CHAPTER 3

Linking Voter Choice to Party Strategies

Illustrating the Role of Nonpolicy Factors

3.1. Introduction

Our objective in this chapter is to analyze how nonpolicy considerations – such as partisanship, candidate characteristics, and the sociodemographic characteristics of voters – affect parties' policy strategies. Our goal here is not to develop formal theorems about party strategies (such theorems are presented in Chapter 4), but to convey the strategic logic of party competition in the unified model via simple, nontechnical examples. We present a series of heuristic arguments that illustrate how, in multiparty or multicandidate elections, incorporating nonpolicy variables into a spatial model can alter the strategic calculus of vote-maximizing candidates, as compared to using the policy-only model in which policies are the only measured influence on the vote. After considering what happens when voters are motivated only by policies and vote in a deterministic fashion, we consider what happens when voters are motivated by a mixture of policy and nonpolicy considerations but still vote in a deterministic fashion. Then we introduce discounting by voters of the platforms presented by candidates as well as probabilistic voting. Finally, we illustrate the central intuitions on party strategies that grow out of the unified spatial model with empirical applications to one national survey – that of the 1988 French presidential election.

Each of our initial illustrations of the importance of nonpolicy factors and other aspects of voter choice involves only a one-step optimal strategy – that is, the vote-maximizing location of a focal candidate when the positions of the other candidates are fixed. Each candidate, however, can be expected to react to the locations of all the other candidates. In other words, all candidates move in a minuet, each seeking his or her own best position

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in relation to all the others. In this context, the key concept in specifying jointly optimal party strategies to which the parties may settle down is that of a *Nash equilibrium* – that is, a configuration of party locations such that no candidate can improve his or her vote share by further movement. We revisit the illustrative examples, indicating the party locations constituting Nash equilibria – when such configurations exist – and comparing the results to those of one-step optima.[1]

Our examples suggest that while the policy-only spatial model typically motivates candidates to present similar, centrist policies, the unified spatial model can motivate parties to diverge from one another. Specifically, we argue that candidates have electoral incentives to present policies shaded away from the center, in the direction of voters who are favorably disposed toward them for nonpolicy reasons that are related to such factors as party identification and sociodemographic characteristics. This intuition is important not only for understanding party strategies, but also for what it implies about representation: namely, that parties have electoral incentives to faithfully represent the policy beliefs of their partisan constituencies, the mass–elite linkage that underlies the responsible party model of representation.

As discussed in Appendix 2.2, behavioral researchers disagree sharply about what the most important factors in the voter's decision calculus are, and they also disagree about how to integrate nonpolicy motivations into the voter calculus. When we shift from seeking to understand voter choice to seeking to understand party strategies, however, with few exceptions (e.g., Chapman 1967, 1968; Erikson and Romero 1990; Adams 1999a,b; Schofield 2002) spatial modelers have omitted voters' measured nonpolicy motivations when theorizing about parties' policy strategies.

In addition, we note that almost without exception, the spatial-modeling studies that do incorporate voters' measured nonpolicy motivations focus on one specialized context: namely, two-candidate elections in which one

[1] In Appendix 4.1 to Chapter 4 , we present a statistical methodology that allows us to compute parties' vote-maximizing policy positions efficiently and to determine if they constitute a Nash equilibrium. The heart of Chapter 4 presents theoretical results that relate these policy optima to the estimated parameters of the unified voting model – that is, our theorems illuminate how vote-seeking parties' strategies (especially the congruity between party positions and the faithfulness of parties to their own electorates) depend upon the policy and nonpolicy factors that significantly influence voter choice. In later chapters, we apply these methods and theorems to survey data from real-world elections in Britain, France, Norway, and the United States, and we assess whether our unified model of party competition – in conjunction with the assumption of vote-maximizing politicians – illuminates parties' policy strategies in these countries.

candidate enjoys a *valence* advantage – that is, an advantage accruing to a candidate due to voters' comparative evaluations of the competing candidates' perceived competence, integrity, leadership ability, and so forth (see, e.g., Londregan and Romer 1993; Macdonald and Rabinowitz 1998; Ansolabehere and Snyder 2000; Groseclose 2001; Miller and Schofield 2003; Moon [in press]). A key aspect of this specialized spatial-modeling literature – which we review in Appendix 3.1 – is that candidates' valence advantages are assumed to be identical across voters. Here we note that while we incorporate across-the-board valence issues into our analyses of policy-seeking motivations in Chapters 11 and 12, we are primarily concerned in this book with non-policy-related motivations that vary *across* voters, such as partisanship, class, education, religion, and race. This is because our empirical applications to multiparty election data for vote-maximizing parties (reported in Chapters 4–6 and 9) suggest that, when we account for such voter-specific nonpolicy motivations, incorporating valence dimensions of evaluation does not significantly enhance our ability to explain parties' policy strategies.[2]

Although the omission of nonpolicy motivations – in particular, voter-specific variables – is due in part to a desire for parsimony, some spatial modelers believe that nonpolicy variables, although they influence voters, are irrelevant to party positioning. Thus Iversen argues, "While other factors such as class background and candidate personalities enter into the determination of the voters' choices, these are arguably not important for explaining party *strategy* (since they cannot easily be manipulated)" (1994a: 49).

To the extent that Iversen's intuition is correct, spatial modelers can safely ignore the controversies that swirl around behavioral voting research, and this book, which attempts to unify the spatial and behavioral perspectives, could be expected to provide disappointingly few insights into parties' policy strategies! But our analyses show that modeling in the Downsian tradition that omits non-policy-related voting considerations may be misleading, particularly in the context of multiparty elections. Even though parties and

[2] In note 19 to Chapter 4 on the 1988 French presidential election, we compare the party equilibrium configurations we obtain for empirical voting specifications that include valence dimensions of evaluation to the equilibrium configurations obtained for voting specifications that omit valence dimensions. These comparisons show that incorporation of valence issues does not significantly alter party strategies. In Chapters 11 and 12, we consider the implications of valence advantages for *policy-seeking* candidates' strategies, where valence evaluation plays a very significant and qualitatively different role.

candidates cannot necessarily manipulate them, nonpolicy considerations can strongly affect the nature of optimal strategies. Moreover, failing to take nonpolicy effects into account yields empirically misleading predictions about how parties can be expected to behave.

