The Many Faces of Strategic Voting

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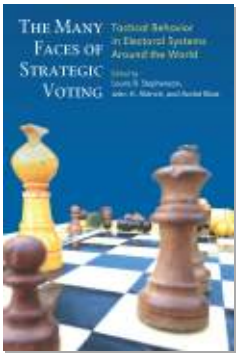

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The Effect of National and Constituency Expectations on Tactical Voting in the British General Election of 2010

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The 2010 elections in the United Kingdom provided voters with numerous and diverse opportunities to reason strategically. The Liberal Democrats (Lib Dems)—traditionally finishing a distant third in terms of seats in Parliament—vied with Labour to be the principal competition to the Conservatives, who failed to win a majority of seats, creating a rare case of what the British call a hung parliament.[1] These conditions varied across constituencies at the district level, and we exploit this variation to study the incidence of "tactical" voting. But the national outcome also presented strategic considerations for voters, and these conditions varied to some extent over the course of the campaign, giving voters interviewed at different times different sets of national considerations for tactical voting. This presents us with the opportunity to investigate how both local and national considerations may shape strategic reasoning among voters and relate to each other and to the final choices of voters on Election Day.

The Problem

Statement

The logic of strategic voting, developed in detail in chapter 1, is simple. Strategic voters seek to use their votes to shape the outcome, if at all possible, rather than to "simply" express their preferences.[2] If voters value their votes in terms of affecting collective outcomes, they will avoid "wasting" their votes on candidates with no chance of winning. More precisely, strategic voters will cast their votes for the candidate who maximizes the expected utility, which is a product of the utility they derive from the candidate's winning and their expectations that their votes will be pivotal for the candidate's victory. Though all voters may be strategic and make such calculations, only a subset of the electorate faces a strategic context that compels them to be "tactical" voters—that is, voters who deviate from voting for their most preferred candidate or party. Decades of study have confirmed the empirical manifestation of strategic voting, especially in observing the regularity of tactical voting under the theoretically predicted circumstances. Particularly in "first past the post" (FPTP) electoral systems (but also in other electoral systems, including proportional representation), candidates expected to lose the race tend to lose supporters who cast tactical votes for less preferred but more viable candidates (see, e.g., Abramson et al. 2010; Riera 2016).

The apparent simplicity of the calculus of voting obscures understudied complications to the practice of strategic voting, even in the fairly clear strategic considerations presented in modern Westminster systems. Voters in such systems cast ballots only for local candidates, but in the aggregate their votes determine which party or parties form(s) the national government. Thus, such strategic voters may be expected to choose among the candidates with these dual considerations in mind. It would be surprising, for example, if voters' opinions about prime ministerial candidates failed to enter their thinking, and there is evidence that expectations about the national outcome also shape their understanding of the strategic context of the campaign. This may be no surprise, because media coverage of elections focuses heavily on the national race, meaning that voters have good information to develop national-level expectations,[3] while the amount and quality of information available to develop constituency-level expectations is varied and often of low quality. In sum, a voter's strategic context is determined by both national- and constituency-level expectations and preferences, and it is a testable question as to how they shape voting behavior.

Data

We evaluate this approach using data collected from individual English respondents during the 2010 British election campaign. This election provides a particularly valuable empirical test of the national- and constituency-level components of strategic voting. First, if it is correct to rely solely on constituency-level information in calculating tactical voting, the 2010 UK contest constitutes a strong test of the assumption, as it is a case where voters who might rely on national-level information concerning various parties' realistic chances of forming a government should have been more reluctant than usual to vote tactically, at least for a good part of the campaign. The 2010 election was typical in that there was very little chance that any one party would win an outright majority of the votes. But the 2010 election was atypical in that for the first time in many years, the heretofore perennial third-place-finishing Lib Dems were, for at least a short while during the campaign, statistically tied with and possibly even ahead of Labour in the public opinion polls and thus in second place. At that point, according to the theory of strategic voting, no vote for any of the three parties would be wasted. The viability of the Lib Dems became particularly apparent following the first debate on April 15, three weeks prior to the election. An unexpectedly strong performance by Lib Dem party leader Nick Clegg resulted in the party's brief surge toward the top of the polls. Clegg's and the Lib Dems' chances subsequently declined, but they ended up in a governing coalition with the plurality-winning Conservatives. Even so, voters reported taking tactical votes away from the Lib Dems, as would be the tactical choice in most British elections since World War II.

