Pivotal Politics, Partisan Polarization, and Policy Predictability

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Traditional political economy models such as those founded on the work of Duncan Black and Anthony Downs cannot capture certain important features of the dynamics of policy outcomes in the United States. Because these models assume that policy change is directly responsive to the median voter, they cannot address questions about policy gridlock and drift. Because the Black-Downs model assumes that only the median matters, it assumes away other changes to the distribution of preferences of voters and legislators. In particular, it cannot address the potential consequences of polarization for policy outcomes, gridlock, or uncertainty. I argue that the pivotal politics framework of Keith Krehbiel may be quite useful in understanding the relationship between political polarization and policy uncertainty in addition to its traditional application to the study of gridlock.

Scholarship on the political economy of democracies has generally leaned very heavily on Black's median voter theorem and the Downsian prediction of partisan convergence (Black 1948; Downs 1957). The appeal of these models is obvious. They are parsimonious and link policy outcomes directly to the overall median voter in an executive policy-making model or the median voter of the median district in a legislative policy-making model. But this parsimony comes at a cost for some important questions in political economy. In this essay, I focus on three costs of the Black-Downs paradigm. First, these models assume that policy change is directly responsive to the median voter. So when the preferences of that voter change, policy change should follow directly. Thus, the Black-Downs paradigm cannot address questions about policy gridlock and drift. A second limitation that follows from the first is that the Black-Downs framework reduces all uncertainty about policy to uncertainty about the median voter's or legislator's preferences. Third, the Black-Downs model assumes that only the median matters. Thus, it assumes away other changes to the distribution of preferences of voters and legislators. In particular, it cannot address the potential consequences of polarization for policy outcomes, gridlock, or uncertainty.

Fully addressing these concerns is well beyond the scope of this essay. I do, however, propose that the *pivotal politics* model of Krehbiel (1998) provides a useful framework to illuminate these issues. For a set of constitutional rules and legislative procedures, this framework identifies the set of policy-making actors whose support is necessary and sufficient for policy change. These actors are known as the *pivots*. The identification of pivots combined with estimates of their preferences and status quo policies produces predictions about whether policy changes and, if so, what the resulting policy is likely to be. That the pivotal political model predicts that policy gridlock is common addresses the first criticism of the Black-Downs framework. Second, as I demonstrate below, the model can be easily extended to incorporate policy drift—the idea that policy outcomes may change even in the absence of policy-making activity. This drift, moreover, is an important source of policy uncertainty. This allows us to build microfoundations for policy uncertainty that has recently been shown to have important macroeconomic effects (see Baker, Bloom, and Davis 2016; McCarty 2016). Third, I illustrate how political polarization may affect the levels of policy uncertainty within the pivotal politics framework. Thus, pivotal politics provides a framework for interpreting the

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findings of Baker et al. (2014) linking rising polarization to policy uncertainty.

The remainder of the essay proceeds as follows. In the next section, I develop a formal notion of policy uncertainty based on the link between policy outcomes, policy choices, and uncertain states of the world. This framework allows policy uncertainty to be a function of uncertainty both about future policy decisions and about future states of the world in the absence of decisions. I then flesh out three models of the policy-making process: majoritarian politics, partisan politics, and pivotal politics. Each of these models predicts policy choices as a function of legislative preferences and the states of the world. Thus, each produces predictions about the level of policy uncertainty. Moreover, each of the models allows for a rough decomposition of uncertainty into uncertainty about future legislative preferences (*preference uncertainty*) and uncertainty about future states of the world (*drift uncertainty*).

Using estimates of Senator's positions from DW-NOMINATE (dynamic, weighted nominal three-step estimation), I then compute measures of the preference uncertainty for each of the models. While I establish no formal relationship between these measures and partisan polarization, I show that there is a robust statistical one in the case of the pivotal politics model. Thus, the pivotal politics framework might be helpful in understanding how political polarization may have exacerbated policy uncertainty.

MODELS

Let me begin with some terminology and notation. Let x represent a policy outcome. Let p be a policy instrument or choice where ω represents the state of world. I relate the policy outcome x to policy choices and the state of the world thorough the function $x = p + \omega$.[1]

My concept of policy uncertainty is variation in x. Thus, there are two possible sources of policy uncertainty. First, there may be unexpected variation in p that does not correspond to changes in the state of the world ω. For reasons that will be clearer when I develop the policy-making models, this source of uncertainty can be labeled *preference uncertainty*. Second, there may be variation in ω that is not offset with changes in p. I label this source of uncertainty *drift uncertainty*. Alternatively, policy certainty and predictability is associated with stability in p and ω or with a policy process capable of changing p in ways that exactly offset changes in ω.

