

Polarization and Partisan Divergence in the American Public, 1946–2012

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Abstract

In this paper, we examine polarization and partisan divergence in the American public on economic issues over the past 70 years. We bring to bear a new dataset that contains over half a million respondents from hundreds of individual polls. This dataset contains the responses to over 150 question series about economic issues. We combine this dataset with a dynamic group-level item response model to measure the ideology of the American public at both the state and national levels between 1946 and 2012. We find that the American public has only become modestly more polarized on economic issues over the past 70 years. However, the two parties are much more clearly sorted on economic issues today than in earlier decades. Moreover, members of the two parties are now further apart than ever before at both the state and federal levels. Our results speak to debates about polarization. They also suggest that partisan divergence in the mass public may have contributed more to elite polarization than scholars have previously thought.

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1 Introduction

Over the past two decades, there has been a vigorous debate about whether the American public is becoming more ideologically polarized. One set of scholars finds the public is polarized, and getting more so over-time (Abramowitz and Saunders 1998, 2008; Abramowitz 2010; Jacobson 2003, 2004). These scholars typically point to the increasing correlation between the public’s party identification and their ideological beliefs. Another set of scholars agrees that the public has become more sorted, whereby liberals are Democrats and conservatives are Republicans, but the public has not become more ideologically extreme (Fiorina, Abrams, and Pope 2005; Fiorina and Abrams 2008; Levendusky 2009b; Hill and Tausanovitch 2016).

The evidence that scholars have used to adjudicate this debate comes almost entirely from two long-running academic surveys: the American National Election Study (ANES) and the General Social Survey (GSS). These studies have long been the gold standard for work on public opinion. But there are a number of limitations associated with them, ranging from small sample sizes in any individual year, a limited number of issue questions, and a lack of temporal coverage. The reliance on these two studies has led nearly all of the work on polarization to focus on the past few decades.¹ Moreover, it has completely precluded scholars from studying polarization before the start of consistent issues question series in the ANES in the mid-1950s. The reliance on the ANES and GSS has also made it impossible to analyze year-to-year variation in polarization, or to examine polarization at the state level.

In this paper, we overcome these challenges by bringing new data and statistical methods to bear on the study of polarization. We use a new dataset that contains an order of magnitude more survey responses than previous studies: over a half a million respondents from hundreds of individual polls over the past 70 years. This dataset contains the responses

1. For instance, Fiorina and Abrams (2008), Abramowitz and Saunders (2008), and Baldassarri and Gelman (2008), Layman and Carsey (2002) all focus on the period since 1972, while Levendusky (2009b) focuses primarily on the period since 1984. Even recent work by Hill and Tausanovitch (2016) only goes back to 1956.

to nearly every national survey question that has ever been asked on economic issues in more than one year, as well as dozens of questions that were asked in only a single year. In all, it includes 151 unique question series. We combine this dataset with a dynamic, hierarchical group-level IRT model (Caughey and Warshaw 2015) to measure the ideology of the American public at both the state and national levels between 1946 and 2012.

Consistent with the results in Fiorina, Abrams, and Pope (2005), we find that the American public has become only modestly more polarized over the past seven decades. However, we show that the two parties are much more clearly sorted on economic issues today than in earlier decades. In 2012, every single state-level Democratic party was to the left of every state's Republican party. Moreover, members of the two parties are now further apart than ever before at both the state and federal levels. We estimate that the difference between the Democratic and Republican parties is roughly four times larger at the national level than in 1946. We also find substantial heterogeneity in the growth of partisan divergence at the state-level. For instance, in many states in the south, the gap between Democrats and Republicans is more than five times larger than it was in the 1940s.

Our findings speak to debates about polarization. They suggest that partisan divergence in the American public started earlier than previously thought, and has led to wide divisions between Democrats and Republicans in the mass public. Our results also have implications for the literature on representation at both the state and national levels. Most importantly, they suggest that partisan divergence in the mass public may have contributed more to elite polarization than scholars have previously thought. Indeed, the growth in sorting at the mass level roughly parallels the rise in polarization in Congress.

The paper proceeds as follows. First, we discuss previous studies on polarization and partisan divergence in the American public. Next, we discuss our approach for measuring polarization, as well as the dataset that our results are based upon. Then, we discuss our national level results on the ideology of the American public over the past 70 years. Next, we present our state level results on partisan divergence. Finally, we briefly conclude.

2 The Study of Polarization

Over the past two decades, there has been a vigorous debate about whether the American public is becoming more ideologically polarized. One set of scholars argues that the public is polarized, and getting more so over-time (Abramowitz and Saunders 1998, 2008; Abramowitz 2010; Jacobson 2003, 2004). These scholars typically point to the increasing correlation between the public's party identification and their ideological beliefs. For instance, Abramowitz and Saunders (2008) points out that Democratic partisans now take more liberal positions across every single policy issue than Republicans.

Another set of scholars concede that the public has become sorted, whereby liberals are Democratic and conservatives are Republicans, but they argue that the public has not become more ideologically polarized (Fiorina and Abrams 2008; Fiorina, Abrams, and Pope 2008; Levendusky 2009b; Hill and Tausanovitch 2016). These scholars point to the modest increase in extremity on issue questions in the American National Election Study (ANES). For instance, Fiorina and Abrams (2008) finds that only one of the issue scales in the ANES shows any evidence of citizens moving toward the extremes, while five show little or no evidence of increasing extremity. As an additional point of evidence, these scholars also point to the modest increase in the percentage of people that classify themselves as extreme liberals or conservatives.

We believe that three factors have contributed to the lack of resolution in the debate over polarization. First, scholars have focused on two different definitions of polarization (Hill and Tausanovitch 2016). The first definition is related to the variance or extremity of the mass public's political ideology. Thus, polarization is increasing if the public tends to take more extreme positions on individual policy issues. The second definition is related to the separating or sorting between different groups in the public, such as the sorting of liberals into the Democratic party and conservatives into the Republican party. Some research teams have tended to emphasize the small changes in the extremity of the mass public's ideology, while others have emphasized larger changes in partisan sorting. Given the

partisan structure of the American political system, we believe that this partisan divergence is the more consequential component of polarization.

Another factor that has contributed to the lack of resolution in the debate over polarization is a tension between studies that focus on individual policy questions (Abramowitz and Saunders 2008; Fiorina and Abrams 2008) and studies that have focused on scaled measures of ideology on one or more dimensions (e.g., Layman and Carsey 2002; Layman et al. 2010; Levendusky 2009a, 2009b; Hill and Tausanovitch 2016). Studies that focus on individual policy questions typically examine divergence vis a vis changes in the extremity of these items and sorting vis a vis changes in the correlation between individual survey items and party identification. In contrast, studies that focus on scaled measures of ideology focus on “how a set of attitudes or beliefs go together (or do not) across a population as well as the extremity of the attitudes” (Hill and Tausanovitch 2016). Scaled measures have the advantage of the reduction in measurement error that comes from using multiple indicators of a single construct (Ansolabehere, Rodden, and Snyder 2008). Moreover, they enable scholars to examine the dispersion of ideology as they would any other continuous variable. But scaled measures have the disadvantage of assuming a dimensional structure, and moving away from the easy interpretability of individual survey items.

