

# Party Competition and Policy Liberalism

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## Abstract

Party competition is a bedrock concept in the study of state politics, relating to outcomes as varied as policy choices, policy congruence, political participation, and the quality of representation. Scholars have long argued that increased levels of party competition are also associated with more liberal policymaking. By this logic, parties in close competition with one another try to expand their base of support by catering to the desires of those who tend to abstain from the political process—the “have-nots.” Because these potential voters tend to favor more liberal policies, parties adopt more liberal policies in times of intense party competition. We expand this argument. Noting that this segment of society has cross-cutting preferences on social and economic policies, we argue that increased levels of party competition should be associated with more liberal economic and more conservative social policies. Relying on data encompassing state economic and social policies nationwide over several decades, our results support this argument.

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# 1 Introduction

Political scientists have studied parties, their formation, and their effect on policymaking for decades (e.g. Schattschneider 1960; Key 1949; Downs 1957; Campbell 1977). Parties reach their policy goals by attaining office and passing laws. In some places and times, a single party is dominant and has little chance of losing office in the next election (e.g. Key 1949); in other places and times, the major parties routinely alternate power. Scholars term the vigor with which parties alternate power party competition.

Party competition is one of the most important concepts in the study of state politics. Ranney (1965) claims that “of all the variables studied in the analysis of state party politics, the one receiving the most attention from political scientists has been ‘inter-party competition’ ” (63). Similarly, Jewell (1982) calls the concept “[o]ne of the most important dimensions along which states differ” (6).

This concept permeates our understanding of all three branches of government at the state level. Scholars of state legislative politics have examined the effect of party competition on, among other items, roll call voting (Wright and Schaffner 2002; Carroll and Eichorst 2013), position taking in elections and the chamber (Barrilleaux, Holbrook and Langer 2002; Wright and Schaffner 2002), and party polarization (Hinchliffe and Lee 2016). Studies examining governors have used party competition to explain the presence of third party challengers (Lem and Dowling 2006), who turns out to vote in elections (Hill and Leighley 1993), and how budget proposals are made and money is allocated (Rogers and Rogers 2000; Barrilleaux and Berkman 2003). Even students of judicial politics rely on party competition to predict the votes of state supreme court justices (Brace and Hall 1995), rates of litigation (Yates, Tankersley and Brace 2010), and voter behavior in judicial elections (Bonneau and Hall 2009; Hall 2015). In short, the competitiveness of the party system shapes an incredibly diverse array of political outcomes in the American states.

Perhaps the most famous prediction involving party competition in American state politics concerns the relationship between competition and the ideological valence of policy-

making. The conventional wisdom, dating back to Key (1949) and Schattschneider (1960), has established a crystal clear prediction: higher competition should be associated with more liberal policies. This prediction has received widespread support, leading one prominent scholar to go as far as to state that “Expectations about the effects of competition on policy-making are unambiguous” (Barrilleaux 1997, 1462). Unfortunately, most tests of this theory have relied on data encompassing only single policy areas or relatively short time periods. Moreover, these tests tend to treat state policymaking as homogenous, either because they generalize from a single issue area to statepolicymaking generally or because they rely upon measures that do not distinguish among types of state policies.

However, new advances in data availability enable us to reexamine this storied hypothesis. In addition to testing this hypothesis across a longer time period and with more attention to types of state policy liberalism than any existing study, we advance a novel theory that suggests that party competition has different effects on social and economic policymaking. We begin with Key’s (1949) finding that higher levels of interparty competition are associated with an expansion of the electorate, bringing routine nonvoters to the ballot box. These nonvoters tend to be society’s have-nots. Diverging from Key, we distinguish between social and economic policy. Noting that the haves and have-nots tend to espouse different preferences over these bundles of policy, we expect that higher levels of party competition will have different effects for social and liberal policy. Because society’s have-nots tend to favor liberal economic policy and conservative social policy, we test whether or not higher levels of interparty competition are associated with these outcomes.

We probe the relationship between party competition and policy liberalism since the Great Depression. Our results demonstrate that, while party competition has the positive effect on economic liberalism that Key (1949), Schattschneider (1960), and Barrilleaux (1997) suggested, it has *the exact opposite* effect on social liberalism: more competitive electoral environments lead to *less* social policy liberalism. These findings suggest that increased levels of party competition benefit a specific set of constituents—those who support more

economic aid and social conservatism.

## 2 Making Policy in the American States

Commonly, four factors predominate explanations of state-level policymaking: public opinion (Erikson, Wright and McIver 1989, 1993), the ideology of the lawmakers serving in government (Entman 1983; Erikson, Wright and McIver 1989, 1993), the party controlling the policymaking process (Dye 1984; Garand 1985; Erikson, Wright and McIver 1989, 1993), and the degree of competition between these parties (Barrilleaux 1997, 2000; Davies and Worden 2009). First, regarding public opinion, states with more liberal citizens are more likely to produce liberal policies (Erikson, Wright and McIver 1993). Second, the ideology of legislators is also demonstrated to impact their roll call votes in the expected manner; liberal members vote for liberal policies (Entman 1983).

While these first two factors are fairly robust predictors of the ideological valence of state policy, the relationship between party control, party competition, and policymaking is less clear.<sup>1</sup> Some research demonstrates Democratic control of government corresponds to more liberal policies (Dye 1984; Garand 1985) while others find the opposite (Erikson, Wright and McIver 1989). To square these disparate conclusions, Barrilleaux (1997, 2000) examines the interactive effect of competition and partisanship on policymaking. These

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<sup>1</sup>It is important to separate the desires of individual candidates and legislators from the goals of the party. While parties are both exogenous from, and endogenous to, candidates and policymakers, they have a duty to maintain their strength and assemble majority coalitions. Individual lawmakers may be incentivized to run toward their electoral base to secure future campaign resources, but parties must craft an agenda and platform that resonates with the state public at-large. While both parties are responsible for pushing policy in a decidedly ideological position (Dye 1984; Garand 1985; Erikson, Wright and McIver 1989, 1993), they must advance an agenda that appeals to the whole state or risk all of their candidates appearing out of touch.

studies demonstrate party competition increases policy liberalization and that absent inter-party competition both Democrats and Republicans are likely to moderate their positions (Barrilleaux 1997, 2000).

Regardless of the direction of the effect, scholars underscore the importance of competition for effective governance. Ranney (1965) argues that:

Most writers on the subject of state politics believe that a state's competitiveness is significantly related to other characteristics of its parties and politics. . . they generalize that the state parties facing the closest competition are likely to have the most centralized control of nominations, and the highest cohesion in state legislatures and in gubernatorial-legislative relations. Consequently, they are likely to be the most effective and responsible governing agencies (63).

Ranney does not stand alone. Aldrich (2011) draws a connection between party competition and the quality of governance: “[t]he South was solidly Democratic for a century, machines ruled in many cities and in some rural areas, and in such areas of one-party dominance there was for long periods effectively no competition for office by the opposing party. Thus articulation, aggregation, and accountability were all lost” (13, see also Aldrich and Griffin (2018)). Scholars have long believed that high levels of interparty competition will incentivize parties to improve the quality of representation they provide.

Many of these conclusions are generated, however, by examining a single policy area or by examining many laws during only a single year. For example, Dye (1984) and Barrilleaux, Holbrook and Langer (2002) examine the relationship between electoral competition and welfare policy while Erikson, Wright and McIver (1993) examine the correlation across a cross-sectional measure of state policy liberalism. While each of these studies has represented an important advance in our understanding of state policymaking, studies relying on single policy areas or single points in time raise questions of generalizability across policies or time.

