartile of marriage prevalence, while Democrats held the majority of districts in the bottom quartile.

\textsuperscript{15} See the technical annex for details on how these estimates were derived. In particular, the estimate of the contribution of marriage sorting to House polarization is subject to significant limitations.
More importantly, the extent of these advantages grew dramatically over time—particularly the Republican advantage in the top quartile districts. In the 93rd Congress, Republicans held just under 60% of the seats in the top quartile; by the 112th Congress that advantage had grown to almost 85%. Similarly, Democrats held 85% of the seats in the bottom quartile of marriage prevalence in the 93rd congress; in the 112th they held all but nine of the 109 seats in that quartile (92%).

We do not suggest here that either Americans (as they choose where and whether to migrate) or elected members of Congress (as they vote) are consciously considering local area marriage prevalence as part of their decision-making calculus. In fact, as previously discussed, we remain agnostic as to the overall contribution of migration to the sorting patterns we observe.

Instead, our conjecture is that marriage prevalence, more than any other available variable, serves as a proxy for values-oriented local cultural differences as described by Cahn and Carbone. (Cahn and Carborne 2007) In the multi-stage models, marriage prevalence dominates all other socioeconomic factors as a predictor of both the political party of the district’s representative and the two-party presidential vote share, with a positive association with Republican partisanship in both cases.¹⁶ These variables, in turn, are strong predictors of House members’ roll call votes. Thus, more than any other variable, the percent married in districts is by far the strongest correlate with polarization.¹⁷

¹⁶ For the 2010 Census and House districts for the 111th Congress, marriage is moderately correlated with family income (correlation coefficient of 0.401), not correlated with college (0.099) and strongly and negatively correlated with percent black (-0.710).
¹⁷ It is possible that marriage prevalence is merely correlated with one or more district level factor that truly “explain” geographic variance in political data. At the recommendation of reviewers, we examined average age within district, urbanicity, and home ownership rates. None of these reduced the dominance of marriage prevalence as a predictor of partisanship.
Intensity or Clustering?

We have observed that within-district marriage prevalence is an increasingly important positive predictor of Republican legislators. This could occur for one of two reasons:

- “Intensity” (our term): Individuals who are married people might increasingly favor Republicans, while unmarried people could increasingly favor Democrats (or both could be occurring in combination). Thus districts that contain a higher percent of married people would increasingly tend Republican and so forth.

- “Clustering” or sorting. Without a change in intensity, married people might increasingly cluster in some districts and unmarried people in others. Thus the ones with an increasing level of married people would tend Republican and so forth.

Of course, both intensity and clustering could be happening in combination.

We know from our analysis in section 1 that clustering is definitely occurring – at the congressional district level of geography, we observe higher dispersion over time in the distributions of marriage prevalence, income, and education. Because we observe very similar trends at the county level, we feel confident that gerrymandering is not the cause of this clustering. At least part of the growth in the correlation of R and PREP with the constituency variables is due to clustering. But how big a part depends on how much “intensity” has also changed.

We can examine trends in intensity at the national level using the American National Election Survey (ANES), a nationally-representative, individual level sample of American political beliefs and behavior.

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18 See figure 18 in the Technical Annex.
19 This would be related to the cultural clustering suggested by Bishop.
20 For an example at the individual level, Susan and Anne are sisters who share constituency characteristics that tend Republican (they are married, white and finished high school but not college). They live in different districts and thus contribute equally to the two constituencies’ characteristics. Over time, they increasingly support Republicans. That’s intensity. Anne moves to Susan’s district. That’s clustering.
21 See tables 11 and 12 in the technical annex.
Using this study, we can examine the effect of attributes like race, education, and marital status on party voting in presidential elections at the individual rather than the Congressional district level. It is reasonable to assume that national trends are sufficient to indicate any meaningful changes in “intensity.” As shown in the table below, the effects of socioeconomic factors on individual party voting do not exhibit any significant trends over time, except for a growth in Hispanic voters’ preferences for the Democrat in recent elections and a growth in Black voter preferences for Barack Obama in 2008. On average, married voters appear to slightly favor the Republican candidate (and unmarried voters the Democratic candidate), but there is no statistically significant evidence that the intensity of this relationship is increasing over time.22

Table 3: Marginal and Incremental Effects of Individual Characteristics on the Probability of Voting for the Republican Candidate (Logistic Regression), 1972-2008 Presidential Elections (ANES)

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Black</td>
<td>-0.55†</td>
<td>-0.64†</td>
<td>-0.63†</td>
<td>-0.52†</td>
<td>-0.62†</td>
<td>-0.53†</td>
<td>-0.92†</td>
<td>-0.60†</td>
<td>-0.55†</td>
<td>-0.80†</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-0.21*</td>
<td>-0.16</td>
<td>-0.16</td>
<td>-0.19†</td>
<td>-0.26†</td>
<td>-0.12</td>
<td>-0.24†</td>
<td>-0.08</td>
<td>-0.20†</td>
<td>-0.25†</td>
</tr>
<tr>
<td>college</td>
<td>-0.09†</td>
<td>0.09*</td>
<td>0.06</td>
<td>-0.06</td>
<td>0.03</td>
<td>0.06</td>
<td>0.04</td>
<td>-0.08</td>
<td>-0.09*</td>
<td>-0.04</td>
</tr>
<tr>
<td>somcoll</td>
<td>-0.02</td>
<td>0.04</td>
<td>0.05</td>
<td>0.02</td>
<td>0.08*</td>
<td>0.04</td>
<td>0.07</td>
<td>-0.01</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>south</td>
<td>0.10†</td>
<td>0.03</td>
<td>0.00</td>
<td>0.06*</td>
<td>0.07*</td>
<td>0.03</td>
<td>0.07</td>
<td>0.16†</td>
<td>0.12</td>
<td>0.12†</td>
</tr>
<tr>
<td>Income</td>
<td>0.02*</td>
<td>0.06†</td>
<td>0.03</td>
<td>0.08†</td>
<td>0.03</td>
<td>0.03</td>
<td>0.04*</td>
<td>0.04†</td>
<td>0.04*</td>
<td>0.04†</td>
</tr>
<tr>
<td>male</td>
<td>0.05*</td>
<td>-0.04</td>
<td>0.06</td>
<td>0.03</td>
<td>0.04</td>
<td>0.01</td>
<td>0.09†</td>
<td>0.08†</td>
<td>0.07*</td>
<td>0.04</td>
</tr>
<tr>
<td>married</td>
<td>0.04</td>
<td>0.00</td>
<td>0.05</td>
<td>0.01</td>
<td>0.00</td>
<td>0.11†</td>
<td>0.04</td>
<td>0.07*</td>
<td>0.05</td>
<td>0.06†</td>
</tr>
</tbody>
</table>

Note: * - significant at .05; †-significant at 0.01, ‡ -significant at 0.001

22 Details are available in the technical annex.
We conclude that the growth in correlations of constituency variables, in particular marriage, appears to be largely a result of clustering as opposed to intensity. Since marital status dominates the analyses, it appears that Bishop’s hypothesis of cultural clustering contributing to polarization is correct.

DISCUSSION AND CONCLUSION

It is well known that place and politics are correlated in the United States: Large cities in general and coastal metropolises in particular are generally liberal bastions, for example, while the South as a whole is more conservative than the rest of the county. Because this is true of our electorate, and because voters elect representatives that reflect their own ideologies, it is also true of our legislators: Members from liberal places (like Nancy Pelosi (D-San Francisco)) are themselves liberal, and members from conservative places (like Raul Labrador (R-Idaho)) are themselves conservative. The questions we attempt to address in this paper are first, whether geographic sorting of the population and therefore of the electorate has occurred over the last 40 years, and second whether this sorting has been a partial contributor to rising polarization in the US House of Representatives. We find evidence to support both claims. With respect to the first question, we observe that the distributions of congressional-district measures of income, education, marriage, and voting have become markedly more dispersed since 1970. With respect to the second question, each of three different technical approaches generated results that are consistent with the hypothesis that geographic sorting and Congressional polarization are linked.

Regarding the related question of the overall share of polarization that is attributable to constituency differences in the most recent House (the 112th), results are mixed. The regression discontinuity estimate of this factor is 18.0%, less than half of the estimate generated by the multi-stage
model (45.7%). The rescaling model, of course, is designed only to estimate changes since the baseline period (the 93rd congress) and cannot address this question.

Each of the models in the second section suffers from important limitations, and these limitations preclude a claim of demonstrated causality. The RD estimate is in fact an estimate of an “upper bound” of the contribution of constituency sorting – in the pooled modeled from which it is generated, it represents the total remaining polarization after the RD estimate of the effect of legislator political party has been accounted for. If besides political party and constituency preferences there are other, unmeasured factors that influence legislator ideology independent of party and constituency, then the RD estimate will be biased upwards. Additionally, the original RD estimate of the effect of political party on legislator ideology is in fact a Local Average Treatment Effect (LATE) estimate – it measures the effect on ideology of a quasi-random assignment of a Republican legislator to districts in the vicinity of the discontinuity – that is, swing districts. The RD model makes the strong assumption that the Average Treatment Effect (ATE) is equal to the LATE estimate: in other words, the RD model assumes that on average, the true effect on legislator ideology of a party switch in ALL districts (whether they are liberal or conservative or moderate) will be equal to the estimated effect of a party switch in swing districts, i.e. districts in the neighborhood of the discontinuity.

The rescaling model predicts Congressional polarization from a hypothetical set of district-level covariates. These new values were our best guess as to what covariate values would have been in the absence of sorting, and as previously discussed they have a number of properties that suggest they are reasonable guesses. Nevertheless, they are still guesses, and to the (unknowable) extent that they are biased, the model results will be biased as well. An additional source of bias for the rescaling model is the possibility of omitted variables: Fundamentally, the rescaling model is derived from a series of OLS regressions, and if these models omit variables that are correlated both with the outcome (legislator
ideology) and with the existing regressors, then the model results will be biased. As a result, the best we can do is say that our results are consistent with the hypothesis of causality, and that our estimates of the effect are valid only under the assumptions discussed above.

The multi-stage model is also derived from a series of cross-sectional OLS and logistic regressions and as such it is also vulnerable to the threat of omitted variable bias. However, we note that this OVB threat is lessened (but not eliminated) by the high $R^2$ values present in the structural equations (these range from .788 in the 93rd Congress to .937 in the 111th Congress).

Despite these limitations, when viewed jointly the models discussed in this paper provide evidence that a nontrivial component of rising polarization in the House of Representatives results from a widespread, gradual sorting of the electorate; we estimate that proportion to be roughly 30%. Our confidence in the robustness of this estimate is increased because it is derived not from a single analysis but from three different models, each of which uses a fairly distinct approach.

We note that the measures used in our analysis – income, race, education, and marriage prevalence – are at best crude proxies for the actual phenomenon that Bishop described – the voluntary sorting of Americans into regions based on shared cultural and lifestyle factors.