Finally, data limitations have played a key role in preventing a resolution of this debate. Indeed, the evidence that scholars have used to adjudicate this debate almost entirely comes from the American National Election Study (ANES) and the General Social Survey (GSS). While these studies have long the gold standard for work on public opinion, there are a number of limitations associated with them. First, the ANES has only asked comparable policy questions since 1956 (Hill and Tausanovitch 2016). Moreover, the bulk of the comparable policy questions on the ANES actually only start in 1972, while the GSS has only been in existence since 1972. As a result, it is impossible to study public opinion in the middle of the 20th century using these surveys. Second, there are a very limited number of policy questions on the ANES and GSS. For instance, the 1956 ANES only asked four questions about

economic issues. Finally, these surveys were typically only conducted bi or quad-annually to a few thousand respondents. This makes it impossible to analyze year-to-year variation in opinion, and it makes it impossible to study public opinion below the national-level.

3 Measuring Polarization

In order to measure polarization, we need a measure of the mass public's policy preferences in every year. Moreover, ideally, it should be available at both the national and state-levels. In our primary analysis, we define ideology as the underlying latent policy preferences that structure people's responses to individual survey questions. This definition follows a large body of work on the preferences of members of Congress (Poole and Rosenthal 2007) as well as other recent studies of the American public (Treier and Hillygus 2009; Jessee 2009; Tausanovitch and Warshaw 2013). With this measure of ideology, we can examine whether citizens have become more divergent or more sorted. Because we define ideology as a continuous variable, we can analyze its dispersion as we would any other continuous variable (Hill and Tausanovitch 2016). If the distribution becomes more dispersed, then individuals are more ideological extreme. If ideology becomes more highly associated with party, and thus the distance between the ideology of the two parties grows, then individuals have sorted. As Hill and Tausanovitch (2016) points out, if sorting occurs but not divergence, then the effect is merely compositional: Individuals are not moving to the extremes, but party affiliation is brought more in line with ideology.

We also show that our conclusions are not dependent on our statistical model of latent ideology. Specifically, we examine partisan sorting across a number of individual issue questions. We show that the sorting on individual issue questions is consistent with the changes in partisan sorting we observe in our scaled measure of ideology.

3.1 Statistical Model

Until recently, the lack of a valid, time-varying measure of citizen policy liberalism has been one of the main barriers to the study of polarization in the mass public. To overcome this challenge, we apply a modified version of the dynamic hierarchical group-level IRT model developed by Caughey and Warshaw (2015), which estimates the average policy liberalism of defined subpopulations (e.g., Democrats, Republicans, and Independents in each state).² This approach builds upon three important approaches to modeling public opinion: item-response theory, multilevel regression and poststratification, and dynamic measurement models. Crucially, the model does not require multiple questions per respondent, allowing the use of the vast number of historical surveys that do not meet this standard.

Our model allows us to combine multiple survey questions into scaled measures of ideology, while addressing the problems of sparse survey data discussed above. It begins by adopting the general framework of item-response theory (IRT). In an IRT model, respondents’ question responses are jointly determined by their score on some unobserved trait—in our case, their economic policy liberalism—and by the characteristics of the particular question. The relationship between responses to question q and the unobserved trait θ_i is governed by the question’s threshold κ_q , which captures the base level of support for the question, and its dispersion σ_q , which represents question-specific measurement error. Under this model, respondent i ’s probability of selecting the liberal response to question q is

$$\pi_{iq} = \Phi\left(\frac{\theta_i - \kappa_q}{\sigma_q}\right), \tag{1}$$

2. Our approach bears a close relation to the literature on “public policy mood” (Stimson 1991). Works in this tradition use Stimson’s Dyad Ratios algorithm to estimate changes in public preferences for government activity (i.e., left-liberalism). Recently, Enns and Koch (2013) have combined the Dyad Ratios algorithm with MRP to generate state-level estimates of policy mood. As McGann (2014) observes, though, the Dyad Ratios algorithm has several unappealing features, most notably its ideological asymmetry and its lack of a grounding in a coherent individual-level model. As an alternative, he proposes a group-level IRT model for national mood that is similar to the approach we take. However, our dynamic group-level IRT model, accommodates cross-sectional and over-time variation within a common framework.

where the normal CDF Φ maps $(\theta_i - \kappa_q)/\sigma_q$ to the $(0, 1)$ interval.³ The model assumes that greater liberalism (i.e., higher values of θ_i) increases respondents' probability of answering liberally. The strength of this relationship is inversely proportional to σ_q , and the threshold for a liberal response is governed by κ_q . Estimating the relationship of each question to the latent trait in this way allows the model to overcome the first challenge outlined above, considerably reducing the model's sensitivity to which questions are asked when.

The fact that each respondent answers no more than a few questions (sometimes only one) prevents us from using an IRT model to estimate the liberalism of individual respondents. Our ultimate interest, however, is not individuals but rather groups defined by the cross-classification of party ID and state. We therefore instead estimate a group-level IRT model, building on the work of Mislevy (1983), McGann (2014) and particularly Caughey and Warshaw (2015). The focus of this model is estimating the average liberalism $\bar{\theta}_g$ in each state-party g , for which there are many observations in a given survey. Under the assumption that θ_i is normally distributed within groups, the probability that a randomly sampled member of group g correctly answers item q is

$$\pi_{gq} = \Phi \left(\frac{\bar{\theta}_g - \kappa_q}{\sqrt{\sigma_q^2 + \sigma_\theta^2}} \right), \quad (2)$$

where σ_θ is the standard deviation of θ_i within groups. We connect Equation (2) to the data through the sampling model

$$s_{gq} \sim \text{Binomial}(n_{gq}, \pi_{gq}), \quad (3)$$

where n_{gq} is group g 's total number of non-missing responses to question q and s_{gq} is the number of those responses that are liberal.⁴ The estimates of $\bar{\theta}_g$ may be of interest in

3. A common alternative way of writing the model in Equation (1) is $\Pr(y_{iq} = 1) = \Phi(\beta_q \theta_i - \alpha_q)$, where $\beta_q = 1/\sigma_q$ and $\alpha_q = \kappa_q \times \beta_q$. This exposition assumes dichotomous response choices; we discuss ordinal choices below.