We are fortunate that new, dynamic measures of state policy liberalism exist. Caughey and Warshaw (2016) develop a measure of policy liberalism based on nearly 150 different

policies dating back to the 1930s that is comparable across states and years. Caughey and Warshaw (2018) extend this data collection effort, creating separate measures of social and economic policy liberalism. The availability of new data allows us to reexamine these questions while differentiating between types of policies.

### **3 Why May Competition Lead to Liberal Policymaking**

Traditional expectations for the relationship between party competition and policy liberalism see variation in electoral participation as the glue that binds competitive elections and liberal state policies. High levels of competition are associated with increased levels of electoral participation (Flavin and Shufeldt 2015); therefore, the argument goes, high rates of competition should increase the quality of representation by encouraging parties to expand the voters they target. Blais (2000), summarizing 32 studies across time, space, and method, writes that there is a “crystal clear” relationship between the closeness of an election and turnout: individuals are more likely to vote in close elections (60). Moreover, the effect of closeness is not limited to increased spending by candidates or parties on mobilization (Blais 2000). Parties in close competition with one another will look to grow their base by targeting voters they believe will turn out, choosing between expanding toward the more ideologically extreme portions of the electorate and moderating their positions on the issues to attract the median voter.

The traditional explanation linking competition and policy liberalism favors the latter strategy: parties respond to increasing competition by targeting the “have-nots” (Key 1949; Downs 1957; Holbrook and Van Dunk 1993; Davies and Worden 2009). These “have-nots” are marginal voters—the sort of people who are likely to turn out in competitive elections but not in landslide elections—and their policy preferences tend to be less represented under low party competition. Key (1949) argues that:

Politics generally comes down, over the long run, to a conflict between those who have and those who have less. In state politics the crucial issues tend to turn

around taxation and expenditure. . . [O]ver the long run the have-nots lose in a disorganized politics. They have no mechanism through which to act and their wishes find expression in fitful rebellions led by transient demagogues who gain their confidence but often have neither the technical competence nor the stable base of political power to effectuate a program (307).

Key is not alone. Indeed, Schattschneider (1960) contends that “one-party politics tends to strongly vest political power in the hands of people who already have economic power” (80). In this way, areas with low competition tend to have conservative policies because elites have little need to represent the more liberal preferences of the have-nots.

Increased electoral participation can remedy this conservative bias. Key (1949) writes: “The have-have-not match is settled in part by the fact that substantial numbers of the have-nots never get into the ring. For that reason, professional politicians often have no incentive to appeal to the have-nots” (308).<sup>2</sup> Because higher levels of competition also tend to be higher turnout elections, and those non-habitual voters that only turn out in competitive elections tend to be have-nots, the median voter in competitive elections tends to be more liberal, incentivizing politicians facing high levels of competition to appeal to a more liberal electorate than they would otherwise target.

More recent scholarship has validated Key’s intuition. Hill and Leighley (1992) demonstrate there is a negative relationship between a class bias in state electorates and redistributive state policies; more generous redistributive policies are associated with the participation of the poor in the electoral politics. Hill, Leighley and Hinton-Anderson (1995) examine the relationship between the mobilization of lower-class voters and the generosity of a state’s welfare policy, demonstrating that higher rates of lower-class voting are associated with more generous welfare policies, exactly as Key suggested.

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<sup>2</sup>Schattschneider sang a similar tune: “in one-party areas (areas of extreme sectionalism) votes decline in value because the voters no longer have a valuable party alternative” leading to low voter turnout (180).

Taken together, Key and others suggest that, because (a) party competition increases electoral participation and (b) those mobilized by this competition tend to be “have-nots” who favor liberal policies, increased party competition should lead policymakers to pass policies that are more liberal than those they would have passed in the absence of such competition.

#### 4 Is This Always True?

States pass a heterogeneous bundle of policies. Some issues are more salient than others to voters and, by extension, more important in electoral campaigns (Stokes and Miller 1962; Kingdon 1966; Jennings and Zeigler 1970; Carmines and Stimson 1980; Carpini, Keeter and Kenamer 1994; Bianco 1994). One major distinction between policies concerns whether they affect economic or social policies. Existing explanations linking competition to policy liberalism tend to focus on either economic policy (e.g Barrilleaux 1997) or a bundle of state policies (e.g. Erikson, Wright and McIver 1993). This makes sense; in his original formulation of this expectation, Key (1949) refers specifically to *economic* policy. We extend this theory to the domain of *social* policy, as well.

Social policy differs from economic policy in several important ways. First, much of a state’s budget is constrained by their laws and constitution, level of indebtedness, amount of federal transfers, and economic health (Bunche 1991; Poterba 1994). While lawmakers may desire to move the budget strongly in one direction, they are often stymied by the economic realities and legal environment in which they operate. Second, social policy is easier for citizens to understand and take positions on (Carmines and Stimson 1980). These issues attract more attention and parties may come to believe their electoral fortunes ride more highly on these bills. While it is unlikely that citizens will take firm positions on the allocation of the state’s budget, it is far more likely that they can express an opinion on a social concern (e.g. abortion) and remain invested in this position for a considerable length of time. Finally, there is empirical support for high degrees of policy responsiveness among



social policies (Lax and Phillips 2009, 2012). While there is qualified support for policy responsiveness on economic issues (Pacheco 2013), its effect is stronger when examining social issues, like gay rights (Lax and Phillips 2009). For these reasons, Caughey and Warshaw (2018) note that policy responsiveness to voters should be weaker on economic issues than social issues.

Perhaps most importantly, however, class-level preferences on social policy cross-cut their positions on social issues. For example, Flavin (2011) reports that low-income citizens are 6% more likely to report a belief that abortion should be banned completely, compared to high-income citizens. Similarly, Ansolabehere, Rodden and Jr. (2006) find that lower-class voters are more conservative on moral issues than upper-class voters. Gilens (2009) reaches a similar conclusion in his analysis of more than 1,700 survey questions; while low-income Americans are strong supporters of many redistributive policies, they tend to be more conservative on many social issues, including abortion policy, stem cell research, and gay rights.<sup>3</sup>

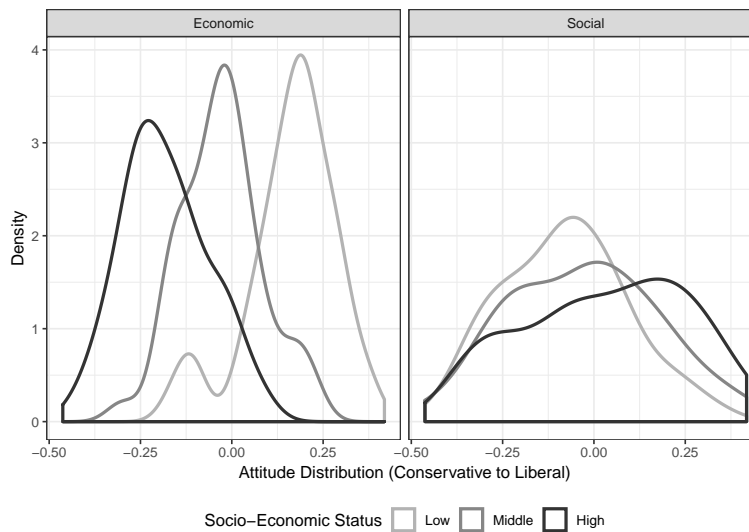


Figure 1: Smoothed distribution of economic and social attitudes by socio-economic status. Data from Rigby and Wright (2013).