Second, the 2010 British Election Study (BES) provides an ideal dataset to explore the phenomena of tactical voting at the national and local levels. More than 7,000 respondents in England were asked to provide evaluations of the three main parties as well as an estimate along two 11-point (0–10) scales of the likelihood of the parties' winning the national election and the local seat. These data allow us to estimate and analyze voters' individual expected-utility calculations using their own expectations rather than relying on external (and in the case of local races, infrequent) poll results. We can also then aggregate these individual choices to examine the overall occurrence of tactical voting. The dynamics of the campaign itself—especially the Lib Dems' surge and decline in the polls—provides variation in respondents' expectations, which allows us to better test our theoretical predictions.

Third, the United Kingdom has been one of the primary locations for the empirical study of strategic and tactical voting. Evidence of tactical voting has been found in a variety of voting systems, including runoff systems and proportional representation (Abramson et al. 2010; Riera 2016). But many scholars expect that tactical voting should be most common in FPTP systems like that of the United Kingdom (for early tests, see Black 1978; Blais and Carty 1991; Cain 1978). And with a virtually unitary government, the single vote cast for a candidate for the House of Commons is the basis for determining that nearly unitary government.

These effects are magnified in the United Kingdom because what Duverger (1959) referred to as the "mechanical effect" of single-member districts that has translated a plurality winner in terms of votes into a majority winner in terms of seats in the great majority of elections since World War II, thus both justifying and magnifying his "psychological effect." Figure 2.1 illustrates the relationship between vote and seat proportions in British general elections since 1945. The top two lines show how the plurality-winning party (either the Conservatives or Labour) won a higher percentage of seats than votes and how that result frequently translated a sub-50% vote share into a single-party majority in Parliament, thus indicating the relevance of the mechanical effect. The two lower lines show how that legislative seat bonus came at the expense of the third-place party (always the Lib Dems or their predecessors), which has consistently received a smaller percentage (and often a much smaller percentage) of seats than of votes.[4] If anything, the seats/vote splits for the Lib Dems appear to be growing farther apart over time, suggesting that the mechanical effect, as Duverger proposed, has been supplemented and strengthened by the psychological effect, revealed as tactical voting. That is, it appears that a significant number of voters abandon the Lib Dems in districts where they have little chance of winning. And, if anything, it appears that over time voters are learning when to avoid "wasting" their vote.[5]

Scholars have shown that in recent British elections, a significant subset of the electorate who preferred electorally unviable parties voted consistent with the logic of tactical voting based on their understanding that the FPTP system would deny their preferred party representation. Evidence of tactical voting has been found in the British elections of 1970 (Cain 1978), 1977 (Fieldhouse, Shryane, and Pickles 2007), 1983 (Fisher 2004; Franklin, Niemi, and Whitten 1994; Heath et al. 1991; Lanoue and Bowler 1992; Niemi, Whitten, and Franklin 1992), 1987 (Heath et al. 1991; Heath and Evans 1994; Lanoue and Bowler 1992), 1992 (Fisher 2004), 1997 (Fisher 2004; Myatt and Fisher 2002), 2001 (Clarke et al. 2004; Fieldhouse, Shry-