While these findings are significant, our analyses leave unexplained the majority (70%) of the rise in polarization in the House of Representatives over the past 40 years. The regression discontinuity model describes this component as the “pure” effect of political party, and we admit this is not much of an explanation at all. Our understanding of the factors behind this unexplained majority remains incomplete: reduced turnout in primary elections, the increasingly dominant role of money in politics, and more recently the 24-hour news cycle and the rise of the Tea Party movement have all been suggested as culprits. Analysis elsewhere has suggested that polarization in the House has increased in
part because the last several decades have seen dramatic changes in which constituencies the national political parties pursue during campaigns and are therefore beholden to. (Stonecash 2012)

Still, that the polarization of the US House is so dependent on underlying geographical demographic shifts suggests that solutions to the problem, if in fact one thinks it is a problem, will be hard to develop in the context of the US approach to elections -- one House member elected per district with the elections decided by the first-past-the post method. As others have shown, and we reinforce here, fixing Gerrymandering, as desirable as it might otherwise be, will not make much of the dent. Alternative approaches to elections, such as the Louisiana and California open primaries appear to have promise, but it will take time for this to be clear. But the key point is that policy makers who are looking for "solutions" will need to turn their attention to election laws.

TECHNICAL ANNEX

Note (1): In each presidential election between 1972 and 2008, we calculated the mean ideology score on the (1-7) liberal-conservative axis for Democratic and Republican voters. Those values are displayed in the table below, along with confidence intervals for the difference statistic. These confidence intervals are generated from year specific regressions of the ideology score on an indicator for Republican (versus Democratic) voting in the presidential election.

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23 McCarty, Poole, and Rosenthal, op. cit.
Table 4: Differences in Mean Ideology of Democratic and Republican (Presidential) Voters, By Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Democrats</th>
<th>Republicans</th>
<th>Difference</th>
<th>95% CI of Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>LB</td>
</tr>
<tr>
<td>1972</td>
<td>3.46</td>
<td>4.47</td>
<td>1.01</td>
<td>0.90</td>
</tr>
<tr>
<td>1976</td>
<td>3.76</td>
<td>4.70</td>
<td>0.94</td>
<td>0.82</td>
</tr>
<tr>
<td>1980</td>
<td>3.81</td>
<td>4.68</td>
<td>0.88</td>
<td>0.72</td>
</tr>
<tr>
<td>1984</td>
<td>3.65</td>
<td>4.61</td>
<td>0.97</td>
<td>0.84</td>
</tr>
<tr>
<td>1988</td>
<td>3.79</td>
<td>4.85</td>
<td>1.07</td>
<td>0.94</td>
</tr>
<tr>
<td>1992</td>
<td>3.60</td>
<td>4.91</td>
<td>1.31</td>
<td>1.19</td>
</tr>
<tr>
<td>1996</td>
<td>3.74</td>
<td>5.22</td>
<td>1.48</td>
<td>1.35</td>
</tr>
<tr>
<td>2000</td>
<td>3.65</td>
<td>4.98</td>
<td>1.33</td>
<td>1.14</td>
</tr>
<tr>
<td>2004</td>
<td>3.53</td>
<td>5.04</td>
<td>1.51</td>
<td>1.35</td>
</tr>
<tr>
<td>2008</td>
<td>3.59</td>
<td>5.03</td>
<td>1.44</td>
<td>1.31</td>
</tr>
</tbody>
</table>

The upward trend in the ideological gap between Democratic and Republican voters is apparent across the entire timeframe, largely driven by an increasing tendency for Republican voters to identify as conservative. Beginning in 2000, the year-specific confidence intervals cease to overlap with the 1972 confidence interval.

Note (3): A simple average of county level data will accord an identical weight to Loving County, Texas (population 82) and Los Angeles County, California (population 9.8MM). For sociological phenomena such as voting data this approach is generally incorrect. To account for the differences in population, we applied a weight equal to the square root of the total population in each county. Thus, while the unweighted average is calculated as

$$\bar{x} = \frac{\sum_{c=1}^{N} x_c}{N}$$

The weighted average is calculated as

$$\bar{x} = \frac{\sum_{c=1}^{N} x_c \sqrt{P_c}}{N}$$
Where \( x_c \) is the value for county ‘c’, \( P_c \) is the total population of that county, and \( N \) is the total number of counties.

Note (8): The table below displays the mean NOM scores of the Democratic and Republican caucuses in the House for each Congress since the 93rd. Also displayed are the absolute and percentage changes for both parties over time, relative to the 93rd Congress. The rightward shift by Republicans is about three times greater in magnitude than the leftward shift by Democrats.

**Table 5: US House of Representatives’ Mean Democratic and Republican 1st –Dimension DW-NOMINATE Scores, 1972-2010**

<table>
<thead>
<tr>
<th>Year</th>
<th>Mean Democratic Score</th>
<th>Mean Republican Score</th>
<th>Absolute Change from 93rd (Dems)</th>
<th>Absolute Change from 93rd (Reps)</th>
<th>Percent Change from 93rd (Dems)</th>
<th>Percent Change from 93rd (Reps)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1972</td>
<td>-0.324</td>
<td>0.273</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>1974</td>
<td>-0.322</td>
<td>0.275</td>
<td>0.002</td>
<td>0.002</td>
<td>-0.6%</td>
<td>0.8%</td>
</tr>
<tr>
<td>1976</td>
<td>-0.316</td>
<td>0.273</td>
<td>0.009</td>
<td>0.000</td>
<td>-2.7%</td>
<td>0.1%</td>
</tr>
<tr>
<td>1978</td>
<td>-0.315</td>
<td>0.296</td>
<td>0.010</td>
<td>0.023</td>
<td>-3.0%</td>
<td>8.2%</td>
</tr>
<tr>
<td>1980</td>
<td>-0.312</td>
<td>0.313</td>
<td>0.012</td>
<td>0.040</td>
<td>-3.8%</td>
<td>14.5%</td>
</tr>
<tr>
<td>1982</td>
<td>-0.315</td>
<td>0.327</td>
<td>0.009</td>
<td>0.053</td>
<td>-2.9%</td>
<td>19.5%</td>
</tr>
<tr>
<td>1984</td>
<td>-0.323</td>
<td>0.334</td>
<td>0.001</td>
<td>0.061</td>
<td>-0.3%</td>
<td>22.2%</td>
</tr>
<tr>
<td>1986</td>
<td>-0.322</td>
<td>0.335</td>
<td>0.003</td>
<td>0.061</td>
<td>-0.8%</td>
<td>22.4%</td>
</tr>
<tr>
<td>1988</td>
<td>-0.326</td>
<td>0.337</td>
<td>-0.002</td>
<td>0.064</td>
<td>0.6%</td>
<td>23.4%</td>
</tr>
<tr>
<td>1990</td>
<td>-0.328</td>
<td>0.344</td>
<td>-0.004</td>
<td>0.071</td>
<td>1.3%</td>
<td>25.9%</td>
</tr>
<tr>
<td>1992</td>
<td>-0.346</td>
<td>0.368</td>
<td>-0.022</td>
<td>0.094</td>
<td>6.8%</td>
<td>34.6%</td>
</tr>
<tr>
<td>1994</td>
<td>-0.372</td>
<td>0.394</td>
<td>-0.048</td>
<td>0.121</td>
<td>14.8%</td>
<td>44.1%</td>
</tr>
<tr>
<td>1996</td>
<td>-0.389</td>
<td>0.404</td>
<td>-0.065</td>
<td>0.130</td>
<td>19.9%</td>
<td>47.6%</td>
</tr>
<tr>
<td>1998</td>
<td>-0.384</td>
<td>0.404</td>
<td>-0.059</td>
<td>0.131</td>
<td>18.3%</td>
<td>47.8%</td>
</tr>
<tr>
<td>2000</td>
<td>-0.386</td>
<td>0.412</td>
<td>-0.062</td>
<td>0.139</td>
<td>19.1%</td>
<td>50.7%</td>
</tr>
<tr>
<td>2002</td>
<td>-0.385</td>
<td>0.416</td>
<td>-0.060</td>
<td>0.143</td>
<td>18.6%</td>
<td>52.2%</td>
</tr>
<tr>
<td>2004</td>
<td>-0.398</td>
<td>0.424</td>
<td>-0.074</td>
<td>0.151</td>
<td>22.7%</td>
<td>55.2%</td>
</tr>
<tr>
<td>2006</td>
<td>-0.379</td>
<td>0.440</td>
<td>-0.055</td>
<td>0.167</td>
<td>16.9%</td>
<td>61.1%</td>
</tr>
<tr>
<td>2008</td>
<td>-0.364</td>
<td>0.457</td>
<td>-0.040</td>
<td>0.183</td>
<td>12.2%</td>
<td>67.1%</td>
</tr>
<tr>
<td>2010</td>
<td>-0.402</td>
<td>0.482</td>
<td>-0.078</td>
<td>0.208</td>
<td>24.0%</td>
<td>76.2%</td>
</tr>
</tbody>
</table>
Note (11): One of the primary ways in which OLS regression can produce biased estimates is if variables are endogenous—that is to say, correlated with other things not included in the statistical model. For example, we replicated the OLS models fit by MPR and generated identical results: Their model found that total polarization in the 108th Congress was 0.864, and that after controlling for district-level attributes, the coefficient on the party indicator variable was 0.799, and thus estimated the upper bound of the contribution of constituency variables to congressional polarization to be

$$1 - \frac{0.799}{0.864} = 7.5\%.$$  

Alan Abramowitz conducted a similar analysis, using a normalized measure of PREP in place of MPR’s race, education, and income variables; he estimated that 20% of polarization in the 108th House was attributable to differences in constituencies. (Abramowitz 2010)

When we add three additional variables to the model to tell us more about the constituency in question (PREP, the percentage of the adult population that is married, and the percentage that lives in urban areas), the estimate of the effect of political party on legislator ideology falls from 0.799 to 0.699; as a result, the estimate of the upper bound of the effect of constituency more than doubles, rising from 7.5% to 19.1%. It turns out that each of these things (Republican voting, marriage, and low percentages of urbanicity) are all correlated with both Republican representation and with conservative legislator ideology; their exclusion from the original MPR models guarantees that their estimates will be biased.

This is not to say that either Abramowitz’s estimate or our revised estimate (19.1% of polarization in the congress is due to constituency differences) do not suffer from the same problem. In the same way that MPR’s estimate was biased because of the omission of those three variables, our estimates may also be biased because of the omission of variables we are unaware of, or cannot measure. This endogeneity/bias problem is probably the biggest single shortcoming of regression analysis on cross-sectional data, and the reason why randomized experiments are preferred by researchers. As is the case with much social science research, randomization is simply infeasible here:
We cannot simply assign Republicans and Democrats to different congressional districts and then observe their voting behavior.

One technique that can address this problem is regression discontinuity (RD). In figure 12, a discontinuity exists in the ideology data at the 50% mark in the local election results: this is the point at which districts switch from being represented by Republicans to Democrats, and vice versa. The RD estimate is equal to the vertical distance between the endpoints of the smoothed curves on either side of the discontinuity.