<sup>3</sup>This view is not unanimous. Soroka and Wlezien (2008) argue that “differences in preferences across income brackets are in fact small and insignificant” (309).

In short, and as Rigby and Wright (2013) explain, “higher-income Americans tend to be more conservative than the poor on economic issues, but more liberal on social and moral issues” (554). Figure 1 illustrates this relationship, plotting the smoothed distribution of economic and social attitudes by socio-economic status from Rigby and Wright (2013). Those authors measure average attitudes for citizens with low, middle and high income (divided into equally-sized groups by state income percentiles) for 47 states in the year 2000. Economic attitudes are distributed as expected: Low-SES citizens have the most economically liberal attitudes, and the differences between the three income classes are fairly pronounced. For example, the most liberal respondents in the high-income group are about as liberal as the average respondent in the low-income group. On the social policy dimension, *the ordering of the three groups is reversed*. On issues of social policy, low-SES citizens have the most conservative attitudes. Importantly, however, the differences in social attitudes between the three groups are not as large as on the economic dimension. At the conservative end of the spectrum, the three groups are almost equally well-represented, and while high-income respondents lean liberal, there is still a substantial number of them on the conservative side.

This cross-cutting opinion structure suggests that the relationship between overall policy liberalism and competition may differ on social issues than economic issues. In particular, since (a) increased competition incentivizes politicians to appeal to marginal voters, (b) marginal voters tend to have preferences aligned with the have-nots in society, and (c) have-nots have cross-cutting preferences on social and economic issues, we have different expectations for the relationship between competition and social and economic liberalism.

$H_1$ : Regarding economic policy, we expect parties to cater to the have-nots increasingly as competition for office increases. Under these conditions, parties will increasingly pass legislation expanding the benefits received by ordinary citizens. Because have-nots prefer economically liberal policies, there should be a positive relationship between competition and economic liberalism, as Key (1949) and others suggested.

$H_2$ : Because have-nots tend to prefer socially conservative policies, more party competition

should be associated with socially conservative policies.

## 5 Research Design and Data

Testing these hypotheses requires repeated measures of policy liberalism and party competition for each state over time. We now describe how we operationalize these concepts, provide descriptive statistics for each, and explain our strategy for assessing our hypotheses.

We test our hypotheses using measures of economic and social policy liberalism estimated by Caughey and Warshaw (2018). These variables, which are the output of a latent variable model incorporating information on the adoption of nearly 150 policies between 1936 and 2014, range from -2.51-2.73 (Social) and -2.24-3.13 (Economic). Both variables have a mean of 0 and standard deviations of 0.87 (Social) and 0.94 (Economic).

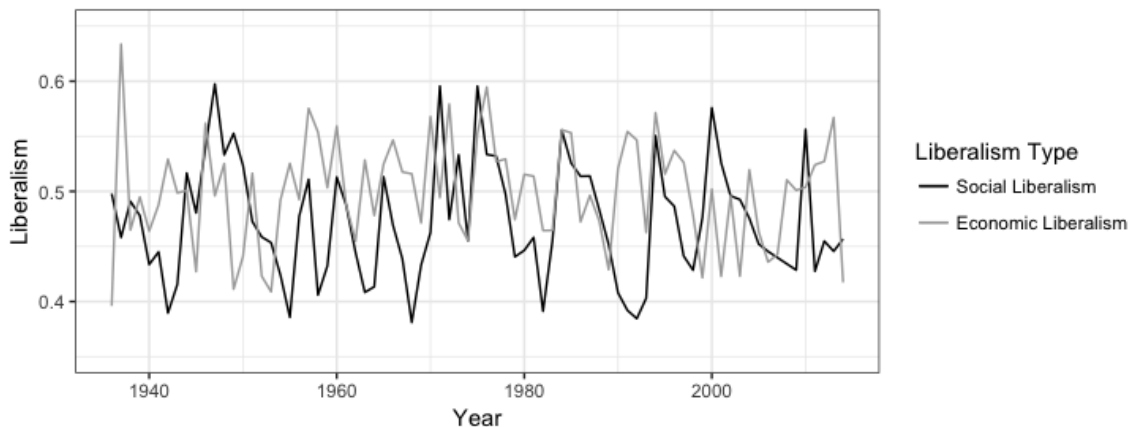


Figure 2: Median values of policy liberalism, by year. Data from Caughey and Warshaw (2018).

Table 2 shows the median values of each of the three variables by year. Overall, there is no clear trend in the series by year (a bivariate regression yields p-values of  $p=0.11$  Social and  $p=0.31$  Economic for the slopes). Unsurprisingly, the two measures are highly correlated:  $r = 0.72$ .

To measure party competition, we turn to the Folded Ranney Index. The original (unfolded) Ranney index assesses for the competitiveness of the party in government by including the proportion of seats won by the Democratic party in the legislature, the percent

of the vote received by the Democratic candidate for governor, and the percent of the time Democrats control both the executive and legislative branches (Ranney 1976). A single score is calculated by averaging these three items together over a number of years to account for the timing of gubernatorial and legislative elections as well as to smooth out high and low values that may be the product of one aberrant election cycle. The Ranney Index, therefore, measures the strength of the Democratic (or Republican) party in government. Scholars interested in the level of *competition* between the parties for control of government more explicitly have “folded” the Ranney Index over its midpoint to create a measure where higher values are associated with more competition and lower values, one-party dominance. The variable ranges from 0.50 to 1.00 with a median of 0.86 and a standard deviation of 0.13.<sup>4</sup>

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<sup>4</sup>Our focus in this paper is *party competition*, rather than *electoral competition*. *Party competition* refers to the frequency with which the major parties alternate control of government. Ranney (1976), for example, measures this concept by assessing the number of seats a party holds in the legislative branch, the party’s control of the executive branch, and the presence of unified government. *Electoral competition*, by contrast, refers to the vulnerability of a given legislator seeking reelection absent partisan considerations. In early studies, this concept was operationalized by comparing the votes received by the winner to candidate receiving the next most (Jewell and Breaux 1988; Weber, Tucker and Brace 1991) or aggregating the margin of victory to the state level (Anderson 1997; Berry, Berkman and Schneiderman 2000). More recently, Holbrook and Van Dunk (1993) developed a state-level measure of electoral competition that incorporates the percent of votes received by the winning candidates, their margin of victory, the number of seats considered safe, and the number of races in which both major parties are running a candidate. While these two concepts are positively correlated, they are distinct conceptually (Shufeldt and Flavin 2012) and often have different effects on policymaking (Barrilleaux 1997). We discuss the theoretical and empirical differences for the two concepts as applied to our theory and data analysis in the appendix.

Our unit of analysis is the state-year, and our dataset is a panel. Each of our outcome measures is continuous, so we rely on linear regression to test our hypotheses. We estimate a series of regression models using two-way state and year fixed effects to account for within-state and within-year confounding factors. To assess the robustness of our findings to various aggregations of the Folded Ranney index, we estimate each model using 4-, 6-, 8-, and 10-year time aggregations for each measure of competition. Our data begin in the late 1930's (depending on the time aggregation) and end in 2014.