3.2. The Logic of Policy Competition in the Unified Spatial Model: Illustrative Examples of How Nonpolicy Considerations Matter

In developing our heuristic arguments, we analyze four stylized election contexts that allow us to isolate how voters' nonpolicy motivations affect vote-seeking parties' strategic calculus, and also to see how parties' strategic incentives differ under probabilistic voting models as opposed to deterministic models. For all of our examples, we posit that three parties compete for votes: a liberal party, *L*, and two conservative parties, *R* and *Q*. We consider a one-dimensional model with an electorate in which voters are motivated only by Left–Right ideology and (starting in example 2) partisanship. Examples 1–3 are deterministic; example 4 introduces a probabilistic component. Using the notation introduced in Chapter 2 (see equation 2.6), for the three deterministic examples we represent voter *i*'s utility for each party *k* as

$$U_i(k) = -a(x_i - s_k)^2 + bt_{ik}, \tag{3.1}$$

where s_k is the position of party *k*, and x_i and t_{ik} represent the voter's ideological position and partisanship, respectively. The parameter *a* represents the salience of ideology to the voter, while *b* represents the salience of partisanship, which we assume to be identical for all three parties. For our illustrative example, we set the policy salience parameter to $a = 1$, and we set t_{ik} to $+1$ if the voter identifies with party *k* and to zero otherwise.

We analyze the hypothetical electorate pictured in Figure 3.1, which shows the distribution of voters' policy preferences along a Left–Right scale stratified by partisanship. Specifically, we assume that the electorate is composed of three groups of voters: those who identify with parties *L, R*, and *Q*. We further assume that the set of ideal points (on a 1–7 Left–Right scale) of each partisan constituency is normally distributed, with the mean for party *L* set at 3.0 (to the left of the midpoint of the scale) and the means for *R* and *Q* both set at 5.0 (to the right of the midpoint), with a common standard

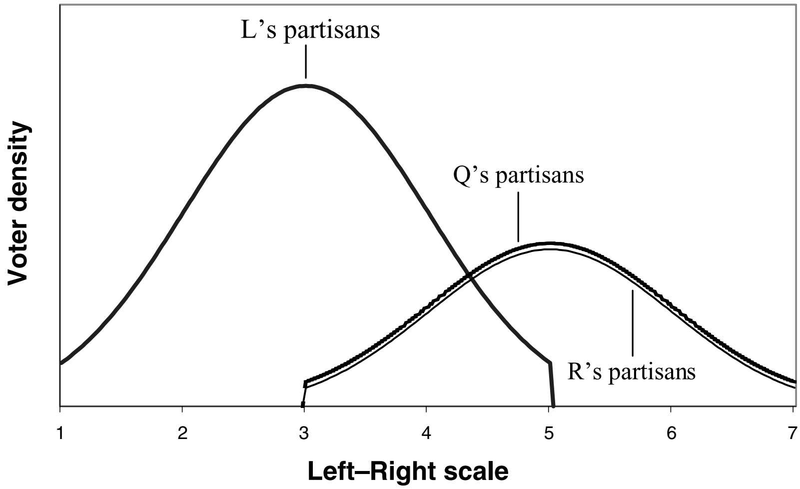

Figure 3.1. Voter distribution stratified by partisanship.

deviation of 1.0 for each of these partisan distributions.[3] Finally, we suppose that 25 percent of the electorate identifies with *R* and 25 percent identifies with *Q*, while 50 percent identifies with party *L*. As we will show, this example roughly corresponds to the situation in French politics, in which the three dominant parties are the conservative Union for French Democracy (UDF) and Rally for the Republic (RPR) and the leftist Socialists, and where the size of the Socialists' partisan constituency roughly equals the combined constituencies of the UDF and the RPR.

We initially locate party *L* at $s_L = 3$, the position of the median partisan of *L*, and party *R* at $s_R = 5$, the location of the median partisan of *R*. For this scenario, we examine four questions concerning *Q*'s strategic calculus: What are *Q*'s strategic motivations under the standard spatial model, which omits nonpolicy motivations (example 1)? How does *Q*'s strategic calculus change if we account for partisan-based voter biases (example 2)? What is *Q*'s strategic calculus if voters discount the claimed Left–Right positions of the parties (example 3)? What is *Q*'s strategic calculus if we account for both partisan biases and for unmeasured voter motivations, which

[3] For convenience in this example, we suppose that each partisan distribution is truncated two standard deviations away from its mean – that is, the distribution of the partisans of *L* extends over the policy interval [1, 5], and the distributions of partisans of *R* and *Q* extend over the interval [3, 7].

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render their voting decisions probabilistic from the parties' perspectives (example 4)?

3.2.1. Illustrative Example 1: Spatial Competition for the Policy-Only Voting Model: The Parties Are Drawn toward the Center

In a policy-only spatial model, voters are entirely policy motivated, so that partisanship does not influence their decisions. In order to explore the implications of this model, we initially set $b = 0$ in equation 3.1; that is, we assume that partisanship has no independent influence on the vote. Thus for all voters,

$$U_i(k) = -(x_i - s_k)^2. \tag{3.2}$$

Figure 3.2A, which plots Q's vote share (the vertical axis) against its Left–Right position (the horizontal axis), shows that for this policy-only model, Q maximizes support by presenting the centrist position 4.0 (location Q^* in Figure 3.2A), which attracts all voters who are located in the heavily populated interval [3.5, 4.5]. This constitutes slightly more than 25 percent of the electorate. Of course, if Q presents this centrist ideology, then the rival parties L and R have electoral incentives to converge toward Q's position so as to attract additional support from centrist voters. This reflects the centripetal incentive that typically operates under the policy-only model:

Strategic Proposition 1: When voters choose according to the policy-only voting model, vote-seeking parties typically have incentives to present centrist policies that are widely shared by the electorate.

