Moving with the Mandate: Policy-Motivated Parties in Dynamic Political Competition

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Abstract

We analyze a model of dynamic political competition under uncertainty in which parties use the previous election to update their beliefs about the electorate. We are able to extend the analytically intractable Wittman model of policy-motivated parties through the use of computer simulation. The main result from the model is that electoral mandates matter—increasing the margin of victory causes both parties to shift the policies they offer towards the policies preferred by the winner. We also find that 1) close elections lead to increased platform divergence because the losing party shifts more than the winning party; 2) when a party's preferences become more extreme, its platforms also become more extreme but the opposing party's platforms become more moderate; 3) two kinds of uncertainty (electoral uncertainty and confidence in prior beliefs) interact with the margin of victory to affect equilibrium policies; and 4) increasing polarization in the electorate causes the winning party to offer more extreme policies and the losing party to offer more moderate policies.

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Introduction

How do electoral outcomes affect policy? The most obvious answer to this question is that elections determine *who* gets to make policy. But elections may also determine *what* kind of policy winners can enact. After a landslide victory winners may claim a "mandate" to govern, arguing that the size of the victory shows that the public is eager to support their policies (Kramer 1977; Kelly 1983). After a close election losers may claim that there is no mandate—the public's ambivalence should be interpreted as a sign that support for the winners' policies is qualified at best. Dahl (1990) points out that both of these arguments are self-serving and notes that even if the margin of victory is large it is unclear whether overwhelming support for the winner translates into support for a particular policy. However, recent empirical evidence indicates that mandates do have an effect on the probability of large policy changes (Conley 2001; Fowler 2003a; Fowler 2003b; Peterson et al 2003).

There is an intuitive reason to believe that mandates matter in two-party competition. A party that wins by a narrow margin of victory cannot afford to alienate its supporters at the very center of the political spectrum or else it may lose the next election. This reduces the credibility of the party's commitment to more extreme policy changes because any small sign of defection from its supporters may force it to compromise with the opposition. A landslide victory gives a party more bargaining power because it can tolerate a few defections from the center without risking a loss of power. Thus the margin of victory provides valuable information about the state of the electorate.

To understand how parties use this information, we turn to the literature on spatial models of political competition between two parties. Traditional models assume that parties care *only* about winning elections (Downs 1957; Davis, Hinich, and Ordeshook 1970). These models

yield the unrealistic result that both parties offer the same policies—those preferred by the median voter. Wittman (1977) extends the traditional models by assuming that parties *also* care about policy outcomes (see also Wittman 1983; Calvert 1985; Roemer 1997, 2001). Under this assumption parties face a dilemma. By moving *toward* the median voter's preferences they increase their likelihood of winning. By moving *away* from the median voter's preferences toward their own preferred policy they increase the desirability of the policy they implement should they win the election. As a result, policy-motivated parties offer policies that *diverge* when there is uncertainty about the preferences of the median voter.

The Wittman model is based on a very simple concept—parties must balance the fear of losing the election against the greed of proposing the policies they most prefer. Unfortunately, this simplicity quickly disappears in formal settings. As the two parties mutually maximize their expected utilities, analytical solutions become very complicated. Roemer (1997) provides a rigorous and not trivial proof that a unique Wittman equilibrium exists. However, the Wittman model is usually too complicated to yield closed-form solutions for comparative statics analysis (Roemer 2001). The few models that can be solved in closed form usually rely on extremely simple and perhaps unrealistic assumptions. For example, these models always assume that the median voter's preference is exactly equidistant between the preferences of the two parties (symmetry). As a result, there have been very few attempts to build on the Wittman model, even though it yields an empirically realistic divergence in policies offered by the two parties.[1]

To analyze the effect of electoral outcomes on policy, we extend the Wittman model by placing it in a dynamic setting and relaxing the crucial symmetry assumption. This allows us to analyze the effect of information gained in previous elections on equilibrium policies offered by

[1] For notable exceptions see Groseclose (2001) and Adams and Merrill (2003) who study the valence advantage in the context of Wittman equilibrium.

the two parties. Although a closed-form solution to the model is intractable, we can use computational simulation to study equilibrium dynamics. The model yields a number of novel results (see Table 1 in the end for a complete summary). The most important of these is that mandates matter—equilibrium policies are affected not only by *who* wins the election but by *how much*. Larger margins of victory cause both parties to move the policies they offer towards the winner's preferred policy. Moreover, the losing party tends to shift more than the winning party. This dynamic yields an interesting result. Contrary to the common view that close elections imply compromise and moderation, the model suggests that close elections yield the *largest* divergence in policies offered by the two parties.

The model also yields several other results. Relaxing the symmetry assumption allows us to see how *party preferences* affect equilibrium policies. As one party becomes more extreme in the policies it prefers, the policies it offers also become more extreme, but the other party accommodates for the change by offering more *moderate* policies. The dynamic aspect of the model allows us to analyze two different kinds of uncertainty. The literature has typically focused on what we call *electoral volatility,* or the inherent randomness in the location of the median voter. We also analyze the effect of *confidence in prior beliefs*, which reflects uncertainty about previous information parties have about the electorate. Increasing either kind of uncertainty tends to yield policies that are more extreme, but the margin of victory complicates the relationship. Finally, the model allows us to study the effect of *electoral polarization* on equilibrium policies. As voters become more polarized, the winning party offers more extreme policies and the losing party offers more moderate policies. This suggests that if parties have an effect on the preferences of their supporters, then winners may have an incentive to polarize their supporters.

The rest of this article proceeds as follows. First, we present a general version of the dynamic model of political competition under uncertainty between two parties. In the next section, we define the assumptions and tools that we use to study the model. In the third section we present the results. It is divided into several parts in which we examine how various components of the model change properties of the political equilibrium. The fourth section concludes.

The Model

Two parties engaged in political competition, *L* and *R*, choose platforms (y_L, y_R) in a one dimensional policy space such that $-\infty < y_L \leq y_R < \infty$. Parties are policy-motivated with exogenous ideal points, $-\infty < p_L < 0 < p_R < \infty$, and have gain utility according to a quadratic function $U_i = -(y - p_i)^2$, $i = \{L, R\}$, where $y = \{y_L, y_R\}$ is the platform of the winning party.

When choosing platforms, parties have full information about the previous election. This includes the location of platforms in the previous election (x_L, x_R), and the previous election results as reflected in the vote share for the left platform, $0 < s < 1$.