Because we employ fixed effects for state and year, the gravest threats to inference are confounding factors that vary within states over time and are related to both competition and policy liberalism.<sup>5</sup> Therefore, in addition to estimating the bivariate relationship between competition and policy liberalism, we also estimate another series of models that included lagged controls for three factors—public opinion, gubernatorial control, and legislative control—that relate to both policy liberalism and competition and vary within states over time.

First, Caughey and Warshaw (2018) provide measures of public opinion toward social and economic liberalism; we include those concepts in the models that assess those concepts, respectively. Again, these variables are the output of a latent variable model; they range from -1.25-3.14 (Social) and -0.94-0.65 (Economic) with means of 0 and standard deviations of 0.54 (Social) and 0.22 (Economic). The two variables are not strongly correlated:  $r = -0.14$ . Second, to measure control of the state legislature, we rely on Klarner's (2013) measure of the proportion of state lower chamber seats held by the Democratic party.<sup>6</sup> This variable has a median of 0.57 and a standard deviation of 0.23. Finally, to measure gubernatorial

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<sup>5</sup>Given Angrist and Pischke's (2009) warning that a lagged dependent variable in a model with fixed effects can lead to biased coefficients, we do not include a lagged dependent variable in our models.

<sup>6</sup>As a result, when we estimate models with these control variables, we drop state-years with nonpartisan legislatures.

control, we rely on Klarner’s (2013) measure. The variable takes a value of 0 for a Republican governor, 1 for a Democratic governor, and 0.5 for a non-major party governor. The modal state during this time period has a Democratic governor.

## 6 Results

We discuss our results in three stages. First, we examine the results for a series of bivariate regressions. Second, we account for a series of time-varying, within-state factors that might confound our analysis, demonstrating that our results hold. Third, we account for the additional amount of uncertainty that is inherent in the Caughey and Warshaw (2018) latent variable estimates.

### 6.1 Bivariate Relationship

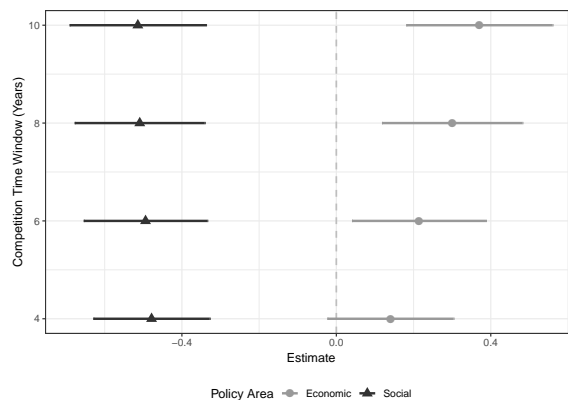


Figure 3: Results of bivariate linear regressions of party competition (the Folded Ranney index) on policy liberalism for 4-, 6-, 8-, and 10- year levels of aggregation. Each point corresponds to the coefficient estimate for competition in a linear regression model. The figure includes 95% confidence intervals for each estimate.

We begin by examining the bivariate relationship between competition (both party and electoral) and policy liberalism (both social and economic). These bivariate results are shown in Figure 3. The y-axis refers to the level of aggregation ( $t$  number of years) used to calculate the measure of competition. Each point shows the coefficient for competition in a linear regression model with state and year fixed effects. The shape of the points shows the dependent variable—social or economic liberalism—in the model.

The clearest conclusion from Figure 3 is that the measures of competition relate differently to both dependent variables. Beginning with social liberalism (the triangles in Figure 3), the result of each linear regression model is unanimous: increased party competition is associated with *less* social liberalism. The size of these effects are moderate, with a change across the range in the 6-year competition measure resulting in a 0.49 unit decrease in social liberalism. This is comparable to going from Michigan to North Dakota in 2010. These findings stand in stark contrast to the conventional wisdom that competition leads to unambiguously more liberal state policies, suggesting that social conservatives are advantaged in times and places with high levels of party competition.

Next, we examine the relationship between economic liberalism and competition, plotted with circular points. Here, the evidence supports a positive relationship between between party competition and economically liberal policies, especially for those models that use a longer time aggregation to calculate competition. The effect sizes are again substantively important, with a change across the range of 6-year competition resulting in a 0.21 unit increase in economic liberalism—roughly the difference between Arizona to Texas in 2010. In short, the results provide strong support for the hypotheses we have outlined and suggest that Key’s original theory holds for economic policy—which, admittedly, was the focus of Key’s original analysis—but not for social policy.

## 6.2 Accounting for Potential Confounding Influences

Of course, the results in Figure 3 do not account for any possible confounding influences. Figure 4 therefore reproduces the models in the previous figure, controlling for public opinion, gubernatorial partisan control, and legislative control. Table 1 provides numeric regression results.

Looking at Figure 4, the relationships we observed in the previous section persist—and even strengthen—when accounting for the effects of public opinion, the composition of the legislature, and the partisanship of the governor. There is robust evidence of a positive relationship between competition policy liberalism once we control other factors. Moreover,

Table 1: Results of linear regressions of party competition (the Folded Ranney index) on policy liberalism for 4-, 6-, 8-, and 10-year levels of aggregation. The models include lagged controls for public opinion, legislative control, and gubernatorial control as well as state and year fixed effects.

	<i>Dependent variable:</i>							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Folded Ranney Index (4 Years)	-0.299*** (0.075)				0.622*** (0.077)			
Folded Ranney Index (6 Years)		-0.292*** (0.080)				0.740*** (0.082)		
Folded Ranney Index (8 Years)			-0.276*** (0.085)				0.865*** (0.087)	
Folded Ranney Index (10 Years)				-0.223** (0.089)				0.997*** (0.091)
Mass Social Liberalism (t-1)	0.675*** (0.039)	0.664*** (0.039)	0.658*** (0.039)	0.659*** (0.040)				
Mass Economic Liberalism (t-1)					1.045*** (0.068)	1.044*** (0.069)	1.044*** (0.069)	1.058*** (0.070)
Gubernatorial PID (t-1)	0.023 (0.015)	0.024 (0.016)	0.024 (0.016)	0.029* (0.016)	0.045*** (0.016)	0.047*** (0.016)	0.048*** (0.016)	0.047*** (0.016)
Legislative Strength (t-1)	0.277*** (0.057)	0.283*** (0.059)	0.297*** (0.060)	0.302*** (0.062)	1.176*** (0.057)	1.192*** (0.059)	1.179*** (0.060)	1.169*** (0.061)
Constant	0.188 (0.120)	0.219* (0.120)	0.194 (0.124)	0.233* (0.125)	-0.938*** (0.123)	-0.902*** (0.123)	-0.736*** (0.129)	-0.821*** (0.128)
State Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,443	3,347	3,251	3,155	3,443	3,347	3,251	3,155
R <sup>2</sup>	0.798	0.801	0.806	0.812	0.821	0.825	0.830	0.837
Adjusted R <sup>2</sup>	0.790	0.794	0.799	0.804	0.815	0.819	0.824	0.830