3.2.2. Illustrative Example 2: Policy Divergence in a Deterministic Voting Model with Partisan Components

Next, we consider how the introduction of partisan loyalties alters the parties' strategic calculus. We let s_L denote the position of party L, s_R the position of party R, and s_Q the position of party Q. Specifically, in equation 3.1 let the partisan-salience parameter $b = 2$ so that for partisans of L, equation 3.1 can be written as:

$$U_i(L) = -(x_i - s_L)^2 + 2; \quad U_i(R) = -(x_i - s_R)^2;$$
$$U_i(Q) = -(x_i - s_Q)^2, \tag{3.3}$$

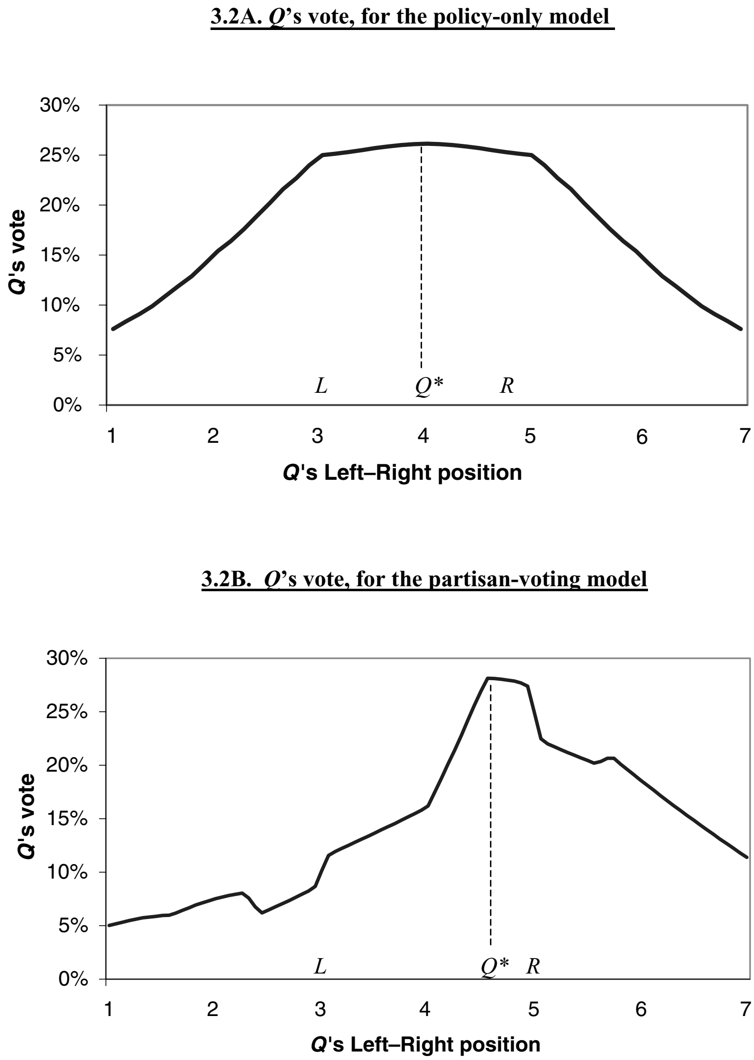

Figure 3.2. Party *Q*'s expected vote as a function of policy position, for alternative voting models.
*Note: Q** represents *Q*'s vote-maximizing position.

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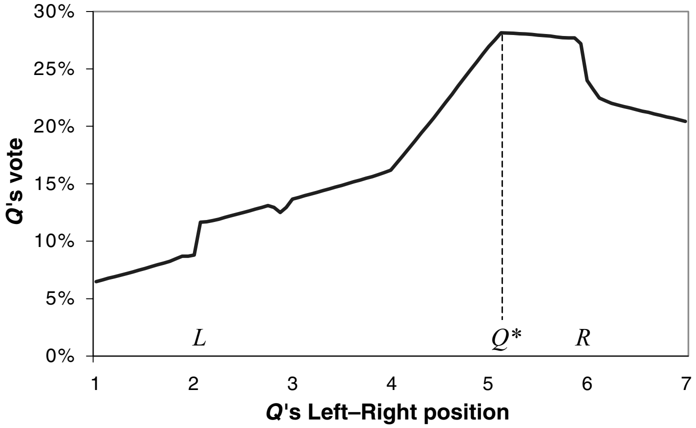
3.2C. *Q*'s vote, for the discounting model with partisan component



3.2D. *Q*'s vote, for the probabilistic voting model with a partisan component

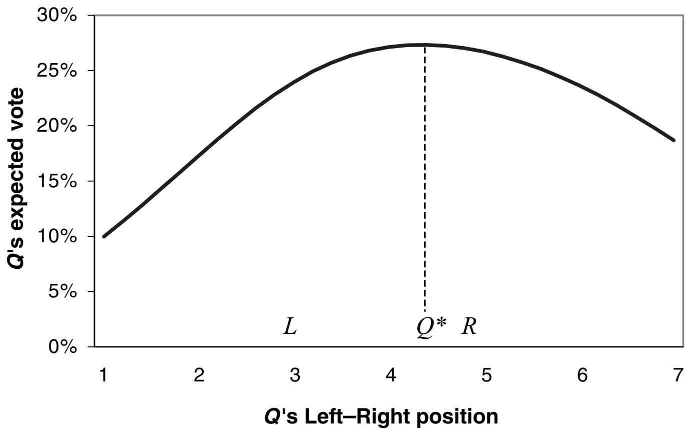


Figure 3.2. (*continued*)

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while for partisans of R, equation 3.1 becomes

$$U_i(L) = -(x_i - s_L)^2; \quad U_i(R) = -(x_i - s_R)^2 + 2;$$
$$U_i(Q) = -(x_i - s_Q)^2, \tag{3.4}$$

and for partisans of Q, equation 3.1 becomes

$$U_i(L) = -(x_i - s_L)^2; U_i(R) = -(x_i - s_R)^2;$$
$$U_i(Q) = -(x_i - s_Q)^2 + 2. \tag{3.5}$$

Given these parameters, partisans of L grant a nonpolicy advantage to party L, partisans of R grant a nonpolicy advantage to party R, and so on.[4]

Now consider party Q's strategic calculus under this alternative voting model, with L and R again located at $s_L = 3$ and $s_R = 5$. If Q locates at 4, it attracts support from all of its own partisans who locate in the policy interval [2.5, 5.5];[5] collectively, these partisans represent approximately 18 percent of the electorate. The reason Q receives such extensive support from its partisan constituency – including support from many partisans who prefer a rival party on policy grounds – is that these voters' partisan loyalties to Q outweigh their policy preference for one of the rival parties (see note 5). However, if Q locates at 4, similar arguments show that it attracts *no* support from voters who identify with L or R. This is because the centrist partisans of these rival parties – who prefer Q on policy grounds – nevertheless vote for their own party because their partisan loyalties outweigh their policy preferences. Hence, for this partisan voting model, centrist positioning by Q attracts support only from a subset of its own partisans, about 18 percent of the electorate.

4 Later in this chapter, we report an empirical analysis of the 1988 French presidential election that suggests that this is a plausible value of the partisan voting parameter. In addition, in subsequent chapters we report sensitivity analyses suggesting that the intuitions we develop here on party strategies do not depend on the specific values of the partisan voting parameter (see Chapter 4, section 4.5, and note 7 to Chapter 6).