As it turns out, the RD estimate of the contribution of political party (0.747) lies in between the MPR estimate (0.799) and the estimate generated when the marriage, PREP, and urbanicity are added to the original model (0.699). In the case of the data from figure 12, the RD estimate for the upper bound of the contribution of constituency attributes to congressional polarization in the 108th congress is equal to $1 - \frac{0.747}{0.864} = 13.5\%$.

The critical question of course, is whether or not this contribution is stable over time or increasing; the latter finding would be consistent with the hypothesis that sorting is a partial driver of polarization in the Congress. We can address this question by computing the estimate contribution of constituency differences to Congressional polarization not just for the 108th Congress, but for every Congress in the period under consideration. If Bishop’s sorting hypothesis is true, and if legislators are responding to their increasingly homogenous constituencies by voting more ideologically, then we would expect a plot of this statistic over time to be increasing. This plot is presented in figure 13, below:
Because the RD estimates become more precise as more observations are added, we elected to pool data from individual Congresses into pairs (93rd/94th, etc.) with a single statistic calculated for each pair. The values appear relatively stable over time until the 107th/108th Congresses (2001-2004), at which point an upward trend begins. The trend is not entirely consistent: the value peaks in the 109th/110th at 24.6%, and then declines in the 111th/112th to 18.0%. In a general sense, the RD model does suggest that differences in constituencies contribute more to polarization in the house today than they did in previous decades.

More precisely, the regression discontinuity model estimates that 68.9% of the rise in polarization is directly attributable to political party, with the remainder (31.1%) being the theoretical upper bound for the contribution of constituency sorting to rising polarization.
The underlying premise of the RD approach is that in the neighborhood of the discontinuity, the only way in which the districts on either side differ is with respect to the assignment variable (the within-district vote) and thus the outcome variable (legislator ideology), which depends on the assignment variable. This cannot be proven, but if we demonstrate that districts on either side of the discontinuity are not systematically different with respect to available covariates, then our confidence in the results of the RD approach is bolstered.

Following the practice of other scholars, we make the argument that districts in the neighborhood of the discontinuity are statistically indistinguishable from one another graphically. (Lee, Moretti et al. 2004) This is accomplished by examining plots of different covariates (race, income, education) in the neighborhood of the discontinuity in a manner identical to the actual regression discontinuity analysis for legislator ideology, the outcome variable of interest. If the assumption of indistinguishability holds on either side of the cut point, we should not expect to see a discontinuous jump at the 50% vote threshold for any observable covariate. Any such jump would cast into question the validity of the RD approach in this context.

Below, we display these scatterplots for six covariates: the percentage of the population that is Black; the percent of the adult population with a college degree; the percent with “some college;” median income within the district; adult marriage prevalence; and PREP, the Republican vote share in the presidential election. The most significant finding in this figure is that there is no discontinuity at the 50% vote threshold for any of the measured covariates – this is consistent with the underlying assumption of regression discontinuity. In particular, if we look at the fifth frame, there is a strong positive relationship between marriage prevalence within the district and the vote share of the Republican candidate. However in the neighborhood of the discontinuity there is virtually no difference between districts that were close victories for Democrats and districts that were close victories for
Republicans. This finding holds across all measured covariates; in addition these results are for 2010, but similar results were found for all prior years.

Figure 14: Absence of Discontinuity at 0.5 Vote Threshold for District-Level Covariates, 2010 Midterm Elections.

Note (12): The “rescaling” procedure is best explained using an example for a single variable, and we elect to use the proportion of adults with a college degree. Figure 15 shows the distribution of this statistic at the congressional district level, derived from the 1970 and 2010 censuses. Two obvious changes are apparent from the data. First, between 1970 and 2010, the mean of the distribution shifts upward by about 16 percentage points, rising from 10.6% to 27.7%, consistent with the well-known phenomenon of rising rates of educational attainment in the United States. Second, the relative shape of the distribution changes—in particular it becomes much more dispersed. This is indicative of a greater
number of congressional districts with low or high rates of college education, relative to population averages. We can quantify this increased dispersion by observing that the standard deviation more than doubles between 1970 and 2010; this change is consistent with the hypothesis that sorting is occurring.

Figure 15: Distribution of College Education Rates by Congressional District, 1970 & 2010

We implement a rescaling procedure that seeks to isolate the first change (mean shifting) from the second (sorting). This is done by creating a distribution of covariates in which all of the major demographic trends of the past 40 years (falling marriage prevalence, rising Hispanic population) are retained, but with the added constraint that the overall level of dispersion in the data be identical to the level of dispersion present in the 1970 distribution. We created one such rescaled data set for each census period between 1980 and 2010. The result of this exercise is visualized in figure 16, in which the actual and rescaled 2010 distributions for college education rates are displayed.
The actual values of this statistic—the congressional district-level college education rate in 2010— are pictured in a solid density; the rescaled values are pictured in a hollow density with red borders. For reference, the actual distribution from 1970 is displayed in a smaller frame to the right.

The rescaled distribution has a number of important properties. First, its mean is identical to the mean of the actual 2010 distribution. Second, its shape is identical to the actual distribution from 1970. Third, it preserves rank order: in both the actual and rescaled 2010 distributions, the congressional district with the highest college education rate is NY-14 (Manhattan) and the lowest is TX-29 (east of Houston).
Formally, the rescaling procedure is accomplished as follows:

Let $X_{ijtk}$ denote the observation of variable $i$ in congressional district $j$, at time period $t$, with rank $k$. Let $D_{ijtk}$ denote the deviation of $X_{ijtk}$ from its mean, i.e. $X_{ijtk} - \bar{X}_{it}$. For example, in 1970, the congressional district with the lowest marriage prevalence was NY-19 (Harlem), with a marriage prevalence of 41.9%. In our notation, this is $X_{\text{married, NY}(19),1973,435}$ and $D_{\text{married, NY}(19),1973,435}$ (the deviation) is equal to $(41.9\% - 61.2\% = 19.7\%)$: this observation is 19.7 units below the mean of the data.

Under this setup, the simulated distributions of covariates are defined by the following condition:

$$X_{ijtk}^{\text{sim}} = \bar{X}_{it} + (D_{ijk,1970}) \forall k = k_{1970}, t \neq 1970$$

In words, the simulated value of each covariate and each year is equal to the sum of (a) the mean of the data in that year and (b) the number of units away from the mean of the current-year distribution that the 1970 observation of identical rank was away from the 1970 mean.

In figure 17, below, we display the predicted polarization from the original and rescaled models. The model regresses the first dimension DW-NOMINATE score on median family income, the percentage Black and Hispanic, the percentage of adults with “some college” and college degree attainment, the percentage of the population living in urban areas, and marriage prevalence. RHS variables are demeaned, and a squared term is added in the marriage prevalence variable. The first series (blue, on the left) shows polarization in the original model’s predicted values; the second series (red, on the right) shows polarization in the predicted values from the rescaled model.
By 2010 (the 112th Congress), the level of polarization in the NOM scores predicted from a regression on actual district level covariates was 0.525. The level of polarization predicted following the rescaling procedure was 0.402. Because the rescaling procedure essentially estimates what district-level attributes would have been in the absence of constituency sorting, the rescaling model estimates that (0.525 - 0.402) / 0.525 = 23.4% of the growth in House polarization since the 93rd Congress is attributable to constituency sorting.

Note (13): We employed the following analytical procedure. We began with a dataset consisting of pooled observations from the 111th and 112th Congresses, and demeaned all continuous variables. We then fit two initial models: a logit model for R, the indicator for a Republican member, and an OLS model for PREP, the proportion of the vote in the 2008 presidential election going to McCain. In both of these
models, the initial set of predictors consisted of the previously described race, education, and income variables, as well as the percentage of the population residing in an urban area, the percentage of the population that is married, and the indicator for South. These models were then winnowed using a backward step-wise approach with p<0.05 being the threshold for retention in the model. In fact, almost all variables were significant at a level of p<0.001. The exceptions were the percent Hispanic and family income in the logit model for R (p = 0.008 and .002, respectively). These stepwise procedures resulted in two sets of “final” predictor variables: South, some college, Hispanic, married, percent urban, and family income for the logit model, and Black, Hispanic, college, some college, south, and married for the OLS model on PREP.

These variables were then used in analysis of the previous Congresses for R and national presidential elections for PREP, again across Congressional districts. The overall importance of each variable was estimated by computing the product of the marginal effect in the regression model with the range of the variable from the 5th to 95th percentiles; we denote this product the “effect” of the variable.

We considered and rejected the approach of pooling data across all Congresses and introducing a variable to account for the different time periods. We did such analyses, but realized that this obscured important changes in the distributions of key variables over time, as discussed in Section II. Thus we chose to analyze each Congress separately.

The trends in the importance of these variables are displayed in the figures below. Figures 18 and 19 summarize the results of these multivariate analyses. Each figure displays, for each variable, the product of the incremental or marginal effect from a cross-sectional regression with the 5th/95th percentile spread of that variable. In both the R and PREP analyses, only a few variables “suffice” in the
sense that almost all of the variation in the outcome is explained; this is especially true for R. The variable effects shown on the graphs are important relative to each other, not in absolute terms.

Figure 18: Variable effects from logit model for “R”

[Graph showing variable effects from 1972 to 2010]

This chart measures, for each of the Congresses in our study, the relative importance of different factors in predicting the political party of district representatives. Looking at the 93rd Congress, we see that the value for the % urban variable is negative: this means that in that Congress, urbanicity was predictive of Democratic representation. The value for the marriage variable is positive, indicating a positive relationship with Republican representation. Two things are noteworthy about this chart: First, even when multiple factors are accounted for, the marriage variable appears far more important than any of the other variables in terms of predictive ability. Second, that importance appears to be increasing over time.
Figure 19: Variable effects from OLS model of “PREP”

The effect of the marriage prevalence rate on PREP also dominates, in terms of magnitude, in all years; however the upward trend is much less pronounced relative to the model that predicts a Republican legislator.
The multi-stage model was constructed to address the following issue: Nominate scores (NOM) are correlated with constituency variables, but also with the political party of the representative, and with PREP, the Republican share of the two-party vote in the district. These factors – the party of the elected representative (R) and PREP – are themselves also correlated with the district-level covariates. In a causal framework, this means that the district-level covariates influence NOM via two pathways: first, directly, and second indirectly through both R and PREP. Our model addresses this problem as follows:
For each Congress, three regression models were fit. In the first regression model, each representative’s NOM score was regressed on PREP and the indicator for political party (using OLS). In the second model, also using OLS, the PREP within district was regressed on the following district-level covariates: South, the proportion of adults with “some college” educational attainment, the proportion of adults with a college degree, the Black and Hispanic population proportions, and marriage prevalence. In the third model, the indicator for representative political party was modeled logistically as a function of South, the “some college” variable, the Hispanic population proportion, marriage prevalence, median family income in the district, and the percentage of the population living in an urban area. As previously discussed, these predictor variables were chosen using a model-selection procedure that discarded variables failing to meet a significance criterion of p<0.05.