*Note:* \*p<0.1, \*\*p<0.05, \*\*\*p<0.01



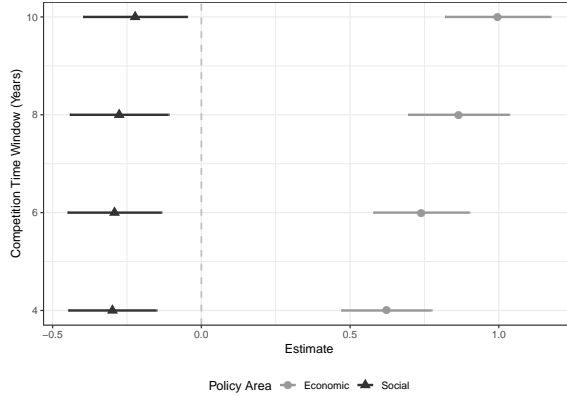


Figure 4: Results of linear regressions of party competition (the Folded Ranney index) on policy liberalism for 4-, 6-, 8-, and 10- year levels of aggregation. The models include lagged controls for public opinion, legislative control, and gubernatorial control. Each point corresponds to the coefficient estimate for competition in a linear regression model. The figure includes 95% confidence intervals for each estimate.

the direction of the effect continues to differ for the two dependent variables: more intense party competition is associated with a decrease in social policy liberalism but an increase in economic liberalism. For example, a change across the range of the 4-year Folded Ranney measure results in a 0.3 unit decrease in social policy liberalism—roughly equivalent to going from Oregon to New Hampshire in 2010. On the economic dimension, the same change yields a 0.62 unit increase in policy liberalism—approximately the difference between South Carolina and Virginia.

The control variables generally perform as expected. Moreover, they provide additional evidence in support of the relationship between party competition and policy liberalism discussed above. More Democratic legislative strength is associated with more liberal social, and economic policies. Democratic governors are associated with liberal economic policy, though the relationship between gubernatorial control and social policy is less apparent. The same is generally true for public opinion: more liberal publics tend to get more liberal policies. In short, the inclusion of these control variables has little effects on the conclusions we draw from these models.

### 6.3 Accounting for Uncertainty

Since our measures of state policy liberalism are themselves model estimates with their own associated uncertainty, there is a degree of error around the point estimates we employ. Readers may be concerned that this uncertainty leads the results presented in the previous section to be crisper than they would be if they accounted for this additional source of error. We therefore reestimated the models to incorporate this error by resampling from the posterior distribution of the state policy economic/social liberalism measure 1000 times and using these samples as our outcome variables. This means that the new, re-sampled measure of state-year policy liberalism is a draw from a normal distribution, with its mean the Caughey and Warshaw measure for that state-year, and its standard deviation the standard error of that measure. Effectively, this means that we create 1000 datasets, which differ randomly on  $Y$ . Each of these draws is then regressed on our measure of competition—the Folded Ranney index—as well as the same control variables used in the previous section. Again, the models employ state and year fixed effects. We combined the results of these 1000 regressions through the multiple imputation method developed by Rubin (1987) and used by Schnakenberg and Fariss (2014) in a similar context.<sup>7</sup>

The results of the uncertainty regression are shown in Figure 5. Due to the considerable amount of uncertainty contained within the Caughey and Warshaw (2018) measures, we present these findings in the form of a sensitivity analysis. The topmost estimates and corresponding 95% confidence intervals (at 1 on the y-axis) show the results of the uncer-

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<sup>7</sup>The coefficient estimates of the  $m$  (in our case 1000) datasets and therefore regressions are averaged, whereas the standard errors are calculated according to the following formula:

$$\sqrt{\frac{1}{m} \sum_{k=1}^m s_k^2 + \left(1 + \frac{1}{m}\right) \sigma_\beta^2}$$

where  $s_k^2$  is the within-dataset variance in standard errors, and  $\sigma_\beta^2$  is the between-dataset variance in coefficients.

tainty regression as described above. Going down the y-axis, the estimates correspond to an uncertainty regression wherein the standard errors of the Caughey and Warshaw (2018) measures were multiplied by the respective number on the y-axis. This means that at  $y = 0$ , the result is equivalent to the regression results presented in Figure 4. As such, this figure illustrates the results with a range of uncertainty in the latent variables.

The upper row of the figure, which plots the results of the regressions using economic policy as the outcome variable, demonstrates that controlling for uncertainty has a fairly small impact on our findings with respect to economic policy. Going from  $y = 0$  to  $y = 1$  results in only a moderate increase in the confidence intervals, owing to the fact that the economic state policy measure contains relatively little uncertainty. The confidence intervals do not overlap with zero at any point. Our finding of an increase in party competition leading to an increase in state economic policy liberalism remains statistically significant at all points.

The social policy liberalism measure, on the other hand, is less reliable.<sup>8</sup> These results are shown in the bottom row of Figure 5. For the 4-year Folded Ranney index, the estimate for the full impact of the uncertainty regression (i.e.  $y = 1$ ) closely misses out on statistical significance at the 5% level (but remains statistically significant at the 6% level—see Table 5 in the Appendix). For the other three aggregations of the Folded Ranney index, the estimate itself is closer to zero and the 95% confidence intervals become larger, resulting in overlap with zero (and therefore a lack of statistical significance) in the most stringent of these tests.

Overall, the positive and significant correlation between economic policy liberalism and competition throughout all iterations of the uncertainty analysis supports Hypothesis 1.

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<sup>8</sup>This increased uncertainty exists, in part, because the social policy estimates are created entirely using categorical variables. Empirically, the social policy measure for a given state can vary much more widely between years, and it sometimes changes even without any actual changes in policy for that year (to account for overall trends across states). These factors all lead to greater uncertainty.

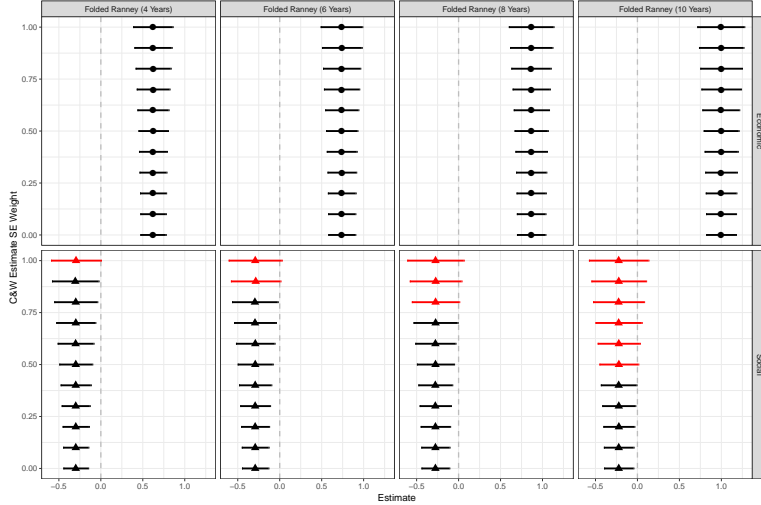


Figure 5: Results of an uncertainty regression, wherein the dependent variable, Caughey & Warshaw’s state social/economic policy liberalism measure is regressed on the Folded Ranney index. The topmost results in both row ( $y = 1$ ) correspond to the full extent of the uncertainty test, whereas the bottom rows ( $y = 0$ ) are equivalent to the regular regression results. Overlap with zero, corresponding to lack of statistical significance, is marked in red. Overall, the findings are mostly robust to the use of an uncertainty regression, although the more wide-ranging Folded Ranney measures lose statistical significance under the most stringent circumstances for the social policy model.

Hypothesis 2—competition causes state social policy liberalism to move in the conservative direction favored by the have-nots—is still supported for most of the versions of this test, albeit not its most rigorous iterations. The results of the uncertainty analysis with unweighted standard errors (i.e. corresponding to  $y = 1$  in figure 5) can also be found in Table 5.