5 To see this, note that given the voting specifications in equation 3.5 and for $s_Q < s_R$, a voter i who identifies with Q has a positive utility differential for Q versus R if

$$-[(x_i - s_Q)^2 + 2] - [-(x_i - s_R)^2] = (s_R^2 - s_Q^2) + 2x_i(s_Q - s_R) + 2 > 0,$$

that is, if

$$x_i < \frac{s_R + s_Q}{2} - \frac{1}{s_Q - s_R}.$$

If $s_Q = 4$ and $s_R = 5$, then $x_i < 4.5 + 1 = 5.5$. A similar calculation shows that given $s_L = 3$ and $s_Q = 4$, all partisans of Q located to the right of 2.5 prefer Q to L.

Now consider the consequences if Q presents the right-wing position $s_Q = 5.0$, a position that reflects the preferences of the median voter in its partisan constituency. For this position, Q receives votes from all partisans of Q located in the policy interval [3.5, 7.0] (this can be verified using the computational approach outlined in footnote 5). This represents virtually every member of Q's partisan constituency, about 23 percent of the electorate in all. Of course, the reason why Q's support increases among its own constituency, for right-wing positioning as compared to centrist positioning, is that the former better reflects this constituency's policy preferences. And if Q attracts only 18 percent of the vote when located at 4.0 but attracts 23 percent of the vote from its partisan constituency alone when located at 5.0, then the strategic imperative is clear: *Q has electoral incentives to shift away from the center, in the direction of its partisan constituency*.

Figure 3.2B shows Q's vote as a function of policy position, with L and R located at $s_L = 3$ and $s_R = 5$. We see that Q maximizes support by presenting the center-right position $s_Q = 4.56$ (location Q^* in Figure 3.2B).[6] For this position, Q attracts support from all of its partisans located in the policy interval [3.14, 7.00], as well as support from the center-right partisans of party L located in the interval [4.42, 4.78] – approximately 28 percent of the vote in all. By contrast, Q's vote drops sharply if Q locates to the left of center.

We emphasize that the intuition that drives party Q's strategic calculus revolves around the fact that voter characteristics that bias their vote choices (here partisanship) correlate with their policy beliefs. (Later we will document this correlation in the case of the French electorate.) In this scenario, so long as the leftist-based party L presents a leftist policy that is broadly acceptable to its constituency, rival parties cannot easily capture these voters' support. Hence rightist-based parties, such as Q, have electoral incentives to present right-wing policies that reflect the beliefs of their own voting constituencies. This suggests a second strategic proposition:

Strategic Proposition 2: When voters' partisan loyalties influence their voting decisions, and these loyalties correlate with their policy preferences, then parties are motivated to appeal on policy grounds to voters who are attracted to them in part for nonpolicy reasons.

[6] The erratic nature of the support curves pictured in Figures 3.2B and 3.2C is an artifact of deterministic voting that is cleared up by the use of a probabilistic model (see, e.g., Figure 3.2D).

One caveat we emphasize is that, Strategic Proposition 2 notwithstanding, parties typically maximize votes by presenting policies that are similar to, *but more moderate than*, their partisan constituencies' beliefs. This is especially true in situations where parties' partisan constituencies hold distinctly noncentrist preferences. The reason is that vote-seeking parties usually have opportunities to siphon off some (typically small) degree of support from rival parties' partisans, and, in situations where these rival partisans hold more moderate positions than the party's own constituency, party elites have incentives to moderate their policies in order to appeal jointly to their own partisan constituency *and* to neighboring constituencies that constitute targets of opportunity. Example 2 given earlier illustrates this strategic logic: Note that Q's optimal location at $s_Q = 4.56$ is similar to but more moderate than the median position of Q's partisan constituency (5.0), and that this center-right positioning allows Q to siphon off support from a limited number of party L's partisans located in the policy interval [4.42, 4.78].

3.2.3. Illustrative Example 3: Voter Discounting of Candidate Positions

In our third example, we suppose that voters discount the candidates' ability to implement policies at the locations they advocate (see Chapter 2, section 2.4). Specifically, we assume that there is a status quo point, *SQ*, located at 4 on a 1–7 scale, and that all voters discount by 50 percent the capacity of candidates to move policy from *SQ* to their advocated location. Thus, for example, a candidate advocating policy at 6.0 would be judged by the voters to be able to implement policy at halfway between 4.0 and 6.0, that is, at 5.0. Accordingly, a voter who desires government policy outputs at 5.0 might support a candidate whose campaign position is at 6.0. Anticipating such behavior by voters, parties might advocate policies more extreme than those they would advocate if discounting did not occur.

For this example, we locate candidates L and R at $s_L = 2$ and $s_R = 6$, so that voters project that these candidates would implement policies at 3 and 5, respectively, as in the previous illustrative examples. For this scenario, the third candidate Q is motivated to move to a more extreme position than he would take without discounting, in order to compensate for the expected voter response. In fact, Q maximizes support by assuming the position 5.12, substantially more extreme than Q's optimal position in example 2 ($s_Q =$ 4.56), in which no discounting occurs. Candidate Q's vote as a function of

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policy position is presented in Figure 3.2C. We are led to a third strategic proposition:

Strategic Proposition 3: When voters discount the abilities of the candidates to implement the policies they proclaim, candidates and parties are motivated to position themselves further away from the status quo – and typically in more extreme policy locations – than they would under the unified model without discounting.

3.2.4. Illustrative Example 4: Incorporating Probabilistic Choice into the Partisan Voting Model

In the preceding examples, we assumed that party elites could predict voters' decisions with certainty, based upon knowledge of these voters' ideologies and partisanship. In actual elections, however, voters are also moved by unmeasured considerations, so that neither party elites nor the researcher can be certain of voters' choices. As discussed in Chapter 2 (see section 2.2.2), we model this uncertainty by incorporating a random variable into voters' party evaluations, which renders voting decisions probabilistic from both the parties' and the analyst's perspective.[7] Here we re-examine the partisan scenario discussed earlier – without policy discounting – using the conditional logit model of probabilistic choice, yielding the voting model:

$$U_i(k) = -0.2(x_i - s_k)^2 + 2\mathbf{t}_{ik} + X_{ik}, \tag{3.6}$$

where X_{ik} represents unmeasured components of voter i's evaluation of party k, which are assumed to be independently distributed according to a type I extreme value distribution (see Chapter 2, section 2.2.2). Note that in equation 3.6, we introduce one other change in our voting specification – namely, we specify that the policy salience coefficient is $a = 0.2$, rather than $a = 1$ as in the previous examples. We introduce this modification because the empirical analyses of survey data from the 1988 French presidential election, to be

[7] Not only is voter choice better specified under a probabilistic model, but the complexity and instability of party competition in a multidimensional setting under a deterministic model is avoided, as well, since results under a probabilistic model are similar for one or more dimensions. Insofar as equilibria exist under deterministic models, however, they are generally similar to those obtained under probabilistic models. In this sense, the locations of equilibrium configurations are robust to the choice of models.

reported later, suggest that this is a realistic value for the policy salience parameter, under a probabilistic voting model. Logit probabilities for choosing various candidates were given in Chapter 2 (see equation 2.4).