To introduce uncertainty, we assume that parties have prior beliefs about the location of the median voter, *M*. These beliefs are subject to a continuous distribution

(1) $M \sim \Psi(\mu, \beta) = f(M \mid \mu, \beta)$,

with mean μ and variance $\beta > 0$. The mean can be interpreted as party's *best guess* about the location of the median voter, while the variance represents its *confidence in prior information*. Small values of β imply that the parties are confident in their prior guess about the location of the median voter; large values suggest that the prior information is less reliable.

Parties use information from the previous election to update their estimate of the location of the median voter. Elections, however, may not provide perfect information about the location of the median voter due to fluctuating turnout, idiosyncratic platforms, changing "policy moods" (Stimson et al 1995) and a variety of other random shocks (Londregan and Romer 1993; Adams and Merrill 2003). Therefore, for any single election the median voter, *m*, can be thought of as the outcome of a random variable with mean *M*. These election outcomes are distributed according to the continuous distribution

$$(2) \qquad m \sim \Psi(M, b) = f(m \mid M, b),$$

where mean *M* is the location of the median voter and variance $b > 0$ can be thought of as *electoral volatility*, reflecting fundamental randomness in the location of the median voter. Small values of *b* indicate that the election provides very accurate information about the location of the median voter; conversely, large values of *b* imply that election results are more random and may contain little information about the location of the median voter.

Suppose that parties use Bayes' rule to incorporate information from the previous election into their estimate of the location of the median voter.[2] Specifically, parties must update their *beliefs* about the location of the median voter, *M*, given an *observation*, *m*, which is the location of the median voter implied in the previous election. If we assume that the distributions (1) and (2) are normal then the posterior mean μ' and posterior variance β' are

$$\mu' = \frac{\mu b + m\beta}{b + \beta}, \qquad \beta' = \frac{b\beta}{b + \beta}.$$

[2] A variety of mechanisms have been advanced to explain learning behavior. Though these vary in the degree of efficiency, many of them converge to Bayesian updating in the limit (Fudenberg and Levine 1997).

Proof: see Box and Tiao (1973, pp. 74-75).

Notice that the updated estimate of the location of the median voter is simply a weighted average of the prior belief and the new information obtained in the previous election. The weights on these beliefs are the variances. If prior information is unreliable then more weight is given to the new information yielded in the election. If electoral variance is high then more weight is given to the prior belief.

This updating process assumes that the location of the median voter for the previous election, *m*, can be observed. However, it is not possible to use the vote share to infer the location of the median voter without also having a belief about the voter distribution. Therefore, we assume that parties believe that voters are distributed according to a symmetric continuous distribution

$$(3) \qquad v \sim \Phi\left(M, B\right) = f\left(v \mid M, B\right)$$

with unknown mean, *M,* and known variance, $B > 0$. Because the distribution is continuous and symmetric, the mean of the voter distribution, *M,* coincides with the location of the median voter. The variance, *B,* of the voter distribution represents *electoral polarization*. Small values of *B* suggest that most voters have similar preferences in the middle of the policy space; large values imply that there are more extremists in the electorate and voter preferences are spread more broadly across the policy space.

Specifying the voter distribution allows us to illustrate the following lemma:

Lemma 1: *If parties know the degree of electoral polarization, then they can use the voter distribution to infer (in retrospect) the location of the median voter in the previous election by observing the platforms and the margin of victory.*

Note that under proximity voting, the vote share must be equal the area under the voter distribution up to the halfway point between the two platforms in the previous election, given the implied location of the median voter, *m*, and the electoral polarization, *B*:

$$s = \int_{-\infty}^{(x_L+x_R)/2} f\left(v \mid m, B\right) dv$$

If the voter distribution is normal then

$$s = \int_{-\infty}^{(x_L+x_R)/2} \frac{1}{\sqrt{2\pi B}} e^{-(v-m)^2/2B} dv .$$

As a result, the location of the median voter in the previous election, *m*, can be calculated numerically if parties know the vote share, s, the platforms, x_L, x_R, and the degree to which the electorate is polarized, B.

Equilibrium

The concept that we use to analyze policy-motivated parties is Wittman political equilibrium. Wittman equilibrium is based on Nash equilibrium $\left(y_L, y_R\right)$ such that $y_L = \max\arg EU_L$ if $y_R = y_R^*$ and $y_R = \max\arg EU_R$ if $y_L = y_L^*$:

$$\begin{aligned} &\max_{y_L} EU_L = \pi(y_L, y_R^*)U_L(y_L) + (1-\pi(y_L, y_R^*))U_L(y_R^*) \\ &\max_{y_R} EU_R = \pi(y_L^*, y_R)U_R(y_L^*) + (1-\pi(y_L^*, y_R))U_R(y_R) \end{aligned}, \quad (4)$$

where $\pi\left(y_L, y_R\right)$ is the probability that party *i* wins. Although quantitatively Wittman equilibrium can be very complex, there is a simple and intuitive qualitative explanation of the concept. Under Wittman equilibrium, parties find the optimal balance between proposing a platform closer to their preferences and ensuring that there is a substantial probability of winning the election with this platform.

We know that in political competition between two parties, the platform who is closer to the median voter's ideal point wins the election. Therefore, the probability that the left platform wins the election is

$$\pi\left(y_L, y_R\right) = \Pr\left(M < \left(y_L + y_R\right)/2\right).$$

In our model, however, the location of the median voter's ideal point is unknown. Parties believe that the location of the median voter is distributed according to (1), which we assume to be normal. This transforms the expression into

$$\pi\left(y_L, y_R\right) = \int_{-\infty}^{(y_L+y_R)/2} \frac{1}{\sqrt{2\pi\beta}} e^{-(M-\mu)^2/2\beta^2} dM \ .$$

In equilibrium parties L and R mutually maximize their expected utilities. The expected utility for a policy-motivated party $i = \{L, R\}$ is:

$$(5) \qquad EU_i = \pi(y_L, y_R)\left(-\left(y_L - p_i\right)^2\right) + \left(1 - \pi(y_L, y_R)\right)\left(-\left(y_R - p_i\right)^2\right).$$

The Wittman political equilibrium is a pair $\left(y_L^*, y_R^*\right)$ where

$$y_L^* = y_L \text{ such that } y_L \text{ solves } \frac{\partial EU_L}{\partial y_L} = 0 \,|\, y_R = y_R^*,$$

$$y_R^* = y_R \text{ such that } y_R \text{ solves } \frac{\partial EU_R}{\partial y_R} = 0 \,|\, y_L = y_L^*.$$

Using the equilibrium, we can examine how *vote share*, *party preferences, electoral volatility*, *confidence in prior beliefs*, and *electoral polarization* affect the choice of platforms in the current election. Most of these results are obtained numerically. Roemer (2001, p.89) notes that "although the Wittman model is, in most cases, too complex to permit solving for the political equilibrium by hand, solutions are easily computable by machine." In particular, most analytical comparative statics rely on an assumption of preferences that are symmetric around

the mean of the median voter distribution. It is not possible to make this assumption if beliefs about the median voter change from one election to the next—parties can have symmetric preferences either in the prior election or the posterior election but not both. Therefore, to study the effect of beliefs on the equilibrium behavior of policy-motivated parties we turn to simulation. In the following results we provide specific examples based on a particular set of parameters.[3] However, unless otherwise noted the results apply equally to symmetric and asymmetric party preferences and are robust to thousands of parameter combinations that we tried.