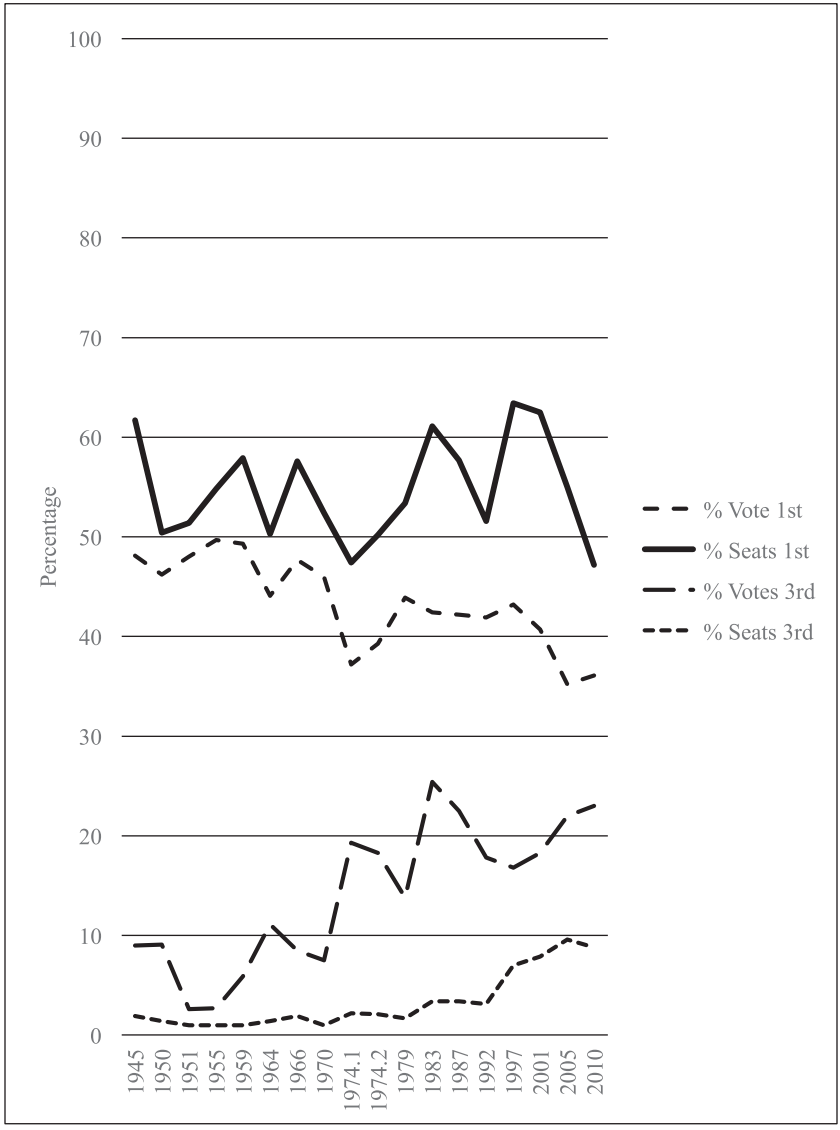

Fig. 2.1. Seat and Vote Percentages, First- and Third-Place Parties, UK Elections, 1945–2010

ane, and Pickles 2007; Fisher and Curtice 2006), and 2005 (Fisher and Curtice 2006; Kiewiet 2013).

The Theory of Strategic and Tactical Voting, with Two Modifications

The Standard or Classical Model of Strategic Voting

The theory of strategic voting has been formalized by scholars examining the "calculus of voting" (McKelvey and Ordeshook 1972). Under this theory, voters maximize the expected utility of their votes calculated by multiplying the voter's utility from that candidate's winning by the expectation that the vote will be pivotal or decisive. Thus citizens' vote choices are a function of both their preferences among the candidates and their expectations about the election outcome. We will thus consider two utility orderings of candidates: a simple or pure utility ordering that considers only preferences (that is, "sincere" preferences) and an expected-utility ordering that combines preferences with expectations. When the two orderings differ and when an expected-utility-maximizing voter votes for the candidate at the top of the expected-utility ordering instead of the candidate at the top of the ordering based purely on preferences, we say that the voter is voting tactically.

Because *tactical* voting applies only to supporters of trailing candidates, many *strategic* voters will still vote for their most preferred party. In a three-party local race, the two parties with the greatest chance of winning will, by definition, be the first choice of at least two-thirds of the electorate (and typically will be favored by more than two-thirds), assuming that all voters have reasonably accurate expectations about the campaign. Consequently, no fewer than two-thirds of the voters in each constituency should vote for the party or candidate they most prefer whether for sincere or strategic reasons. The exception to this "straightforward" strategy occurs only in the narrow circumstances described by Kselman and Niou (2010), when the second-most-preferred party is seen as more likely than the most-preferred party to defeat the least favorite party (see chapter 1).