For this probabilistic voting scenario, Figure 3.2D presents party *Q*'s expected vote as a function of Left–Right position, with parties *L* and *R* again fixed at 3.0 and 5.0. *Q*'s vote-maximizing position is approximately 4.35, which is similar to *Q*'s optimal position for the deterministic model: that is, party *Q* once again has electoral incentives to present a center-right policy that is similar to but less extreme than the mean position of *Q*'s partisan constituency.[8] Thus the introduction of unmeasured voter motivations, which renders the vote choice probabilistic, does not alter *Q*'s incentive to present right-wing policies that reflect the beliefs of its partisan constituency.

3.3. Party Competition and the Concept of Equilibrium in Policy Strategies

3.3.1. Policy Equilibrium: Definitions and Illustrative Examples

To this point, we have considered how a specific vote-seeking party (*Q* in our illustrative examples) chooses its policy strategy in scenarios where the policies of rival parties are fixed at arbitrary positions. This focus on a party's one-step optimum may be unrealistic, because, in real-world elections, the policies of rival parties are *not* typically set in stone; instead, rival politicians typically have some leeway to adjust their policy images in response to their competitors' policy strategies. Hence the following questions arise with respect to our illustrative examples: What policy strategies maximize electoral support for party *R* and for party *L* when party *Q* presents its vote-maximizing position? If *L* and *R* were to shift to these vote-maximizing positions, what would be *Q*'s optimal response to such policy shifts? As this process proceeds, if all parties seek to maximize votes and each party updates its strategy in response to rivals' policy shifts, will the parties ever converge to a stable configuration of policy positions, such that no party has incentives to further change its strategy? As we have indicated, such a set of stable strategies, if it exists, is called a Nash equilibrium.

[8] For a probabilistic voting model with voter discounting of 50 percent of the candidates' capacity to move policy from the status quo point at 4 (as in illustrative example 3), *Q*'s vote-maximizing position is at approximately 4.70.

We now revisit several of our three-party illustrative examples, comparing in each case the Nash equilibrium – if one exists – to the one-step optima noted earlier.[9] Our first example was a policy-only, deterministic model. In such a model, in which each voter always votes for the party that maximizes his or her policy-determined utility, there is no Nash equilibrium. The two most extreme of the three candidates always have incentives to move toward the central candidate in order to increase their vote shares.[10] But as the central candidate is squeezed out of support, he or she has an incentive to leapfrog one of the others in order to avert the squeeze. The new central candidate then has a similar incentive to leapfrog, and so forth, ad infinitum. Although leapfrogging appears to be uncommon in practice (Budge 1994: 460), only minor movement is required to avert a squeeze, so that instability would be expected under a pure deterministic, policy-only model with three candidates.[11] Such instability is, however, an artifact of the unrealistic assumptions of this model.

If, however, we add both partisanship and a probabilistic component to the model (as in illustrative example 4, given earlier), we obtain a Nash equilibrium with nonidentical strategies.[12] To illustrate how such an equilibrium may come about as parties jockey for position in response to each other, we continue with example 4, but this time allow the parties, one at a time, to shift to their vote-maximizing positions, successively updating their policies in response to the rival parties' positioning. This process is continued until, if possible, no further movement is needed – that is, until an equilibrium configuration is reached.

Recall that with parties *L* and *R* fixed at 3.0 and 5.0, respectively, party *Q* maximizes support by locating at 4.35 (see Figure 3.2D). Now, with *R* again fixed at 5.0 and *Q* fixed at 4.35, we vary *L*'s position until *L*'s vote share

[9] Recall that the algorithm for this calculation will be presented as Appendix 4.1 to Chapter 4.

[10] We are assuming here that the voter distribution is continuous and that the probability density is nonzero. In this case, a three-party Nash equilibrium does not exist regardless of the voter distribution for deterministic voting.

[11] In a deterministic model with four candidates, under special conditions a Nash equilibrium may occur with one pair of candidates at identical positions on the left and one pair at identical positions on the right (Eaton and Lipsey 1975; Cox 1990). Such pairing, however, does not appear to be observed in real electorates, and intuitively it is rather implausible.

[12] In general, in order to obtain a Nash equilibrium with nonidentical strategies in a probabilistic model with a nonpolicy component, it is necessary to have three or more candidates. With only two candidates, a Nash equilibrium typically occurs, but with both candidates at the center unless additional centrifugal influences – such as the threat of abstention due to alienation – are added to the model (see Chapters 7 and 8).

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is maximized. This occurs at the slightly left-of-center policy 3.81 (with no leftist rival, party *L* can afford to approach the center more than *Q* can). Next, with *L* and *Q* fixed at 3.81 and 4.35, respectively, party *R* – in order to maximize its vote share – shifts to the center-right position 4.24, to which party *Q*'s best response is the position 4.25.

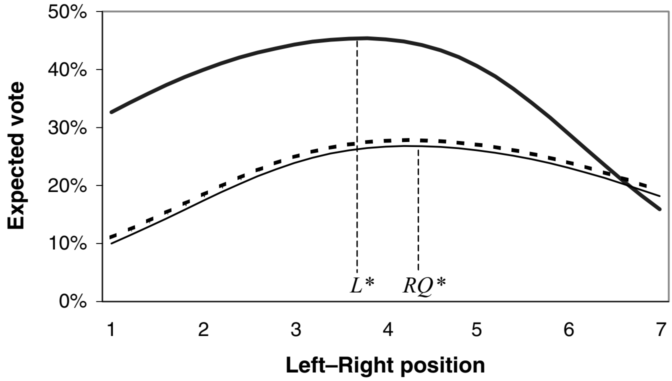
Following a further succession of minor policy adjustments, party *L* locates at 3.74, while *R* and *Q* pair at the center-right position 4.26. For this policy configuration, no party can improve its expected vote by modifying its position; hence, so long as circumstances do not change, the parties will converge to this stable policy configuration, which therefore constitutes a Nash equilibrium. Figure 3.3A displays the parties' vote shares as a function of their positions, with the rival candidates fixed at their equilibrium positions. Note that the optimal strategies at equilibrium are not all identical. Thus, the parties *are motivated to appeal on policy grounds to voters who are attracted to them, in part, for nonpolicy reasons*. Note, however, that the degree of policy dispersion between the rightmost and leftmost parties at equilibrium – which amounts to 0.52 policy units – is less than the dispersion between the mean position of *L*'s partisan constituency (3.0) and the mean positions of *R*'s and *Q*'s partisans (5.0). As discussed earlier, this occurs because while the parties have electoral incentives to appeal to their own partisans, they also have opportunities to attract some limited support from rival partisan constituencies, which prompts them to attach moderate weights to these rival partisans' policy preferences.

