

# The Spatial Voting Model

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## OVERVIEW

We first discuss spatial voting models of party-centered elections<sup>1</sup> involving a continuum that is typically a broad Left–Right (liberal–conservative) ideological dimension which encompasses debates over income redistribution and government intervention in the economy, a major electoral cleavage in most western democracies. The Left–Right continuum is *positional* in that different voters prefer – and different parties advocate – different positions along this continuum. We review the assumptions that underlie the positional spatial model of elections, and then survey spatial modeling research on parties’ positional strategies in these types of elections. We describe how a fundamental spatial modeling result is that vote- or office-seeking parties are typically motivated to advocate policies near the center of public opinion, i.e., near the middle of the distribution of voters’ preferred Left–Right positions (Downs, 1957). This prediction applies most

strongly to elections between two dominant parties (as in the United States and, in earlier periods, British politics), but important elements of this prediction extend to elections featuring three or more parties, i.e., multi-party elections (as in most other western democracies). We then identify an empirical puzzle, namely that parties typically fail to converge towards the center of the voter distribution (or towards each other) to the extent predicted by basic positional spatial models.

We then discuss two possible solutions to this empirical puzzle of party positional divergence. The first extends the spatial model of *voters’ motivations* to consider election scenarios where, in addition to their Left–Right concerns, voters also weigh parties’ reputations along character-based dimensions such as party elites’ reputations for competence, integrity, and leadership – i.e., to a *valence dimension* of party competition. In the case of valence issues, it is perhaps plausible to assume that voters agree about which character-based traits

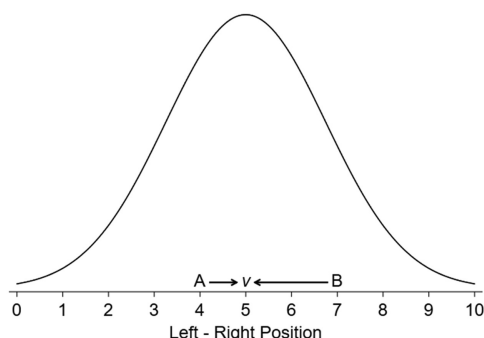
they prefer, i.e., all citizens prefer that party elites possess more rather than less competence, integrity and leadership ability, and moreover all political parties seek to publicly convey positive valence attributes.<sup>2</sup> However, the parties may be differentiated on valence because voters perceive some parties' elites possessing superior character-based valence traits compared with rival parties' elites. We show how, in a spatial model that includes both a positional and a valence dimension, vote- and office-seeking parties may rationally propose radical Left–Right positional strategies that differ sharply from rival parties' positions, and also from the mainstream of public opinion. These radical strategies are not predicted by the positional spatial model that omits valence.

We next explore an extension of the spatial model that considers an alternative *party motivation*, namely that parties – like voters – have preferences over government policy outputs. We show how this assumption can prompt policy-seeking parties to advocate sharply noncentrist positions relative to rival parties, and also relative to their expectations about public opinion.

## EMPIRICAL AND THEORETICAL RESEARCH ON ALTERNATIVE DIMENSIONS OF VOTING

### *Positional Dimensions of Voting*

The spatial model of party competition is associated with the research of Harold Hotelling (1929) and Anthony Downs (1957). The simplest spatial model represents policy debates as options along a one-dimensional continuum or line, and posits that both the policies that voters prefer and the policies that parties advocate are represented by positions along this line. The best known dimension in contemporary western democracies is the Left–Right or liberal–conservative dimension, which involves disagreements over issues such



**Figure 12.1** Illustrative placements of a voter *v* and parties *A*, *B*, on left–right ideology

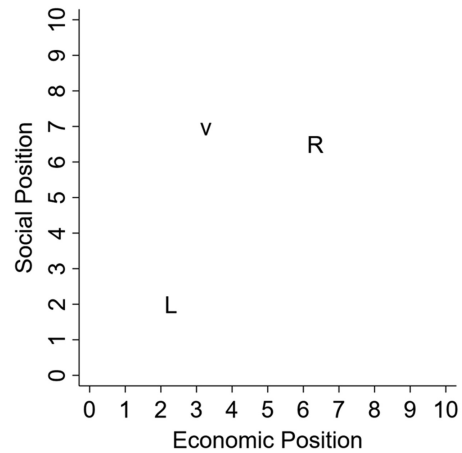
as government intervention in the economy and income redistribution. Figure 12.1 illustrates such a one-dimensional model representing the Left–Right scale, with a voter *v* located closer to party *A* than to party *B*, so we expect that, all else equal, this voter would prefer party *A* to party *B*. In this illustration the Left–Right scale runs from zero to 10, which mirrors the scale that is typically presented to respondents in national election surveys, where the convention is that higher numbers denote more right-wing positions. Empirical studies find that this Left–Right dimension is central to voter choice in western democracies, with communist, socialist and labor parties associated with leftist positions, while conservative and Christian democratic parties are associated with right-wing positions (Dalton et al., 2011).

We note that media and political elites' references to 'left' versus 'right' are shorthand for a *set of* positions on more specific issues. Thus the designation that a party (or a voter) is *left-wing* on economic issues denotes that the party advocates more progressive tax policies and expanded social welfare programs that tend to redistribute income from more to less affluent citizens, whereas *right-wing* parties (and voters) favor less progressive tax policies and a more modest social welfare safety net. These left- or right-wing labels may also encompass employment-related

issues such as the legal rights and restrictions on labor unions, the minimum wage and the degree of government intervention in the economy (Adams, 2018). Moreover, as one would expect, empirical studies find that more left-wing citizens tend to support left-wing parties while right-wing voters tend to support right-wing parties (Bølstad and Dinas, 2017; Powell, 2000).

We note that although Left–Right economic policy dominated positional debates in most western democracies at least through the 1970s, cross-cutting cleavages have emerged pertaining to debates that are not directly aligned with Left–Right economic issues. One set of debates pertains to social and moral issues including abortion, gay rights and gender equality, which cross-cut the Left–Right economic dimension because citizens’ economic views do not necessarily correlate strongly with their views on social and moral issues (Kitschelt, 1994; Marks et al., 2006). Another emerging cleavage pertains to issues involving race, religion and immigration, where, again, citizens (and parties) who share similar Left–Right economic viewpoints may disagree over issues such as affirmative action, multiculturalism and immigration policies. Well before the 1970s, the issue of civil rights in the United States, primarily associated with long-standing racial attitudes, defined a major dimension that cut strongly across the economic dimension and that split the Democratic Party into Southern and Northern branches.

Accordingly, the one-dimensional scale (from liberal to conservative or Left to Right) discussed earlier can be extended to a two-dimensional positional model, represented by a plane with  $X$  and  $Y$  axes. For example, one dimension, say  $X$ , might represent economic (traditional Left–Right) issues while the second dimension  $Y$  might represent social issues. In this two-dimensional model, a voter  $v$  has preferred positions on both the economic scale (say  $v_1$ ) and on the social issue scale (say  $v_2$ ), and is hence represented by a point  $(v_1, v_2)$  in the plane. Generally, it is



**Figure 12.2** Illustrative placement of a voter  $v$  and parties  $L$  and  $R$  in a two-dimensional space

assumed that a voter prefers a party whose expressed positions in this two-dimensional plane are nearest to their own. Figure 12.2 illustrates a voter  $v = (v_1, v_2)$  who is liberal on economic issues but conservative on social issues and is closer overall to party  $R$  than to party  $L$ , even though this voter is closer to  $L$  on the single economic dimension.

### ***A Non-Positional Dimension of Voting and Elections: ‘Valence’ Issues***

As discussed above, the Left–Right economic dimension – along with dimensions pertaining to social/moral issues, multiculturalism, and so on – is *positional* in the sense that voters (and parties) hold conflicting positions. Despite the continuing relevance of such dimensions, in recent years scholars have considered the effects of *valence dimensions* of voters’ party evaluations. Stokes (1963) coined this term to denote dimensions ‘on which parties or leaders are differentiated not by what they advocate, but by the degree to which they are linked in the public’s mind with conditions,

goals, or symbols of which almost everyone approves or disapproves' (Stokes, 1992: 143). Valence dimensions include such attributes as parties' (and party leaders') images with respect to honesty, competence, empathy and charisma.<sup>3</sup> These dimensions contrast with the Left–Right positional dimension, on which 'parties or leaders are differentiated by their advocacy of alternative positions' (Stokes, 1992: 143).