## 7 Conclusion

Competition—between parties and in the electoral arena—is one of the most widely-invoked concepts in the study of political science, especially the comparative study of state politics. Understanding the relationship between this concept and the ideological direction of state policymaking is essential for a full understanding of state politics. In this paper, we reexamined the relationship between party competition and state policy liberalism.

This relationship has a long history in the literature, dating back to Key’s (1949) suggestion that “A loose factional system lacks the power to carry out sustained programs of

action, which almost always are thought by the better element to be contrary to its immediate interests. This negative weakness thus redounds to the benefit of the upper brackets” (308). With this in mind, scholars have long claimed a positive relationship between party competition and policy liberalism. Our results—drawing upon a longer time period and more expansive set of state policies than any existing study of this relationship—both confirm and challenge Key’s intuition.

First, to the extent that Key’s hypothesis was carefully limited to *economic* policy, we have found robust evidence that higher rates of Democratic control of legislatures is positively associated with more liberal economic and social policies. The amount of competition between the parties seeking power in a state matters, in part, because it shapes the ideological valence of the legislation that emerges from government institutions.

At the same time, in perhaps this manuscript’s most important contribution, we have uncovered a *negative* relationship between social liberalism and party competition. Given that society’s have-nots tend to have cross-cutting preferences on social and economic liberalism, our results extend Key’s theory beyond the economic realm. These results provide further evidence for the mechanism stated by Key and additionally suggest that enhanced party competition is particularly beneficial for those individuals who support *both* socially conservative and economically liberal policies.

Finally, we must also acknowledge research demonstrating some of the most marginal members of Congress to be among the least responsive (Miller 1970; Fiorina 1974; Deckard 1976; Ansolabehere et al. 2001). Comparing the roll call votes of congresspersons to the opinions of their districts, Miller (1970) finds a strong positive relationship on social welfare and civil rights issues; however, when examining the votes of members from marginal districts, there is no relationship between the two. This is further validated in Gulati (2004), who shows legislators from safe seats to be more responsive to the ideological center of their constituencies than those in who ran more competitive races. Members running in competitive races face an incentive to increase their base of support to ensure access to the resources

necessary to mount successful campaigns in the future. Our results—which aggregate competition across time—stand in stark contrast to these studies that examine responsiveness at the level of the individual legislator. Future research should examine how the process of aggregation from the legislator to the state level affects the relationship between competition and responsiveness.

In sum, however, our results provide an important theoretical and empirical extension of our existing understanding of the relationship between competition and policy liberalism. By demonstrating that the mechanism—the movement of the median voter—appears to hold in the social policy domain as well as with regard as economic policy, our results help to broaden our understanding of the connection between the electoral and policy realms of state government, providing further evidence that the obstacles politicians face to keep their jobs affect the types of policies they enact.

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## Appendix: Electoral Competition

### Comparing Party and Electoral Competition

The theory and discussion presented in the body of the paper focuses on *party competition* as measured with the Folded Ranney Index. However, the literature on competition in the American states varies in the emphasis it places on competition in individual electoral contests versus competition for a party's control of government. One might expect that the same mechanism might connect electoral competition and policy liberalism. It is electoral competition, after all, that motivates party leaders to expand their base of support and extend an olive branch to those who traditionally do not participate in the political process, the have-nots. Indeed, in their classic work on electoral competition in the U.S. states Holbrook and Van Dunk (1993) suggest:

[E]lected officials in competitive areas will be highly responsive to constituency needs, due to the risk of electoral defeat. . . [D]ue to higher overall levels of voter participation in competitive environments, lower socioeconomic class interests will constitute a greater share of the electorate in competitive states than in non-competitive states. Therefore, in striving to represent the interests of their constituents, elected officials in competitive states will provide benefits to lower socioeconomic interests to a greater degree—and will display a greater propensity to support liberal policies (955).

However, because *parties* (and not individual legislators) control the passage of legislation in the states, we expect the results to be less pronounced for this measure of competition; this is one reason why the analysis in the paper focuses on party competition.

Still, we also examined the effect of electoral competition on policy liberalism. Holbrook and Van Dunk (1993) (HVD) developed a measure of district-level electoral competition, incorporating the percent of the vote received by the winning candidate, their margin of victory (to account for more than two candidates), if the seat is considered safe (was won

Table 2: Results of linear regressions of electoral competition (the HVD index) on policy liberalism for 4-, 6-, 8-, and 10-year levels of aggregation. The models include lagged controls for public opinion, legislative control, and gubernatorial control as well as state and year fixed effects.

	<i>Dependent variable:</i>							
	Social Policy Liberalism				Economic Policy Liberalism			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HVD Index (4 Years)	-0.183 (0.121)				0.654*** (0.121)			
HVD Index (6 Years)		-0.237* (0.131)				0.814*** (0.131)		
HVD Index (8 Years)			-0.192 (0.138)				0.840*** (0.138)	
HVD Index (10 Years)				-0.208 (0.156)				1.169*** (0.150)
Mass Social Liberalism (t-1)	0.641*** (0.046)	0.627*** (0.046)	0.628*** (0.046)	0.633*** (0.050)				
Mass Economic Liberalism (t-1)					-0.149* (0.086)	-0.273*** (0.088)	-0.265*** (0.088)	-0.463*** (0.091)
Gubernatorial PID (t-1)	0.012 (0.015)	0.020 (0.015)	0.020 (0.015)	0.016 (0.015)	0.060*** (0.015)	0.069*** (0.015)	0.070*** (0.015)	0.069*** (0.015)
Legislative Strength (t-1)	0.277*** (0.091)	0.278*** (0.094)	0.283*** (0.094)	0.298*** (0.103)	0.481*** (0.086)	0.442*** (0.089)	0.447*** (0.089)	0.488*** (0.094)
Constant	0.177 (0.108)	0.159 (0.116)	0.124 (0.116)	0.186 (0.134)	-0.080 (0.109)	-0.191* (0.115)	-0.184 (0.116)	-0.604*** (0.129)
State Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,975	1,877	1,877	1,681	1,975	1,877	1,877	1,681
R <sup>2</sup>	0.902	0.908	0.908	0.915	0.920	0.925	0.925	0.935
Adjusted R <sup>2</sup>	0.898	0.904	0.904	0.911	0.916	0.921	0.921	0.932

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 3: Results of bivariate linear regressions of party competition (the Folded Ranney index) on policy liberalism for 4-, 6-, 8-, and 10- year levels of aggregation. The models include lagged controls for public opinion, legislative control, and gubernatorial control as well as state and year fixed effects.

	<i>Dependent variable:</i>							
	Social Policy Liberalism				Economic Policy Liberalism			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Folded Ranney Index (4 Years)	-0.479*** (0.077)				0.140* (0.083)			
Folded Ranney Index (6 Years)		-0.494*** (0.082)				0.214** (0.089)		
Folded Ranney Index (8 Years)			-0.509*** (0.086)				0.300*** (0.093)	
Folded Ranney Index (10 Years)				-0.514*** (0.090)				0.371*** (0.097)
Constant	0.644*** (0.115)	0.654*** (0.118)	0.674*** (0.120)	0.733*** (0.123)	0.188 (0.124)	0.207 (0.128)	0.107 (0.130)	0.128 (0.132)
State Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,445	3,349	3,253	3,157	3,445	3,349	3,253	3,157
R <sup>2</sup>	0.774	0.778	0.783	0.789	0.776	0.780	0.787	0.796
Adjusted R <sup>2</sup>	0.766	0.770	0.775	0.781	0.767	0.772	0.780	0.788

Note: \*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 4: Results of bivariate linear regressions of electoral competition (the HVD index) on policy liberalism for 4-, 6-, 8-, and 10- year levels of aggregation. The models include lagged controls for public opinion, legislative control, and gubernatorial control as well as state and year fixed effects.