Finally, Figure 3.3B displays the equilibrium configuration for the unified model with probabilistic voting and voter discounting of the candidates' positions. Assuming that all voters discount by 50 percent the capacities of candidates to move policy from the status quo point 4.0 to the announced positions, this equilibrium configuration finds candidate *L* locating at 3.48, while *R* and *Q* pair at the right-wing position 4.52. As expected, this equilibrium finds the candidates at considerably more dispersed positions than they would occupy when voters do not discount the candidates' promises.

3.3.2. Applying Equilibrium Analysis to Real-World Elections: A Methodology Based upon an Iterative Algorithm

Two potential problems arise when using equilibrium analysis to understand party strategies. First, in some situations the parties may not converge to a

3.3A. Equilibrium for the proximity model (*a*=0.2, *b*=2)



3.3B. Equilibrium for the discounting model (*a*=0.2, *b*=2, 50% discounting)

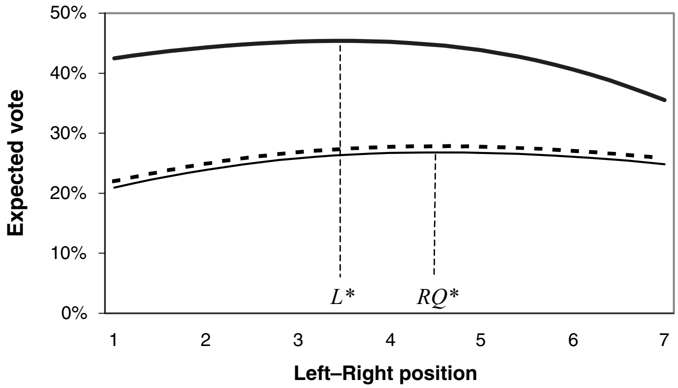


Figure 3.3. Equilibrium configurations for probabilistic voting models.
Note: The support curves represent the parties' expected votes as a function of their positions, with the rival parties located at their equilibrium positions. These illustrative examples are based on the voter distribution pictured in Figure 3.1.

policy equilibrium. For instance, recall that in our earlier example involving deterministic voters who choose according to the policy-only voting model, the parties *L, R*, and *Q* can be expected to continually leapfrog each other, never reaching an equilibrium configuration. In this scenario, equilibrium analysis generates no clear prediction about party policies beyond the prediction that these policies will be unstable. Second, in some election scenarios, *multiple* equilibria may exist – that is, there may be more than one stable configuration of party strategies.[13] In such situations, the particular equilibrium configuration that the parties eventually reach may depend on arbitrary factors, such as the order of party movement and the parties' initial positions.

In order to address these problems, we derive formal conditions that guarantee a unique Nash equilibrium (see Appendix 4.1). The practical importance of this result is that when the equilibrium conditions are satisfied – which, as we show in subsequent chapters, is usually the case in our analyses of historical elections for models involving a nonpolicy component – the parties are guaranteed to converge to a unique configuration of policies. Hence in our empirical applications to historical elections, we can typically employ equilibrium analysis to derive a unique prediction – that is, an explanation – of parties' policy proposals.

3.3.3. Equilibrium Analysis Versus Analysis of Parties' One-Step Policy Strategies

While spatial modelers emphasize the search for policy equilibrium in their theoretical work, the question arises: Is equilibrium analysis the best way to understand party strategies in *real-world* elections? In particular, empirically oriented scholars may question the central assumption that underlies equilibrium analysis: namely, that party elites have the leeway to continuously readjust their policy proposals in response to their competitors' policy strategies. While this assumption plausibly captures the dynamics of party

[13] In a probabilistic, policy-only model, a Nash equilibrium does exist, but with all three parties located at identical positions at the center. For quadratic utility, the equilibrium occurs at the voter mean; for city-block utility, it occurs at the voter median (Lin, Enelow, and Dorussen 1999). This centrist Nash equilibrium is unique as long as the policy-salience parameter *a* remains below a certain threshold (whose value depends on the number of parties, the voter distributions, etc.). Above this threshold, however, many different Nash equilibrium configurations occur. The question of the uniqueness of a Nash equilibrium in the unified model will be dealt with in Chapter 4.

systems over a period of years (assuming no external "shocks" to the party system, such as the formation of new parties or the collapse of existing parties), it is not clear that it is optimal for analyzing the dynamics of candidate strategies over the course of a single election campaign. If a candidate actually switched policies several times over a period of weeks or months, as equilibrium analysis implies, might not voters dismiss this candidate due to confusion about her policies and concerns about her sincerity?[14] Thus in real-world elections, vote-seeking candidates may have incentives to limit their policy switches, and therefore a focus on candidates' "one-step" policy optima – that is, the policies that maximize a candidate's vote given his competitors' actual positions – may illuminate candidates' behavior as effectively as equilibrium analysis does.

These considerations notwithstanding, in this book we focus on equilibrium analysis, for the following reasons.

First, equilibrium policy locations for each candidate do not depend on specified locations for the other candidates, whereas one-step values must be estimated from observed locations of the other candidates or set arbitrarily. Thus determination of one-step values is to some extent circular, because estimates of the locations of (some of) the candidates are used to determine the optimal locations of others, and vice versa. This is akin to using the same variables on both sides of an equation. Furthermore, the one-step optimum for a focal candidate assumes, somewhat arbitrarily, that one candidate can move but that the others remain fixed. But then, when the identity of the focal candidate changes, who can move and who cannot is reversed – a reversal that is difficult to justify.

Secondly, at a Nash equilibrium no candidate can improve his or her vote share by changing policy, so that such an equilibrium represents stability for the party system. One-step optima, on the other hand, are computed separately for each party and hence have no correspondence with overall stability.