Valence considerations matter because although nearly all voters prefer that parties be more competent and honest, voters may perceive different parties possessing differing degrees of positive valence. In American and British politics, for instance, national political candidates including Dwight Eisenhower, Bill Clinton and Tony Blair were widely perceived as competent and likable during the periods in which they first led their parties into national elections, whereas others such as Michael Dukakis, Michael Foot, Ed Miliband and Theresa May were viewed far less positively along these dimensions. Cross-national research affirms the growing importance of valence issues across western democracies (see, e.g., Clark, 2009; Abney et al., 2013).

### **SPATIAL MODELS OF ELECTIONS WITH OFFICE-SEEKING PARTIES: THE PURELY POSITIONAL MODEL PREDICTS PARTY CONVERGENCE**

We first review purely *positional* models of party competition, while deferring valence considerations. Downs (1957) was the first to apply this framework to electoral competition, assuming, first, that both parties' positions and voters' *ideal points*, i.e., the positions voters prefer, are arrayed over a unidimensional, positional issue space. Here we illustrate the Downsian model in terms of the Left–Right continuum, but Downs' arguments apply to any positional dimension. Second, Downs assumed that voters evaluate the

parties based – as spatial modelers continue to do, at least in part – on the *proximity* of their preferred positions to the parties' positions, i.e., that voters prefer more spatially proximate parties. Third, political parties strategically announce positions that maximize their electoral prospects, i.e., parties are *office-seeking* and propose policies purely as a means of winning elected office. Downs justified this assumption by emphasizing the private benefits politicians obtain from holding office, including prestige and celebrity, their government salaries, and opportunities to distribute government jobs and contracts to political allies and family members. Hence the basic Downsian model posits that voters are purely *policy-oriented*, i.e., they invariably support the party that offers the most attractive policy positions, whereas political parties are purely *office-seeking* in that they propose policies purely as a means of winning votes, and through this winning office.

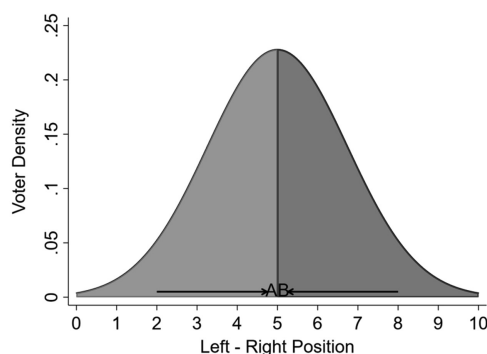
### ***Incentives for Party Convergence in the Positional Spatial Model: the Two-Party Case***

In two-party competition over a single positional dimension (here the Left–Right dimension), Black's (1948) Median Voter Theorem states that office-seeking parties converge to the *median voter's* position, i.e., the Left–Right position, such that half the electorate is located on either side.<sup>4</sup> To understand why two-party convergence at the median voter position is optimal for both parties in competition over one positional dimension, note first that, if party A locates at this median position and party B does not – say, it is at a position to the right of the median – party B will lose the election. This occurs because all voters to the left of the median, together with some to the right of it, will be nearer to and hence vote for party A, so that party A will win the election. However, party B can force a tie if it shifts in turn to also locate at the median voter position. Second, if both parties

locate away from the median voter position then either party can win the election by unilaterally shifting to the voter median (Adams, 2016).<sup>5</sup> Hence two-party, purely positional spatial competition provides centripetal incentives for parties to converge toward each other, and toward the center of the distribution of voters' ideal points.

Figure 12.3, which displays a Left–Right continuum (the horizontal axis) with a distribution of voters' ideal points (where the height of the line along the vertical axis represents the density of these ideal points at each position), illustrates this logic. In this example the voter distribution is assumed to be normal, with a median position at the center of the Left–Right scale – a distribution which, as we shall see, roughly approximates the distributions of voters' preferred positions in the electorates of many western democracies. Here we display the Left–Right scale running from zero to 10 (with higher numbers denoting more right-wing positions), which, as we discuss below, is the scale that is usually included in national election surveys to elicit respondents' ideologies. In this scenario the two political parties A and B are drawn towards the median voter position – and hence towards each other – at the center point (here 5) of the Left–Right scale.

The configuration in Figure 12.3, in which the two office-seeking parties each occupy the median voter position, constitutes a *Nash*



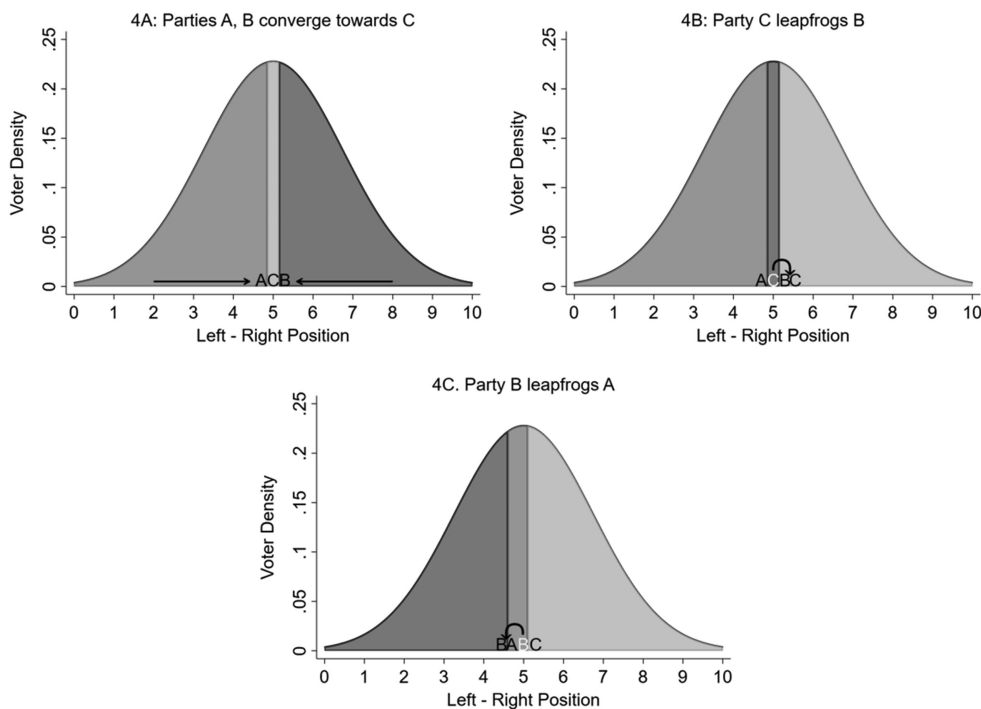
**Figure 12.3** How two-party, positional competition motivates party convergence

*equilibrium* in party strategies, i.e., a configuration of positions such that no party is motivated to unilaterally change its position, given its opponents' positions. In the Downsian two-party spatial model with a single positional dimension, the pairing of parties A and B at the median voter position constitutes a unique Nash equilibrium.

### **Extensions to Positional Spatial Competition with Three or More Parties**

Downs' arguments about incentives for two-party convergence provided an intuitive explanation for political competition in the American post-World War II party system (Downs' book was published in 1957), in which the Democratic and Republican parties both presented relatively similar and moderate Left–Right economic policies. However, virtually all western democracies outside the United States feature at least three competitive parties, i.e., they are *multi-party systems*.<sup>6</sup> The convergent Nash equilibrium for one-dimensional, two-party positional competition breaks down when additional parties compete. The research of Eaton and Lipsey (1975) – focused on competition between firms but directly translatable to elections – and Cox (1990) suggests that in multiparty elections the *centripetal incentives* motivating vote-seeking parties to converge toward similar positions – and toward the center of the distribution of voters' ideal points – are balanced by *centrifugal incentives* to differentiate their policy positions (Adams, 2018). Moreover, for the basic model we have discussed so far, a Nash equilibrium in party positions rarely exists in multiparty elections.