RESULTS

Vote Share: Moving with the Mandate

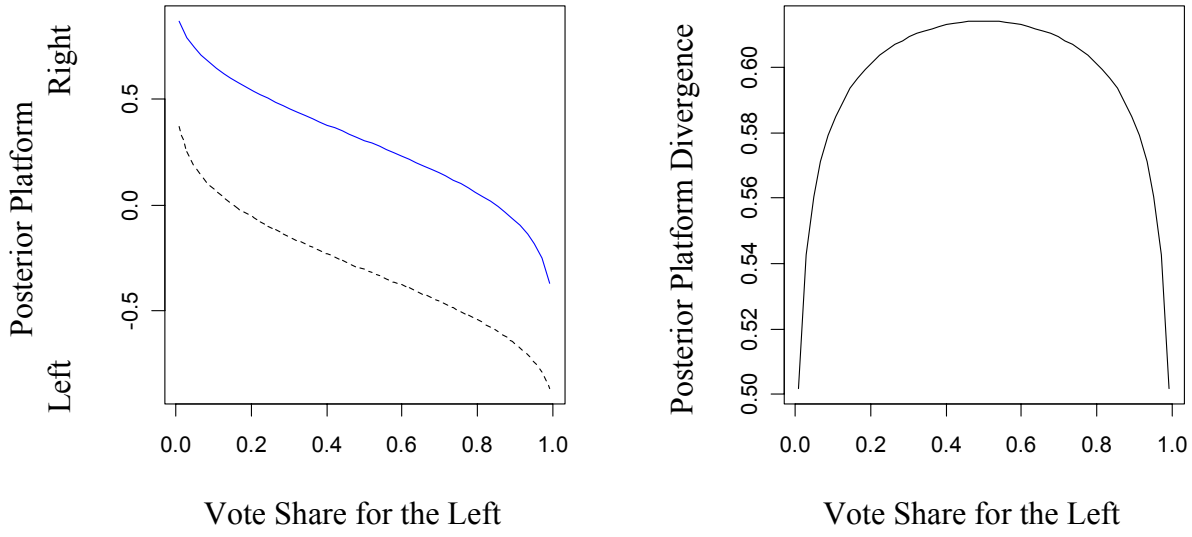
Figure 1 illustrates how parties react to the outcome of the previous election. The left graph shows the effect of vote share on the equilibrium platforms of both parties when everything else in the model is held fixed. Higher values in this graph indicate more conservative platforms. The top line shows the platform for the right party while the bottom line shows the platform for the left party. Notice that *both* platforms become more liberal as vote share for the left party increases:

Result 1: *Increasing the left vote share in the previous election shifts the platforms from* both *parties to the left; decreasing the left vote share shifts platforms from* both *parties to the right; and the size of the shift is increasing in the margin of victory.*

For example, suppose the left wins 70% of the vote instead of 60%. The higher left vote share indicates the median voter is farther to the left, so the left party has more leeway to move platforms toward its own preferences while the right feels more pressure to move its platforms

[3] The base set of parameters used in all the figures is $p_L = -1$, $p_R = 1$, $\mu = 0$, $s = 0.5$, $\beta = 0.25$, $b = 0.25$, $B = 0.5$.

Figure 1. Effect of Vote Share on Party Platforms



Note: Solid line is the Right party, dashed line is the Left party.

towards the center. In other words, *both* parties move with the mandate. The right graph in Figure 1 shows the effect of vote share on divergence. Notice first of all that regardless of the size of the vote share parties do not converge. This confirms a well-known result that policy-motivated parties offer divergent platforms when the location of the median voter is not known with certainty (Wittman 1983, Hansson and Stuart 1984, Calvert 1985, Roemer 1997). In addition, the degree of divergence varies with the margin of victory. In Figure 1, the right platform is farthest away from the left platform when the previous election was very close ($s = 0.5$). Conversely, when one party wins in a landslide (e.g. $s = 0.1$ or $s = 0.9$) the platforms end up closer together. Thus, close elections tend to drive parties farther away from each other:

Result 2: *Divergence in platform positions is increasing in the closeness of the previous election.*[4]

This result may seem counterintuitive. For example, Robertson (1976) argues that close elections indicate the electorate is evenly divided and, therefore, parties will compromise and offer centrist platforms.[5] However, Robertson's argument does not take into account the asymmetric forces that affect the equilibrium platforms of the winning and losing party. Election results suggest that the location of the median voter is closer to the party that won the election. In addition, they decrease uncertainty about the location of the median voter. For the losing party, both forces work in the same direction, toward the center. The party not only learns that the median voter is located father away from its own preferences, it also becomes more confident

[4] Strictly speaking, this result depends on parties having preferences that are symmetric around the median voter in the previous election. With asymmetric preferences, the greatest divergence occurs when the more extremist party wins by a small margin. However, unless the asymmetry is very large, close elections will usually yield more divergence than landslide elections.

[5] We thank James Adams for bringing this to our attention.

about this location.[6] For the winning party the two forces oppose each other. Winning the election allows a party to move away from the center toward its own preference point. At the same time, however, the party becomes more confident about the location of the median voter, which drives its new equilibrium platform toward the center. These asymmetric forces yield the following result:

Result 3: *The losing party shifts more than the winning party.*

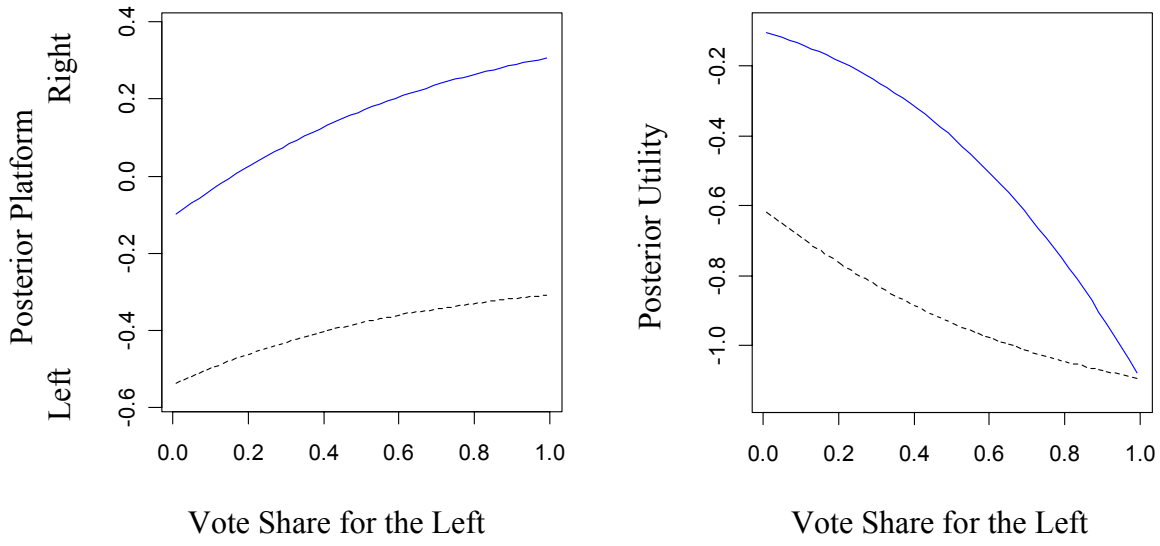
Figure 1 shows that as the vote share of the winning party increases, it chooses a more extreme platform. In fact, the marginal effect of vote share *increases* as the margin of victory becomes more extreme. However, the marginal effect on the losing party is even stronger as it races to close the gap between itself and the winning party. Hence, divergence tends to be highest after a close election. Qualitatively, the winning party nearly always claims a mandate even if it wins by a small margin (cf Conley 2002); the losing party, however, does not always compromise. When the election is close, the losers are *least* likely to sacrifice their policy preferences because they know that the winners will not become much more extreme. This decreases the losing party's aversion to a loss, giving it more leeway to hold its ground.

Asymmetric Preferences

Figure 2 shows how changing the preference of the Right party from 0 to 1 affects party utilities and equilibrium platforms. Notice that as the preferences of the right party become more extreme, it tends to choose platforms farther to the right and both parties' utilities decrease. This

[6] The posterior variance β' is always less than the prior variance β since $\beta' = \frac{b\beta}{b+\beta}$ and $\frac{b}{b+\beta} < 1$.

Figure 2. Effect of Party Preferences on Platforms and Utilities



Note: Solid line is the Right party, dashed line is the Left party.

may not be surprising, but it does provoke an interesting reaction from the left. Figure 2 shows that the Left party reacts to a more extreme opponent by choosing a platform *closer* to the center. These results can be generalized as follows:

Result 4: *As one party's ideal point becomes more extreme, the equilibrium platforms of* both *parties move in the direction of the change but utilities for both parties decline. The magnitude of this change is greater for the party that becomes more extreme than the other party.*

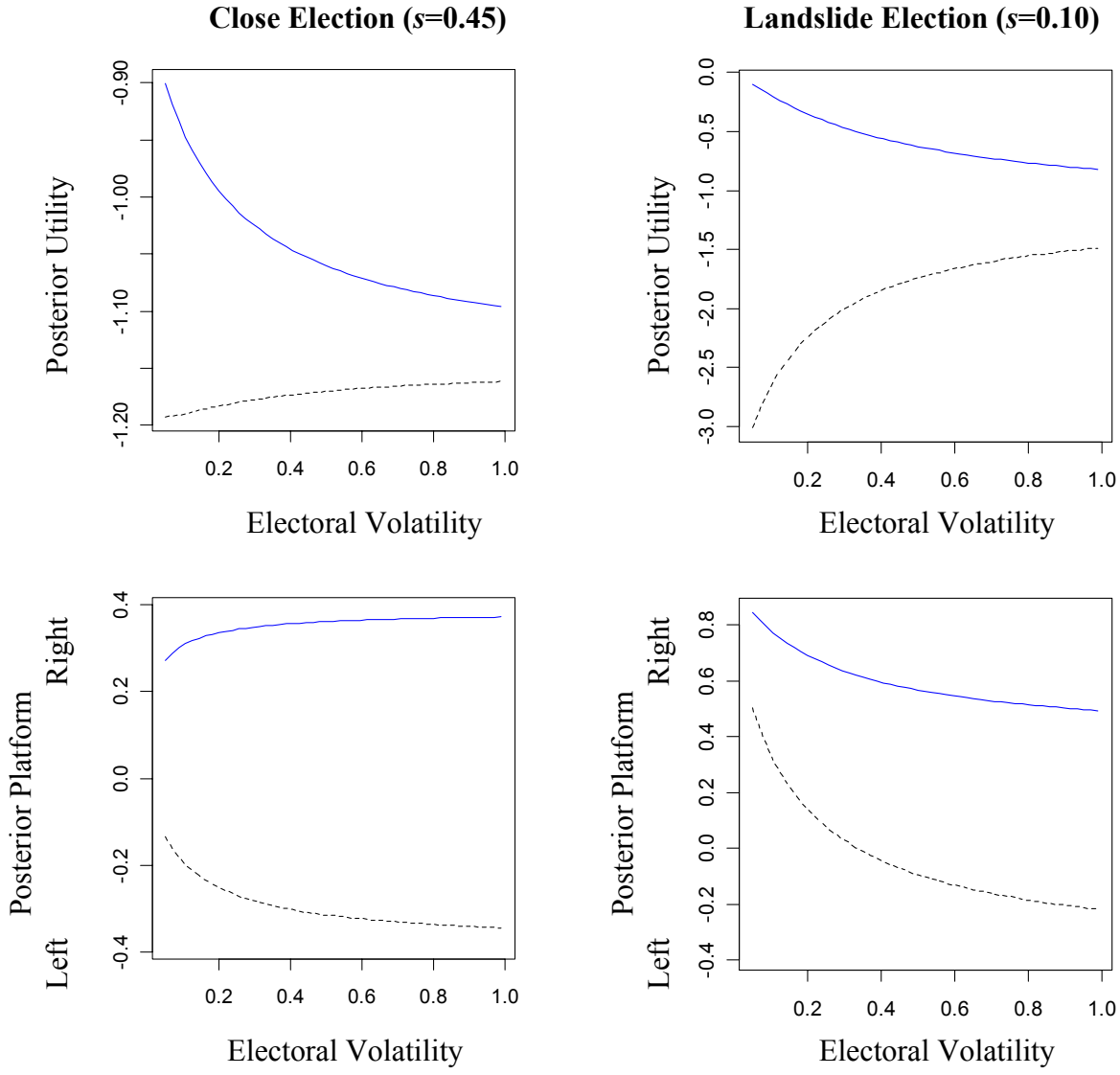
This dynamic may surprise formal theorists and scholars who study party behavior. First, a more extreme platform has a lower probability of winning the election. Second, a more extreme platform can be viewed as an aggressive challenge to the other party. Both factors might warrant a Tit-For-Tat type response: the other party could similarly choose a more extreme platform closer to its preference point. Nevertheless, the other party chooses a more moderate platform in equilibrium. This has to do with risk aversion in the utilities. Although more extreme platforms are less likely to win elections, when they do it is much more painful to the opposing party. Thus, offering a moderate platform is the best response to increased extremism in one's opponent.