[14] However, recent work by Stokes (1999) on presidential elections in Latin America suggests that once they attain office, politicians have the leeway to alter their policies quite dramatically, and even to renege on their central policy commitments, without suffering significant electoral penalties. To the extent that Stokes's conclusions extend to elections held outside of Latin America (we are unaware of comparable research on North American or European elections), they suggest that it is feasible for politicians to readjust their policies continually in the course of election campaigns, and therefore that equilibrium analysis may be the appropriate prism through which to analyze candidate strategies.

Finally, in our empirical applications to real-world elections, we find that *candidates' and parties' one-step policy optima are usually quite similar to their equilibrium positions* (later we illustrate this similarity in the case of the 1988 French presidential election). In other words, in typical situations, vote-maximizing candidates would move in a single step most of the way toward their eventual equilibrium locations, given any reasonable configuration of the other candidates. For this reason, our substantive conclusions about candidate/party strategies are similar whether we base them on analyses of equilibrium positions or on one-step optima.

In order to avoid needless repetition, we will typically report the equilibrium positions of candidates/parties in historical elections, not their one-step optima. However, in the (rare) cases where these two measures differ substantially, we report both equilibrium and one-step optimum positions.

3.4. Empirical Application to the 1988 French Presidential Election

We now investigate vote-maximizing candidates' policy strategies and the configuration of the candidates' equilibrium positions in a real-world setting: the first round of the 1988 French presidential election.[15] We shall base our computations on the probabilistic version of the policy-only model, the unified model with partisan components, and the partisan model with policy discounting. Our data on French voters' partisan identities, ideological self-placements, and voting behavior are derived from Pierce's (1996) 1988 French Presidential Election Study (FPES), using self-placements on the Left–Right scale for voter ideal points (N = 748) and respondents' mean candidate placements for the candidates' actual positions.[16] The major candidates were the Communist Andre Lajoinie; the Socialist Francois Mitterrand, the incumbent president; Raymond Barre, the nominee of the center-right UDF; Jacques Chirac, the incumbent prime minister and the leader of the

[15] French presidential elections provide for two rounds of voting, with the two top vote getters in the first round advancing to a runoff election held two weeks later. If one of the candidates wins a majority of the first round vote, then this candidate is elected without recourse to a runoff; however, this has never occurred in practice.

[16] Our analysis focuses on the subsample of 748 respondents (out of 1,013) who reported voting for one of the five candidates in the first round and who could place themselves on the Left–Right dimension.

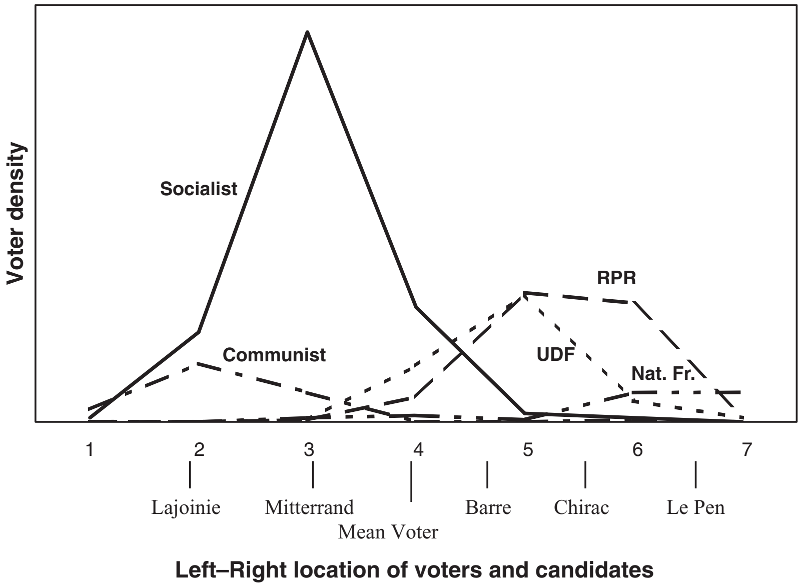


Figure 3.4. Voter distribution by party in the 1988 French Presidential Election Study.

right-wing RPR; and Jean-Marie Le Pen, the leader of the extreme right-wing National Front.[17]

Figure 3.4 shows the distribution of the FPES respondents' Left–Right self-placements, stratified by partisanship (see also Table 3.1, column 2). The presidential candidates' (mean perceived) positions are also shown, as is the mean voter self-placement. Note that these partisan distributions conform to our illustrative examples in that they are centered at quite different locations along the Left–Right scale: partisans of the Communist and Socialist Parties take predominantly left-wing positions, while partisans of the UDF, the RPR, and the National Front are centered on the right. Also consistent with our illustrative examples is the fact that the partisan constituency of the Socialists, the major left-wing party, is roughly the same size as the combined constituencies of the two major right-wing parties, the RPR and the UDF. Previous voting research suggests that Left–Right ideology is

[17] Four additional candidates contested the first round of the 1988 French presidential election, but none of these candidates reached 4 percent of the vote; therefore, we have omitted them from this analysis.

Table 3.1. *Nash equilibrium strategies under the conditional logit model for the 1988 French Presidential Election Study*

			Equilibrium Strategies		One-step Strategies
Candidate	Vote Share (1)	Mean Position of Partisans[a] (2)	Policy-only Model[b] (3)	Partisan Model (4)	Partisan Model (5)
Lajoinie	6.6%	2.24	3.98 (.005)	3.69 (.02)	3.64
Mitterrand	39.2%	3.08	3.98 (.005)	3.52 (.01)	3.58
Barre	13.5%	4.85	3.98 (.005)	4.24 (.02)	4.14
Chirac	18.0%	5.36	3.98 (.005)	4.44 (.02)	4.38
Le Pen	4.5%	6.03	3.98 (.005)	4.23 (.02)	4.24
Other[c]	18.2%	4.02	–	–	–
Parameter estimates:					
a (policy salience)			0.414	0.204	0.204
b (partisan salience)			0.00	2.14	2.14

[a] *Partisans* are defined as identifiers of the parties represented by the candidates indicated.
[b] This centrist equilibrium is not unique, i.e., there are other sets of strategies that constitute equilibria under the policy-only model. See Chapter 5.
[c] The category *other* includes identifiers of other parties as well as those respondents who did not identify with any party.

the dominant dimension in French politics; it has also been found to reflect primarily economic preferences (see, e.g., Converse and Pierce 1986, 1993; Fleury and Lewis-Beck 1993).