Within this framework, it is straightforward to derive some predictions about the link between political institutions and policy stability. I consider three policy-making models: majoritarian politics, partisan politics, and pivotal politics. In the majoritarian model, policy is set by the median legislator. In the partisan model, policy is set by the median of the majority party. The pivotal model is based on Krehbiel (1998).

To build these institutional models, I assume that legislators/policy makers have single peaked policy preferences over x given by $u(|y - x|)$, where y is the ideal point and u is a strictly decreasing function. For simplicity, I assume that all agents are myopic in that they act to maximize their current utility given an observation of ω and a status quo policy instrument q.

Majoritarian legislature

The policy instrument solves $y_{\text{med}} = p^{\star} + \omega$ where y_{med} is the median value of y. Thus, ex ante policy uncertainty is var (y_{med}). Thus, all uncertainty is preference uncertainty generated by uncertainty about future median legislators.

Strong party legislature

Let $y_R > y_L$ be the ideal points of two parties. Each party implements its ideal point when it obtains a legislative majority. Let π_R be the probability that the R party obtains a majority. Clearly, the policy choice for the R party solves $y_R = p_R^{\star} + \omega$, while that of party L is $y_L = p_L^{\star} + \omega$. Thus, policy uncertainty is

$$\pi_R y_R^2 + (1 - \pi_R) y_L^2 - (\pi_R y_R + (1 - \pi_R) y_L)^2.$$

Again all policy uncertainty is preference uncertainty generated by uncertainty as to which party obtains a majority.

Pivotal politics

Now consider a legislature for which policy changes to the status quo q require the assent of multiple pivotal actors because of supermajoritarian institutions, bicameralism, or the separation of powers.[2] Let the ideal points of the pivots be $y(l) < y(r)$. Thus, any q and ω for which $y(l) < q + \omega < y(r)$ are gridlocked. If $q + \omega < y(l)$, then $p^{\star}$ solves $p^{\star} + \omega = \min\{2y(l) - q + \omega, y_{\text{med}}\}$. Conversely, if If $q + \omega > y(r)$, then p solves $p + \omega = \max\{2y(r) - q + \omega, y_{\text{med}}\}$.

Collecting these results, I can establish that the policy outcome x is given by

$$x = \begin{cases} q + \omega & \text{if } y(l) - q < \omega < y(r) - q \\ 2y(l) - q - \omega & \text{if } 2y(l) - q - y_{\text{med}} < \omega < y(l) - q \\ 2y(r) - q - \omega & \text{if } 2y(r) - q - y_{\text{med}} > \omega > y(r) - q \\ y_{\text{med}} & \text{if } 2y(l) - q - y_{\text{med}} > \omega \text{ or } \omega > 2y(r) - q - y_{\text{med}} \end{cases}$$

1. My arguments go through generally for any function f such that $x = f(p, \omega)$, with the restriction that for all x and ω, there exists some p such that $x = f(p, \omega)$.

2. By using generic left and right pivots, the results of this section apply equally to the Krehbiel (1998) model and the Cox and McCubbins (2005) cartel model.

Formal expressions for the mean and variance of x are complicated and not that informative. But direct inspection of the above expression reveals three distinct sources of policy uncertainty in the pivotal politics model. First, there is the gridlock region in which the policy outcome $q + \omega$ depends on the realization of the state of the world. This is a source of drift uncertainty. Second, there is preference uncertainty about which pivot is binding, l or r. And finally when a pivot does bind, the outcome $2y(l) - q - \omega$ or $2y(r) - q - \omega$ depends on the realization of the state of the world—another source of drift uncertainty.

Comparisons

Clearly we should expect the majoritarian legislature to exhibit the least amount of policy uncertainty as the variation in the median ideal point is likely to be small relative to shifts between party ideal points or shifts between pivots. Moreover, the majoritarian model does not suffer from the effects of gridlock associated with the pivotal politics model.

The ranking of the partisan and pivot legislature is more subtle. The partisan legislature can be quite predictable if π_R is high or low. The supermajoritarian legislature will be predictable when the underlying environment is stable; that is, the variance of ω is low.

In the next section, I attempt to calibrate the magnitude of these differences using the DW-NOMINATE measure of preferences for the US Senate. But first, I explore the role of party polarization in exacerbating policy uncertainty in each of the models.

PARTY POLARIZATION AND POLICY UNCERTAINTY

In each of the models presented in the last section, an important component of policy uncertainty is the uncertainty about the future composition of the legislature. I argue that in turn such uncertainty is strongly linked to partisan polarization.