Finally, notice that the top line in Figure 2 is steeper, meaning that the right party is more sensitive to its own preference change than the other party. Although the Left does not react to extremism with extremism, the opportunity to satisfy its own preferences when the Right puts itself at an electoral disadvantage does seem to dampen the Left's move towards the right.

Electoral Volatility: Winner's Foe, Loser's Ally

Recall that electoral volatility is the variance in the distribution of the median voter. Lower values of electoral volatility indicate that the election results provide reliable information that can be used to infer the location of the median voter. Higher values mean there is a noisier

Figure 3. Effect of Electoral Volatility on Party Utilities and Platforms



Note: Solid line is the Right party, dashed line is the Left party.

relationship between election outcomes and the voter distribution. The top graphs in Figure 3 show how electoral volatility affects party utilities after the election. In the left graph the Right party wins a close election while in the right graph it wins in a landslide. Notice that the Right party is hurt by increasing volatility but the Left is helped. This effect is generalized in the following result:

Result 5: *Greater electoral volatility decreases the utility of the winning party, and increases the utility of the losing party.*

This is because volatility reduces the capacity of the winning party to satisfy its own preferences in the following election. Claims of a mandate are more credible when the volatility is low because election outcomes provide more information about voter preferences than they do when electoral volatility is high. Thus, the winning party benefits from *lower* electoral volatility while the losing party benefits from *higher* volatility.

However, the effect on future platforms is more complicated. Consider the bottom graphs in Figure 3. The left graph shows how electoral volatility affect platforms when the Right party won a close election while the right graph shows the effect when it won in a landslide. Regardless of the margin of victory, increasing the belief that the election results do not reflect the opinion of the electorate causes the Left party to discount the election and move towards its own preference in choosing a new platform. The effect on the Right party depends on the margin of victory. When the Right wins a close election, greater electoral volatility leads to a more extreme platform. When the Right wins in landslide, greater electoral volatility makes the party choose a more moderate platform. These effects are summarized as follows:

Result 6: *Greater electoral variance causes parties to choose a more extreme platforms with one exception: if the margin of victory is large, greater electoral variance causes the winning party to choose a more moderate platform.*

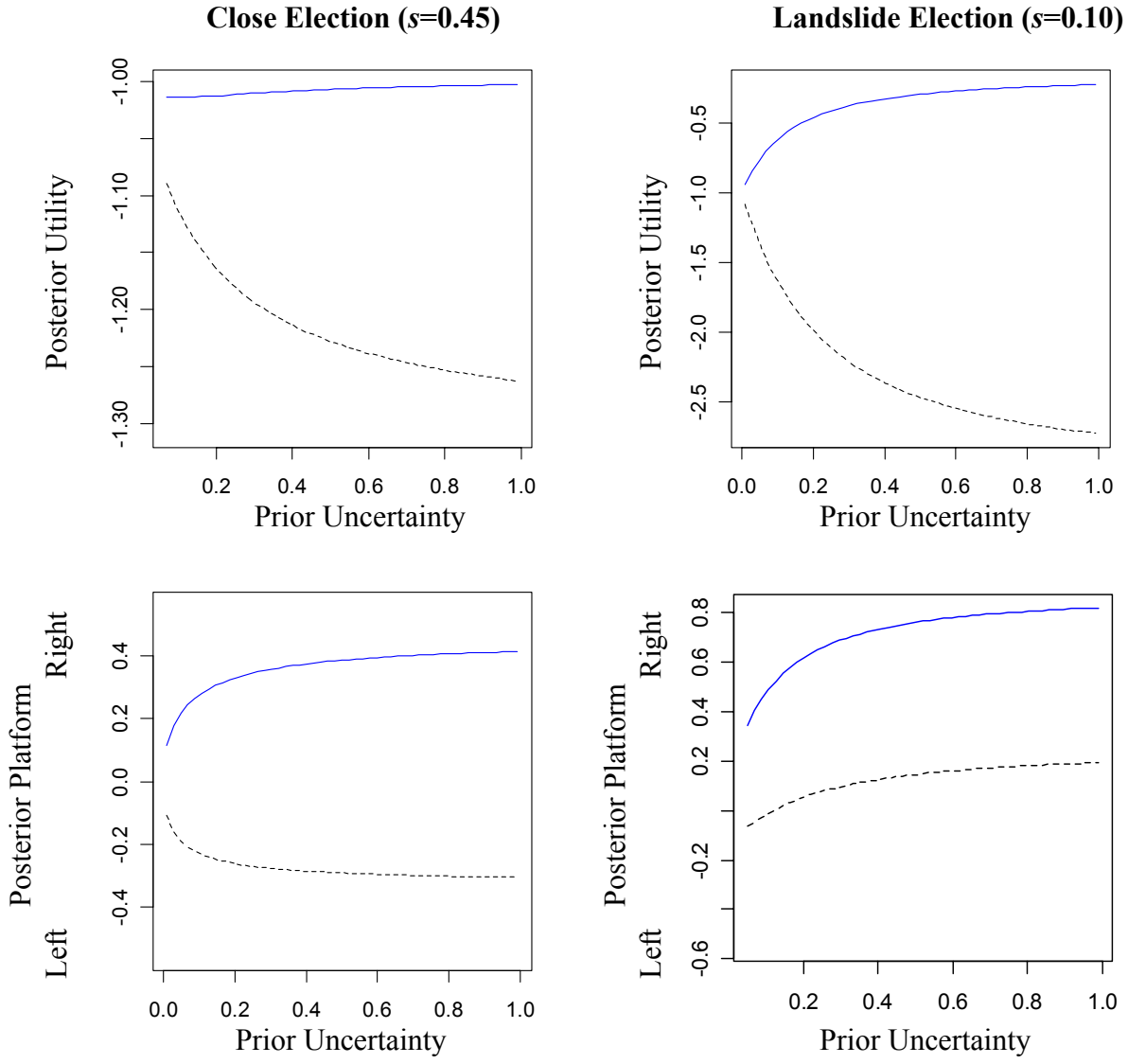
The explanation is intuitive. We know that uncertainty is necessary for divergence, but it also decreases the importance of the margin of victory. Higher electoral volatility makes it more difficult to tell who the electorate actually prefers when the election is close, which causes both the winner and the loser to offer more extreme platforms. However, higher volatility also increases the chance that a landslide victory might have been a fluke, weakening the inference that the landslide winner is much closer to the median voter. This pushes the winner back towards the center and at a high enough margin of victory reverses the relationship between electoral volatility and the winner's platform.