Testable Hypotheses Drawn from the Classical Model

There are many empirical tests of the strategic voting model, particularly using data from the United Kingdom. The best of these tests are based

on testable hypotheses that flow from the classical model of the multicandidate calculus of voting. We draw here from Kselman and Niou (2010; see also Niou 2001), who emphasize the drawing of empirically testable hypotheses from the strategic calculus. Their work helps to sharpen our theoretical understanding of this well-documented phenomenon. Their formal model of voting in a three-party FPTP system, for example, demonstrates that tactical voting can occur only when the voter's second-most-preferred candidate is more likely to win than the favorite candidate.[6] We extend their hypotheses to cover both national and local strategic considerations, thereby providing a novel mechanism for sorting constituency- and national-level incentives for tactical voting. We find strong support for our conclusions that both levels of incentives help to explain variation in the patterns of tactical voting across England and that voters' individual strategic considerations vary according to informational and viability contexts. Before we develop this empirical model, we first introduce our two modifications.

Two Modifications of the Classical Model

We believe that voters are influenced by strategic considerations. We also believe that the rigidity and determinism of the "classic" statement of the calculus of voting in multicandidate contests needs to be relaxed somewhat, much as the behavioral revolution in economics has relaxed particular assumptions of the rigid, classical rationality model. We propose a weakening of two assumptions to the strict, standard model.

First, in any expected-utility model, the estimated probability of an outcome is assumed to be known with certainty. We imagine instead that voters are uncertain about this number—that is, they act as if their reported likelihood were the mean of a subjective probability distribution. We assume, therefore, that there is a stochastic term associated with the probability terms, reflecting that uncertainty. In practice, we use this assumption solely to assert that voters do not have deterministic expected-utility values for the casting of votes for party x rather than y but rather have an expected value with variance reflecting uncertainty.

The second weakening of the standard calculus is that voters' estimates of closeness draw from the full campaign—that is, their expectations about outcomes are derived from information that might be available about races at both the local and the national levels. Further, voters care not only who their local MP will be but also which party or parties form the government and who becomes prime minister. Indeed, both are found empirically

to be important independent determinates of voters' choices (see Blais et al. 2006 on coalitions; Bean and Mughan 1989 on prime ministerial candidates). National effects enter the strategic vote in two ways. One way is fully within the model: the classical model includes national closeness but does so only interactively. A voter might vote strategically if the circumstances are correct in the constituency, just as usual. Empirically, this would show up as voting strategically based on preferences regarding the local candidates and/or their parties and the closeness of the vote in the constituency. There would be no effect of national closeness on the vote. If the national conditions are also ripe for casting a strategic vote, then this would show up—and in the classic model would *only* show up—when it is simultaneously appropriate to vote strategically in the constituency *and* in the nation.[7] Our relaxation of the classic model says that preferences might have a modest direct effect on preferences about the national outcome and closeness at the national level. This is not surprising if there is some variation in citizens' calculations about closeness in the local electoral district. A Bayesian subjective probability distribution of outcomes would have some probability of a close outcome happening locally even when the occasional polls and conventional accounting of the local race point to that probably being very small. But even a very small probability can sustain a (small) effect on the national race, even when a voter thinks a close race locally is unlikely. Voters may hedge their bets by voting based on national considerations "just in case" (and contrary to what they believe is most likely) the local race turns out to be competitive and thus relevant for national seat totals. While this model would formally result from an interaction between local and national effects, our data (indeed all existing data of which we are aware) do not give us sufficient information about the (assumed) subjective probability distribution of local outcomes to observe this interaction. Instead, it would show up empirically as a (modest) apparently direct effect of a national basis for a strategic voter's casting of a tactical vote.