4. Following Ghitza and Gelman (2013) and Caughey and Warshaw (2015, 202–3), we adjust the raw values of s_{gq} and n_{gq} to account for survey weights and for respondents who answer multiple questions. The latter is particularly important in this application because of the way that we deal with ordinal questions, which is to break each such question into a set of dichotomous questions, each of which indicates whether

themselves, or they can be poststratified into estimates of, for example, average liberalism in each state (cf. Park, Gelman, and Bafumi 2004).

Even with an annual minimum of 2,000 respondents, many group cells are likely to be small or empty in a given year. To address this sparseness, we use a dynamic linear model to smooth the estimated group means across both time and states. The specific model we use, which differs somewhat from that in Caughey and Warshaw (2015), is

$$\bar{\theta}_{gt} \sim N(\delta_t \bar{\theta}_{g,t-1} + \xi_t + \mathbf{x}_g' \gamma_t, \sigma_{\bar{\theta}_t}^2), \quad (4)$$

where $\bar{\theta}_{g,t-1}$ is g 's mean in the previous year, ξ_t is a year-specific intercept, and \mathbf{x}_g is a vector of attributes of g (e.g., its state or party). Each group-year mean is thus modeled as a function of the group's mean in the previous year, year-specific changes common to all groups, and changes in relative liberalism of groups with similar characteristics (i.e., the same party or state). The posterior estimates of $\bar{\theta}_{gt}$ are a thus compromise between this prior and the likelihood implied by Equations (2) and (3), with the relative weight placed on the likelihood determined by the prior standard deviation $\sigma_{\bar{\theta}_t}$, which is estimated from the data and allowed to evolve across years. When a lot of survey data are available for a given year, the likelihood will dominate. If no survey data are available at all, the prior acts as a predictive model that imputes $\bar{\theta}_{gt}$.

Our dynamic group-level IRT model estimates opinion in groups defined by states and party (i.e., Democrats, Independents and Republicans). In order to mitigate sampling error for small states, we model the state effects as a function of state *Proportion Evangelical/Mormon*, *Percent Hispanic* and *Percent Urban*. The inclusion of state attributes in the model partially pools information across similar geographical units, improving the efficiency of state estimates (e.g., Park, Gelman, and Bafumi 2004).

To generate annual estimates of average opinion in each state, we pre-weighted our survey

the response is above a given response level. For example, a question with three ordinal response choices, (1) “disagree”, (2) “neutral”, and (3) “agree,” would be converted into two dichotomous variables respectively indicating whether the response is above “disagree” and above “neutral.”

data to match raked targets for gender and education level in each state public, based on data from the U.S. Census (Ruggles et al. 2010). Our model produces estimates of the ideology of Democrats, Republicans, and Independents in each state. We aggregated these estimates up to the national level based on post-stratification weights generated by a model of the smoothed proportions of Democrats, Republicans, and Independents in each state/year.

A major advantage of simulation-based estimation is that it facilitates proper accounting for uncertainty in functions of the estimated parameters. For example, the estimated mean opinion in a given state is a weighted average of mean opinion in each demographic group, which is itself an estimate subject to uncertainty. The uncertainty in the group estimates can be appropriately propagated to the state estimates via the distribution of state estimates across simulation iterations. Posterior beliefs about average opinion in the state can then be summarized via the means, standard deviations, and so on of the posterior distribution. We adopt this approach in presenting the results of the model in the application that follows.

3.2 Data

In order to assemble our dataset, we attempted to compile every economic policy question on face-to-face and phone surveys of the American public over the past 70 years.⁵ Our data includes canonical academic surveys, such as the American National Election Study and the General Social Survey. But it also includes hundreds of polls from commercial polling organizations such as Gallup, CBS News/NYTimes, ABC News/Washington Post, Time Magazine, Pew, and many others. In the end, our public opinion data consists of survey responses to 151 domestic policy questions spread across nearly 1000 public-opinion surveys fielded between 1946 and 2014. The questions cover traditional economic issues such as taxes, social welfare, and labor regulation. For conceptual clarity and comparability with policy mood, this application includes only questions for which the “liberal” answer involved

5. Our preliminary analysis indicates that online surveys, such as the Cooperative Congressional Election Studies (CCES), show more polarization and sorting than phone surveys. Thus, we omit online surveys in order to ensure the inter-temporal comparability of our results.

greater government spending or activity.⁶

In order to ensure the comparability of our estimates over time, we use question series with consistent question wording and response categories as bridge items. While no individual survey item is asked consistently between 1946 and 2012, there are many survey questions that are asked consistently for shorter periods of time. These items glue our estimates from one time period together with our estimates for other time periods. We also do not use any “relative” questions about whether the government should do more in our model since these questions are not comparable longitudinally due to changes in the policy status quo.⁷

The responses of over 600,000 different Americans are represented in the data. On average, we have 9,000 respondents and 7 policy questions in any individual year of our data. Moreover, we have at least 3 policy questions and 2,000 surveys responses in every single year in our data.

4 Partisan Divergence and Polarization at the National Level

In this section, we present our results on partisan divergence (i.e., sorting) and polarization at the national level. First, we show that the two parties have diverged across a wide variety of issue questions over the past 70 years. In the early years of this time period, there was little difference between Democrats and Republicans on many individual survey questions. In recent decades, however, there is a large and growing gap between the views of Democrats and Republicans. Next, we show that the partisan divergence on individual issues is also reflected in the aggregate ideology, or policy liberalism, of the American public. Finally, we

6. For example, questions about restricting access to abortion were not included. Stimson (1999, 89–91) notes that the temporal dynamics of abortion attitudes are distinct from other issues, at least before 1990.

7. For instance, we do not include the GSS questions about whether the government should spend more or less on individual programmatic areas. In future drafts of this paper, we may include these spending items in the model separately in each year. In other words, we would not use them to bridge the model together over time, but would use them to increase the cross-sectional precision of our estimates.

examine the polarization, or extremity, of the American public, and how it has changed over the past 7 decades.

Figure 1 shows partisan divergence on individual question series. The y-axis is always coded so that the more liberal opinion is positive. The two top panels show opinions about two labor and economic issues in the 1940s and 1950s. The top-left panel shows public opinion among Democrats, Independents, and Republicans on the anti-labor Taft-Hartley Act in the 1940s. Most Democrats thought the Taft Hartley Act should be changed or done away with, while Republicans were split 50-50 on whether to keep it. Interestingly, Independents had nearly indistinguishable views from Democrats on this issue. The top-right panel shows that in the early 1950s, Democrats and Independents also had nearly indistinguishable views on whether the government should mandate a maximum 35 hour work week. Moreover, Republicans were only slightly more conservative on this issue than Democrats and Independents. Over the next decade, however, the gap between Democrats and Republicans grew, reaching over 15 percentage points by 1966. Democrats also moved squarely to the left of Independents on this issue.