Prior Information: Confidence Yields Divergence

Confidence in prior information is defined as the party's prior belief about the variance of the location of the median voter. High variance means that parties have little certainty about their prior beliefs. Low variance means that prior information is thought to be reliable. In the extreme case when the variance is zero (perfect certainty), the parties think they know the exact location of the median voter to which they converge. The top graphs in Figure 4 show the effect of confidence in prior beliefs on party utilities. Notice that confidence *decreases* as the prior uncertainty increases. The left graph shows how increasing uncertainty (decreasing confidence) affects utilities after the Right party wins a close election while the right graph shows the effect after it wins in a landslide. Notice that regardless of the margin of victory, increasing uncertainty in prior beliefs helps the Right and hurts the Left. The relationship between confidence and utility generalizes to the following result:

Result 7: *Decreasing confidence in prior information increases the utility of the winning party, and decreases the utility of the losing party.*

Figure 4. The Effect of Prior Uncertainty on Party Utilities and Platforms



Note: Solid line is the Right party, dashed line is the Left party.

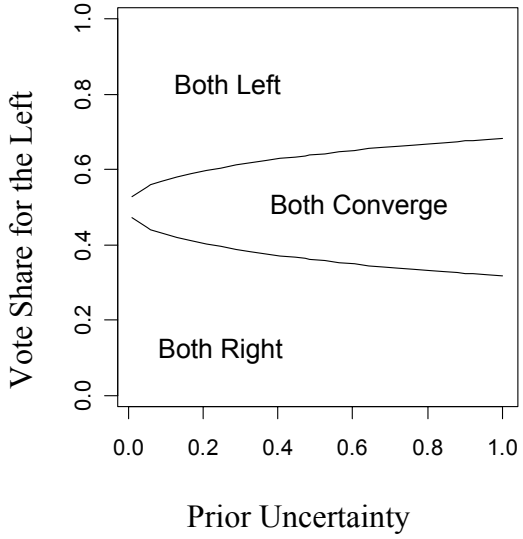
Higher uncertainty about prior beliefs increases the relative importance of new information obtained from the election outcome, which makes winning more meaningful for estimating the location of the median voter. This increases the ability of the winning party to shift platforms towards its own preference by claiming a mandate after an election. Thus, the winning party benefits from *less* confidence in prior beliefs while the losing party benefits from *more* confidence.

The effect on future platforms is less straightforward. Consider the bottom graphs in Figure 4. The left graph shows how uncertainty about prior beliefs affects platforms after the Right party wins a close election while the right graph shows the effect after it wins in a landslide. Regardless of the margin of victory, increasing uncertainty (decreasing confidence) in prior beliefs causes the Right party to propose a platform closer to its own ideal point. The effect on the Left party depends on the margin of victory. When the Left loses in landslide, increasing uncertainty causes the Left to shift towards the Right. Otherwise when the Left loses a close election, increasing uncertainty causes the Left to shift towards its own ideal point. These effects are generalized as follows:

Result 8: *Decreasing confidence in prior beliefs causes parties to choose more extreme platforms with one exception: if the margin of victory is large, then decreasing confidence in prior beliefs causes the losing party to choose a more moderate platform.*

Decreasing confidence in prior information increases posterior uncertainty about the location of the median voter which pushes both parties towards the extreme. However, reduced confidence in prior beliefs also increases the relative importance of new information obtained from election results and makes both parties more sensitive to the winner's claim of a mandate. Thus, at a high enough margin of victory the relationship between confidence and the loser's platform reverses.

Figure 5. Effect of Confidence in Prior Beliefs on Platform Convergence



Note: "Both Left," "Both Right," and "Both Converge" indicate areas where the combination of vote share and prior uncertainty causes both parties to shift left, right, and towards the center, respectively.

An important implication of these dynamics is that greater *prior* uncertainty *increases* the likelihood that both parties will move toward the center. The three areas in Figure 5 show when both parties move left, right, or towards the center as we vary both the vote share and confidence in prior information. Notice that for higher levels of uncertainty (less confidence in the prior) there is an increasing range of electoral outcomes that cause both parties to move towards the center:

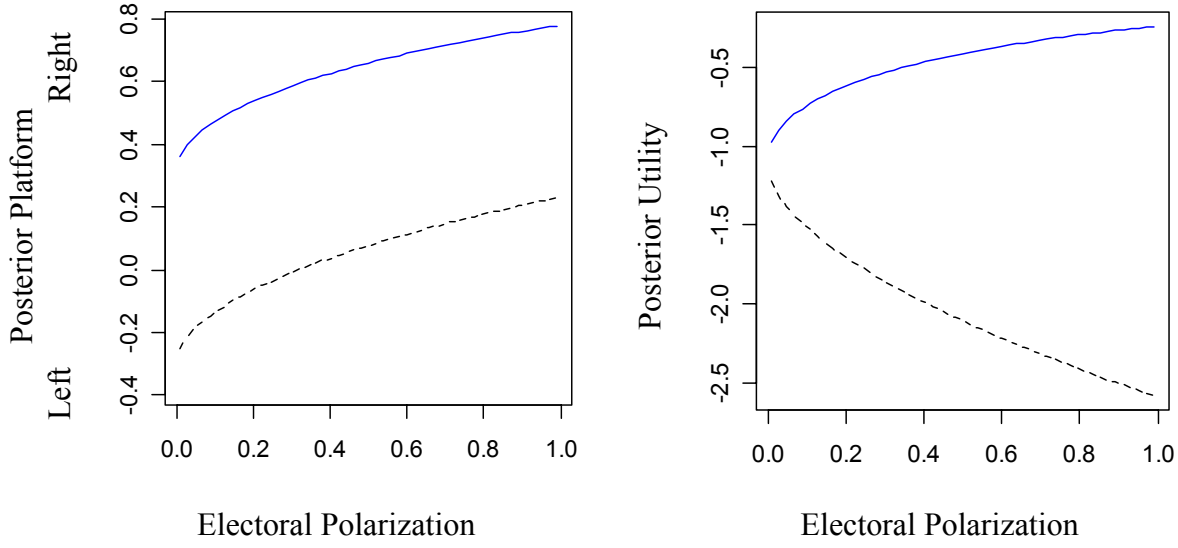
Result 9*: Greater prior uncertainty about the location of the median voter increases the range of vote share under which both parties move toward each other.*

This result may seem at odds with what we have learned from the literature on policy-motivated parties under uncertainty. This literature suggests that uncertainty about the location of the median voter increases *divergence*. However, Figure 5 demonstrates that when parties are less certain about their *prior* beliefs they are more likely to *converge*. The explanation for this paradox is simple. Parties are most likely to move toward the center when the election is close because there is no mandate effect to push parties left or right and the reduced uncertainty from observing the election causes the parties to converge towards the center. As the prior uncertainty *increases*, it improves the informative value of the observed election for *reducing* posterior uncertainty. This increases the strength of the pull towards the center and counteracts the mandate effect for a wider range of election outcomes.