The above points can be grasped by considering a three-party election along the Left–Right dimension where, regardless of the distribution of voters' ideal points, the two 'peripheral' parties – i.e., the parties that announce the most left- and right-wing



**Figure 12.4 The dynamics of three-party positional competition**

*Notes:* In these figures, the color of the area under the voter's distribution is associated with the votes won by each party, where red denotes votes won by party A, blue denotes votes by B, and orange by C.

positions – can increase their support by converging towards the position of the third ‘interior’ party. Figure 12.4A illustrates this incentive, with the peripheral parties A and B converging towards the interior party C, which causes C to be ‘squeezed’ and hence to win few votes.<sup>7</sup> This convergence prompts the interior party C to leap-frog the position of one of its rivals (Figure 12.4B), and the party that is leap-frogged will in turn be squeezed, motivating it to leap-frog another party in turn (Figure 12.4C), and so on without limit.

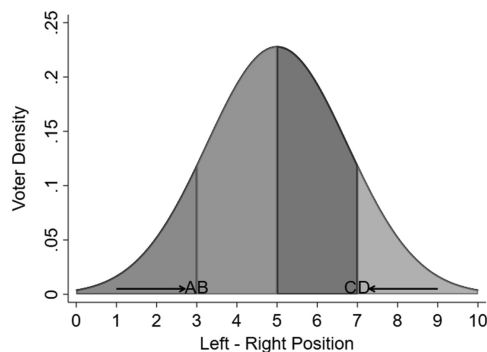
The centrifugal incentive described above, which counteracts peripheral parties’ centripetal incentives to converge toward the interior party’s position, implies that no Nash equilibrium is possible in three-party elections with vote-maximizing parties. Note, moreover, that in multi-party, one-dimensional positional

competition with any number of parties, the left- and right-most parties are invariably motivated to converge toward the positions of their immediate ‘neighbor’ parties along the positional continuum, because this maximizes the peripheral parties’ vote shares. Figure 12.5 illustrates this dynamic for a scenario involving four parties labeled A, B, C and D, located from left to right across the ideological spectrum, where the peripheral party A converges toward Party B while the peripheral party D converges toward Party C. (In this illustration we again depict a normal distribution of voter ideal points.)

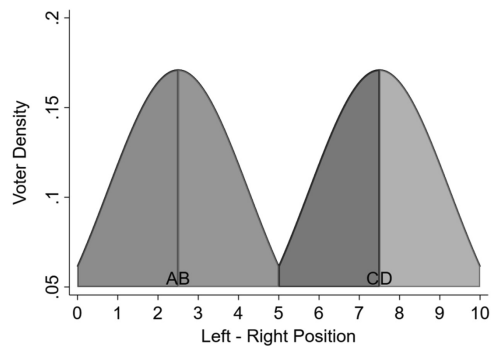
Hence for both two-party and multiparty elections, i.e., those involving at least three parties, the positional spatial model with vote-seeking parties predicts that the left- and right-most parties will ‘pair’ with their nearest interior competitor. In two-party elections

this implies complete party convergence to the median voter position; in multiparty elections this implies that the most extreme parties will converge towards the position of the most proximate interior party, i.e., they will ‘pair’ with an interior party if there are an even number of parties, although, depending on the number of pairs, the pairings will occur at different positions.

We briefly note that whether a Nash equilibrium exists for multiparty competition over one positional dimension depends on several technical details of the voter distribution and the number of competing parties. One condition is that, except for a uniform voter distribution, the number of parties cannot be more than double the number of ‘modes’ in the voter distribution, so that for a unimodal distribution (such as the normal distribution pictured in Figures 3–5 above) no Nash equilibrium exists for more than two parties, a bimodal distribution cannot support an equilibrium for more than four parties, and so on. Thus, no equilibrium in vote-maximizing strategies is possible for the scenario pictured in Figure 12.5 above, in which four parties compete over a unimodal distribution of voter positions. To see this, note that even if peripheral parties A and D ‘pair’ with the interior parties B and C, respectively, this cannot constitute a Nash equilibrium since the interior



**Figure 12.5 Centripetal incentives in a four-party election: the peripheral parties converge toward their ideological ‘neighbors’**



**Figure 12.6 Example of four-party Nash equilibrium configuration in competition over a bimodal voter distribution**

parties can increase their support by unilaterally shifting their positions towards the center of the voter distribution. On the other hand, Figure 12.6 illustrates a bimodal distribution of voters’ ideal points, where one mode is at 2.5 and a second mode at 7.5. In this case, parties A and B locate at the left-wing mode and parties C and D locate at the right-wing mode. Note, again, that these positions will constitute a Nash equilibrium only under a set of specific conditions that are beyond the scope of this chapter (but see Eaton and Lipsey (1975) for the conditions that support a multiparty equilibrium for one-dimensional competition).

### **AN EMPIRICAL PUZZLE: REAL WORLD PARTIES’ POSITIONS DO NOT CONVERGE**

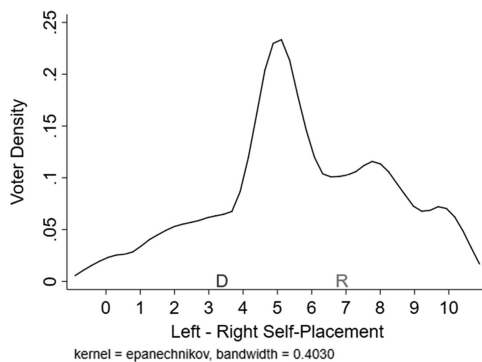
The central qualitative prediction associated with the Downsian model of two-party positional competition, namely that the competing parties will offer similar, if not identical, policy positions that reflect the central tendency of public opinion,<sup>8</sup> matched the party dynamics of postwar American and British politics up through the mid-1970s. These patterns featured the Democratic and Republican parties – along with the Labour and

Conservative parties, which dominated British politics throughout this period – presenting similar, moderate Left–Right positions with respect to social welfare policy and government intervention in the economy.

However, beginning in the late 1970s, party politics in both countries diverged from the centripetal logic of the two-party spatial model, with the British Conservatives led by Margaret Thatcher (and her successor John Major) and the American Republican Party under Ronald Reagan (and his successors) shifting their policies sharply to the right, away from their opponents’ positions and from the center of public opinion (see, e.g., Adams et al., 2012). Moreover, contra the Downsian prediction that radical policy positioning is electorally damaging, both conservative parties’ rightward shifts met with electoral success. And the policy divergence between Republican and Democratic Party elites has continued to widen since the 1980s – indeed, party polarization (at both the elite and mass levels) is one of the most widely studied features of contemporary American politics (see, e.g., McCarty et al., 2006).<sup>9</sup> Figure 12.7 displays this pattern based on survey responses from the 2016 American National Election Study in which survey respondents were asked to place themselves along a Left–Right scale running from 0 (‘extremely left-wing’) to 10 (‘extremely