	<i>Dependent variable:</i>							
	Social Policy Liberalism				Economic Policy Liberalism			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HVD Index (4 Years)	-0.499*** (0.125)				0.537*** (0.118)			
HVD Index (6 Years)		-0.561*** (0.135)				0.711*** (0.128)		
HVD Index (8 Years)			-0.528*** (0.142)				0.725*** (0.134)	
HVD Index (10 Years)				-0.493*** (0.158)				1.037*** (0.145)
Constant	0.557*** (0.099)	0.578*** (0.103)	0.543*** (0.103)	0.622*** (0.112)	0.209** (0.094)	0.105 (0.097)	0.119 (0.097)	-0.108 (0.103)
State Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,016	1,916	1,916	1,716	2,016	1,916	1,916	1,716
R <sup>2</sup>	0.887	0.894	0.894	0.902	0.917	0.922	0.922	0.932
Adjusted R <sup>2</sup>	0.881	0.889	0.888	0.897	0.913	0.918	0.918	0.928

*Note:*

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

Table 5: Results of uncertainty regressions of party competition (the Folded Ranney index) on policy liberalism for 4-, 6-, 8-, and 10- year levels of aggregation. The models include lagged controls for public opinion, legislative control, and gubernatorial control as well as state and year fixed effects. In these models, the Caughey & Warshaw standard errors are at their full size.

	<i>Dependent variable:</i>							
	Social Policy Liberalism			Economic Policy Liberalism				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Folded Ranney Index (4 Years)	-0.296* (0.152)				0.621*** (0.120)			
Folded Ranney Index (6 Years)		-0.292* (0.161)				0.737*** (0.127)		
Folded Ranney Index (8 Years)			-0.275 (0.172)				0.865*** (0.136)	
Folded Ranney Index (10 Years)				-0.224 (0.181)				0.993*** (0.143)
Mass Social Liberalism (t-1)	0.675*** (0.077)	0.666*** (0.078)	0.657*** (0.078)	0.658*** (0.078)				
Mass Economic Liberalism (t-1)					1.047*** (0.104)	1.042*** (0.106)	1.046*** (0.108)	1.057*** (0.110)
Gubernatorial PID (t-1)	0.023 (0.030)	0.024 (0.030)	0.024 (0.030)	0.029 (0.030)	0.044* (0.025)	0.047* (0.025)	0.047* (0.025)	0.047* (0.025)
Legislative Strength (t-1)	0.281** (0.118)	0.282** (0.123)	0.299** (0.122)	0.304** (0.126)	1.178*** (0.088)	1.194*** (0.090)	1.180*** (0.093)	1.169*** (0.096)
Constant	0.189 (0.247)	0.216 (0.257)	0.195 (0.259)	0.235 (0.258)	-0.940*** (0.191)	-0.903*** (0.190)	-0.737*** (0.199)	-0.816*** (0.199)
State Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3,443	3,347	3,251	3,155	3,443	3,347	3,251	3,155
Average R <sup>2</sup>	0.615	0.622	0.632	0.641	0.733	0.737	0.742	0.747
Average Adjusted R <sup>2</sup>	0.6	0.608	0.618	0.627	0.723	0.727	0.732	0.737

*Note:* \*p<0.1; \*\*p<0.05; \*\*\*p<0.01



Table 6: Results of uncertainty regressions of electoral competition (the HVD index) on policy liberalism for 4-, 6-, 8-, and 10-year levels of aggregation. The models include lagged controls for public opinion, legislative control, and gubernatorial control as well as state and year fixed effects. In these models, the Caughey & Warshaw standard errors are at their full size.

	<i>Dependent variable:</i>							
	Social Policy Liberalism				Economic Policy Liberalism			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HVD Index (4 Years)	-0.179 (0.246)				0.635*** (0.239)			
HVD Index (6 Years)		-0.236 (0.269)				0.804*** (0.263)		
HVD Index (8 Years)			-0.184 (0.286)				0.834*** (0.274)	
HVD Index (10 Years)				-0.195 (0.322)				1.168*** (0.314)
Mass Social Liberalism (t-1)	0.641*** (0.092)	0.630*** (0.094)	0.629*** (0.095)	0.630*** (0.101)				
Mass Economic Liberalism (t-1)					-0.149 (0.169)	-0.274 (0.178)	-0.265 (0.176)	-0.463*** (0.191)
Gubernatorial PID (t-1)	0.012 (0.030)	0.020 (0.031)	0.020 (0.030)	0.015 (0.032)	0.059** (0.029)	0.068** (0.030)	0.070** (0.029)	0.069** (0.031)
Legislative Strength (t-1)	0.279 (0.186)	0.283 (0.191)	0.282 (0.191)	0.306 (0.210)	0.479*** (0.170)	0.443** (0.180)	0.445** (0.177)	0.482*** (0.196)
Constant	0.170 (0.218)	0.158 (0.237)	0.120 (0.239)	0.177 (0.272)	-0.069 (0.210)	-0.188 (0.232)	-0.179 (0.228)	-0.600** (0.269)
State Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed Effects?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	1,975	1,877	1,877	1,681	1,975	1,877	1,877	1,681
Average R <sup>2</sup>	0.787	0.796	0.796	0.809	0.826	0.831	0.832	0.842
Average Adjusted R <sup>2</sup>	0.777	0.786	0.786	0.798	0.818	0.823	0.823	0.834

Note:

\*p<0.1; \*\*p<0.05; \*\*\*p<0.01

by more than 55%), and if the race was contested by the two major parties (Holbrook and Van Dunk 1993). Like the Ranney index, each of these variables is averaged over time and across districts to produce a single summary measure of the state’s competitiveness. However, while the Folded Ranney index captures competition between parties for control of government, the HVD index captures competition to retain an average seat in the state legislature. Moreover, because the data necessary to calculate the HVD index is available only in recent decades, the use of the HVD index to test our hypotheses has the consequence of drastically reducing the number of observations available to estimate our models.

The HVD and Folded Ranney indices are distinct, both conceptually and empirically. Conceptually, the two measures tap different ways in which competition could impact policy liberalism (Shufeldt and Flavin 2012). The Folded Ranney Index captures the effect of competition in government for legislative power. If parties exist to advance the goals of their members by crafting policies that increase their chances of reelection (Aldrich 2011), we would expect greater levels of competition to be associated with expansionism. This measure does not, however, examine how the electoral environment influences party leaders in government. By contrast, the Holbrook and Van Dunk measure provides us with a district-level measure of electoral competition that better accounts for the context of the race, the presence of another major party candidate or a credible third party challenger. In this way, the Holbrook and Van Dunk index provides race-specific information that can be useful for district-level applications. We again employ indicators of competition at 4-, 6-, 8-, and 10-year levels of aggregation (Klarner 2013).<sup>9</sup>

The empirical relationships among these measures is also telling. The HVD measure is only correlated with the Folded Ranney index at  $r = 0.46$ . Figure 6 shows the median value of both measures of competition over time; there is a downward trend in district-level competition according to the HVD index, though competition has been relatively stable by the Folded Ranney Index.