The next three panels on the left of Figure 1 show public opinion on universal healthcare. The second panel from the top on the left shows the results of a Likert scale on the ANES, which asked respondents whether they thought the “the government ought to help people get doctors and hospitals at low cost.” The third panel from the top shows the results of a non-Likert scale on the more recent ANES survey which asked people a more balanced question about whether they thought medical expenses should be paid by a “government insurance plan” or a “private insurance plan”. Finally, the bottom right panel shows the results of recent commercial polls that asked respondents for their opinion about universal healthcare. All three question series show more partisan divergence over-time. In particular, Republicans have moved to the right on all three question series, particularly in recent years, while Democrats have moved modestly to the right.

The next three panels on the right of Figure 1 show opinion on a variety of other economic

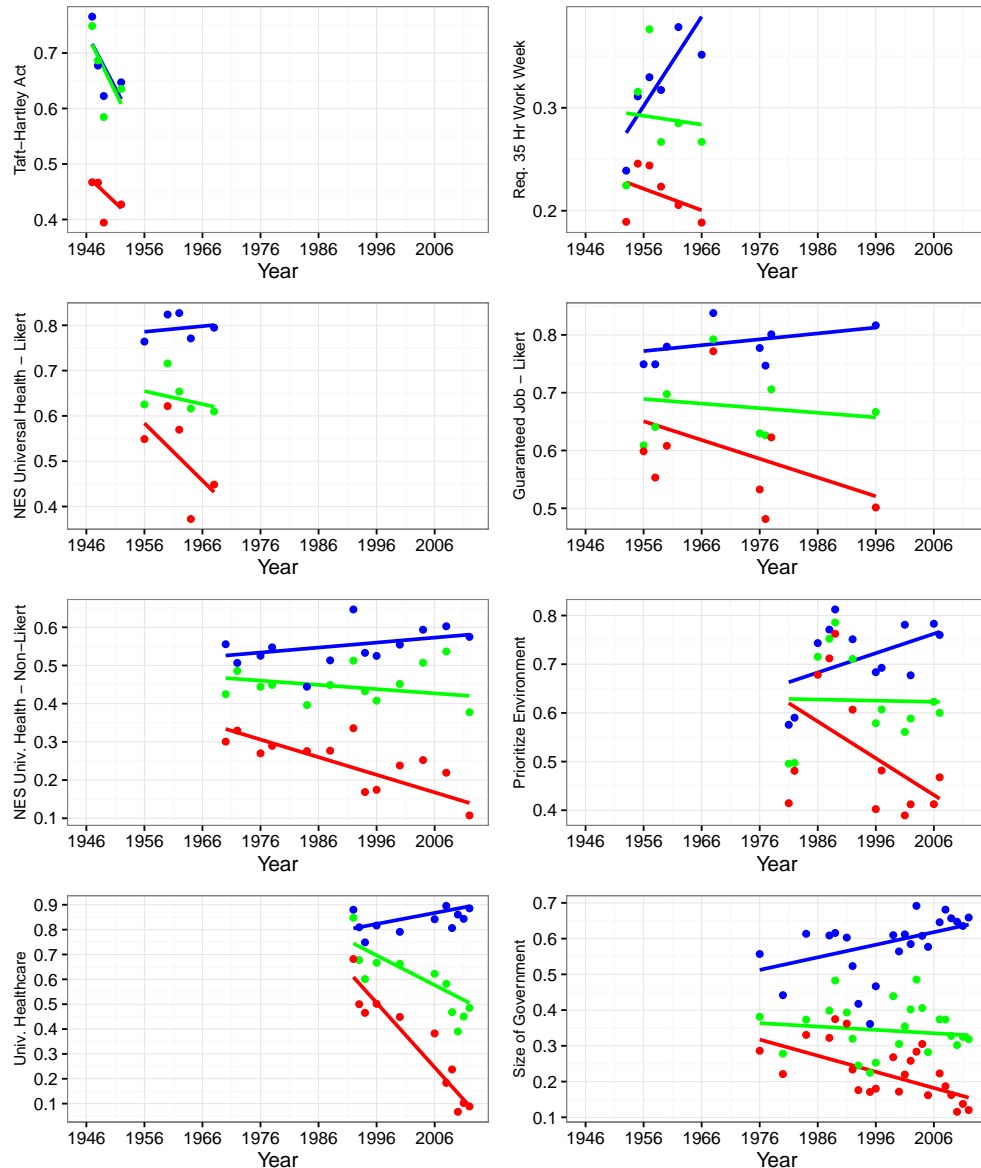


Figure 1: Partisan Divergence on Individual Survey Question Series. This plots shows the mean opinion of Democratic (blue), Independent (green), and Republican (red) party identifiers on a number of different issue questions.

issues over the past few decades. On all three issues, public opinion has become more clearly sorted in recent years. The second panel from the top on the right shows public opinion on whether respondents agree that the government should ensure that everyone has a job. Like the healthcare questions, Democrats have moved modestly to the left on this question, while Republicans have moved substantially to the right. On the environment, there was little

difference between the views of Democrats and Republicans in the 1970s, but a yawning 40 percent chasm by the 2000s. Finally, the bottom right panel shows Democrats are about 10 percentage points more likely today than in 1976 to favor a “larger government with more services”, while Republicans were about 20 percentage points more likely to favor a “smaller government with fewer services.”

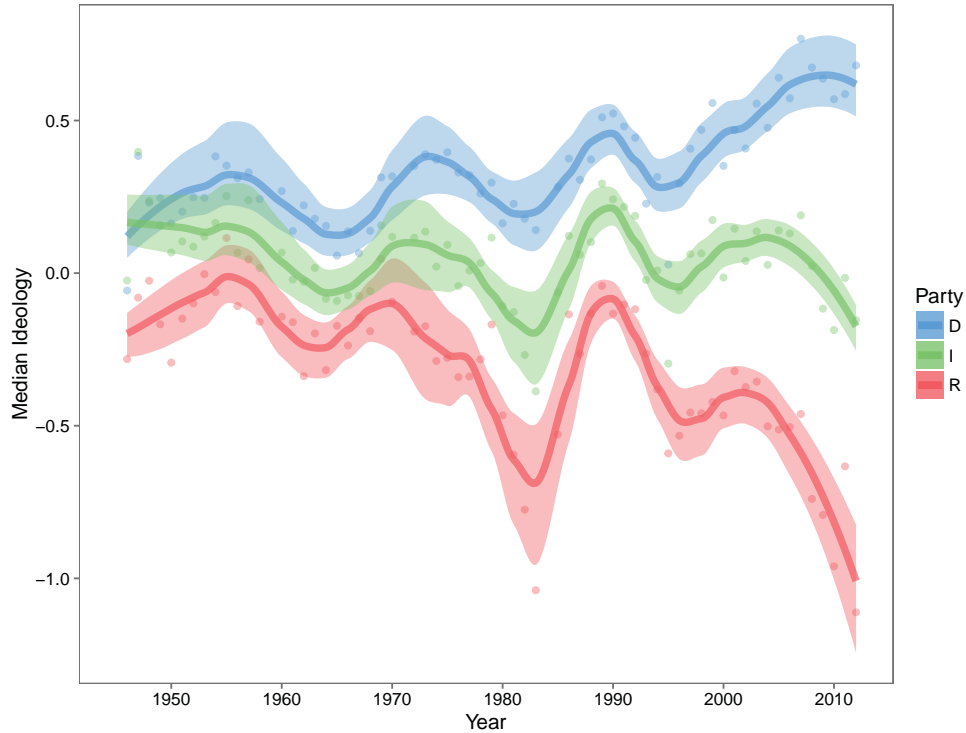


Figure 2: Partisan Divergence at the National Level. This plots shows the median ideology on economic issues of Democratic (blue), Independent (green), and Republican (red) party identifiers at the national-level over the past 70 years.