Formally, the following set of equations was fit for each of the 93rd, 98th, 103rd, 108th, 111th and 112th Congresses:

\[ Nom_i = \beta_0 + \beta_1 PREP_i + \beta_2 REP_i + \epsilon_i \]  

\[ PREP_i = \alpha_0 + \alpha_1 South_i + \alpha_2 somcollege_i + \alpha_3 college_i + \alpha_4 black_i + \alpha_5 hisp_i + \alpha_6 marr_i + v_i \]  

\[ REP_i = \Lambda(\gamma_0 + \gamma_1 South_i + \gamma_2 somcollege_i + \gamma_3 hisp_i + \gamma_4 marr_i) \]  

Where the variables are as described and \( \Lambda(\cdot) \) is the logistic function.

Next, the predicted values from equations (2) and (3) were combined with the regression coefficients from equation (1) to generate a new predicted NOM score:

\[ \overline{Nom_i} = \beta_0 + \beta_1 \overline{PREP}_i + \beta_2 \overline{REP}_i \]
Finally, growth in the polarization statistic (the difference in interparty means) was generated from these predicted values and compared across Congresses to the polarization statistic generated from actual NOM scores.

This score vector is an estimate of what the ideology of representatives is, predicted from the observed constituency variables and after removing the confounding effects of R and PREP.

Note (15): Figure 20, below, displays the actual growth in House polarization alongside the index of predicted polarization generated from the multi-stage model.

Figure 20: Actual Polarization and Polarization Predicted from Model of Constituency Characteristics

In figure 21, we present a second version of the multi-stage model in which only a single covariate – the marriage prevalence – is used in both of the first-stage regression models.
Because the polarization index derived from the reduced model (the model using marriage alone) tracks so closely with the index from the full model, we sought to investigate the overall contribution of marriage sorting to House polarization within the context of the rescaling model. As discussed in the main body of this text, this involves estimating polarization from predicted ideology scores using rescaled values for all covariates except the marriage prevalence rate, and using actual values for the marriage prevalence rate. The results of this analysis are displayed in figure 22, below.
Figure 22: Difference in Inter-Party Means of DW-NOMINATE Scores as Predicted by Actual, Rescaled, and Rescaled (Excluding Marriage) District-Level Covariate Values, 93rd – 112th Congresses

The individual contribution of constituency sorting along marriage lines appears to be non-trivial. In the most recent Congress (the 112th), the gap between polarization as predicted by the actual and fully rescaled covariates is 0.525-.402=.123; of this 0.105 (0.507-0.402) or 85.4% appears to be attributable to marriage sorting. This is estimated to be 19.9% of the overall increase in House polarization during the study period. However, we note that there is considerable variance in this estimate across years: in the 111th Congress, polarization predicted by the model in which only marriage sorting occurs (0.481) is actually greater than polarization predicted by the model in which sorting across all dimensions occurs (0.386). So while there is some evidence that sorting across marriage lines is contributing to rising House polarization, this evidence depends heavily on which year is the terminal
year of the analysis and is therefore not decisive. One possible explanation for this high level of variance is that the models are being affected by significant residual variation, i.e. noise.

Note (22): We can formally test whether the effect of marriage is increasing over time by switching from a cross-sectional approach to a pooled approach; instead of fitting distinct models for each presidential election year, we fit a single model and include a time index and a term that interacts the indicator for marriage with the time index:

Table 8: Logistic Regression Results: Outcome is Voting for the Republican Candidate in the Presidential Election (as Opposed to the Democratic Candidate), 1972-2008

<table>
<thead>
<tr>
<th></th>
<th>Coefficient</th>
<th>Standard Error</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>black</td>
<td>-2.887***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hisp</td>
<td>-0.986***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>college</td>
<td>0.005</td>
<td></td>
<td></td>
</tr>
<tr>
<td>somcoll</td>
<td>0.204***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>south</td>
<td>0.358***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family income</td>
<td>0.193***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>0.167***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>married</td>
<td>0.163</td>
<td></td>
<td></td>
</tr>
<tr>
<td>time</td>
<td>-0.141***</td>
<td></td>
<td></td>
</tr>
<tr>
<td>tXmarried</td>
<td>0.013</td>
<td></td>
<td></td>
</tr>
<tr>
<td>constant</td>
<td>0.031</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

N 49127
F 131.46

legend: * p<0.05; ** p<0.01; *** p<0.001

In this formulation, the coefficient on the interaction term is positive but not statistically significant; this is consistent with visual inspection of the cross-sectional models and leads us to conclude that at the individual level, marriage is not an increasingly strong predictor of Republican partisanship.
Although the coefficient on the non-interacted marriage variable in the ANES study is not statistically significant at p<0.05, it is close to being so (p=0.07), suggesting that married voters marginally favor Republican Presidential candidates (and non-married voters, Democratic ones). But the fact that the time interaction term is not statistically significant (p=0.41), suggests that this marginally positive effect has not been growing over time when we control for other demographic variables. The large marriage effects that we see in the multivariate analysis (also controlling for other demographic variables) of Congressional voting behavior is then due to sorting and not intensity.

We cannot make the same statement regarding the shifts in representation that we show in Table 1. This analysis is, in effect, a univariate one with the sole independent variable being the percent married. A similar univariate analysis of the ANES data does show statistically significance for both the marriage variable (p=0.002) and for the time interacted variable (p=0.000) suggesting that the effects shown in table 1 are a result of both sorting and intensity.
REFERENCES


CHAPTER 3: REDUCING PARTY POLARIZATION IN THE HOUSE OF REPRESENTATIVES: AN INVESTIGATION OF GEOGRAPHICALLY-ORIENTED APPROACHES
ABSTRACT

For those concerned with the effectiveness of the federal policymaking apparatus, political polarization and the gridlock associated with it are matters of growing concern. This paper considers gridlock itself as a problem to be solved and addresses the question of how it might be lessened. In particular, I apply a policy analytic framework to two proposed solutions for congressional gridlock: redistricting reform and proportional representation. For each of these policy proposals, I assess both the barriers to implementation and the likely impact (on reducing gridlock) that meaningful implementation would have. My major findings are first that both proposals face significant barriers, most notably opposition by entrenched political actors; second that meaningful implementation of redistricting reform is not likely to have a significant impact on congressional gridlock, and third that the impact of a shift to proportional representation on congressional gridlock is not well understood.

INTRODUCTION

Background
The two main functions of Congress are generally understood to be representation and lawmaking: on the one hand our elected representatives are individually expected to faithfully represent the interests of their constituencies; on the other hand they are tasked with enacting laws to address the myriad and changing policy challenges the nation faces. (Loomis 1996) These two functions are not necessarily complementary and may often be in conflict.

Fulfilling the role of representation requires individual member of Congress to adhere to the policy preferences of home district voters, or more specifically to the preferences of the
bloc of voters responsible for their election. If a candidate is elected following a campaign centered on one or more strong issue positions, subsequent legislative compromise on those issues may be viewed as an abrogation of the responsibility to represent one’s constituents.

On the other hand, fulfilling the role of lawmaking (i.e. producing policy through new legislation) generally requires the existence of an executive and legislative branch jointly capable of compromise. This is true regardless of the ideological bent of the policies to be implemented. Whether the desired outcome is a reduction of burdensome regulations or an expansion of the social safety net, realistically there are only two pathways to legislating major federal policy changes: the first requires that one political party capture either a supermajority in the Senate, a majority in the House, and the Presidency, or veto-proof majorities in both chambers; the other requires some degree of bipartisan agreement. For any policy to be enacted legislatively at the federal level, one of these conditions must be met.

The first path is quite rare. Only twice in the last 50 years has one party (the Democrats in 1979 and again in 2009) achieved that strong a mandate. Bipartisan agreement has been a far more common vehicle for enacting policy changes through the legislative process: In the vast majority of Congresses, the vast majority of enacted legislation has received at least some support from the minority party: Between 1972 and 2008, only 24 of 10,619 bills enacted into law required an override of a presidential veto (0.2%); (Martin 2012) with the exception of the 1979 and 2009 sessions, every other enacted law required either minority party votes or tacit support from the minority party in the form of an agreement not to filibuster. (The extent to which this support resulted from genuine agreement on policy matters versus strategic political
considerations is another matter.)^{24} A scan of the twentieth century’s major legislation is consistent with this claim: For example, moderate northeastern Republicans supported Johnson’s civil rights initiatives in the 60’s, and a substantial number of Democrats supported both Nixon’s Clean Air Act and Reagan’s tax reforms.

Over approximately the last 40 years however, Congress has seen a marked shift away from compromise and toward hyper-partisanship. Some argue that political polarization and the legislative gridlock that derives from it now represent a significant threat to the nation’s ability to effectively implement policy at the federal level, (Wiseman 2010; Teter 2013) and that Congress is no longer fulfilling its responsibility to govern.^{25} On the other hand, the recent and increasing inability to compromise may derive from a fulfillment of the responsibility to represent: Democrats and Republicans in Congress may be unable to find common ground because the constituents that elected them ultimately want very different things.

**Objectives of This Paper**
The aim of this manuscript is to treat the legislative gridlock that results from polarization as a policy problem to be solved, and to analyze two electoral changes that have been proposed as possible solutions for it. This approach emphasizes consideration of the second role of Congress—the role of “lawmaking”—over the first (“representation”). This is not meant as an assertion of the relative importance of lawmaking over representation, but rather a choice of focus. A complete policy analysis of proposed changes to the electoral system might place

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^{24} This is not to imply that bipartisan support of legislation did not occur in 1979 and 2009, only that it was not required.

^{25} For an example, one need look no further than the sequester, a policy outcome that was understood (by most of its authors) to be terrible by design, yet nevertheless came into effect as a result of the failure of the two major parties to compromise.
“impact on effective governance” as one of several possible criteria and “impact on representation” as another. (Bardach 2011) (Additional criteria for consideration in a full policy analysis could include evaluations of the impact of proposed reforms on the other roles of Congress – oversight, constituent advocacy, public education, and so on.)

This focus should not be interpreted as a dismissal of the possible effect of electoral changes on the other roles of Congress (notably representation), which could be significant. For example, a shift to proportional representation (one of the options discussed in this paper) would necessitate a deviation from the “one member/one district” election structure that is the status quo. Such a shift would likely alter the fundamental relationship between members and their home district constituencies. One form of proportional representation would simultaneously elect several members from so-called “multi-member districts” while another might elect some members within the traditional one member/one district structure and others via an “at-large” process; these members would have no ties to specific districts. The question of how precisely these changes would affect the nature of the relationship between members and their constituents is an important consideration, but one that is outside the scope of this analysis.