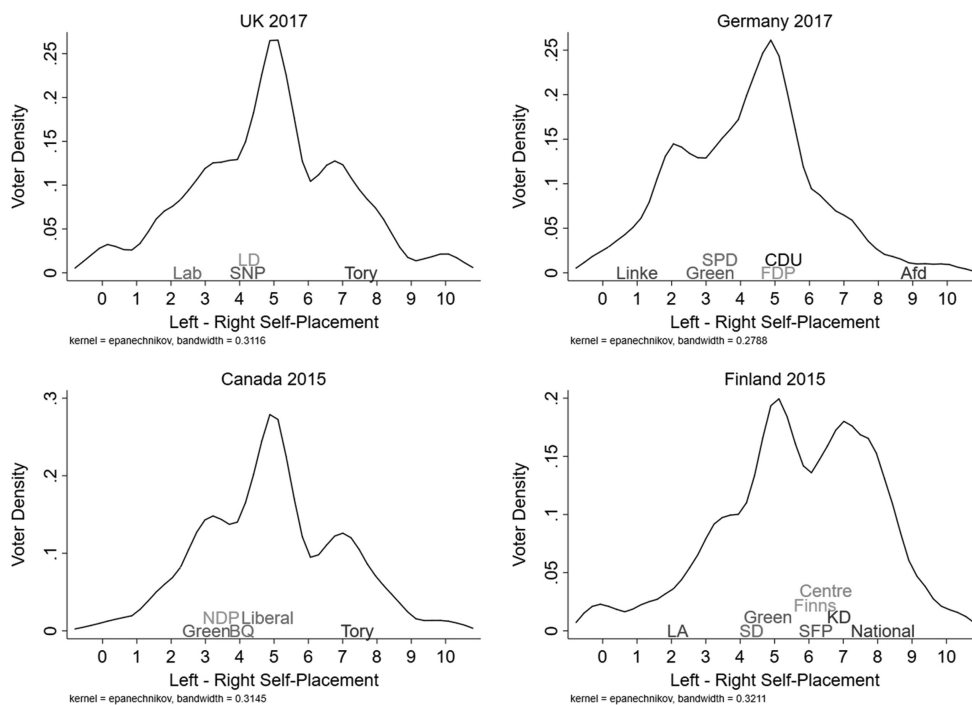
right-wing’), and also to place the Democratic and Republican parties similarly.<sup>10</sup> The figure displays the distribution of respondents’ self-placements, which very roughly resembles a normal distribution centered near the midpoint of the scale, and also displays respondents’ mean placements of the Democratic and Republican parties. These mean placements are sharply differentiated, with the Democrats’ mean perceived position (3.34) well to the left of the center of the voter distribution, and the Republicans’ perceived position (6.92) well to the right of the center.

At the same time that the Downsian positional spatial model appeared to illuminate two-party US and British party politics at least up to the mid-1970s, empirical patterns of party positioning in multiparty systems – which constitute the vast majority of western party systems outside the United States – have rarely displayed the degree of party convergence predicted by the Downsian model. In particular, the party systems of multiparty western democracies often feature the anomaly of radical ‘peripheral’ parties that present positions far more extreme than those of their nearest competitor. Figure 12.8, which displays the distributions of voter positions and of parties’ (mean perceived) positions for several western party systems (Britain, Canada, Finland and Germany), illustrates this phenomenon. (The data are based on the 2017 post-election surveys in Britain and Germany and the 2015 national election surveys in Canada and Finland.<sup>11</sup>) In every country we observe at least one peripheral party whose position is perceived as substantially more extreme than that of its nearest competitor.<sup>12</sup> Yet despite the fact that the logic of the Downsian positional model implies that parties will not adopt these unduly radical strategies – and that those that do initially adopt such strategies will eventually converge towards their nearest competitor – the empirical pattern we actually observe is one where radical peripheral parties maintain stable positions over time (see, e.g., Dalton and McAllister, 2015).



**Figure 12.7** Distribution of American survey respondents’ left-right self-placements and their mean party placements, 2016 National Election Study





**Figure 12.8 Distributions of citizens' left-right self-placements and their mean party placements in Britain, Germany, Canada and Finland**

### A POSSIBLE SOLUTION: SPATIAL MODELS THAT INCORPORATE VALENCE DIMENSIONS

It was in the context of Left-Right party polarization in Britain and the United States that spatial modelers began exploring whether valence dimensions of party evaluation could explain this empirical puzzle. As discussed above, valence dimensions differ from positional dimensions in that nearly all voters share the same preferences with respect to valence, i.e., voters prefer that party elites display higher degrees of competence, integrity, unity, compassion and leadership ability, and moreover all political parties strive to publicly project these positive valence-based qualities. However, not all parties succeed in conveying positive valence images to the public: some parties – but not others – become enmeshed in scandals; some

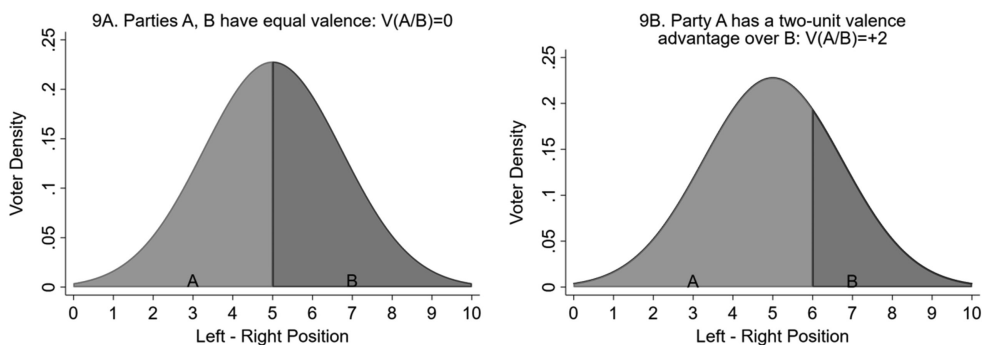
parties' elites appear internally divided, while others appear united; and different parties' leaders may be more or less successful at publicly conveying competence and leadership ability. (Moreover, the same party leader's valence image may fluctuate over time, as has notably been true for British politicians such as Margaret Thatcher, Tony Blair and Theresa May.) As a result, some parties may enjoy valence advantages compared to their opponents. Furthermore, unlike positional dimensions where parties are free to change their positions, parties have only limited abilities to 'strategize' over their valence images: they can strive to achieve and convey to the public an image of competence, honesty and unity, but if these efforts fail parties cannot simply 'decide' to improve their valence images. Therefore, in the short term, political parties may be considered to occupy more or less fixed (positive or

negative) positions along valence dimensions of voter evaluation (but see Serra, 2010; Curini and Martelli, 2015).

One historical example of the electoral importance of valence issues is the British Conservative Party during the 25 years following World War II, when the party consistently enjoyed a positive public image (compared to its opponent the Labour Party) with respect to competence and leadership. During this period the Conservatives converged toward Labour's long-term leftist economic and social welfare orientation (for this reason the period has been labelled 'the Postwar Settlement', due to the unusual policy consensus between the parties), but largely based their electoral appeals on their positive valence-based image as a 'safe pair of hands' that could administer these policies more efficiently than Labour could. The combination of the Conservatives' 'us too' Left-Right positions and their positive valence image earned the party the derisive nickname 'the party that has no ideas but that knows how to govern'. This strategy proved electorally successful, as the Conservatives won three consecutive general elections between 1951 and 1959, primarily due to their superior valence image. In addition, the Conservatives' later electoral successes in winning four consecutive general elections between 1979 and 1992 – a period when the party had shifted sharply rightward on economic and social welfare policy – largely reflected the

Conservatives' even larger valence advantage arising from the Labour Party's widely publicized internal divisions and weak leadership across much of this period (Norton, 2000).

The consideration of the types of effects discussed above prompted scholars to incorporate valence dimensions into their spatial models. Feld and Grofman (1991) expanded the positional model to include voters' tendencies to accord incumbent parties or candidates a 'benefit of the doubt' that was unrelated to the incumbent's positional stances, and that was conceptually equivalent to an advantage on valence issues. The authors' approach posits that voters' valence- and position-based party evaluations can be meaningfully compared. Figure 12.9 illustrates this approach by incorporating voters' valence considerations into a spatial model that also includes the positional Left-Right dimension. Here we specify that citizens choose between parties A and B that are positioned at 3 and 7, respectively, along the scale, by comparing these parties' Left-Right positions *and* their valence images. Figure 12.9A displays a scenario where the parties have equal valence, i.e.,  $V(A/B)=0$ , so that all voters prefer the party with the more proximate Left-Right position. In this case a voter with a Left-Right ideal point located at 5 is indifferent between the parties, since this voter's position is equidistant between parties A and B, so that we label 5 the 'indifference point' for this scenario. All voters located to



**Figure 12.9** How valence affects voter choice in a model with one positional dimension

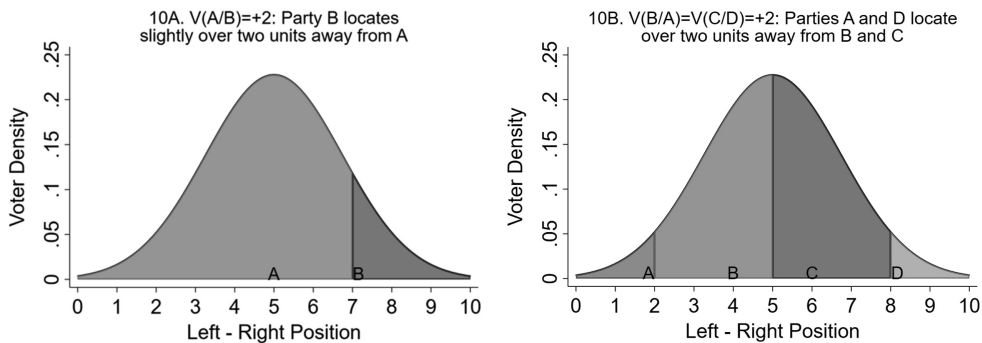
the left of 5 prefer Party A, while voters to the right of 5 prefer B.