Overall, Figure 1 shows that Democrats and Republicans have sorted on a variety of individual issues. Our results are consistent with the growth in partisan sorting on individual issues highlighted by Abramowitz and Saunders (2008), Levendusky (2009b), Baldassarri and Gelman (2008), and others. However, it is possible that these issues are unrepresentative of the larger universe of policy issues. It is also difficult to compare trends overtime since no individual issues are comparable in an identical form across our entire time period. So next we turn to the results from our dynamic, group-level item response model of the American

public's ideology between 1946 and 2012. Figure 2 shows divergence between the two parties at the national level over the past 70 years. In the early part of the time period, there was virtually no difference between the ideology of Democrats and Independents at the national-level. Moreover, Republicans were only about .5 units to the right of these groups. By 1960, Independents were positioned roughly between the two parties. There also appears to be a gradually growing gap between Democratic and Republican party identifiers. This was generally caused by a shifting of the Democratic party to the left, perhaps as conservative Democrats left the Democratic party for the Republican party. The driver of this asymmetrical polarization changed in the 1990s and 2000s. During this period, the Republican party took a sharp turn to the right, driving nearly all of the change in polarization over the past two decades.

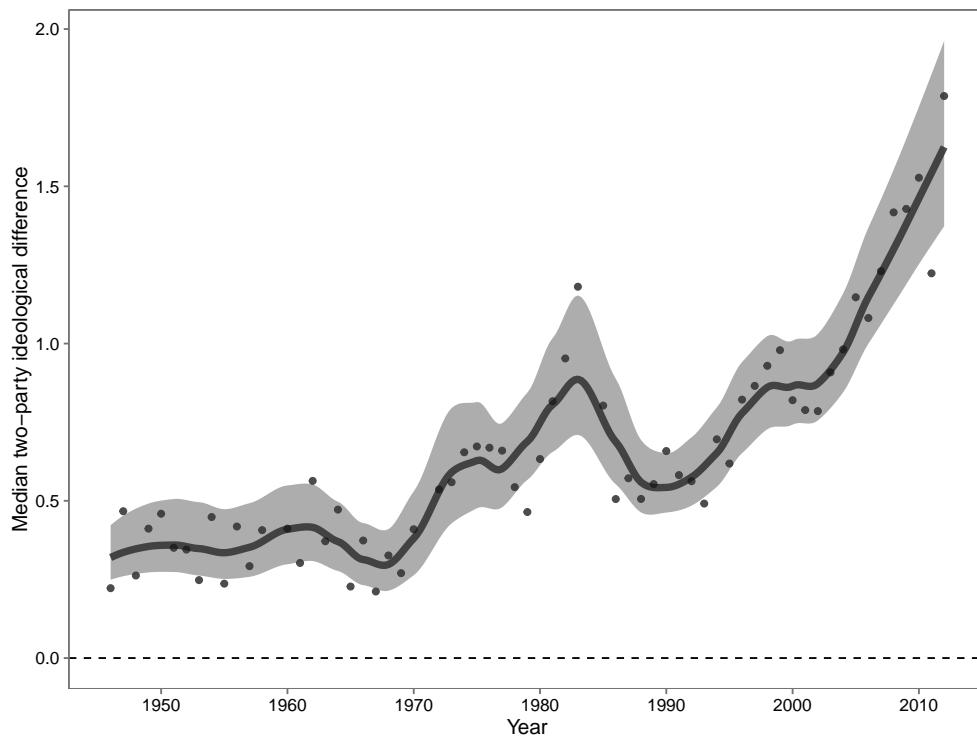


Figure 3: Ideological Difference Between Ideology of Parties at the National Level. This plots shows the difference between the economic ideology of Democratic and Republican party identifiers at the national-level over the past 70 years.

While it is easy to visualize changes in the absolute positions of the parties in Figure 2, it

is more difficult to visualize changes in the *difference* between the positions of Democrats and Republicans. As a result, Figure 3 shows the difference between the ideology of Democrats and Republicans at the national level over the last 7 decades.⁸ It indicates that the difference between the two parties' identifiers' average ideology was relatively modest in the 1940s and 1950s. Moreover, it stayed relatively constant until about 1970. The difference between the parties grew relatively linearly from 1970 to the present. Today, the difference between the parties is about four times as large as in 1950. This increase is consistent with the massive increase in the difference in the views of Democrats and Republicans on individual issues shown in Figure 1. It is also somewhat larger, though substantively consistent, with the findings from Hill and Tausanovitch (2016, Figure 6). Based on ANES data, they find that the gap between Democratic and Republican identifiers is nearly three times larger in 2012 as in 1956.

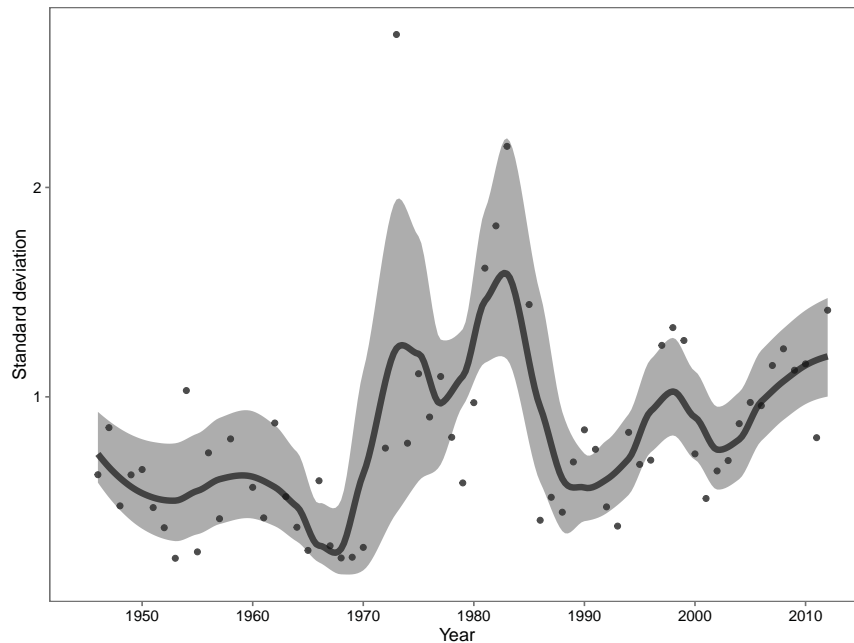


Figure 4: Ideological Polarization. This plots shows the variance in the ideology of the mass public over the past seventy years.