**Polarization and Gridlock**

“Polarization” and “gridlock” are closely related but distinct constructs. The terms are often used synonymously but it is worthwhile to comment here on the distinction between the two. “Polarization” generally describes an ideological or attitudinal divergence between two groups; in the United States it is commonly used to refer to the gap between the beliefs of

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26 In the latter case, members would quite literally have no home districts. The details of these election systems are discussed in more detail below.
Democratic and Republican identifiers, either in Congress or in the mass electorate. (Baldassarri and Gelman 2008)

Defining “gridlock” is more challenging. Although the term is widely used by those who study and/or comment on politics, its meaning can depend considerably on the context in which it is used. Legislative bills have been described as being gridlocked, (Stone 2012) as have the individual chambers of Congress, (Console-Battilana and Shepsle 2009; Ouyang 2012) Congress as an institution (Binder 1999), the union of the executive and legislative branches, (Krehbiel 1996) and more abstractly the city of Washington itself. (Peterson and Greene 1994)

Prior work has suggested that gridlock can be measured—at least theoretically—as a fraction, with the fraction representing “some actually-did-pass numerator over some all-that-were-possibilities-for-passage denominator;” (Mayhew 1991) Sarah Binder (2003) has suggested that we think about gridlock as “the share of salient issues on the nation’s agenda that is left in limbo at the close of a Congress.” Two points should be made regarding this “fractional” definition: First, it embeds the concept of gridlock at the level of the policymaking branches of the federal government, IE the legislative and executive branches. Second, it intrinsically scales legislative productivity to what Mayhew (1991) calls “the needs of the time,” meaning the number of distinct issues that comprise the policy agenda during a given Congress: from the perspective of measuring gridlock, passing five (or 10 or 20) landmark laws matters more in periods when the nation is simultaneously confronting a relatively larger number of policy issues.
Binder points out that it is intrinsically easier to define the numerator in this fraction than the denominator. Both the number of bills passed in each session and the nature and type of issues that those bills address are documented in numerous places, but the precise number of salient issues facing the country at any given time (including those that are and are not addressed by legislation) is a much more nebulous concept. Binder elects to construct a measure of this “systemic” policy agenda by reviewing and coding the (unsigned) editorials appearing in the New York Times during her study period (1947-2000). She notes that some subjectivity is inherently present in this method, but that it is lessened because the New York Times is the nation’s “paper of record,” and it generates editorials on issues that it supports and opposes. In her framework, gridlock is considered low in a given legislative session when bills are enacted into law that address most of the salient issues facing the country, and high when the reverse is true – that is, when most of the issues facing the country are not addressed via successfully enacted legislation.

This is a useful definition, but perhaps incomplete. Consider the Consumer Financial Protection Act (Dodd-Frank) of 2010, which established the Bureau of the same name. In Binder’s rendering, this passage would have marginally reduced the estimate of the level of gridlock in that term: In the wake of the financial crisis, consumer protection was a salient issue facing the country, and a law was passed that addressed it. However members of the Republican Party (the vast majority of which opposed Dodd-Frank in both houses) argued that the bill was bad policy because it would increase unemployment and place unnecessary additional regulatory burdens on the financial industry. On this particular issue, the best policy option from the perspective of the GOP may very well have been a continuance of the status
quo, IE no additional legislation. If Dodd-Frank had instead failed, Binder’s fraction would have registered a marginal increase in measured gridlock – but the policy objective of one of the two major parties would have been achieved.

The issue of voter fraud provides a counter example on the Democratic side. It has certainly been addressed by the NYT editorial board, (2013) making it a salient issue and therefore a contributor to the denominator of Binder’s fraction. Some states have recently passed legislation to address voter fraud by increasing identification requirements for voters and by reducing the availability of early voting, (Blake 2013) while in other states similar measures have failed. (West 2009; O'Hanlon 2012) But just as Republicans uniformly opposed Dodd-Frank in Congress, Democrats in state legislatures have been more or less uniformly opposed to these types of measures, arguing that voter fraud is virtually non-existent and that the measures instead introduce barriers to voting for populations likely to support Democrats. For Democrats, the preferred policy outcome on this issue would similarly be no action – a preservation of the status quo.

In seeking to define gridlock, Binder is of course constrained by her additional need to also measure it – to generate a numerical gridlock “score” for each congressional term and compare those values over time. This paper has no such measurability constraint, and thus is able to use a more conceptual definition, such as what is outlined below.

Consider the myriad ways in which a single piece of proposed legislation may succeed or fail. At one end of the spectrum, imagine a bill that is opposed by the president and that enjoys less than 50% support from both parties, in both houses. Such a bill will not become law, and
indeed will most likely die in committee. Of course the failure to pass this law is not gridlock, but rather a normal process in a functioning democracy. At the opposite end of the spectrum, a different bill that is supported both by the president and by large majorities of both parties in both houses will almost certainly pass. This passage of course does not contribute to gridlock either, because legislation was successfully enacted. Gridlock—or at least part of it—lies in the in-between cases, when legislation that is supported by at least one of the presidency, a majority in the House, or a majority of the Senate fails to be enacted into law. The following table outlines the spectrum of possible outcomes for an arbitrary piece of proposed legislation; in addition it provides a description of whether (and how) that outcome contributes to gridlock.
### Table 1: Possible Outcomes for Proposed Legislation and Gridlock Status

<table>
<thead>
<tr>
<th>Case</th>
<th>Description</th>
<th>Is it gridlock?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bill is opposed by majorities in both houses, and opposed by the president. Dies in committee.</td>
<td>No. This is a normal process in a functioning democracy</td>
</tr>
<tr>
<td>2</td>
<td>Bill is supported by a majority of one house, but opposed by a majority of the other house. Members are voting their consciences.</td>
<td>Yes. This is also a normal process for our democracy, but it is also gridlock (as the Framers intended)</td>
</tr>
<tr>
<td>3</td>
<td>Bill is supported by a majority of one house, but opposed by a majority of the other house. Some opposition members are not voting their consciences, but rather are voting against what they believe to be good policy for political/strategic reasons.</td>
<td>Yes. Arguably of a worse variety than (2), above.</td>
</tr>
<tr>
<td>4</td>
<td>Bill enjoys majority support in both houses, but fails due to either the Hastert rule, the filibuster, or both</td>
<td>Yes. In the modern era, these procedures are often interpreted as being consistent with the Framers’ intent (although this interpretation is highly subjective)</td>
</tr>
<tr>
<td>5</td>
<td>Bill passes both houses on a party line vote, but is vetoed by the president.</td>
<td>Yes. As with (2), this is a possibility that the Framers intended.</td>
</tr>
<tr>
<td>6</td>
<td>Bill is supported by the president, but opposed by majorities in both Houses</td>
<td>Yes. As with (2), (4) and (5), this is a possibility that the Framers intended.</td>
</tr>
<tr>
<td>7</td>
<td>Bill passes both houses, is vetoed by the president. That veto is overridden by large majorities and the bill is enacted into law.</td>
<td>No. The law was enacted.</td>
</tr>
<tr>
<td>8</td>
<td>Bill passes both houses on a party line vote and is signed into law by the same-party president.</td>
<td>No. The law was enacted.</td>
</tr>
<tr>
<td>9</td>
<td>Bill passes both houses with bipartisan support and is signed into law by the president.</td>
<td>No. This is the bipartisan ideal that many feel should be aspired to.</td>
</tr>
</tbody>
</table>
It should be emphatically noted that gridlock is not universally viewed as “bad.” To begin with, opinions about particular instances of (2), (4), (5) and (6) often naturally depend on the specific political and policy context: Many liberals who praised the bipartisan congressional defeat of President Bush’s efforts to privatize Social Security in the 110th Congress lamented the “gridlock” that torpedoed subsequent attempts to pass gun control legislation in the wake of the Sandy Hook shootings. Indeed, countless examples of this type of subjectivity exist on both sides of the aisle. More generally, many neutral observers believe that these instances are entirely consistent with the Framers’ intent – as outlined in Federalist #51 – to protect against the tyranny of the majority. (Madison 1788)

Opining on whether or not specific instances of these different varieties of gridlock are ultimately good things (because they preserve minority rights) or bad things (because they hamper or obstruct the policymaking process) is beyond the scope of this paper. My ultimate goal is to assess what we know about if and how certain policy reforms might affect gridlock. This approach implicitly imposes a value judgment (gridlock is bad, and ought to be fixed), and I acknowledge that this is a position about which reasonable people may disagree.

Two additional points on the nature and definition of gridlock warrant mentioning. First, it does not lie exclusively in the legislative domain, with the most obvious example being the “advice and consent” role of the Senate. As is well known, presidential nominations to the federal judiciary and to many offices within the executive branch must be confirmed by the Senate. As a result, a majority (and in some cases a minority) of that body can counter the
Arguably, a failure of the Congress to ratify a treaty negotiated by the executive branch could also be considered a manifestation of gridlock, as could—somewhat more abstractly—the use of congressional oversight and investigative authority to hamper the executive’s agenda.

Second, a distinction should be made between gridlock that results from genuine policy disagreement and gridlock born of purely political considerations, in which the minority seeks to deny the majority a policy “victory.” Examples of the former might include the previously discussed cases of consumer financial protection and voter fraud. An example of the latter might include the unified Republican opposition to the Affordable Care Act (ACA), which also would have failed but for a democratic supermajority. Although Republicans generally insist they oppose the ACA because it is bad policy, many similarities exist between ACA and the health care reforms passed by Republican governor Mitt Romney in Massachusetts in 2006 (Hacker 2010) and the individual mandate (arguably the core element of the ACA) was originally conceived of at the Heritage Foundation, a conservative think tank. (Hyman 2006) These factors have led to speculation that at least some Republican members might have shown more support for the ACA if it had been proposed under a Republican administration. (Ornstein 2013; Reich 2013) Distinguishing between these two (one might designate them “policy” gridlock and “strategic” gridlock) quantitatively is almost certainly impossible, but the abstract

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27 In late 2013, as a result of perceived abuses of the ability of the minority GOP to block confirmation, majority leader Harry Reid (D-NV) executed a limited form of the so-called “nuclear option.” This procedural change eliminated the 60-vote threshold to end debate and move to a vote for executive branch nominees and non-Supreme Court judicial nominees; effectively these groups may now be confirmed with a simple majority both supporting cloture and the vote to confirm.

28 A “mirror” example might be near unified Democratic opposition to President Bush’s prescription drug benefit expansion (Medicare Part D) in 2006.
distinction is important for two reasons: First, because the Framers probably would have found the former much more defensible than the latter, and second because the ideological realignment of the two major parties over the last several decades has significantly increased the willingness of minority parties to engage in “strategic” gridlock – to deny the majority policy --and therefore political) victories by blocking legislation, or more generally by blocking executive branch actions.

Returning to the link between polarization and gridlock, it is certainly possible to have one without the other. In Westminster systems, if a single party is able to capture a majority, or if a governing coalition is formed, then in practice the ideological gap with the minority party or parties may be extremely large and completely irrelevant to the legislative process –majority control is decisive under responsible party government, and the majority will be able to pass laws.

It is also possible to have gridlock without significant ideological polarization: Legislators’ choices in voting for or against legislation are determined not just by their own internal beliefs about what constitutes good policy, but also by a complex set of factors including their own desires to be elected in future campaigns (for the same or higher office), the desire of party leadership to maintain (or achieve) a chamber majority in the next cycle, and explicit or implicit pressure from funders. (Levitt 1996) As discussed, minority party members may vote against legislation which they innately perceive to be good policy because they also believe it is politically advantageous (in the current cycle or in future cycles) to do so; when this is so there may be gridlock in the absence of serious disagreement regarding policy.
Nevertheless, there is a general perception that in the United States, ideological polarization between members is a key driver of congressional gridlock (although the precise share of that contribution is unknown, and probably unknowable). This analysis will proceed under the assumption that this understanding is correct: Gridlock is the ultimate “policy problem” to be addressed here, and if polarization is reduced, an argument that reduced gridlock will follow can plausibly be made.