Figure 12.9B displays a different scenario, where Party A has a superior valence image. Specifically, citizens evaluate Party A's valence advantage relative to Party B as equivalent to two units of position along the 0–10 Left–Right scale, which we denote  $V(A/B)=+2$ . This implies that a voter will prefer Party A to B *unless the voter's Left–Right ideal point is located at least two units nearer to Party B than to A*.<sup>13</sup> In this example with  $V(A/B)=+2$ , a voter located at 6 on the positional scale is now indifferent between parties A and B – which are located at points 3 and 7, respectively – since this voter is located two units closer to B than to A on the Left–Right scale, a positional preference for B which exactly balances the voter's valence-based preference for A. All voters located to the left of 6 now prefer Party A, while those to the right of 6 prefer B.

Several spatial modeling studies explore how the introduction of valence dimensions affects parties' positional strategies (for example, Ansolabehere and Snyder, 2000; Serra, 2010).<sup>14</sup> A key insight from this literature is that valence-disadvantaged parties have incentives to diverge on position from their valence-advantaged rival(s). To grasp this strategy, note that if two parties converge on position then all voters rate the parties equally on position, and hence choose between the parties based entirely on valence

considerations. Hence if one party's valence substantially exceeds its competitor's, the valence-disadvantaged party must diverge from its opponent to win support. In this way the valence-disadvantaged party attracts voters whose ideal points are close to its position but far away from its opponent's position. For this reason, when voters' policy preferences are unimodally distributed (which, as noted above, is true in most Western democracies) valence-advantaged parties are motivated to position themselves near the center of the voter distribution, whereas valence-disadvantaged parties – particularly given proportional representation elections, where office-seeking parties seek to maximize seats and thus votes, even if they cannot win a popular plurality<sup>15</sup> – have centrifugal incentives to diverge from the centrist positions of their valence-advantaged rival(s). In two-party competition over one positional and one valence dimension, the valence-advantaged party can assure victory by locating at the median voter position (or even some distance from this position).

Figure 12.10A illustrates such a configuration for the strategic scenario pictured earlier in Figure 12.9B, where Party A's valence advantage relative to Party B is equivalent to two units of Left–Right position, i.e.,  $V(A/B)=+2$ , and where we assume that the median voter position is located at 5. Here we picture Party A located at the median voter position, which forces Party B to locate



**Figure 12.10 Party strategies in elections with one positional and one valence dimension**

more than two units away from this position in order to attract any support at all; in this example, with A positioned at 5 and B positioned just to the right of 7, Party A wins the election while attracting support from all voters located at or to the left of 7, while B wins support from voters located to the right of 7. Note, moreover, that in this example Party A is assured of victory so long as its position is sufficiently moderate relative to the center of the voter distribution – in this case provided that A locates anywhere inside the Left–Right interval [3, 7] – and that regardless of A’s strategy, party optimal strategy will be to locate slightly more than two units away from A.

Figure 12.10B illustrates how valence considerations may play out in a four-party scenario involving parties A, B, C, D, where the two interior parties B and C each possess a two-unit valence advantage over their peripheral rival parties A and D, i.e.,  $V(B/A)=+2$ ,  $V(C/D)=+2$ , and where we additionally assume that B and C have equal valences, i.e.,  $V(B/C)=0$ . With the valence-advantaged parties B and C located at the moderate positions 4 and 6, respectively, the peripheral parties A and D are no longer motivated to converge towards their ideological neighbors; instead they locate just over two units away from these rivals, near 2 and 8, respectively.<sup>16</sup>

## THE CONSEQUENCES OF POLICY-SEEKING PARTY MOTIVATIONS

To this point we have reviewed spatial models where parties single-mindedly seek political office. We have seen how, when we incorporate a valence dimension into the standard positional model, valence-disadvantaged parties may rationally present sharply noncentrist positions, away from their valence-advantaged opponents (and from the center of the voter distribution). While this logic illuminates the positional strategies of small, radical parties, there are many real-world

examples of large, valence-advantaged parties that also present sharply noncentrist positions – such as the British Conservatives under Margaret Thatcher and the Republicans under Ronald Reagan, discussed above. In fact, many contemporary democracies feature two large mainstream parties, one located on the center left and one located on the center right. This is true in two-party polities such as the United States, and for much of its history, the United Kingdom, as well as in many multiparty democracies, including Germany, the Netherlands, and Norway. Why might these large, mainstream parties take positions sharply different from each other and from the center of public opinion, particularly – in light of the median voter theorem – when they are the only parties present?

Donald Wittman (1973, 1977, 1983) suggested a possible solution to the above puzzle, which involved extending the model of party motivations. Wittman analyzed situations involving *policy-seeking* politicians who attach utilities to the policies that the winning party implements after the election. Wittman motivated this policy-seeking perspective by noting, first, that elected officials face pressures to implement the policies they promised during the election campaign, since to do otherwise would undermine the credibility of their promises in future elections. Second, Wittman observed that party elites – in common with rank-and-file voters – experience the ‘public good’ of government policy outputs. Wittman therefore analyzed the logic of party strategies when parties have preferences over the policies they are committed to implementing if they win office.

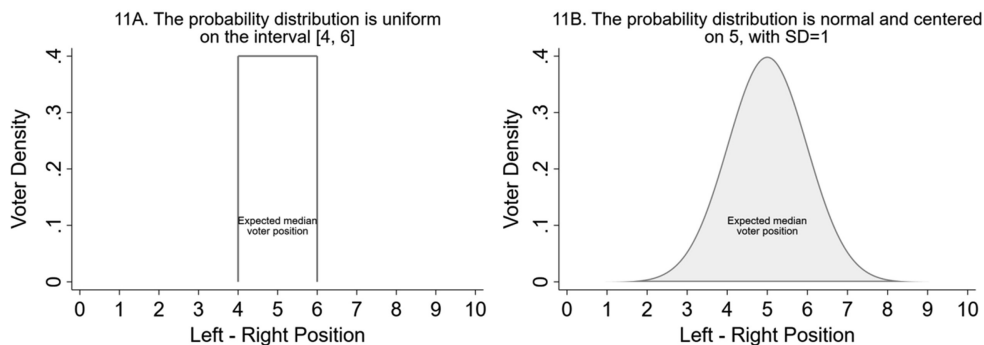
Spatial models with policy-seeking parties assume that each party, like each voter, has an ideal point which is the policy position it would prefer to implement. But this does not imply that a policy-seeking party – in attempting to optimize its policy expectations – should advocate its ideal point in elections. Party elites must still consider the electoral consequences of their policy promises, since

they must win office in order to implement these promises (and to prevent the implementation of disagreeable policies if a rival party wins). For a two-party election involving one positional dimension without valence, and where the rival parties' ideal points fall on opposite sides of the median voter's position, then provided that party elites have perfect knowledge of this position, the positional spatial model implies that policy-seeking parties will converge towards the median voter's position – the same outcome as for office-seeking parties. To see this, note that when a party with sincere left-wing policy preferences relative to the median voter position competes against a party whose elites hold sincerely right-wing views, then if the left-wing party takes a position to the left of the median voter, the right-wing party need only choose a position to the right of the median – but nearer to that median voter – to win office and implement a policy which it prefers to its opponent's position. Since the same logic applies to the left-wing party's strategic reaction to any right-of-the-median position its opponent announces, it follows that the unique Nash equilibrium in policy-seeking party strategies is the median voter position.