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<sup>9</sup>All discussion of the summary statistics for these measures uses a 6-year aggregation.

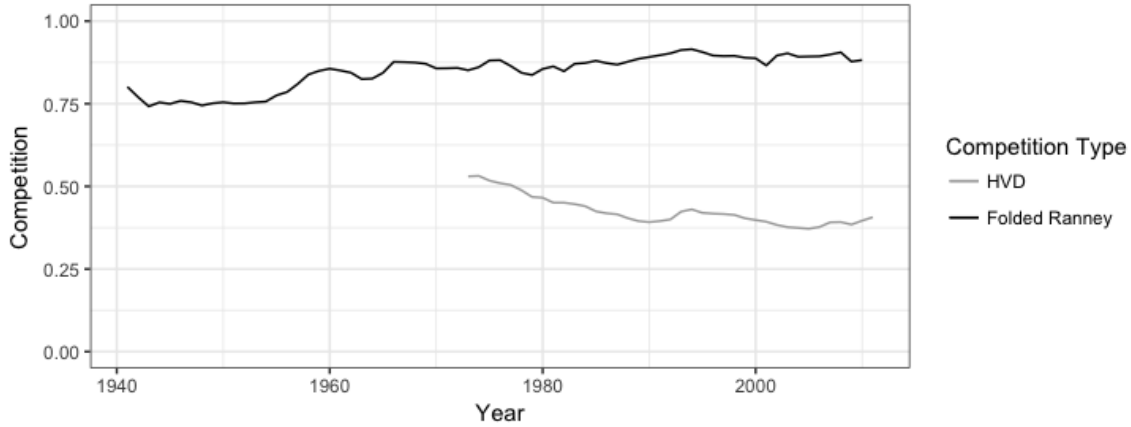


Figure 6: Median values of competition, by year. Data from Klarner (2013).

### Electoral Competition Results

Our results follow the same three-step process we used to probe the relationship between party competition and policy liberalism in the text of the paper. We begin by examining the bivariate relationship between the concepts using linear regressions that also include state and year fixed effects. The results of that procedure are shown in Figure 7 and Table 4. The results of this analysis provide some evidence that electoral competition has a similar relationship with the two types of policy liberalism: more electoral competition is associated with a higher degree of economic liberalism but a lessened degree of social liberalism. This relationship holds for all four time aggregations. As an example, a change across the range of the 4-year HVD index results in a 0.5 unit decrease in social liberalism—the difference between Florida and Tennessee in 2010—and a 0.54 unit increase in economic liberalism, a margin that is roughly equivalent to going from Maryland to California.

Figure 8 presents the results of multivariate models that include lagged controls for public opinion, legislative control, and gubernatorial control. The results for economic liberalism are fully robust: more electoral competition is associated with a greater degree of economic liberalism. The effect size is 0.65—comparable to the difference between Virginia and Washington. However, all of the 95% confidence intervals cross the zero line in the social policy regressions. We therefore are unable to conclude that there is a relationship between electoral

competition and social policy liberalism.

This same conclusion can be drawn from the uncertainty sensitivity analysis, the results of which are shown in Figure 9. Again, there is a robust relationship between electoral competition and economic policy liberalism. This relationship holds across time aggregations and levels of the sensitivity analysis. Again, there is no evidence of a relationship between electoral competition and social policy liberalism; this conclusion also holds across time aggregations and levels of the sensitivity analysis.

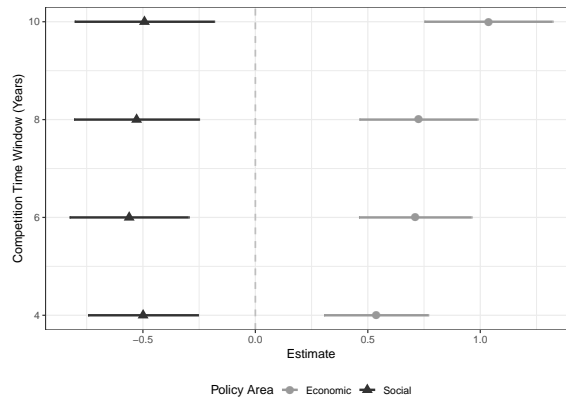


Figure 7: Results of bivariate linear regressions of electoral competition (the HVD index) on policy liberalism for 4-, 6-, 8-, and 10- year levels of aggregation. Each point corresponds to the coefficient estimate for competition in a linear regression model. The figure includes 95% confidence intervals for each estimate.

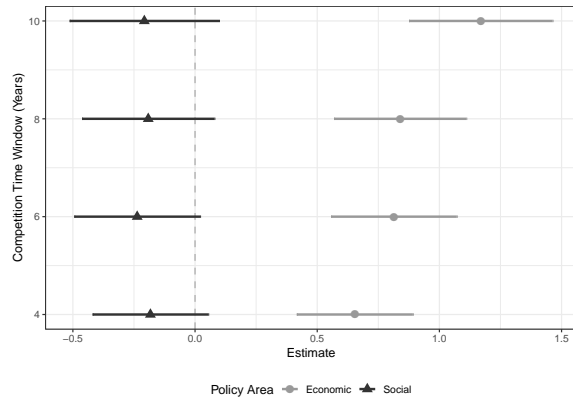


Figure 8: Results of linear regressions of electoral competition (the HVD index) on policy liberalism for 4-, 6-, 8-, and 10- year levels of aggregation. The models include lagged controls for public opinion, legislative control, and gubernatorial control. Each point corresponds to the coefficient estimate for competition in a linear regression model. The figure includes 95% confidence intervals for each estimate.

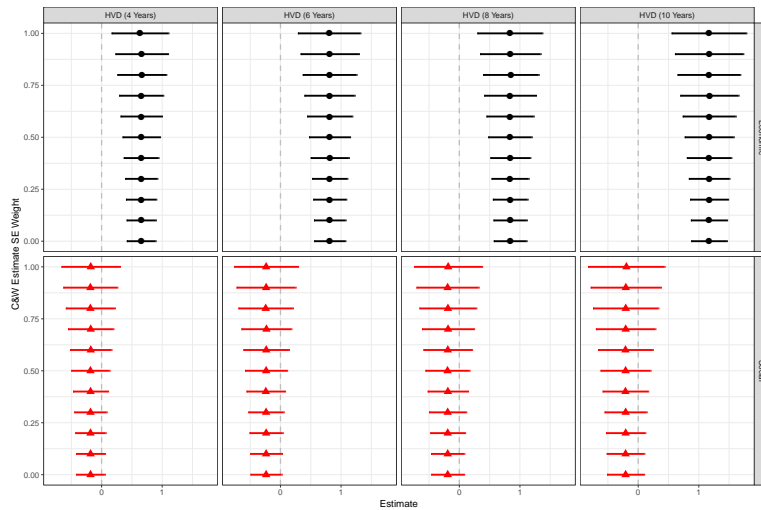


Figure 9: Results of an uncertainty regression wherein the dependent variable, Caughey & Warshaw's state social/economic policy liberalism measure is regressed on the HVD index. The topmost results in both row ( $y = 1$ ) correspond to the full extent of the uncertainty test, whereas the bottom rows ( $y = 0$ ) are equivalent to the regular regression results. Overlap with zero, corresponding to lack of statistical significance, is marked in red. Overall, the findings are mostly robust to the use of an uncertainty regression, although the more wide-ranging Folded Ranney measures lose statistical significance under the most stringent circumstances for the social policy model.