3.4.1. Candidate Strategies for the Policy-Only Voting Model

We first analyzed candidate strategies for a policy-only voting model, in which voters' utilities are influenced solely by their evaluations of the candidates' Left–Right positions, plus an unmeasured probabilistic component. For the 1988 French presidential election, we estimate the policy-salience parameter for this model (under conditional logit) as $a = 0.414$ (see Table 3.1, column 3). We ask the question: Given this model parameter, and the distribution of French voters' ideologies shown in Figure 3.4, does an equilibrium configuration exist, and, if so, what are the candidates' equilibrium positions?

Indeed, for this election scenario a Nash equilibrium exists in which all five candidates locate at the center (see Table 3.1, column 3). This set of strategies, however, does not constitute the only Nash equilibrium under the policy-only model; there are many others that are not centrist! Thus, the policy-only model can easily lead to an indeterminate result, as we will see again in Chapters 5 and 6.

3.4.2. Incorporation of Partisanship: A Unified Model

Incorporation of a nonpolicy component can resolve the indeterminacy of the policy-only model. As in our hypothetical examples, the nonpolicy component of the model is limited to party identification.[18] For the 1988 French presidential election, the parameter estimates for the unified model of equation 3.1 are $a = 0.204$ and $b = 2.14$, parameters that are quite similar to the ones we used in our earlier illustrative example with probabilistic voting ($a = 0.2,\ b = 2.0$).[19] Application of our algorithm yielded the determination that for this election scenario, a unique Nash equilibrium exists (see Appendix 4.1) in which the candidates assume five distinct optimal locations. These equilibrium positions are reported in Table 3.1 (column 4) and are illustrated in Figure 3.5, which shows the candidates' expected votes as a function of their Left–Right positions (with the rival candidates fixed at their equilibrium positions).

[18] Converse and Pierce (1993) argue that respondents' reported party identification is not equivalent to their current vote intention, a conclusion that is supported by Lewis-Beck and Chlarson's (2002) analysis of French presidential voting. In fact, 19 percent of the respondents who reported voting for one of the major candidates and reported a party identification voted for a candidate of a rival party. This is in addition to the 18 percent of respondents in our data set who identified with other than one of the five major parties or who reported no party identification at all. Adams and Merrill (2000: Table 3A) show that additional nonpolicy variables (class, income, religion, economic perceptions, etc.) had relatively small effects upon the 1988 French presidential vote, when controlling for partisanship. Equilibrium analysis based upon these more fully specified voting models produced results similar to those reported here.

[19] When a nonpolicy factor that correlates with policy preference – such as partisanship – is included in the model, the value of the policy-salience parameter a is reduced (in this case, from 0.414 to 0.204). This occurs because in a policy-only model, the policy-salience parameter not only reflects policy but also serves as a proxy for correlated nonpolicy parameters such as partisanship. Of course, in the unified model, partisanship is determined in part by policy, at least in the long term – that is, partisanship is in part endogenous. Hence the parameter estimate for partisan salience may be an overestimate. However, our equilibrium values are quite robust to changes in the partisan-salience parameter, b. If, for example, we divide the value of b in half, so that $b = 1.07$, and re-estimate ($a = .300$), the party positions at equilibrium are almost unchanged and are in fact slightly more spread out. Some insight into this nonlinear effect of changes in b on equilibrium strategies is given in Chapter 4.

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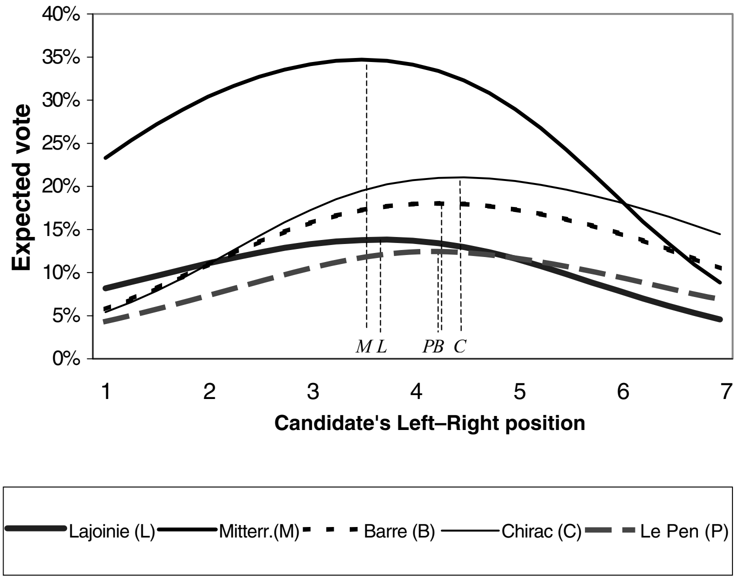

Figure 3.5. Equilibrium configuration for the presidential candidates in the 1988 French Presidential Election, for the unified model.
Note: The support curves represent the candidates' expected votes as a function of their Left–Right positions, with the rival candidates fixed at their equilibrium locations. These expected votes were computed using the estimated parameters for the unified model (which are reported in Table 3.1), for the voter distribution pictured in Figure 3.4.

These equilibrium configurations are consistent with our illustrative arguments that candidates maximize votes by presenting policies that are similar to, but less extreme than, the mean preferences of their partisan constituencies. We see that Lajoinie and Mitterrand, the candidates who have left-wing partisan constituencies, locate to the left of center on the ideological spectrum, while Barre, Chirac, and Le Pen each locate to the right of center, in the direction of their right-wing partisan constituencies. Furthermore, note that the candidates' positions under the partisan model are all relatively centrist: the maximum separation of the candidates occurs between Mitterrand and Chirac, who are separated by 0.92 on the 1–7 scale. This separation is significantly less than the distance between the mean locations of their parties' partisans, which is 2.28. This feature of the equilibrium configuration is consistent with our illustrative arguments, which suggested that when voters display partisan loyalties and do not discount the candidates' policy promises, candidates have electoral incentives to present policies that are similar to but more moderate than the policy preferences of their partisan constituencies.

Finally, we ask the question: What are the candidates' one-step policy optima, and how do these compare with their equilibrium positions? The candidates' one-step optima for the unified voting model are reported in Table 3.1, column 5. A comparison to their equilibrium positions (column 4) shows that for every candidate, the one-step optimum and the equilibrium position are extremely similar. Thus in this empirical application to the 1988 French presidential election, we conclude that our substantive conclusions about candidate strategies do not depend on the distinction between one-step optima and equilibrium positions.