But now let us assume, more realistically, that politicians *are not* certain of the median voter's location in advance of the election, where this uncertainty may reflect the limitations of public opinion polling or uncertainty

over voter turnout. Suppose, instead, that leaders of each party have a general idea of where the median voter should be located, but not a precise notion. For example, assuming a Left–Right scale from 0 (most left-wing) to 10 (most right-wing), party leaders might be quite confident that the median falls somewhere in the middle part of the scale, perhaps between 4.0 and 6.0, but be otherwise unsure of just where. In other words, they would represent their uncertainty about the median location by a uniform distribution between 4.0 and 6.0 (see Figure 12.11A). Or, perhaps more realistically, they might judge that the possible locations of the median voter follow a normal distribution, with, say, a mean of 5.0 and a standard deviation of 1.0 (Figure 12.11B).

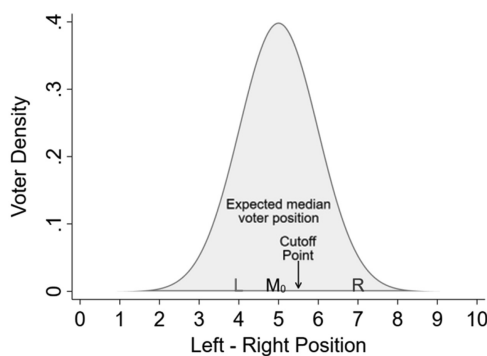
We now analyze policy-seeking parties' strategies for this type of election-related uncertainty, using more technical mathematics than we have presented so far.<sup>17</sup> We will represent the party leaders' subjective notion of where the median voter may turn out to be located by a probability distribution with density function  $f(x)$  and cumulative distribution function  $F(x)$ .<sup>18</sup> For simplicity we assume that there are two parties, that this probability function on the median position is the same for both parties, and that voters are moved entirely by positional considerations. Note that the probability distribution of possible median voter positions is distinct from (and usually much narrower and peaked than) the underlying distribution of



**Figure 12.11** Examples of probability distributions over the median voter's position

voters themselves. We will see that, given uncertainty about the location of the median voter, the consequences for office-seeking and policy-seeking parties are different. To see this, first suppose that the two parties are both purely office-seeking. Let  $M_0$  denote the median of the subjective probability distribution  $f(x)$  that the party leaders estimate for the likely position of the median voter. (Note that  $M_0$  is a median of the voter medians, not the median of the (unknown) voter distribution.) See Figure 12.12, which depicts both the density of  $f(x)$  and its median  $M_0$ . Here we again picture the probability distribution  $f(x)$  on the median voter position as normal and centered on  $M_0=5$  with a one-unit standard deviation, as in Figure 12.11B above.

Figure 12.12 also illustrates possible locations of each of two parties – one that prefers leftist policies that we will call **L**, located at  $L=4$ , and another that prefers right-wing policies that we label **R**, located at  $R=7$ . In this illustration, **L** is located nearer to  $M_0=5$  than is **R**. Note that party **L** will win the election if the actual median voter position, say  $m$ , turns out to be to the left of the midpoint  $(L+R)/2$  between the two party locations; in this example the midpoint is  $(4+7)/2=5.5$ . Party **R** will win if  $m$  turns out to be to the right of this midpoint. In fact the probability that **L** wins is equal to the cumulative probability from the extreme left up to the midpoint



**Figure 12.12** How party positioning affects parties' election prospects when there is uncertainty over the median voter position

$M_{LR}=(L+R)/2$ ; while the probability that **R** wins is 1 minus that cumulative probability, or in symbols,  $\Pr[L \text{ wins}] = F(M_{LR})$ , while  $\Pr[R \text{ wins}] = 1-F(M_{LR})$ . In this example the probability that **L** wins is about 0.68, and **R**'s election probability is about 0.32. Thus, unlike in the positional model with certainty over the median voter position, here the party with the more advantageous position (Party **L** in this example) is no longer certain to win election.

For a policy-seeking party, utility for a party, say **L**, is a sum of the party's valuation of the two possible outcomes of the election (either a win for **L** or a win for **R**), weighted by the respective probabilities of these outcomes. Therefore, assuming that **L** prefers leftist policies and **R** prefers rightist policies, utility of **L** for the outcome may be represented by

$$U_L = -L * F(M_{LR}) - R * [1 - F(M_{LR})]^{19}$$

and utility for **R** is given by

$$U_R = L * F(M_{LR}) + R * [1 - F(M_{LR})].$$

We are then able to show that a Nash equilibrium must be given by

$$R = \frac{1}{2f(M_0)}$$

and

$$L = -\frac{1}{2f(M_0)}.^{20}$$

This result tells us that at equilibrium the positions of policy-seeking parties experiencing uncertainty about the location of the median voter are separated by a distance that is related to the degree of spread (i.e., standard deviation) of the subjective median distribution, i.e., the separation at equilibrium increases with uncertainty about where the median voter may be located. For example, if the subjective notion of the median voter is normally distributed, then the equilibrium

separation is equal to approximately  $2.5\sigma$ , where  $\sigma$  is the standard deviation of the uncertainty distribution. Thus, on the 0–10 Left–Right scale, if  $\sigma = 1$ , and  $M_0 = 5$  (as in Figure 12.12 above), then the policy-seeking parties **L** and **R** are separated by 2.5 units at equilibrium, i.e.,  $L = 3.75$  and  $R = 6.25$ .<sup>21</sup>

Adams and Merrill (2006) extend this model to a setting in which, in addition to the two major policy-seeking parties, there is a small, centrist third party that has no realistic chance of winning election. This model may apply to the British party system in recent decades, in which the Liberal Democrats ran on a platform that was often considered to lie between those of Labour on the left and the Conservatives on the right. By extending the arguments above, Adams and Merrill show that such a centrist party – if it itself prefers that a centrist policy be implemented – effectively shoots itself in the foot twice by entering the competition. This is because, first, the Nash equilibrium positions of the two major parties are even farther apart than would have been the case had the centrist party not competed, so that whichever is elected is in a position to implement an even more extreme policy, and second, the entry of the centrist party increases the likelihood that the major party that is farther from its preferred position is the one elected.<sup>22</sup>

Finally, we analyze policy-seeking parties' strategic incentives when voters are moved by valence as well as policy considerations, but the location of the median voter is assumed known with precision. In a number of spatial modeling studies, a key result that obtains for such models – with an important exception noted below – is that, in contrast to valence-advantaged parties' centripetal incentives in the office-seeking case, such policy-seeking parties typically have centrifugal incentives to announce non-centrist positions relative to the voter distribution (Londregan and Romer, 1993; Adams et al., 2005). To understand this dynamic, consider the case of positional spatial competition between a valence-advantaged

party **R** with sharply right-wing policy preferences, and party **L** with sincere policy preferences at or to the left of the median voter's position (known with certainty). In this scenario party **R**'s valence advantage gives it leeway to diverge some distance to the right of the median voter position and still be assured of winning, with this degree of divergence increasing with the size of **R**'s valence advantage. Hence the unique Nash equilibrium in policy-seeking strategies is for **L** to locate at the median voter position while the valence-advantaged party **R** locates as near as is possible to its preferred right-wing position at the same time as, by leveraging its valence advantage, it still retains the median voter's support. Indeed, if **R**'s sincere policy preference is sufficiently moderate and/or its valence advantage sufficiently large, any configuration in which **R** locates at its preferred position is a Nash equilibrium.

The above intuition about the positional motivations of valence-advantaged, policy-seeking parties provides a plausible account of the empirical puzzle of the sharply non-centrist positional strategies of the British Conservatives under Margaret Thatcher, and the US Republicans under Ronald Reagan. Both parties benefited from valence advantages vis-à-vis their main competitors during much of the periods of these leaders' tenure in office – the Republicans' advantage was due largely to Reagan's image as a strong, charismatic leader; the Conservatives' advantage was because the Labour Party throughout the 1980s was plagued by public divisions and an image of weak leadership. Lending support to this policy-seeking perspective is the fact that both Reagan and Thatcher were widely viewed as 'conviction' politicians, who were unusually focused on pursuing their policy objectives. Londregan and Romer (1993) have delineated this spatial logic of valence-advantaged, policy-seeking parties in two-party elections, while Adams and Merrill (2009) extend this logic to multi-party elections.