These two modifications are based on the notion that voters may make what they believe to be strategic decisions in an environment of incomplete information. Existing research (e.g., Blais and Bodet 2006; Blais and Turgeon 2004; Lanoue and Bowler 1998; Murr 2013) finds that at the national level, polls are a key driver in how voters perceive the competitiveness of the overall election, while at the local level, voters rely on cues such as (and perhaps especially) incumbency to make their decisions concerning candidate viabilities in the constituencies.[8] Thus, voters may have more confidence in their national-level expectations and take that greater certainty into account when deciding how to vote.

These ideas lead to two empirical implications. First, it is appropriate from the strategic voters' perspective to have a stochastic term in the estimation with respect to subjective estimates of probabilities of outcomes. That is, while empirical estimations always have such a stochastic term, it is justified as a consequence of sampling error. We assume that this is inherent in the choice process itself.[9] Second, people care about the national outcome as well as the local one—that is, they care about what government will form, who will lead it, and perhaps other features of the national election. This means that a strategic voter considers both the national and local races. Empirically, if this is true, we should expect at least a modest interaction effect, as one can be decisive nationally only if one is also decisive locally, and the effect is likely modest, because the probability of being decisive nationally is much smaller than locally, ceteris paribus. Under our first modifying assumption, we would observe a direct effect of national closeness—likely a very much weaker effect, as it may appear to be a direct effect primarily because the voter who said the election was not likely to be close locally nonetheless is assumed to have a small but still positive probability of it being close.

Empirical Tests of the Theory of Strategic Voting

We test a theory of strategic voting that predicts that voters will cast their votes for the candidate who maximizes their expected utility, where utility is derived from both the local and the national outcomes (that is, who wins the district and who forms the government). Our theory implies a series of testable hypotheses.

We derive our first set of hypotheses about strategic voting in the aggregate. These predictions rely on a relatively weak set of assumptions about the data-generating process, requiring only ordinal data about voters' preferences and expectations. Our second set of hypotheses is the consequence of assuming fuller information about the strategic context at the microlevel of the individual. This model makes stronger assumptions about the measurement of individual voters' cardinal preferences regarding candidates and expectations about the election outcomes but yields a larger and stronger set of implications.

We use survey data from the BES to explore the incidence of tactical voting in the 2010 British General Election.[10] We limited our analysis to respondents from English constituencies and to those who reported a vote intention for one of the three major parties.[11] Each respondent's preferences

over the three major parties is determined by comparing the feeling thermometer scores given each party.[12] Respondents' preference rankings of the parties are compared with their reported vote intention. The reported intention of tactical voters will deviate from their "sincere" preferences: that is, they will report an intention to vote for their second choice instead of their most preferred candidate.[13] We used the comparison between preferences and intended votes to create two new variables, *topvote* and *secondvote* for each respondent. The variable *topvote* is a dichotomous indicator of whether a respondent reports an intention to vote for the most preferred party. The variable *secondvote* is similarly a dichotomous indicator of whether a respondent intends to vote for the second-most-preferred party, and it serves as the key dependent variable in the hypotheses and analyses.[14]

The BES included a question asking respondents about the rationale behind their vote intention. Two of the available responses implicated tactical considerations: "I really prefer another party, but it stands no chance of winning," and "I vote tactically." Of the respondents who indicated an intention to vote for their second-most-preferred party, 61.4% chose one of those two responses.[15] Among all other voters, only 9.8% (708 of 7,257 respondents) chose one of those two responses.[16] This suggests that our *secondvote* variable provides a good indication tactical voting.