For purposes of this exercise, I define party polarization as the mean difference between the ideal points of Republican and Democratic legislators. Figure 1 presents this measure for the US House and Senate using DW-NOMINATE scores (see McCarty, Poole, and Rosenthal 2016).

So why should partisan polarization affect policy uncertainty? The case is easiest to see in the partisan model. If one were to make the plausible assumption that each party's platform was closely related to its mean position on the NOMINATE scale, party polarization closely approximates the conditions for policy uncertainty in the partisan model.

The relationship between polarization and uncertainty in the other models is more subtle. Consider first the majoritarian model. Recall that policy uncertainty in that case is simply the variance in the median ideal point. If parties are not polarized and have convergent platforms constituency by constituency, we would expect this variation to be small. Partisan swings would simply move the ideal point of each district's representative by a small amount, leaving the new median close to the old median. Consider the case, however, when the parties are polarized at the constituency level, as is increasingly the case in the United States (McCarty, Poole, and Rosenthal 2009). Then any aggregate partisan or preference swing moves the ideal point of moderate districts by a substantial amount, making the variation in the legislative median greater.

Finally, consider the role of polarization in the pivotal politics model. Like the majoritarian model, the only role of parties is in their role in selecting the candidates available to voters in elections. So in a world in which the parties converge district by district, elections (other than that of the president) have very little impact on the distribution of

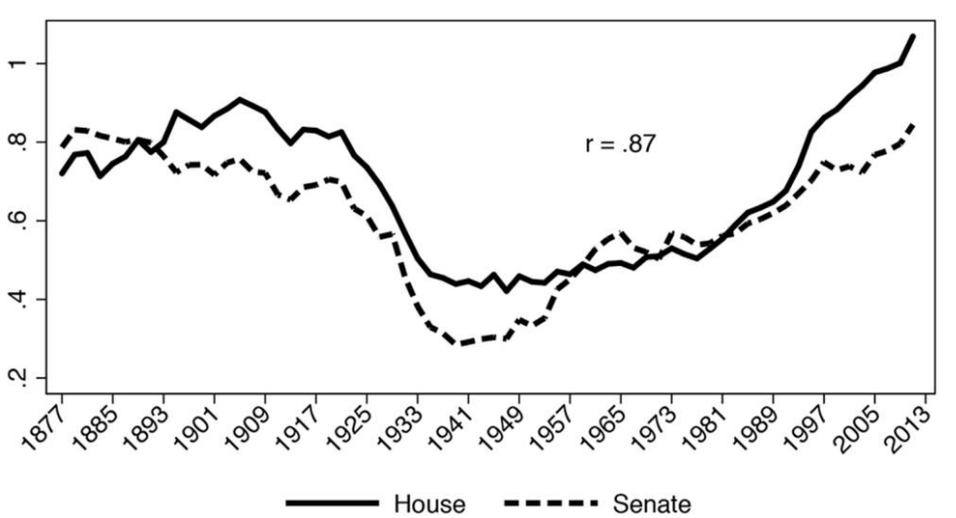

Figure 1. Polarization in the US Congress: mean differences between Republicans and Democrats on the DW-NOMINATE scale

legislators and therefore the gridlock interval. All policy uncertainty would reduce to that related to gridlocked policies and presidential elections. Alternatively, party polarization can contribute to gridlock and policy uncertainty in two ways. First, as in the majoritarian model, district-level divergence means that aggregate swings in voter preferences have substantially greater impacts on the distribution of legislator ideal points. Thus, variation in $y(l)$ and $y(r)$ is increased. Second, in any competitive partisan legislature, $y(l)$ and $y(r)$ are likely to be members of different parties. So as the parties drift apart, the distance between $y(l)$ and $y(r)$ tends to grow. Of course, this effect may be offset in those cases when the president's party is large enough to contain the opposite filibuster pivot. So these effects of polarization are mitigated by the size of the majority party.[3]

To get some traction on the magnitude of the relationship between polarization and the predictions of policy uncertainty, I use data on the DW-NOMINATE scores from the US Senate.[4] For each of the models described above, I compute the preference-based component of policy uncertainty and relate it to partisan polarization. Unfortunately, without proxies for q and the distribution of ω, I am not able to measure fully the theoretically predicted uncertainty measure. Of course, this is only an issue for the pivotal politics model. In that case, uncertainty is proxied by the width of the gridlock interval. Clinton (2012) and Krehbiel and Peskowitz (2015) argue against the use of roll call–based ideal point measures for comparing theoretical models.[5] But given the modest aims of simply showing the link between party polarization and predicted policy uncertainty, I think those issues can safely be set aside.