So far, we have shown that the difference between Democrats and Republicans has grown substantially over the past 70 years. However, as Fiorina and Abrams (2008) points out, the

⁸ Appendix A.1.2 shows how we calculated this quantity.

increasing divergence between Democrats and Republicans may not reflect increases in the extremity of the American public. To examine this question, Figure 4 shows the standard deviation of the American public’s ideology at the national level in each year between 1946 and 2012.⁹ It indicates that the American public’s ideological extremity, or polarization, has increased much less than the difference between the two parties. Indeed, polarization is only about 50% larger than in 1946, and smaller than it was in 1980. One factor contributing to the relatively modest growth in polarization over the past 70 years is that the public’s extremity on individual issues has not changed much since 1972 (Fiorina, Abrams, and Pope 2005; Levendusky 2009b). In addition, the correlation in individuals’ views across issues has remained largely constant in recent decades (Baldassarri and Gelman 2008), and continues to be relatively low today (Barber and Pope 2016).

5 Partisan Divergence at the State Level

In this section, we present our results on partisan sorting at the state-level. This analysis moves beyond existing work, which has all focused on the national-level. In general, our state-level results are consistent with the national-level ones. However, they indicate substantial heterogeneity across states. For instance, southern states were relatively unsorted on economic issues in the 1940s, while northern states were already quite sorted. Moreover, southern states saw much larger increases in the difference between Democrats and Republicans than northern states.

To begin, Figure 5 shows the ideology of individual state parties in 1946. While the Democratic parties in each state are more liberal than the Republican party, there were only modest differences in the ideology of Democratic and Republican identifiers in most states. The difference between the two parties appears to be particularly small in southern states such as Alabama and Mississippi. Another clear pattern is that the Democratic parties in many southern states are more conservative than the Republican parties in many northern

9. Appendix A.1.2 shows how we calculated this quantity.

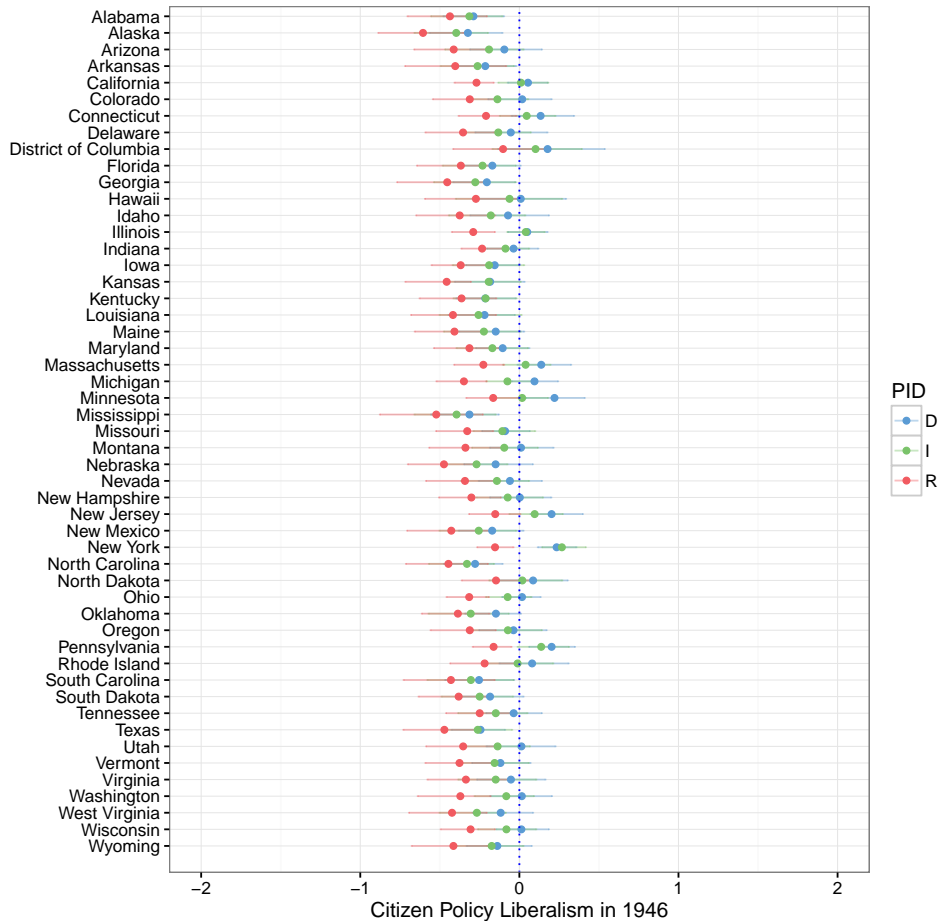


Figure 5: Ideology of State Parties in 1946. This plots shows the median ideology on economic issues of Democratic (blue), Independent (green), and Republican (red) party identifiers in each state in 1946.

states. For instance, compare the Democratic party in Alabama with the Republican party in Minnesota or New York.

Next, Figure 5 shows the ideology of individual state parties in 2012. Unlike in 1946, there are large and clear differences between the Democratic and Republican parties in every state. Moreover, there are only modest regional differences in the ideology of partisan identifiers. Democrats in every states, including southern states such as Alabama and South Carolina, are much more liberal than any state’s Republican party.

Moving beyond partisan sorting across states in 1946 and 2012, Figure 7 shows divergence between the two parties in four illustrative states over the past 70 years. It shows that there