Macrolevel Hypotheses

Our first test of the model of strategic voting describes how we expect tactical voting to vary by strategic context in the aggregate using the less demanding information from our survey respondents. Like Kselman and Niou (2010), we consider respondents' personal assessments (preferences and expectations) of the various parties and then identify these assessments by the individual's preference ordering of the parties (rather than by, say, party name). Thus for one voter, the Conservatives might be the most preferred party (Party 1), and for another voter, the Conservatives might be Party 3 (that voter's third choice—i.e., least favorite party). We can then identify each voter's strategic context by listing whom the voter expects to come in first, second, and third. Thus, a voter with a strategic context of (1,2,3) faces a situation in which the favorite party has the best chance of winning, the second choice has the second-best chance of winning, and the least-favorite party has the worst chance of winning, while (2,1,3) denotes the case where the second-choice party is expected to win, the first choice is expected to come in second, and the third-ranked party is expected to come in third place in the vote.[17]

Kselman and Niou (2010) consider a three-party contest in one single-member district. They prove that of the six possible combinations of expected order of finish among the ranked parties,[18] only three provide a voter with any incentive to vote tactically for their second-choice party—those in which the voter's second-choice party is expected to have a greater likelihood of winning than the voter's first-choice party. That is, tactical voting is a theoretical possibility only for orderings (2,1,3), (3,2,1), and (2,3,1), and if a voter with an ordering of (1,2,3), (1,3,2), or (3,1,2) votes for the second-choice party, it must be for reasons other than strategic considerations. Kselman and Niou note that among the three scenarios in which tactical voting is possible, the conditions under which it is a possibility are narrower for ordering (2,1,3) than for either (2,3,1) or (3,2,1). Based only on the theoretical work of Kselman and Niou, one could place the various possible orderings of three parties into three categories based on incentives to tactically vote for a second-choice party. The (1,2,3), (1,3,2), and (3,1,2) orderings would be classified as providing zero incentive; the (2,1,3) ordering would be classified as having weaker incentives; and the (2,3,1) and (3,2,1) orderings would be classified as having stronger incentives. But given our behavioral assumptions about voters' probability estimates—that is, our inclusion of a stochastic term allowing for possible errors in estimating the parties' likelihood of winning—even the zero incentive ordering includes some possible (albeit minimal) incentive for tactical voting. Accordingly, we adjust our three categories of incentives to minimal, moderate, and strongest. The "minimal" class thus includes (1,2,3), (1,3,2) and (3,1,2); the "moderate" class includes (2,1,3); and the "strongest" class includes (2,1,3) and (2,3,1).

But these three categories—like the work of Kselman and Niou—consider only the case of a single district. In empirical cases, the single district is embedded in the national contest, and as in the United Kingdom, it is possible to imagine casting the decisive vote in the district and in the nation. With perfect knowledge of the true probabilities, one cannot cast a decisive vote in the nation unless one does so at the district level too.[19] However, with any uncertainty about the true probabilities, the assumption about subjective probability distributions means that there is some nonzero probability of being decisive, no matter what the most likely case may be. (That is, even voters who think that they will not be decisive at the local level have a nonzero probability of being so.) Thus, there may be a small probability of casting a decisive vote in the nation but not the district, at least in terms of how voters respond to the survey questions asked. The result of

adding the national level is that the table is now three-by-three. We applied the formal logic of Kselman and Niou to this case (it flowing obviously, given their original results) with one exception. By assumption, the national effect is necessarily small, unless it interacts with a genuine incentive to cast a tactical vote locally. That is, we build into the model our assumption that tactical voting nationally *requires* interaction with the local conditions, whereas the reverse is not true. Voters have incentives to vote tactically in the district based only the strategic circumstances in that district, no matter the national conditions. This results in the three-by-three array reported in table 2.1, where the entries denote our extension of the Kselman-Niou formal derivations. The numbers in the cells reflect our expected ranking of each of the nine cells in terms of the likelihood (and thus incidence) of tactical voting. Thus, the bottom-right cell, in which voters would face the strongest incentives at both the local and national levels, is assigned a 1, because we would expect those voters to have the highest incentives to vote tactically. The 2 cell—in which voters still face the strongest incentives at the local level but only moderate incentives at the national level—is directly above cell 1 because our theory suggests that constituency-level incentives will dominate national-level incentives. The three lowest-rated cells—those labeled 7, 8, and 9—all come in the first column of the table, where the constituency-level incentives are minimal, but within this column the incentives fall along with the national-level incentives.