Electoral Polarization: Mandate Amplifier

Party leaders, activists, and even rank-and-file members are known to have polarized preferences that diverge significantly from those of the median voter (Hetherington 2001; Iversen 1994; Layman and Carsey 2002; Abramowitz and Saunders 1998; DiMaggio, et al. 1996). We contribute to this largely non-formal literature by showing how the magnitude of this

Figure 6. Effect of Electoral Polarization on Party Platforms and Utilities



Note: Solid line is the Right party, dashed line is the Left party. A vote share of s=0.10 is assumed.

divergence affects political equilibrium. In the model, the degree of polarization of the electorate is related to the variance of the voter distribution. A small variance indicates that voters have similar preferences. A large variance suggests that there are more extremists and voters are spread more broadly across the policy space. Figure 6 shows what happens to platforms and utilities after a victory by the Right party as we increase electoral polarization. Notice that increasing polarization helps the Right, hurts the Left, and causes both parties to shift towards the right. These results can be generalized as follows:

Result 10: *Increasing electoral polarization causes the winning party to propose a more extreme platform and the losing party to propose a more moderate platform. This increases the utility of the winning party and decreases utility of the losing party.*

The effect of electoral polarization on platforms and utilities is straightforward. A fixed margin of victory implies a certain shift in the location of the median voter from the prior belief about its location. As the voters become more polarized, the size of this shift increases because the same number of voters is spread over a larger region of the policy space. The larger shift in the updated belief causes both parties to shift their platforms more in the direction of the winner which increases the winner's utility and decreases the loser's utility. Thus electoral polarization magnifies the importance of the mandate on future platforms.

Discussion

Our analysis of dynamic political competition is based upon a unidimensional spatial model, in which we assume that the location of the median voter is unknown and that the parties competing for office are policy-motivated. We further assume that the previous election is functionally analogous to an accurate public opinion poll about the party platforms (cf Adams et al 2003). This setup allows us to examine how the margin of victory, party ideal points, electoral

Table 1. Summary of Results

	Exogenous Change				
Effect	*Winning party's vote share increases*	*Winning* party's ideal point becomes more extreme*	*Electoral volatility increases*	*Confidence in prior beliefs decreases*	*Electoral polarization increases*
Winning party's platform becomes	Somewhat More Extreme	Much More Extreme	More Extreme for Close Elections; More Moderate for Landslides	More Extreme	More Extreme
Losing party's platform becomes	Much More Moderate	Somewhat More Moderate	More Extreme	More Extreme for Close Elections; More Moderate for Landslides	More Moderate
Wining party's utility	Increases**	Decreases	Decreases	Increases	Increases
Losing party's utility	Decreases**	Decreases	Increases	Decreases	Decreases
From results	1,2,3	4	5,6	7,8,9	10

Note: *Results are symmetric for changes in the losing party's ideal point—the loser becomes much more extreme, the winner becomes somewhat more moderate, and both parties lose utility. **These effects on utilities are not shown in the figures but are included here for completeness.

volatility, confidence in prior information, and electoral polarization affect equilibrium behavior (Table 1). The main result is that mandates matter. An increase in the winning party's vote share in the previous election helps the winner and hurts the loser because it causes *both* parties to shift their platforms for the next election in the direction of the winner's ideal point. This result is supported by Fowler (2003), which shows that US Senate candidates from winning parties tend to become more extreme and candidates from losing parties tend to become more moderate in proportion to the previous margin of victory. The model also suggests that the losing party tends to shift more than the winning party and the size of the difference is increasing in the margin of victory. Thus contrary to the conventional wisdom, close elections yield the *greatest* amount of divergence in the parties.

In contrast to past analytical efforts that assume party ideal points are symmetric about the median voter, we analyze the effect of asymmetric ideal points on party behavior. Scholars have typically assumed that extremity provokes extremity, but our model shows that when one party becomes more extreme in its ideal point the other party responds by offering a more *moderate* platform. This suggests a perverse incentive. If activists with extreme ideal points can manipulate the ideal point of their party they can pull not only their *own* party's platform, *but also the opponent party's platform* towards their ideal point. This may help to explain the extremity of preferences known to exist among party leaders, activists, and rank-and-file party members (Hetherington 2001; Iversen 1994; Layman and Carsey 2002; Abramowitz and Saunders 1998; DiMaggio, et al. 1996).

We also analyze the effect of two different kinds of uncertainty on the model, electoral volatility and confidence in prior beliefs. The impact of electoral volatility is well known (Roemer 2001). More volatile elections yield greater uncertainty about the location of the

median voter causing both parties to offer more extreme platforms. The model reproduces this finding with one exception. A party that wins the previous election in a landslide will actually offer a more *moderate* platform as electoral volatility increases because the greater uncertainty decreases the credibility of claiming a mandate. The second kind of uncertainty, confidence in prior beliefs, has not been studied previously but we show it also has an important impact on equilibrium platforms. Decreasing confidence in prior beliefs means the parties have *greater* prior uncertainty about the location of the median voter and this causes both parties to offer more extreme platforms. Once again there is an exception relating to the vote share. A party that *loses* the previous election in a landslide will actually offer a more *moderate* platform as confidence in prior beliefs decreases because this increases the information value of the loss which makes the loser more sensitive to the mandate.

The net effect of uncertainty on change in platforms is somewhat counterintuitive. While greater uncertainty yields more divergent platforms, it also increases the range of electoral outcomes in which both parties move towards the center after observing the outcome of the previous election. Thus, increasing uncertainty actually increases the probability that parties will converge.