First, let me take up the relationship between polarization and the uncertainty predicted by the majoritarian model. The key prediction is that higher polarization should lead to larger shifts in the median when controlling for the magnitude of any partisan swing. In figure 2, I show the simple bivariate relationship between polarization and the absolute shift in the median ideal point of the Senate over time. The figure shows that the big shifts in the Senate median since the 1880s have occurred during the most polarized periods.

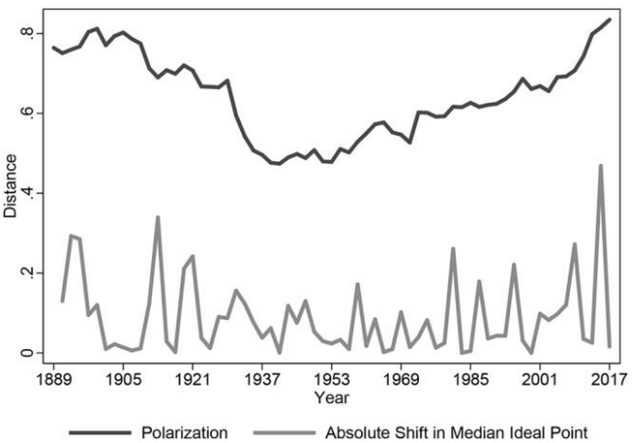

Figure 2. Polarization and absolute change to median ideal point: *black line*, average difference between Republican and Democratic Senators on the DW-NOMINATE scale; *gray line*, absolute change in the median DW-NOMINATE score.

The correlation does not appear to be exceptionally strong because during all eras there are periods of stability.

But these periods of stability appear to occur after elections for which the partisan seat shares shifted very little. To demonstrate, table 1 reports some simple regressions on polarization and the change in majority party seat share. Note that the inclusion of the change in majority seat share improves the precision of the estimate on polarization and increases the magnitude of the coefficient.

Clearly, there is no reason to belabor the obvious connection between the partisan model and party polarization, so I turn to the link between polarization and the uncertainty predicted by the pivotal politics model. Here I focus on two aspects. First, I consider the simple association between the measure of partisan polarization and the width of the gridlock interval. Such an association may arise either because the width of the gridlock interval is directly responsive to changes in polarization or because the gridlock interval adjusts over time to levels dictated by polarization. Therefore, I also test the first and stronger claim that changes in the gridlock interval are directly related to changes in polarization.

In measuring the gridlock interval using DW-NOMINATE, I assume that the post-1975 cloture rules are in effect over the course of the entire period. I do this for two reasons. First, it makes graphic presentation of bivariate relationships easier to interpret. Second, it essentially gives me a more consistent time series on the gridlock interval by which to investigate its relationship to polarization. Controlling for the 1975 rules change would not greatly affect my results (see McCarty 2007).

Figure 3 plots the measures of polarization and the width of the gridlock interval over time. Note that the relationship is generally strong. Both measures trend together both before

3. It is worth noting that in the negative agenda control model of Cox and McCubbins (2005), there is no obvious link between the gridlock interval and polarization. This is because the distance between the majority party median and the floor median is dictated primarily by the heterogeneity of the majority party and does not depend on interparty differences.

4. Combining House and Senate data to compute the bicameral predictions does not change the analysis in any important way.

5. But see Hirsch (2010) for evidence that these concerns may be overblown in practical applications.

Table 1. Polarization and Median Shift

	Model 1	Model 2
Polarization	.225	.298
	(.114)	(.110)
|Δ majority size|		.907
		(.301)
Constant	−.0552	−.140
	(.0739)	(.0749)
R^2	.0592	.181

Note. Estimates of correlation of polarization and median shift, controlling for absolute change in majority size. Standard errors in parentheses. $N = 64$.

Table 2. Polarization and Gridlock Interval

	Model 1	Model 2
Polarization	1.038	.984
	(.0929)	(.0814)
Democratic president		−.0241
		(.0194)
Majority size		−.664
		(.133)
R^2	.664	.802

Note. Ordinary least squares estimates of correlation of polarization and gridlock interval, controlling for presidential partisanship and majority size. Standard errors in parentheses. $N = 65$.

and after they bottom out together. The party polarization measure is generally higher, suggesting that the preference component of policy uncertainty in the partisan model is uniformly higher. But of course, I cannot assess whether the drift component in the pivotal model is large enough to eliminate the difference.