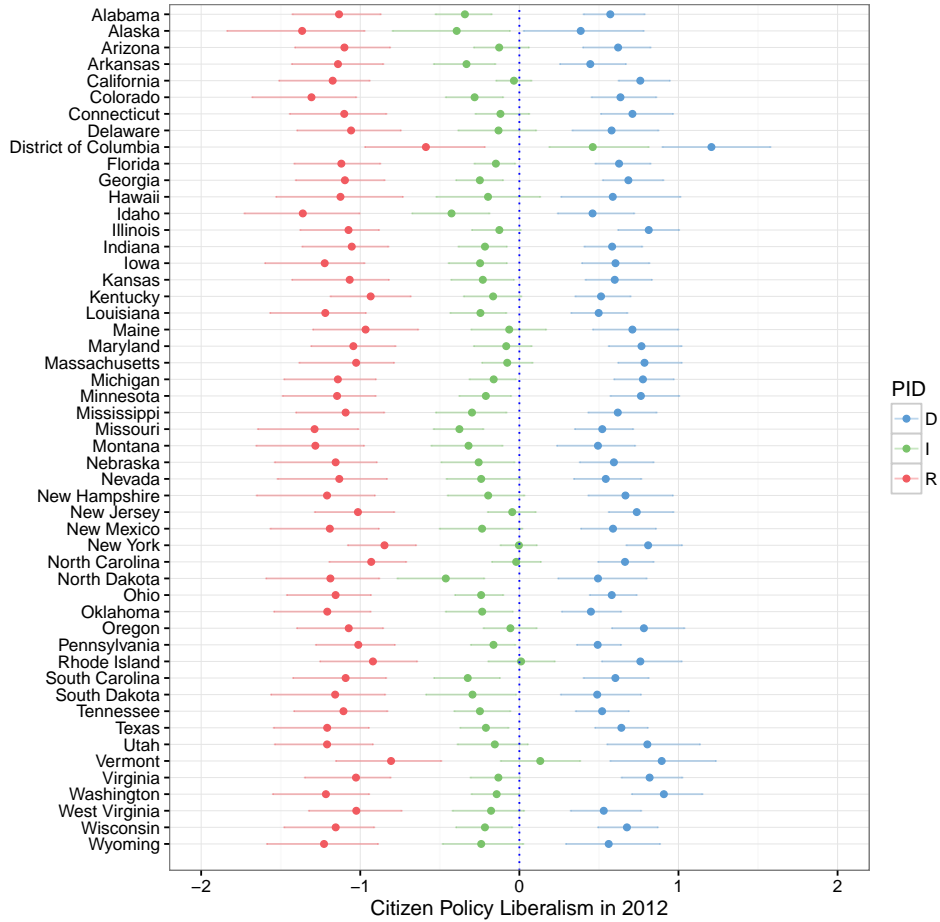


Figure 6: Ideology of State Parties in 2012. This plots shows the median ideology on economic issues of Democratic (blue), Independent (green), and Republican (red) party identifiers in each state in 2012.

is substantial variation in the relative positions of the two parties across states. In Idaho, the Democratic party has only moved modest to the left, while the Republican party has moved dramatically to the right. In New York, the Democratic party has moved somewhat more to the left, while the Republican party stayed relatively constant until the past decade, when it moved decisively to the right. In Maryland and South Carolina, partisan divergence appears to have also been driven by a increase in liberalism among Democrats until the last two decades, when Republicans too moved substantially toward the extreme end of our scale.

Finally, Figure 8 shows the difference between the ideology of Democrats and Republicans at the state level. It indicates that the difference between the two parties only grew modestly

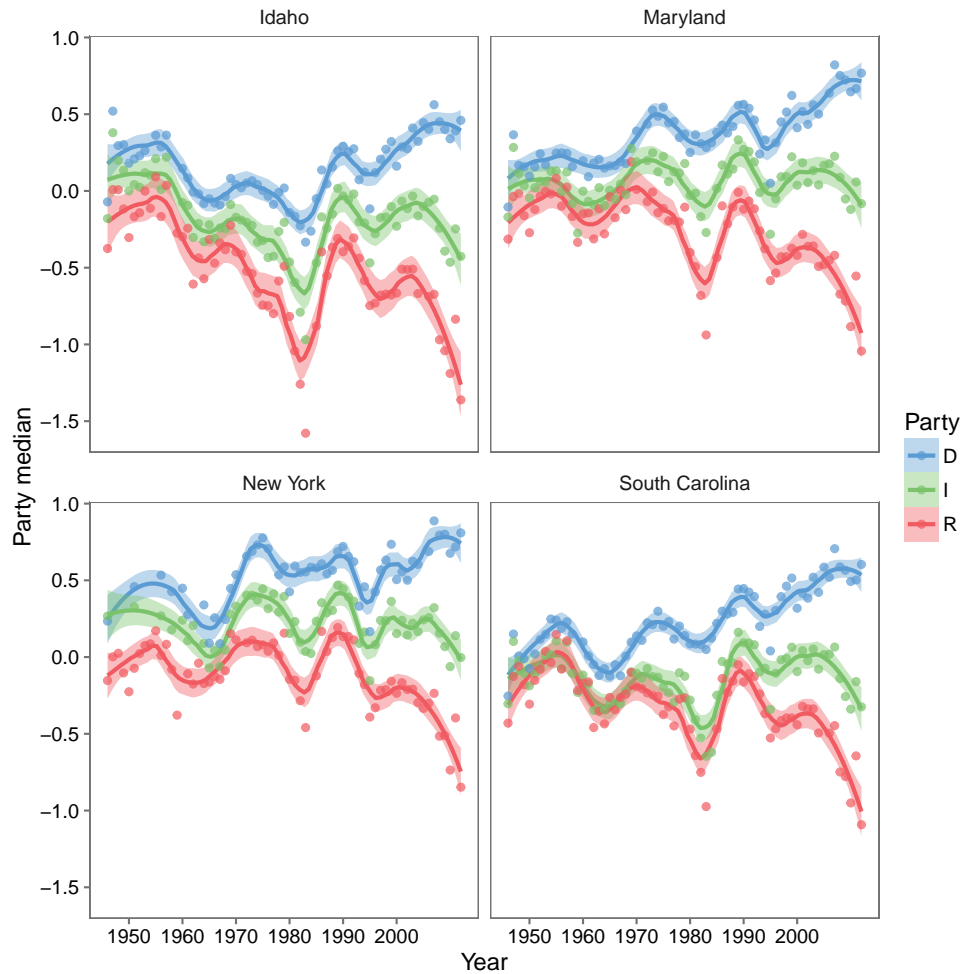


Figure 7: Partisan Divergence at the State Level. This plots shows the median ideology on economic issues of Democratic (blue), Independent (green), and Republican (red) party identifiers in four illustrative states (Idaho, New York, Maryland, and South Carolina) over the past 70 years.

in Idaho and New York from 1946-2000. But the difference between the two parties soared in the 2000s, and the gap between the parties in these states is now roughly four times as large as the gap in 1946. The difference between the two parties in Maryland and South Carolina grew substantially in the 1970s, and then again in the 2000s. The difference between the two parties in these states is now roughly five times as large as in 1946.