Finally, electoral polarization has an important effect on the choice of equilibrium platforms. A more polarized electorate allows the winning party to choose a platform closer to its ideal point, but it also makes the losing party choose a more moderate platform. In terms of expected utility, greater polarization benefits the winner and hurts the loser. Again, this suggests a perverse incentive. If parties have control over the relative polarization of the electorate, this implies that winners may try to divide the public while losers try to unite it. Since winners end up with control of the policy apparatus, this may help to explain why polarization in the

electorate persists. However, these results are merely suggestive—future analytical efforts should endogenize electoral preferences to study whether or not such incentives exist in a richer model.

To conclude, we note that we are surprised that this work has not been conducted already. The Wittman model is very simple and has been around for almost 30 years. Roemer (2001, p.71) notes that the fact that it produces policy divergence means that it is probably a better model than the traditional models of office-motivated parties. However, very little work has been done to extend the Wittman model, probably because of its analytical intractability. This is unfortunate because the model is extremely easy to solve and analyze with the aid of a computer. Analytical solutions to formal models are highly prized because they are simple and transparent, but it seems strange to value them so much that we eschew plausible models merely because they are analytically intractable.

References

Abramowitz, A. I., and K. L. Saunders. "Ideological Realignment in the Us Electorate." Journal of Politics 60, no. 3 (1998): 634-52.

Adams, James, and Samuel Merrill, III. 2003. "Policy-seeking Motivations When One Platform Has a Valence Advantage: Strategic Implications and Empirical Applications to Presidential Elections." Manuscript. UC-Santa Barbara.

Adams, James, Michael Clark, Lawrence Ezrow, and Garrett Glasgow. 2003. "Understanding Change and Stability in Party Ideologies: Do Parties Respond to Public Opinion or to Past Election results?" Manuscript. UC-Santa Barbara.

Box, George E. P., and George C. Tiao. 1973. *Bayesian Inference In Statistical Analysis*. Reading, MA: Addison-Wesley Publishing Company.

Calvert, Randall L. 1985. "Robustness of the Multidimensional Voting Model: Platform Motivations, Uncertainty, and Convergence." *American Journal of Political Science* 29:69-95.

Chappell, Henry W., Jr., and William R. Keech. 1995. "Policy Motivation and Party Differences in a Dynamic Spatial Model of Party Competition." *American Political Science Review* 80:881-899.

Conley, Patricia. 2001. *Presidential Mandates: How Elections Shape the National Agenda.* Chicago: University of Chicago.

Cox, Gary W. 1997. *Making Votes Count.* New York: Cambridge University .

Craig, Stephen C., Richard G. Niemi, and Glenn E. Silver. 1990. "Political Efficacy and Trust: A Report on the NES Pilot Study Items." *Political Behavior* 12:289- 314.

Davis, Otto, Melvin Hinich, and Peter Ordeshook. 1970. "An Expository Development of a Mathematical Model of the Electoral Process." *American Political Science Review* 64:426-448.

DiMaggio, P., J. Evans, and B. Bryson. "Have Americans' Social Attitudes Become More Polarized?" American Journal of Sociology 102, no. 3 (1996): 690-755.

Downs, Anthony. 1957. *An Economic Theory of Democracy*. New York: Harper Collins.

Fowler, James H. 2003a. "Dynamic Responsiveness in the US Senate." Manuscript.

Fowler, James H. 2003b. "Elections and Markets: Partisan Orientation, Policy Risk, Mandates and the Economy." Manuscript.

Fudenberg, Drew, and David K. Levine. 1997. MIT Press.

Groseclose, Tim. 2001. "A Model of Platform Location When One Platform Has a Valence Advantage." *American Journal of Political Science* 45:862-886.

Hansson, Ingemar, and Charles Stuart. 1984. "Voting Competitions with Interested Politicians: Platforms Do Not Converge to the Preferences of the Median Voter." *Public Choice* 44:431-441.

Hetherington, M. J. "Resurgent Mass Partisanship: The Role of Elite Polarization." American Political Science Review 95, no. 3 (2001): 619-31.

Iversen, T. "The Logics of Electoral-Politics - Spatial, Directional, and Mobilizational Effects." Comparative Political Studies 27, no. 2 (1994): 155-89.

Iyengar, Shanto. 1980. "Subjective Political Efficacy as a Measure of Diffuse Support." *Public Opinion Quarterly* 44:249-256.

Kramer, Gerald. 1977. "A Dynamical Model of Political Equilibrium." *Journal of Economic Theory* 16:310-334.

Layman, G. C., and T. M. Carsey. "Party Polarization and "Conflict Extension" in the American Electorate." American Journal of Political Science 46, no. 4 (2002): 786-802.

Ledyard, John D. 1984. "The Pure Theory of Large Two Party Elections." *Public Choice* 44:7-41.

Londregan, John, and Thomas Romer. 1993. "Polarization, Incumbency, and the Personal Vote." In William A. Barnett, Melvin Hinich, and Norman Schofield (eds.), *Political Economy: Institutions, Competition, and Representation*. New York: Cambridge University Press.

Osborne, Martin J. 1995. "Spatial Models of Political Competition Under Plurality Rule: A Survey of Some Explanations of the Number of Platforms and the Positions They Take." *Canadian Journal of Economics* 28:261-301.

Page, Benjamin I., and Robert Y. Shapiro. 1983. "Effects of Public Opinion on Policy." *American Political Science Review* 77:175-190.

Pateman, Carole. 1970. *Participation and Democratic Theory.* New York: Cambridge University.

Peterson, David A. M., Lawrence J. Grossback, James A. Stimson, and Amy Gangl. 2003. "Congressional Response to Mandate Elections." *American Journal of Political Science* 47:411-426.

Piketty, Thomas. 2000. "Voting as Communicating." *Review of Economic Studies* 67:169-191.

Robertson, David. 1976. *A Theory of Party Competition.* London: J. Wiley.

Roemer, John E. 1997. "Political-Economic Equilibrium When Parties Represent Constituents: The Unidimensional Case." *Social Choice and Welfare* 14:479-502.

Roemer, John E. 2001. *Political Competition: Theory and Applications*. Cambridge: Harvard University Press.

Stigler, George. 1972. "Economic Competition and Political Competition." *Public Choice* 13:91-106.

Stimson, James A., Michael B. Mackuen, and Robert S. Erikson. 1995. "Dynamic Representation." *American Political Science Review* 89:543-565.

Stone, Walter J. 1980. "The Dynamics of Constituency: Electoral Control in the House." *American Politics Quarterly* 8:399-424.

Wittman, Donald. 1977. "Platforms with Policy Preferences: A Dynamic Model," *Journal of Economic Theory* 14:180-189.

Wittman, Donald. 1983. "Platform Motivation: A Synthesis of Alternative Theories." *American Political Science Review* 77:142-157.