Many changes have been suggested for ameliorating congressional polarization and by extension congressional gridlock; these include campaign finance reform, rules changes within the House and the Senate, changes to the structure of primary elections, term limits, redistricting reform (RR), and more radical changes such as a shift to proportional representation (PR). (Pildes 2011; Mann and Ornstein 2012) For each of these proposed reforms, two important questions should be asked. First: Can it be done? Put another way, what are the political and legal obstacles to implementation, at both the state and national level, and are those obstacles surmountable? Second: If successfully implemented, would the reforms actually be effective at reducing partisan gridlock?

This paper seeks to address both of these questions for the subset of policy changes that explicitly deal with the geographic component of how votes are converted into seats in the House of Representatives. This constraint implicitly limits this analysis to considering proposals to reduce gridlock through the avenue of reduced ideological polarization of members.

The analysis is organized as follows: Section II summarizes the set of policy choices to be examined. Section III summarizes existing scholarship with respect to the first question: what is
the scope of implementing these kinds of policy reforms and what kinds of barriers can be expected to frustrate those attempts? Similarly, section IV reviews the literature addressing the second question: what do we know about if/how reforms would reduce gridlock in the Congress?

DEFINING THE SET OF POLICY OPTIONS

This analysis will focus on two families of policy proposals: Redistricting reform (RR) and the shift of our voting schema from the current first-past-the-post (FPTP) structure to a proportional representation (PR) system similar to what exists in the majority of the world’s democracies. (Kurrild-Klitgaard 2003)

Redistricting Reform (RR)
Redistricting reform or “RR” refers to modifications to the way that congressional district boundaries are drawn within states. Redistricting normally takes place following the decennial census. In theory, district boundaries are altered to account for population shifts that occurred during the previous ten years. Because the allocation of seats in the House is proportional to population, it is normal for some states to gain and others to lose seats during the reapportionment process. The distribution of seats within states may also change: for example, in 1982 California’s Central Valley held 7 of the state’s 45 seats (15.6%); by 2010 that number had risen to 9 of 53 (17.0%) as a result of population changes. Traditionally, the job of redrawing district boundaries has fallen under the purview of state legislators or their proxies, with the unsurprising result that in practice, boundaries are often “gerrymandered”—that is, drawn with political objectives in mind.
When members of one party have firm control over the boundary-drawing process, they may create new districts that are politically advantageous, for example by “packing” likely voters for the other party into a small number of districts and thereby increasing win probability in the remaining districts. (Friedman and Holden 2008) Reapportionment may serve political goals even if control over the boundary-drawing process is not firmly in the hands of one party. In the aptly-named “bipartisan gerrymander,” the two major parties agree to draw districts so as to maximize the number of safe seats for both parties. (Mayhew 1971)

This state of affairs has led to widespread dissatisfaction with the status quo; many observers have suggested that the drawing of district boundaries with political goals in mind is partially responsible for the current high levels of polarization and gridlock in the Congress. (Herron and Wiseman 2008; Pildes 2011) Brunell and Grofman (2005) summarize the typical thinking on the link between redistricting and polarization as the union of three theoretical conjectures: First, redistricting can and does increase within-district homogeneity. Second, more homogeneous districts reduce electoral competition. Third, political polarization stems in part from an absence of electoral competition, as legislators from “safe” seats can more safely ignore the views of minority party voters in their districts.

In fact, RR has already been implemented in a number of states: of the 43 states with populations large enough to warrant more than one representative in the House, 19 have removed control of apportionment from the exclusive control of the state legislature. In some cases responsibility for drawing district boundaries has been permanently ceded to nonpartisan or bipartisan commission, while in other cases commissions come into play only if
state legislatures are unable to agree on a set of boundaries. (Levitt and Foster 2008) Of course, the composition of these commissions matters a great deal: When membership is determined by the state Republican and Democratic parties or their proxies—as is done in several states (for example Idaho and Missouri) there can be little confidence that politics have been removed from the boundary-drawing process. As Thomas Mann (2004) says,

“Not surprisingly, commissions usually produce redistricting plans that reflect their structure and rules. Those with partisan majorities and simple majority rules tend to produce partisan plans. Those with evenly-divided bipartisan memberships and/or supermajority rules are more likely to produce plans that protect both parties and their incumbents. Designing a commission that is neutral toward or that dampens the influence of both incumbents and parties is a challenge with which few states have successfully grappled...A commission can be used as efficiently as the normal legislative process to achieve partisan or incumbent-protection gerrymanders.”

If a commission is created that moves district boundaries within a state from a partisan gerrymander (in which one party seeks to maximize seats held) to a bipartisan gerrymander (in which both parties agree to protect incumbents), then reform in some sense has been achieved, but not with respect to the goal of making the state and its districts more competitive.

This analysis will emphasize variants of RR in which an argument that boundary drawing has been depoliticized can be at least plausibly made—that is to say, variants in which some degree of decision-making power is ceded to political independents. One example of this is the
Arizona Independent Redistricting Commission, which is required by statute to have five of 25 members be political independents; another is the California citizens commission, which requires that committee members be drawn from a pool of citizen applicants, and further that four of 14 members be political independents. It should be noted that some scholars argue that even “independent-heavy” commissions such as these are still subject to political influence, and go so far as to suggest that all redistricting plans be subject to statewide voter approval via the referendum process. (Kang 2006)

Proportional Representation (PR)
The second policy approach to be considered here is proportional representation or “PR.” This term describes a class of methods for electing representatives to a board or legislature that is both widely used in other nations and poorly understood within the United States. Broadly speaking, PR schemes seek to ensure that groups of like-minded voters are represented in the legislature in roughly the same proportions present in the electorate.

It is useful to consider the following stylized example: imagine a hypothetical state with nine congressional districts, and the following distribution of voters:
Table 2: Distribution of Voters by Ideological Tendency within a Hypothetical 9-District State

<table>
<thead>
<tr>
<th>District</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Liberal</td>
<td>190K</td>
<td>105K</td>
<td>90K</td>
<td>75K</td>
<td>60K</td>
<td>45K</td>
<td>30K</td>
<td>15K</td>
<td>5K</td>
<td>615K (16%)</td>
</tr>
<tr>
<td>Liberal</td>
<td>90K</td>
<td>90K</td>
<td>75K</td>
<td>75K</td>
<td>60K</td>
<td>45K</td>
<td>45K</td>
<td>30K</td>
<td>15K</td>
<td>525K (14%)</td>
</tr>
<tr>
<td>Centrist</td>
<td>120K</td>
<td>180K</td>
<td>180K</td>
<td>180K</td>
<td>180K</td>
<td>180K</td>
<td>180K</td>
<td>180K</td>
<td>120K</td>
<td>1,500K (40%)</td>
</tr>
<tr>
<td>Conservative</td>
<td>15K</td>
<td>30K</td>
<td>45K</td>
<td>45K</td>
<td>60K</td>
<td>75K</td>
<td>75K</td>
<td>90K</td>
<td>90K</td>
<td>525K (14%)</td>
</tr>
<tr>
<td>Very Conservative</td>
<td>5K</td>
<td>15K</td>
<td>30K</td>
<td>45K</td>
<td>60K</td>
<td>75K</td>
<td>90K</td>
<td>105K</td>
<td>190K</td>
<td>615K (16%)</td>
</tr>
<tr>
<td>Total</td>
<td>420K</td>
<td>420K</td>
<td>420K</td>
<td>420K</td>
<td>420K</td>
<td>420K</td>
<td>420K</td>
<td>420K</td>
<td>420K</td>
<td>3780K</td>
</tr>
</tbody>
</table>

The districts are arranged from the most liberal (District 1) to the most conservative (District 9) and are symmetric: District 1 is the mirror of District 9. Overall, the distribution of likely voters across the state is roughly normal—almost 40% of the voters are centrists, with the remainder falling into the tails of the distribution on each side.

We can speculate about what would happen if this hypothetical state were to hold elections using the first-past-the-post (FPTP) method that is the status quo in the United States. According to an axiom known as Duverger’s law, FPTP elections in single-member districts are generally understood to strongly favor a two party system. In the modern American political environment, this means that we would expect the representatives from each of these districts to be either Democrats or Republicans. (Riker 1982) Because of overwhelming ideological majorities, districts 1, 2, 8, and 9 would likely elect strongly liberal and strongly conservative representatives. Districts 3, 4, 6, and 7 would also likely elect liberal and conservative
representatives, respectively, depending on which coalitions were targeted by the candidates. The median voter theorem suggests that district 5 would elect a centrist, (Romer and Rosenthal 1979) but numerous scholarship has demonstrated that the median voter theorem does not hold in the real world; (Aldrich and McGinnis 1989; Coffey 2011) Republican or Democratic representatives from district 5 would presumably be more moderate than those from districts 1 or 9, but would nevertheless be beholden to the interests of the national political party to which the member belonged. A reasonable hypothetical arrangement for the ideologies of the representatives likely to be elected from these districts under FPTP elections would therefore be as follows: Districts 1, 2—very liberal; districts 3, 4—liberal, districts 6,7—conservative, districts 8,9—very conservative; district 5—oscillating between liberal and conservative. This of course would be the definition of a polarized delegation. By contrast, if we define “moderates” to be the sum of “centrist,” “lean liberal,” and “lean conservative, then a PR election scheme would endeavor to elect a delegation with the same proportion of moderates as the voting public – roughly 40%.

There are many variants of PR, and it is beyond the scope of this analysis to fully describe their relative advantages and disadvantages. However I provide the following brief summary—adapted from the work of Douglas Amy (2002)—for reference.

The one attribute all PR schemes have in common is multi-member districts (or MMD’s): instead of nine districts each sending one member to the legislature, an MMD scheme would (for example) split the state into two districts, one sending five members to the legislature and the other sending four. This could be accomplished in a variety of ways. For the sake of
argument, assume that districts 1-4 are and 5-9 are consolidated into two new multi-member districts, districts A and B, and that a new “Centrist” party emerges.

In a version of PR known as the “Party List” system, each party runs multiple candidates within each district. So for example, in the new district B, the Republicans, Democrats, and Centrists might each run five candidates for the five available seats in that district. The seats are then awarded proportionally by party, with the seats going to the top vote getters in each party. If we assume that all centrists vote for the Centrist party, all liberals vote for the Democratic party, and all conservatives vote for the Republican party, then the final distribution of votes in the multi-member district B (comprised of the original districts 5-9) would be as follows:

<table>
<thead>
<tr>
<th>Party</th>
<th>Votes</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Democrats</td>
<td>350K</td>
<td>16.7%</td>
</tr>
<tr>
<td>Republicans</td>
<td>910K</td>
<td>43.3%</td>
</tr>
<tr>
<td>Centrists</td>
<td>840K</td>
<td>40%</td>
</tr>
</tbody>
</table>

With five seats available, the allocation to Democrats, Republicans, and Centrists would respectively be (1,2,2) – matching the actual distribution of votes as closely as possible. The Democratic seat would belong to the top vote getter among the Democrats, the two Republican seats would belong to the top two vote getters among Republican voters, and so on.