TABLE 2.1. Theoretical Expectations of Incentives to Deviate from First Preference by National- and Constituency-Level Expectations

		Constituency		
		Minimal (1,2,3), (1,3,2), (3,1,2)	Moderate (2,1,3)	Strongest (2,3,1), (3,2,1)
National	Minimal (1,2,3), (1,3,2), (3,1,2)	9	6	3
	Moderate (2,1,3)	8	5	2
	Strongest (2,3,1), (3,2,1)	7	4	1

Taken together, two hypotheses concerning voter preferences and party viabilities follow from our extension of Kselman and Niou's framework to differentiate between perceived competitiveness at the national and constituency levels:

H1. Tactical voting across the respondents as a whole will conform to the relative ordering described in table 2.1. That is, the incidence of *secondvote* equaling 1 will be lowest for the cell labeled 9 and highest for the cell labeled 1.

H2. A voter's choice to vote tactically, as measured by the incidence of *secondvote* equaling 1, will depend on the anticipated outcomes in the nation as a whole and within the voter's constituency.

These macrolevel hypotheses describe how we expect the incidence of tactical voting to be distributed across the 2010 British electorate in the aggregate. Specifically, we expect that national- as well as constituency-level incentives will drive voters' decisions to vote tactically, although as the rank-ordering of cells indicates, we anticipate fewer tactical votes as a consequence of national conditions than of local conditions.

Microlevel Hypotheses

For our macrolevel model of the *aggregate* levels of tactical voting across strategic contexts, we created ordinal rankings of voters' preferences among the three major parties and expectations about their electoral chances. But the data provide more information than simple ordinal rankings. The 2010 BES survey asked respondents to provide both types of measures on 11-point scales that we can treat as cardinal. We can then use these interval measures to create expected-utility variables and thus to test a microlevel model of *individual* decisions to vote tactically.

The theory of strategic voting implies that only some (indeed perhaps none) of those who prefer the trailing parties should vote tactically. For example, if voters like (or dislike) their second- and third-most-preferred parties roughly equally, that small difference would obviate the rationale for voting tactically. Or if a voter's second-most-preferred party has just about the same chance of winning as the favorite party (as in a landslide being won by the least-preferred party), that vote would be wasted in either

case, and the voter could continue to vote for her favorite, if likely third-place-finishing, party. To put these and other similar comparisons together, voters will vote tactically only if the expected utility of voting for their second choice is larger than the expected utility of voting for their first-choice party.

We can put these informally discussed hypotheses together into a clearer form. Notationally, let p denote probability terms, b denote preference terms (measured in cardinal utilities), and let subscripts *1*, *2*, and *3* denote the parties in the order of voter preference. We are concerned with the expected utility of voting for Party 1 compared to that for voting for Party 2, and so on. Hence, we use the term p_{12} to represent the difference in the probability of Party 1 winning if the voter votes for that party and the probability of Party 2 winning if the voter votes instead for that party. A large value for p_{12} indicates an expectation that Party 1 is much more likely than Party 2 to win, ceteris paribus; a negative value implies an expectation that Party 2 will outperform Party 1. Similarly, b_{12} represents the difference in utility if Party 1 is elected and if Party 2 wins—it indicates just how much the voter prefers Party 1 to 2. Values for b_{12} will always be positive, but larger values indicate a stronger preference for Party 1, while values closer to 0 suggest more indifference between the parties. The full term, pb_{12}, is the product of the expectation differential and the utility differential for Party 1 and Party 2.[20] The variable pb_{13} is the analogous term expressing the product of the expectation and utility differentials of Party 1 and the least-preferred party, and pb_{23} is the comparison between the second- and third-most-preferred parties. With this notation, we can write the following equation:

$$\Pr(secondvote = 1) = f(pb_{12}, pb_{13}, pb_{23}) \quad (1)$$

Furthermore, we can derive the following hypotheses, where the variable to be explained is the probability of voting for the second-most-preferred party (or where *secondvote* equals 1):

H3. As pb_{12} increases, the chances of voting for the second-most-preferred party (Party 2) should *decrease* (that is, the incentives to vote tactically should *decrease*), whether that is because Party 1 has an increasingly large chance of winning, because the voter has an increasingly strong preference for that party over the second-most-preferred party (Party 2), or both.[21]

H4. As pb_{13} increases, the chances of voting for Party 2 should *decrease* (as the incentives to vote tactically should *decrease*), whether that is because Party 1 has an increasingly large chance of winning, because the voter has an increasingly strong preference for that party over the least preferred party (Party 3), or both.