To assess whether the correlation is robust when other determinants of the gridlock interval are included, I estimate some simple regression models, which are reported in table 2. In the multiple-regression model, I control for two factors: the size of the majority and the party of the president. The majority size reflects how many minority senators have to be obtained for cloture. An indicator for the president's party controls for any partisan asymmetries in heterogeneity. For example, if the Democrats were the more homogeneous party, the distance between the thirty-third senator and the forty-first senator would be smaller than the distance between the sixtieth senator and the sixty-seventh. Such an asymmetry would make the gridlock interval smaller in Democratic administrations.

Model 1 in table 2 reports the estimates of the bivariate relationship between the gridlock interval and polarization. The coefficient on polarization is just slightly larger than 1, suggesting that a 1-unit increase in polarization is associated with a 1-unit increase in the width of the gridlock interval. When majority party size and the party of the president are included in model 2, the coefficient on polarization falls slightly. But there is still an approximate one-to-one relationship. The model also shows that the gridlock interval is smaller when the majority party is larger and when the president is a Democrat (although the latter effect is not statistically significant).

Because the strong association in levels may be the result of common trends, I also estimate the models in first differences. These estimates are reported in table 3.

In the bivariate first-differences model (model 1), the estimate of the change in polarization on the change in gridlock

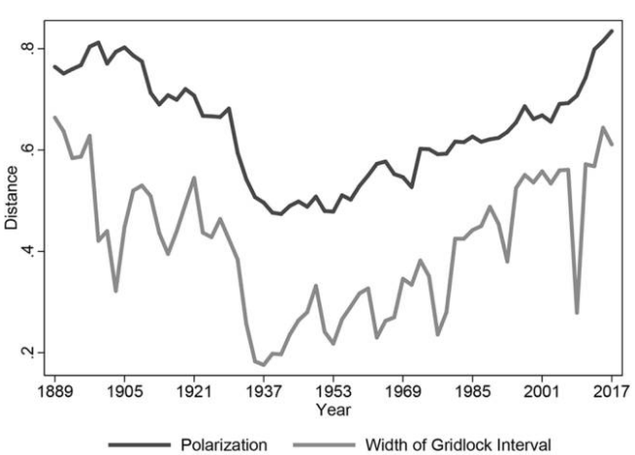

Figure 3. Polarization and gridlock interval: *black line*, average difference between Republican and Democratic Senators on the DW-NOMINATE scale; *gray line*, width of the gridlock interval based on post-1975 cloture rules.

Table 3. Polarization and Gridlock Interval First Differences

	Model 1	Model 2
Δ polarization	.852	1.001
	(.371)	(.318)
Δ majority size		−.574
		(.150)
Δ Democratic president		−.0639
		(.0224)
Constant	−.00177	−.00339
	(.00982)	(.00830)
R^2	.0783	.365

Note. First-difference estimates of correlation of polarization and gridlock interval, controlling for presidential partisanship and majority size. Standard errors in parentheses. $N = 64$.

interval is .85. But the R^2 is relatively low, suggesting that the one period change in polarization explains only a small share of the one period change in the gridlock interval. But when the changes in majority party size and party of the president are included, the coefficient on polarization is once again approximately 1, and the R^2 rises substantially. Changes in majority size and the switch to a Democratic president reduces the size of the gridlock interval.[6]

DISCUSSION

In the last section, I established empirical relationships between partisan polarization and the preference-based policy uncertainty of three different policy-making models. The link between polarization and the preference uncertainty in the majoritarian model was relatively weak, but a 1-unit increase in polarization produced about a 1-unit increase in both of the other two measures.

Unfortunately, the role of drift uncertainty is harder to evaluate directly. But indirect evidence of the importance of gridlock in creating drift is instructive. As Mettler and Leavitt (2016) argue, there has been a substantial decline in legislative updating of important authorization bills. Thus, the statutory authority underlying many important policy areas is now quite dated. This has the potential to create substantial uncertainty about how those statutes will be applied to address contemporary problems. McCarty (2016) establishes a link between polarization and the delayed passage of appropriation bills. Moreover, these delays correlate strongly with the policy uncertainty measure of Baker et al. (2016). These findings combined with those showing links between polarization and gridlock (e.g., Binder 2015; McCarty 2007) suggest that the pivotal model seems more likely to represent any relationship between polarization and policy uncertainty.

6. As noted above, there is no reason to assume a link between the party cartel gridlock interval and polarization. Indeed, using the data from the Senate, the correlations are negative but not statistically significant. This is true in both levels and first differences.

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