## CONCLUSION

Beginning with Anthony Downs' pioneering work, research on the spatial model of elections has been extended from two-party to multi-party elections; from electorates whose voters are purely policy-focused to electorates that also weigh parties' character-based valence characteristics; from competition between office-seeking parties to elections where parties have policy motivations; and from competition between parties with complete information to elections where parties experience uncertainty about the distribution of the voters' ideal points. These extensions are intended to capture real-world election contexts, and also to explain why actual political parties and candidates rarely converge to identical, centrist policies – the prediction associated with the basic Downsian model of two-party, one-dimensional, positional competition.

The extensions reviewed here by no means exhaust the variations on the basic Downsian model. In particular, a growing literature analyzes the implications of 'two-stage' candidate elections in which office-seeking candidates must first win a party primary election in order to advance to the general election (for example, Owen and Grofman, 2006; Serra, 2010). In addition, Adams et al. (2005) develop an approach that unifies the Downsian positional spatial model and the behavioral voting model associated with the University of Michigan (see Campbell et al., 1960), which emphasizes the importance of voter party identification as a long-term, affective orientation, and the authors show that parties may have electoral incentives to appeal on policy grounds to their pre-existing partisans. Since voter partisanship correlates strongly with policy preference in most real-world electorates, this implies that rival parties have electoral motivations to present dispersed policies, with each party taking positions that reflect their long-term partisans' beliefs. Finally, Curini (2018) integrates valence and positional concerns into a spatial model where parties strategize over

whether to raise valence-related corruption issues during election campaigns, showing that this strategic decision may depend on the parties' locations along positional dimensions of competition relative to their opponents' positions. Curini presents a variety of theoretical and empirical analyses (the latter derived from analyses of party programs, politicians' legislative speeches and social media data) to show how this approach illuminates the rise of negative campaigning in contemporary democracies, with particular emphasis on the strategies of emerging populist parties. These ongoing research agendas illustrate how the Downsian model can accommodate theoretically interesting, empirically realistic variations in real-world election contexts.

## Notes

- 1 We frame our discussion in terms of political parties, even though in some countries citizens cast votes for individual candidates, not parties. An extensive literature documents that even in candidate-based electoral systems, citizens' vote choices are strongly influenced by the candidates' party affiliations (see, e.g., Dalton et al., 2011).
- 2 We realize that the assumption of common valence for a party among all voters may sometimes be unreasonable. The degree to which different voters value honesty or competence may vary, and voters may disagree in their assessments of the honesty or competence of a party or its leader (see, e.g., Zakharova and Warwick, 2014). Nevertheless, there is plausibly more voter agreement over what are desirable character-based valence attributes than over desirable Left-Right positions.
- 3 We note that some researchers apply the term 'valence' to parties' reputations for successfully addressing specific issues such as education, crime, and so on (see, e.g., Clarke et al., 2009; Green and Jennings, 2012; 2017).
- 4 Technically, this position is unique only if the number of voters is odd, but with a very large electorate it is essentially unique in any case. Furthermore, for a large electorate, any significant movement by either party can be expected to cross over the positions of some of the voters.
- 5 We note, however, that predicted party convergence breaks down under various extensions of the Downsian model, including that citizens



- abstain from voting if neither party offers a sufficiently attractive position (Adams and Merrill, 2003); that parties seek to deter entry by new parties (Palfrey, 1984); that political parties select their candidates through primary elections (Owen and Grofman, 2006); and many others. Grofman (2004) reviews these explanations.
- 6 As we discuss below, the arguable exception to this generalization is the British post-World War II party system, which prior to the 1980s was similar to the United States in that it featured two dominant political parties: the Conservatives and Labour.
  - 7 The figure illustrates a scenario in which the voters' ideal points are normally distributed, but the logic extends to any type of voter distribution.
  - 8 Of course, the Downsian model of party convergence applies to two-party competition. A similar logic, as we have seen, does not imply such convergence with three or more parties. Nevertheless, a Downsian expectation of centripetal tendency has been applied to the multiparty scenario.
  - 9 British party politics has subsequently diverged from a system of two dominant parties, as the Liberals (and in later periods the Liberal Democrats) emerged as a third competitive party. However, since the 2015 elections, the Liberal Democrats have become less competitive due to the rapid deterioration of their reputation for competence and integrity (Zur, 2019).
  - 10 These respondent Left–Right self-placements and party placements are based on the following survey questions: 'In politics people sometimes talk of left and right. Where would you place yourself on a scale from 0 to 10 where 0 means the left and 10 means the right? Where would you place [PARTY NAME] on this scale?'
  - 11 The figures display the mean placements of all parties that won at least 2% of the national vote. The respondents' self-placements and their party placements in these national election studies were based on the same questions reported in footnote 10 above.
  - 12 We note that alternative measures of parties' Left–Right positions, such as those based on political experts' party placements from the Chapel Hill Expert Survey (Bakker et al., 2015), or based on content analyses of parties' election manifestos (Volkens et al., 2018), support the same substantive conclusion.
  - 13 We assume here that as a party's position diverges from the voter's Left–Right position the voter's utility for the party declines at a constant rate, i.e., voters have linear loss functions. There are other utility loss functions we could consider, but these would complicate our discussion.
  - 14 In addition, Aragonés and Palfrey (2002) develop a spatial model with uncertainty about the location of the median voter, where one party may enjoy an (unspecified) advantage, which appears equivalent to the valence advantages we discuss here, with probabilistic divergence and uncertainty about the winner.
  - 15 Most western democracies feature some form of proportional, multi-member district system to select representatives to the national parliament. The major alternative to proportional representation is the plurality-based, single-member district voting system which is employed in France along with most of the English-speaking democracies.
  - 16 We note that the four-party configuration displayed in Figure 10B is not a Nash equilibrium since the interior parties B and C, who are equally matched with each other on valence, can each increase their support by unilaterally shifting position closer to the center of the voter distribution.
  - 17 Calvert (1985), in a setting with multiple policy dimensions, analyzes these issues and shows that candidate policy-seeking alone does not induce divergence; nor does candidate uncertainty about voter response alone (as long as weak assumptions are made), but both policy-seeking and uncertainty together prompt divergence, although small departures from the classic model lead to small levels of divergence.
  - 18 The cumulative probability  $F(x)$  (from  $-\infty$  to  $x$ ) is given by  $\int_{-\infty}^x f(t) dt$ .
  - 19 Here we assume that each party has a linear policy loss function, i.e., that their utilities for various positions decrease at a constant rate as the position diverges from the party's ideal point. The negative signs for the terms in the formula for  $U_L$  occur because **L** prefers a more negative policy while **R** prefers a more positive one. We have also omitted additive constants, which drop out when derivatives are taken.
  - 20 To see this, note that at a Nash equilibrium,
 
$$\partial U_L / \partial L = -F(M_{LR}) + (1/2)(R - L)f(M_{LR}) = 0,$$
 and similarly,
 
$$\partial U_R / \partial R = 1 - F(M_{LR}) - (1/2)(R - L)f(M_{LR}) = 0.$$
 Adding and subtracting these two equations, we obtain  $2F(M_{LR}) = 1$  and  $1 = (R - L)f(M_{LR})$ . From the first of these latter equations, we conclude that  $M_0 = M_{LR} = (L + R) / 2$ , and from the other equation, we infer that  $R - L = 1/f(M_0)$ , i.e., that
 
$$R = \frac{1}{2f(M_0)} \text{ and } L = -\frac{1}{2f(M_0)}. \text{ Q.E.D.}$$

- 21 This equilibrium configuration obtains provided that each party's sincerely preferred policy output is at least as extreme as its equilibrium position.
- 22 Merrill and Grofman (2019) consider a mirror image of this problem – namely, how should policy-seeking mainstream parties react when an extreme third party enters on the flank of one of them. In this setting, they determine conditions such that – just as in the face of entry of a centrist party – both mainstream parties should move further from the new entry.