The second main variant of PR is known as mixed-member proportional representation (MMP). In this system voters typically cast two votes: one for a district representative and one
for a political party. The legislature is comprised of two different types of representatives. Some seats are filled with the winners of the district level elections (the “constituency” representatives), who typically attain office via a first-past-the-post (FPTP) procedure similar to what exists in the United States. The remainder of the seats are filled based on the party election votes (the “non-constituency” representatives). These are members who are added to the legislature in a way that guarantees proportional representation across political parties. This method has the odd property (to the American observer) of making the total number of seats in the legislature variable, as the total number of members that need to be added in order to achieve proportionality will depend on the starting point produced by the constituency representatives.

**BARRIERS TO IMPLEMENTATION**

*Redistricting Reform*
What are the factors standing in the way of meaningful state-level implementation of a) RR and b) PR in the United States? I address these questions in turn, beginning with the experiences of states which have already implemented some version of RR.

As Gerken (2010) points out, one of the most significant roadblocks on the way to meaningful RR is the fact that such reform is often contrary to the interests of both political parties and of incumbent legislators. By definition competitive districts increase the risk of seats changing hands, and by extension the risk of disturbing the political equilibrium. Legislators are not likely to support reform unless forced to do so by voters. Hebert and Jenkins (2010) note that however appealing a national standard to constrain gerrymandering might be, all recent
attempts to push such a measure through Congress have died in committee; they suggest that a state-by-state approach is more likely to yield results. They further observe that this “fox guarding the henhouse” aspect of hoping for reform through legislation introduces an additional barrier for some states: specifically those states without a direct democracy process (e.g. ballot initiative) will have an inherently more difficult time implementing meaningful reform.

Mac Donald (2012) summarizes the experiences of California in using direct democracy to transfer control of the redistricting process to an independent citizen’s commission between 2006 and 2008. She notes that the initial version of the ballot measure intentionally restricted the commission’s responsibility to drawing boundaries for the state legislature and assembly; congressional district boundaries were omitted “to ensure that members of Congress would not use their considerable funds and influence to defeat the proposition.”

Gerken (2010) also describes disinterest among voters – who typically care more about “substantive outcomes” than “process reforms” – as an additional threat to implementing meaningful reform. As Mac Donald (2012) notes, redistricting is “(Something) … most people either do not understand, do not care about, or both…..It is arcane to most because it has been conducted mostly in secret in the past. It deals with issues that most people would rather forget than be reminded of (like data and statistics). It is heavy on laws, and always seems to be fraught with controversy.”

However public interest is likely to increase when the electoral outcomes resulting from gerrymandering are particularly egregious; this was the case in California in the 2004 election,
when not a single seat in the state assembly, state senate, or congressional delegation changed hands. (Stephanopoulos 2012) This unsatisfactory outcome is thought to have led directly to the grassroots direct democracy effort to implement RR in that state. (Mac Donald 2012) Also in this vein, Thomas Mann (2004) notes that part of the problem is the single-member district structure itself, which increases the relative importance of individual district boundaries: in a system that used multi-member districts (whether PR or non-PR), the importance of boundaries and therefore the incentives of individual legislators to gerrymander would be reduced.

Another factor to consider is that laws governing redistricting may come into conflict with provisions of existing legislation, notably the Voting Rights Act (VRA): any plan mandating that districts be drawn in such a way as to maximize competitiveness would potentially be in violation of section 2 of the VRA, which mandates that when ethnic minorities make up the majority of a local area, those clusters should be kept intact rather than divided. (Cain, Mac Donald et al. 2006)

**Proportional Representation**

As with redistricting reform, the single biggest barrier to proportional representation is likely to be opposition from those who would be adversely affected by its implementation: that is, most incumbent legislators and all levels of the Democratic and Republican Party power bases. During various local experiments with PR in cities like New York City and Cincinnati, continuous and intense opposition from local party apparatuses played a significant role in the abandonment of PR by those cities. (Amy 1996) McKaskle (1998) suggests that such opposition is present not only during the run-up to any ballot measure or legislation seeking to introduce PR, but also following implementation, in the form of efforts to roll back or repeal reform: “...it
is likely that such attacks would recur if PR were adopted. These likely attacks would probably pose a continuing destabilizing force, the effects of which are indeterminate but probably significant.”

Indeed, Shugart (2008) suggests that there are two conditions which must jointly be met for any jurisdiction to move from an FPTP system to a PR scheme (or more generally, to enact any electoral reform): First, there must have been what he denotes as “systemic failures,” which are defined as events demonstrating “…the incapacity of the electoral system to deliver the normatively expected connection between the vote and the formation of executive authority.”

This definition is of course tailored to FPTP elections in a parliamentary context, where the executive is selected directly from the legislature and not by popular vote. Shugart is describing situations in which one political party receives a majority of the popular vote, but—due to the vagaries of districting and the spatial distribution of party voters—a second party receives the majority of seats (a so-called “manufactured majority”) and thus the ability to select the executive.

Shugart’s second condition—which he terms the contingency—is that one or both members of the two-party duopoly must either perceive that the system is biased against it (for example if a single political party had been on the wrong end of a streak of manufactured majorities), or must believe that associating itself with reform would be politically beneficial (for example if there was widespread dissatisfaction with the existing electoral process). If and only if both of these conditions are met, Shugart argues, will a member of the duopoly in an
FPTP system begin to advocate for change. One can imagine, for example, that if the Democratic or Republican party were to win a majority of votes and a minority of seats across a span of multiple elections, that party might begin to view a shift to a PR or mixed-PR system as potentially advantageous. However, in a partial rejoinder to Shugart, Bowler et al. (2008) note that the United States has been particularly reticent (relative to the UK and Commonwealth countries, which also use FPTP elections) to even consider a shift to PR. They argue that the modern Democratic and Republican parties have become accustomed to seeking political advantage through the less ambitious avenues of redistricting and occasional legal action. They also point out that the American system of checks and balances is itself a significant barrier to any potential efforts to enact significant electoral reform: Even if one of the two major parties did become an advocate for PR, it would still have to overcome the potential threats of presidential veto and Senate filibuster by the opposition party.

Prior to 1842 the methods of electing representatives to the House were wholly delegated to the states. No states have ever used PR, although a few elected members by using multi-member districts. However, beginning in 1842 the Congress enacted legislation requiring that members be elected from single-member districts. Although that law was repealed in 1929, a different version was enacted in 1967, and since 1967 all elections for members of Congress have been required to be conducted within the single-member district framework. (Mann 2004) In order to implement PR in any state in the United States, this statute would have to be repealed.
Although PR is not unconstitutional, a related barrier to its implementation is the fact that most American voters are unfamiliar with it and that in practice many voters might be deeply suspicious of it. In the aftermath of Dillard v Baldwin County Board of Education (a 1988 voting rights case), a number of municipalities subject to the litigation sought to settle after a finding of racial discrimination by enacting PR (as a means of ensuring black representation on school boards, county commissions, and other locally elected bodies). Pildes and Donoghue (1995) presented the results of a case study of one of those jurisdictions – Chilton County, AL – and quoted the reaction of Mike Kelley, the publisher of the local Independent Advertiser:

“[It’s]… the silliest thing…[I’ve] ever heard of. It can’t be constitutional.”

A Republican member of the Board of Education responded in a similar vein after the settlement was reached:

“When the idea was first proposed, as far as the public reaction, we thought it was a joke, because the idea that one person could vote seven times on one particular race was just really unheard of at that time, and many people thought it was just something that they were grasping at straws kind of a thing, and it would not ever come into effect here. Once it became the law under the settlement of this court case, a lot of people still didn’t believe it.”

In summary, the movements to introduce both RR and PR face substantial barriers, with opposition from the entrenched political establishment and voter apathy and unfamiliarity presenting the most significant hurdles.
LIKELIHOOD OF REDUCING GRIDLOCK

The second half of this analysis attempts to describe what is known about the likely effects that RR and PR would have on reducing gridlock in the US House of Representatives. (It should be noted that seven states—Alaska, Delaware, Montana, North Dakota, South Dakota, Vermont and Wyoming—currently send only one member to the House as a result of their small populations. In these states, neither RR nor PR would make sense in the context of federal congressional elections.)

Redistricting Reform
To reiterate, the policy relevant question is whether redistricting reform would reduce gridlock. However the scholarship in this area focuses almost entirely on the link between districting practices and ideological polarization; as such this analysis summarizes THAT literature, with the link between ideological polarization and gridlock (discussed earlier) accepted at face value. Also, as previously noted, there are many variants of RR, and they are not interchangeable with regard to their likely “treatment effect,” i.e. their likely impact on Congressional gridlock. Fully bipartisan committees, for example, may be completely subject to capture by the state political parties and may therefore produce maps no less gerrymandered than those produced by the legislatures themselves. The devil is in the details, and there are many, many possible details.

Given all of this, it is useful to reformulate the question: since gerrymandering is the problem that RR putatively solves, it is worthwhile to ask instead how much of congressional polarization is caused by gerrymandering. If the consensus answer is “not much,” then
reasoning that RR is not likely to have a large impact on polarization seems warranted. This is true even under the strong assumption that the “best” type of RR—reform that completely removes political calculus from the boundary-drawing process—is somehow implemented.

With respect to the 43 states who elect multiple representatives to the House, the academic literature does not provide much support for the hypothesis that gerrymandering is a significant contributor to House polarization. McCarty et al. (2009) developed simulations of “random” congressional district boundaries (that is, boundaries drawn without respect to political data) using county level data and estimated the difference between House polarization in these simulations and actual polarization; they conclude that gerrymandering is responsible for at most 10-15% of polarization in the House. If this result is correct, it suggests by extension that meaningful implementation of nonpartisan RR in all states which require the drawing of district boundaries—an extraordinarily heavy policy lift—would reduce House polarization by at most 10-15%. McCarty et al. do not claim that gerrymandering is not problematic – their results suggest, for example, that gerrymandering within states sharply increased the number of seats held by Republicans in the 108th Congress. They conclude their study by noting that “There are many reasons to do something about gerrymandering. But reducing polarization is not one of them.”