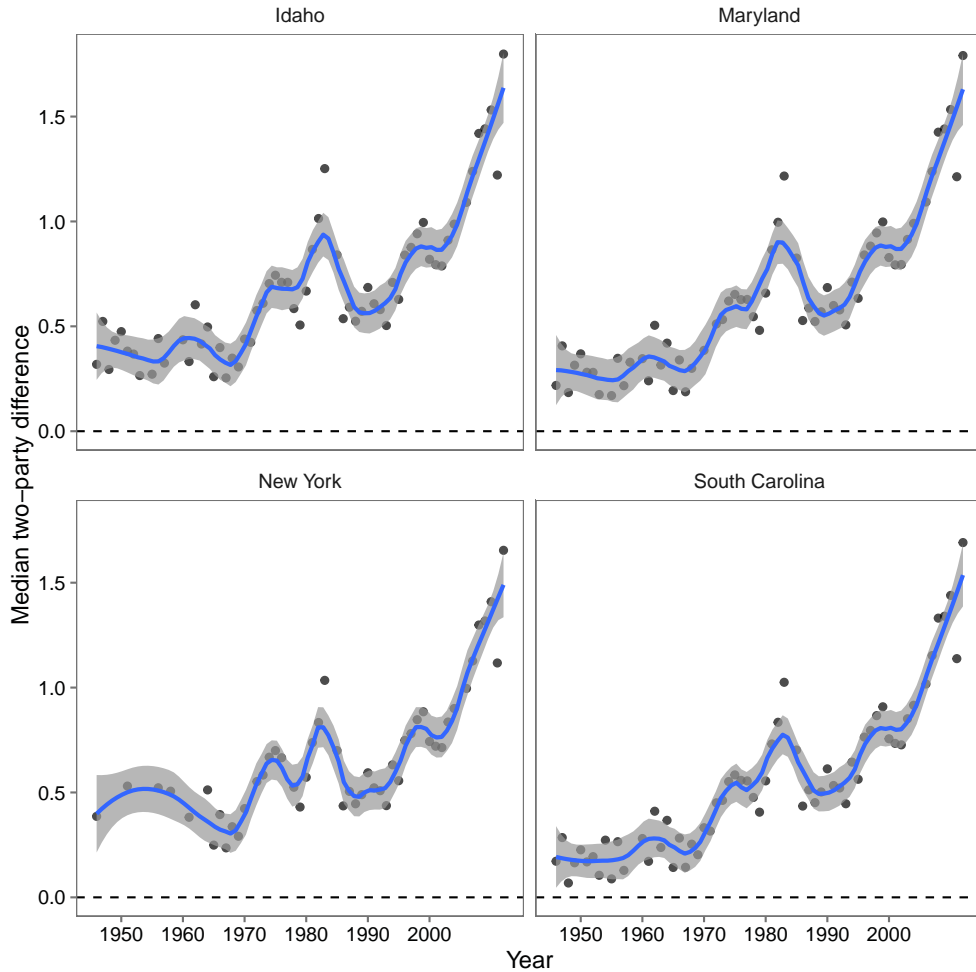


Figure 8: Difference Between Ideology of Parties at the State Level. This plots shows the difference between the economic ideology of Democratic and Republican party identifiers at the national-level over the past 70 years.

6 Conclusion

In this paper, we have examined polarization and partisan divergence in the American public on economic issues over the past 70 years. We have brought to bear a new dataset that contains over half a million respondents from hundreds of individual polls. This dataset contains the responses to nearly every survey question that has ever been asked on economic issues. We combined this dataset with a group-level item response model to measure the ideology of the American public between 1946 and 2012. Our analysis of polarization goes further back in time than previous studies – extending all the way back to the beginning of

the post-war era. Moreover, for the first time, we are able to examine partisan divergence at the state-level.

We find that the American public has only become modestly more polarized over the past 7 decades. However, the two parties are much more clearly sorted on economic issues today than in the middle of the 20th century. Today, every single state-level Democratic party is to the left of every state's Republican party. Moreover, members of the two parties are now further apart than ever before at both the state and federal levels. We estimate that the difference between the Democratic and Republican parties is roughly four times larger at the national level than in 1946. But in many states in the south, the gap between Democrats and Republicans is more than five times larger than it was in the 1940s.

Our results speak to debates about polarization. They also suggest that partisan divergence in the mass public may have contributed more to elite polarization than scholars have previously thought (e.g., Barber and McCarty 2015; Hill and Tausanovitch 2016). Indeed, the relative growth in partisan divergence at the mass level, particularly in many individual states, is much larger than the growth in elite polarization.

In future work, we plan to extend our measurement strategy beyond economic issues to examine changes in partisan divergence and polarization on social and racial issues as well (see, e.g., Layman and Carsey 2002). We also plan to examine the consequences of partisan divergence for representation and responsiveness at both the state and federal levels.

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A Supplementary Calculations

A.1 Polarization and Partisan Divergence

This appendix shows how we calculated several of the quantities discussed in more detail in the main body of the paper.

A.1.1 Polarization

This section shows how we derived our measure of polarization that we present in Figure 4.

$$\begin{aligned} \text{Polarization} &= \text{Total Standard Deviation} \\ &= \sqrt{\text{Total Variance}} \\ &= \sqrt{\text{var}(\theta_i)} \\ &= \sqrt{\text{Within-Group Variance} + \text{Between-Group Variance}} \\ &= \sqrt{\sigma_\theta^2 + \text{var}(\bar{\theta}_g)} \\ &= \sqrt{\sigma_\theta^2 + \frac{\sum w_g (\bar{\theta}_g)^2}{\sum w_g} - \frac{(\sum w_g \bar{\theta}_g)^2}{\sum w_g^2}} \\ &= \sqrt{\sigma_\theta^2 + \sum w_g (\bar{\theta}_g)^2 - (\sum w_g \bar{\theta}_g)^2} \quad \{\text{if } \sum w_g = 1\} \end{aligned}$$

A.1.2 Partisan Divergence

This section shows how we derived our measure of partisan divergence that we present in Figures 3 and 8.

Partisan Divergence = Democratic Mean – Republican Mean

$$\begin{aligned}
 &= \bar{\theta}_D - \bar{\theta}_R \\
 &= \frac{\sum_{g \in D} w_g \bar{\theta}_g}{\sum_{g \in D} w_g} - \frac{\sum_{g \in R} w_g \bar{\theta}_g}{\sum_{g \in R} w_g}
 \end{aligned}$$

A.1.3 Standardized Partisan Divergence

This section shows an alternative measure of partisan divergence that also incorporates changes in polarization (i.e., the variance of the distribution of ideology). We plan to incorporate this measure into future drafts of this paper.

Std. Partisan Divergence = (Dem. Mean – Rep. Mean)/(Total SD)

$$\begin{aligned}
 &= (\bar{\theta}_D - \bar{\theta}_R) / \sqrt{\text{var}(\theta_i)} \\
 &= \frac{(\sum_{g \in D} w_g \bar{\theta}_g) / (\sum_{g \in D} w_g) - (\sum_{g \in R} w_g \bar{\theta}_g) / (\sum_{g \in R} w_g)}{\sqrt{\sigma_\theta^2 + \sum w_g (\bar{\theta}_g)^2 / (\sum w_g) - (\sum w_g \bar{\theta}_g)^2 / (\sum w_g^2)}}
 \end{aligned}$$