## REFERENCES

- Abney, Ronni, James Adams, Michael Clark, Malcolm Easton, Lawrence Ezrow, Spyros Kosmidis, and Anja Neundorf (2013). 'When does valence matter? Heightened valence effects for governing parties during election campaigns.' *Party Politics* 19(1): 61–82.
- Adams, James (2016). 'Competing for votes' in Jac C. Heckelman and Nicholas R. Miller, eds, *Elgar Handbook of Social Choice and Voting*. Cheltenham: Edward Elgar Publishing, pp. 201–217.
- Adams, James F. (2018). 'Spatial voting models of party competition in two dimensions.' In Congleton, Roger D., Bernard N. Grofman, and Stefan Voigt, eds. *The Oxford Handbook of Public Choice*. Vol. 1. Oxford University Press, 2018, pp. 187.
- Adams, James, and Samuel Merrill III (2003). 'Voter turnout and candidate strategies in American elections.' *Journal of Politics* 65(1): 161–189.
- Adams, James, and Samuel Merrill III (2006). 'Why small, centrist third parties motivate policy divergence by major parties.' *American Political Science Review* 100(3): 403–417.
- Adams, James, and Samuel Merrill III (2009). 'Policy-seeking parties in a parliamentary democracy with proportional representation: a valence-uncertainty model.' *British Journal of Political Science* 39(3): 539–558.
- Adams, James, Samuel Merrill III and Bernard Grofman (2005). *A Unified Theory of Party Competition: A Cross-National Analysis Integrating Spatial and Behavioral Factors*. Cambridge: Cambridge University Press.
- Adams, James, Jane Green and Caitlin Milazzo (2012). 'Has the British public depolarized along with political elites? An American perspective on British public opinion.' *Comparative Political Studies* 45(4): 507–530.
- Aragones, Enriqueta, and Thomas R. Palfrey (2002). 'Mixed equilibrium in a Downsian model with a favored candidate.' *Journal of Economic Theory* 103(1): 131–161.
- Bakker, Ryan, Catherine de Vries, Erica Edwards, Liesbet Hooghe, Seth Jolly, Gary Marks, Jonathan Polk, Jan Rovny, Marco Steenbergen and Milada Anna Vachudova. 2015. "Measuring Party Positions in Europe: The Chapel Hill Expert Survey Trend File, 1999(2010)." *Party Politics* 21.1 (January): 143–152.
- Bølstad, Jørgen, and Elias Dinas (2017). 'A categorization theory of spatial voting: how the center divides the political space.' *British Journal of Political Science* 47(4): 829–850.
- Black, Duncan (1948). 'On the rationale of group decision-making.' *Journal of Political Economy* 56(1): 23–34.
- Calvert, Randall (1985). 'Robustness of the multidimensional voting model: candidates, motivations, uncertainty, and convergence.' *American Journal of Political Science* 29(1), 69–95.
- Clark, Michael (2009). 'Valence and electoral outcomes in Western Europe, 1976–1998.' *Electoral Studies* 28(1): 111–22.
- Clarke, Harold D., David Sanders, Marianne C. Stewart and Paul F. Whiteley (2009). *Performance Politics and the British Voter*. Cambridge: Cambridge University Press.
- Cox, Gary W. (1990). 'Centripetal and centrifugal incentives in electoral systems.' *American Journal of Political Science* 34(4): 903–935.
- Curini, Luigi (2018). *Corruption, Ideology, and Populism: The Rise of Valence Political Campaigning*. London: Palgrave Macmillan.
- Curini, Luigi, and Paolo Martelli (2015). 'A case of valence competition in elections: Parties' emphasis on corruption in electoral manifestos.' *Party Politics* 21(5): 686–98.
- Dalton, Russell (2013). *Citizen Politics: Public Opinion and Political Parties in Advanced Industrial Democracies*. Thousand Oaks (CA): Congressional Quarterly Press.
- Dalton, Russell J., David M. Farrell and Ian McAllister (2011). *Political Parties and Democratic Linkage: How Parties Organize Democracy*. Oxford: Oxford University Press.

- Dalton, Russell, and Ian McAllister (2015). 'Random walk or planned excursion? Continuity and change in the Left-Right positions of political parties.' *Comparative Political Studies* 48(6): 759–87.
- Downs, Anthony (1957). *An Economic Theory of Democracy*. New York: Wiley.
- Eaton, B. Curtis, and Richard G. Lipsey (1975). 'The principle of minimum differentiation reconsidered: some new developments in the theory of spatial competition.' *The Review of Economic Studies* 4(1): 27–49.
- Feld, Scott, and Bernard Grofman (1991). 'Voter loyalty, incumbency advantage, and the benefit of the doubt.' *Journal of Theoretical Politics* 3(1): 115–137.
- Green, Jane, and Will Jennings (2012). 'Valence as macro-competence: an analysis of mood in party competence evaluations in Great Britain.' *British Journal of Political Science* 42(2): 311–433.
- Green, Jane, and Will Jennings (2017). *The Politics of Competence: Parties, Public Opinion and Voters*. Cambridge: Cambridge University Press.
- Grofman, Bernard (2004). 'Downs and two-party convergence.' *Annual Review of Political Science* 7: 25–46.
- Harold, Hotelling (1929). 'Stability in competition.' *Economic Journal* 39(153): 41–57.
- Kitschelt, Herbert (1994). *The Transformation of European Social Democracy*. New York: Cambridge University Press.
- 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, pp. 355–377.
- Marks, G., L. Hooghe, M. Nelson and E. Edwards (2006). 'Party competition and European integration in east and west. Different structure, same causality.' *Comparative Political Studies*, 39, 155–175.
- McCarty, Nolan, Keith T. Poole and Howard Rosenthal (2006). *Polarized America: The Dance of Political Ideology and Unequal Riches*, Cambridge, MA: MIT Press.
- Merrill, Samuel, and Bernard Grofman (2019). 'What are the effects of entry of new extremist parties on the policy platforms of mainstream parties?' *Journal of Theoretical Politics* 31(3): 453–73.
- Norton, Philip (2000). *The British Polity*, 4th edition. London: Pearson Education.
- Owen, Guillermo, and Bernard Grofman (2006). 'Two-stage electoral competition in two-party contests: persistent divergence of party positions.' *Social Choice and Welfare* 26(4): 547–569.
- Palfrey, Thomas (1984). 'Spatial equilibrium with entry.' *Review of Economic Studies* 51(1): 139–156.
- Powell, G. Bingham (2000). *Elections as Instruments of Democracy: Majoritarian and Proportional Visions*. Yale, CT: Yale University Press.
- Serra, Gilles (2010). 'Polarization of what? A model of elections with endogenous valence.' *Journal of Politics* 72(2): 426–437.
- Stokes, Donald (1963). 'Spatial models of party competition.' *American Political Science Review* 57(2), 368–377.
- Stokes, Donald (1992). 'Valence politics' in Dennis Kavanagh, ed., *Electoral Politics*. Oxford: Clarendon Press, pp. 141–162.
- Volkens, A., Lehmann, P., Matthieß, T., Merz, N., Regel, S. & Weßels, B. 2018. The Manifesto Data Collection. Manifesto Project (MRG/CMP/MARPOR). Version 2018a. Berlin: Wissenschaftszentrum Berlin für Sozialforschung (WZB).
- Wittman, Donald (1973). 'Parties as utility maximizers.' *American Political Science Review* 67(2): 490–498.
- Wittman, Donald (1977). 'Candidates with policy preferences: a dynamic model.' *Journal of Economic Theory* 14(1): 180–189.
- Wittman, Donald (1983). 'Candidate motivation: a synthesis of alternatives.' *American Political Science Review* 77(1): 142–157.
- Zakharova, Maria, and Paul Warwick. 2014. "The Sources of Valence Judgments: The Role of Policy Distance and the Structure of the Left-Right Spectrum." *Comparative Political Studies* 47(14): 2000–25.
- Zur, Roi (2019). 'Stuck in the Middle: Ideology, Valence, and the Electoral Failures of Centrist Parties.' *British Journal of Political Science*, Online First: 1–18. doi:10.1017/S0007123419000231.