Masket et al. (2012) reach a similar conclusion in an analysis of state legislatures, finding that polarization in state legislatures where boundaries were drawn by nonpartisan commissions actually increased between 1999 and 2004, while polarization decreased in states where boundaries were drawn by the legislature or by partisan commissions.
Brunell and Grofman (2005) compare the number of competitive House districts for five pairs of elections between 1960 and 2002, with each pair comprised of the election in the year ending in ‘0’ (just preceding reapportionment and the redistricting process) and the election in the year ending in ‘2’ (just following reapportionment). Under the conjecture that if gerrymandering increases polarization by reducing competition, one would expect to see a decline in the number of competitive seats following reapportionment; they find the opposite: an average increase in the number of competitive seats. However one concern with this approach is that it compares presidential and midterm elections; there are many secondary factors related to the differences between these two types of elections that might confound attribution of these differences to the effect of gerrymandering. However, when the authors extend their analysis to comparing the within-decade trends in the number of competitive seats (e.g. 1962, 1964...1970), they do find an average decline in the number of competitive seats. They also suggest—as many prior authors have done—that the rise in polarization in the Senate (where there is no gerrymandering) suggests that gerrymandering cannot be a significant contributor to House polarization. (A rejoinder to this claim, made by both Theriault (2008) and Eilpern, (2007) is that House polarization may contribute to Senate polarization because many senators are former members of the House.) Finally, they observe that the relationship between margin of victory and ideological extremism is fundamentally different for Republican and Democratic members: In a pooled data set of all congresses between 1960 and 2004, Democrats who won close elections were more likely to govern as moderates, but the degree of conservatism among Republican members appears to be completely unrelated to their margin of victory. In a more nuanced analysis of the number of competitive seats by type of
redistricting procedure (nonpartisan commissions vs. state legislatures, etc.), Abramowitz et al. (2006) also find that varying the type of districting procedure (i.e. nonpartisan commission vs. state legislature) did not appear to produce more competitive districts.

One group of scholars attempts to directly estimate the impact of independent redistricting on what they call “congressional partisanship.” Oedel et al. (2008) use *National Journal* liberal and conservative ratings to derive a measure of the partisanship of each state’s congressional delegation; this measure is conceptually similar to the McCarty et al. (2006) measure of polarization (the difference in party means), except that it is calculated within each state delegation and is derived from different source data. The authors next use this measure as a dependent variable in a panel regression analysis that includes an indicator for whether the state was “post” transition to an independent redistricting structure in a given year between 1998 and 2006 (five states made this transition in this time period – Alabama, Arizona, Connecticut, Idaho, and Maine.) In their state level analysis, they found evidence of a decline in partisanship, but that decline did not appear to be statistically significant. They next constructed a regression model structured at the individual legislator level (as opposed to the state level). This had the effect of boosting their sample size from 100 to 861; in this model the coefficient on the indicator for post-independent redistricting is negative and significant; they estimate a 12.5% reduction in legislator partisanship, an estimate that is broadly consistent with the findings of McCarty et al. discussed above. However, it should be noted that the authors did not appear to cluster standard errors, which would bias downward the size of their estimated standard errors and therefore call into question the finding of statistical significance.
**Proportional Representation**

Even more than is the case with RR, the question of how a shift in one or more states to PR might affect the House of Representatives’ ability to move legislation is speculative by nature. One approach that may prove informative is to consider the more general question of how PR affects legislative bodies (relative to winner-takes-all or first-past-the-post systems). The literature is divided with respect to this question. Many authors suggest that PR carries with it the risk of increased rather than decreased gridlock, with the general shape of the argument being that PR systems strongly favor multiple parties (IE more than two), which can create situations in which consensus among two or more member parties of a coalition government is required before policies can be moved forward. If many extreme parties are present, it may be the case that no governing coalition can be formed. (Boston, Church et al. 2003; Thames and Edwards 2006) However, other authors argue that this criticism is largely applicable to parliamentary democracies such as those in Western Europe (in which the executive branch is derived from and accountable to the legislative branch). In the United States, because the President is directly elected, the executive branch would continue to function even in the absence of a working coalition. (McKaskle 1998)

For those wishing to understand how a shift to PR might affect the United States, some insight may be gained from the case of New Zealand. In 1996 that country switched to a PR system from a first-past-the-post system similar to our own. In a largely qualitative study, Boston et al(2003) concluded that in New Zealand “governments under MMP [Mixed Member Proportional] appear to be no less able to address major policy problems or respond to changing economic circumstances;” however they did not explicitly address whether
governments under MMP were more able to address policy problems. The drive to implement electoral reform in New Zealand seems to have resulted not from concerns about gridlock but rather from dissatisfaction with the manufactured majorities being produced by the old FPTP system.

Olson (2008) suggests that the multiple parties associated with PR would lead to greater gridlock by arguing that a two-party duopoly naturally tends toward compromise. He claims that any political party whose base of support consists of roughly half of society will out of necessity be concerned about the “efficiency and welfare of society as a whole;” by contrast systems with multiple political parties (that is, more than two) might tend toward factionalism: When each political party represents a narrow, distinct segment of society (as would likely be the case under PR), governing coalitions are inherently fragile and less likely to propose and implement moderate, comprehensive policy regimes designed to address the interests of the nation as a whole.

This line of argument is certainly subject to criticism, with one such critique being that Olson seems to assume full participation by voters, or something close to it. If election turnout is consistently low (as is the case in the United States) then the major parties in a duopoly are beholden not to “half or more of the society” as Olson argues, but instead to some factional constituency representing substantially less than half of society. Indeed, some have argued that this factionalism and divisiveness is one of the driving factors behind low turnout.(Putnam 1995)
Horowitz (1971) argues for precisely the opposite point as Olson, claiming that the multiparty structure allows centrist parties to emerge and act as arbiters or dealmakers in coalition governments. Lowi and Romance (1998) makes a similar claim, laying the blame for gridlock in the United States squarely at the feet of the two major parties and the system that ensures their duopoly. He points out that for many decades, the vast majority of the time each major party has controlled at least one of the House, the Senate, or the Presidency, and argues that in this status quo it is appropriate to call both parties “the majority party.” A reluctance to relinquish this obtained power makes both parties averse to risk-taking, and divided government ensures that voters will have difficulty assessing blame. As they say,

“A very important aspect of the corruption of leadership is the tacit contract between the two parties to avoid taking important issues to the voters and in general to avoid taking risks.”

In a related line of thinking, Richie and Hill (1999) suggest that the “zero-sum game” aspect of a two-party duopoly encourages rather than prevents gridlock, because each party is incentivized to boost negative perceptions of the other party, knowing that dissatisfied voters will have only one alternative. They observe anecdotally that many countries with PR systems have been able to develop more comprehensive policy regimes (on issues such as immigration and healthcare) than has the United States.

Lian and Oneal (1997) attempt to estimate the effect of the number of political parties on country-level political stability. In a cross-country multi-year pooled analysis, they regress a number of proxies for political stability (GDP growth, aggregate political assassinations, number
of revolutions or coups) on a number of factors, including linear and squared terms of the number of national political parties. However, their conclusion is not particularly informative for the discussion at hand, both because it is difficult to make inferences for the United States from a cross-national study that includes many third-world and postcolonial counties, and because (excepting the first concern) they ultimately find no significant relationship between political stability and the number of political parties.

In summary, to the question of how implementation of PR might impact gridlock in the House of Representatives, the literature yields an answer that is largely inconclusive. Theoretical claims are varied, conflicting, and speculative in nature. Only one other first world democracy has made the transition from FPTP to PR (New Zealand), but that transition was made because of voter frustration not with gridlock but with what Douglas Amy (1993) calls the “manufactured majority” – instances in which –due to districting - one member of the duopoly receives a majority of seats in the national legislature with a minority of votes in the relevant election. The question of how that shift affected legislative productivity in that country has—to date—only received a cursory treatment in the literature.

Ultimately the answer to this question is likely to be strongly affected by the underlying ideological distribution of the electorate. If most voters are in the ideological middle (that is to say, to the right of the average Democratic member and to the left of the average Republican member, on most policy issues) then PR might bring about a strong, centrist third party. In the absence of FPTP election rules, such a party could govern from the middle without needing to appeal to either of the “tails” of the ideological distribution.
On the other hand, if there are many liberal voters to the left of the average Democratic member, and many conservative voters to the right of the average Republican member (or if there are many single-issue voters), then PR could introduce an abundance of minor parties unable to coalesce on policy issues. In this scenario PR would exacerbate gridlock, not alleviate it.

**CONCLUSION**

Political polarization is not in and of itself a policy issue. The policy issue that is ultimately the focus of this analysis is gridlock – the inability of a legislative apparatus to actually pass laws. This analysis has addressed two proposals that might plausibly diminish polarization—one of the major causes of gridlock—in the House of Representatives. The major findings are as follows:

- Efforts to implement both redistricting reform and proportional representation face significant challenges, with opposition from entrenched political actors and lack of voter awareness (or interest) being the most prominent of these challenges. Barriers to PR are probably more significant than barriers to RR.

- There is a substantial body of literature, including empirical studies, that addresses the link between political polarization and the manner in which district boundaries are drawn. Most of it suggests that gerrymandering is not a significant contributor to political polarization in the US House, a finding which implies that efforts to implement RR are not likely to diminish polarization and by extension gridlock.
No theoretical studies have explicitly addressed the question of how a shift PR might affect gridlock in the House of Representatives. Authors who have addressed the more general question of how a shift from FPTP to PR have reached differing conclusions; more research in this area is clearly needed.

These are not encouraging findings for those who seek to reduce or reverse the negative effect of ideological polarization on government efficacy. More discouraging, “solving” political polarization in the House of Representatives would not solve gridlock in the federal legislative apparatus as a whole. Even under the joint assumptions that (A) ideological polarization is in fact the root cause of House gridlock, (B) either RR or PR is somehow successfully implemented on a national scale, and (C) those implemented reforms dramatically reduce party polarization in the House, any bill passed out of that body would still need to be approved by the Senate and (absent veto-proof majorities) the President. The clear implication of this is that to the extent that two-party polarization persists in the Senate following the introduction of reforms in the House, it would likely continue to act as a source of gridlock for the legislative process as a whole. There is reason to believe that reforms to House election processes might have spillover effects on the Senate. In the first case, because many Senators are former Representatives; if RR was successful in electing more moderate representatives, it would potentially lead (eventually) to a greater degree of moderation in the Senate. In the second case, the emergence of a large, viable centrist third party in the House (via PR) could lead contemporaneously to moderate candidates running for Senate office on that ticket. Of course the question of how election reform in the House would affect gridlock in the Senate is an order
of magnitude more speculative than the already difficult question of how gridlock in the House might be affected by such reforms.

This essay takes as given that gridlock is a “problem” that should be solved, and attempts to summarize what we know about the barriers to implementation and likelihood of success for two proposed solutions for gridlock. The validity of this assumption (that gridlock is in fact a problem that should be solved) merits discussion as well. Its validity probably hinges on what type of gridlock we are in fact dealing with: If our gridlock is primarily “strategic” in nature – that is to say derived from the political machinations of our two major parties as they struggle to protect or obtain political power – then the argument that something should be done to lessen gridlock is probably strengthened. On the other hand, it may be the case that our legislative process is gridlocked mostly because the two major parties and their constituents have fundamentally different visions about what the policy priorities for this country (such as aggregate levels of taxation and spending) should be. If this is the case, then the argument that something should be done about gridlock becomes less clear-cut. The Framers were very clear that our system of government should preserve the rights of the minority via a system of checks and balances that encourages compromise. (Madison 1787; Madison 1788). If in fact it is true that most Americans and most of our elected representatives fall squarely into one of two diametrically opposed policy camps, then efforts to reform that system should be undertaken cautiously and with consideration of factors beyond the productivity of our legislators.


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