H5. As pb_{23} increases, the chance of voting for Party 2 should *increase* (and the incentives to vote tactically should *increase*), whether that is because Party 2 has an increasingly large chance of winning, because the voter has an increasingly strong preference for Party 2 over Party 3, or both.

This microlevel model allows us to make predictions about the probability that individual respondents will vote for their second-most-preferred party. Specifically, the model predicts that voters will be most likely to deviate from their sincere preferences when the theory of strategic voting suggests that they have the strongest incentives to vote tactically.

Together, our models' macro- and microlevel predictions for the 2010 British election offer more precise expectations for the incidence and distribution of tactical voting than previous work examining the theory of strategic voting. The specifications of the microlevel models are, to a large extent, similar to those employed by those studying strategic voting in other elections (e.g., Abramson et al. 1992; Merolla and Stephenson 2007). The difference is that we compare estimates obtained when using voter assessments of both *national*- and *constituency*-level viabilities.

Results and Analysis

The percentage of voters who reported that they intended to vote for the party they liked the most varied considerably throughout the campaign. Figure 2.2 presents the *topvote* proportion over time for the electorate overall and for each party. The plot shows that in the early stages of the campaign, the Conservative Party was receiving the intended vote of a high proportion of its supporters, Labour was capturing a smaller proportion of the intended votes of its supporters, and the Lib Dems were receiving a much lower proportion of the intended votes of their supporters, just as the theory of strategic voting predicts given that the Lib Dems were in third place in most English constituencies. In other words, early on in the race strategic Conservative voters and Labour voters could vote straight-

forwardly, while only Lib Dem voters faced any strategic incentives to vote tactically. This changed following the first televised debate, which featured a strong performance by Lib Dem prime ministerial candidate Nick Clegg. The consequence was a dramatic change in the strategic setting, making the Lib Dems a strategically viable choice in many districts. At the same time, Labour usually fell into a near tie or even into third place. As a further result, the Lib Dems began capturing more of the intended vote of their supporters. For the remainder of the campaign, the Conservatives continued their strong performance among their supporters, while Labour and the Lib Dems captured similar but lower proportions of the intended vote of their supporters.[22] All of these findings are exactly what we would expect overall if voters were strategic. Of course, more precise information about individual constituencies will render a more exact reflection of the strategic context respondents to the BES faced in their respective districts.

Most respondents for whom we have data reported an intention to vote for their most preferred party (7,237 of 7,660, 94.5%). Of the 423 respondents who reported an intention to deviate from their top choice, 396 (93.6%; 5.1% of the total respondents) indicated that they would be voting for their second choice, while just 27 (6.4%; 0.35% of the total respondents) indicated an intention to vote for their third choice. Thus, most voters voted for their most preferred party (whether sincerely or strategically), while within the pool of possible tactical voters, the vast majority were voting for their second-most-preferred party, as predicted by the theory of strategic voting.[23]

The second component of voters' expected-utility calculations are their estimations of the efficacy of their votes—that is, the likelihood that it will affect the outcome. Like the vast majority of scholars who have studied this problem, we assume that this personal efficacy of an individual's vote is closely related to and thus proxied by the perceived closeness of the contest: the closer the vote is expected to be in the nation or the constituency, the more likely that one vote will affect the outcome. The BES asked respondents to estimate the likelihood that each party would win their individual constituencies as well as the likelihood that each party would win the national election. We used these measures to estimate voters' constituency- and national-level expectations.[24]

Macrolevel Results

We first consider the evidence supporting the claims of the macrolevel model regarding aggregate levels of tactical voting across the different strategic contexts the voters faced. Table 2.2 fills in the cells of the three-

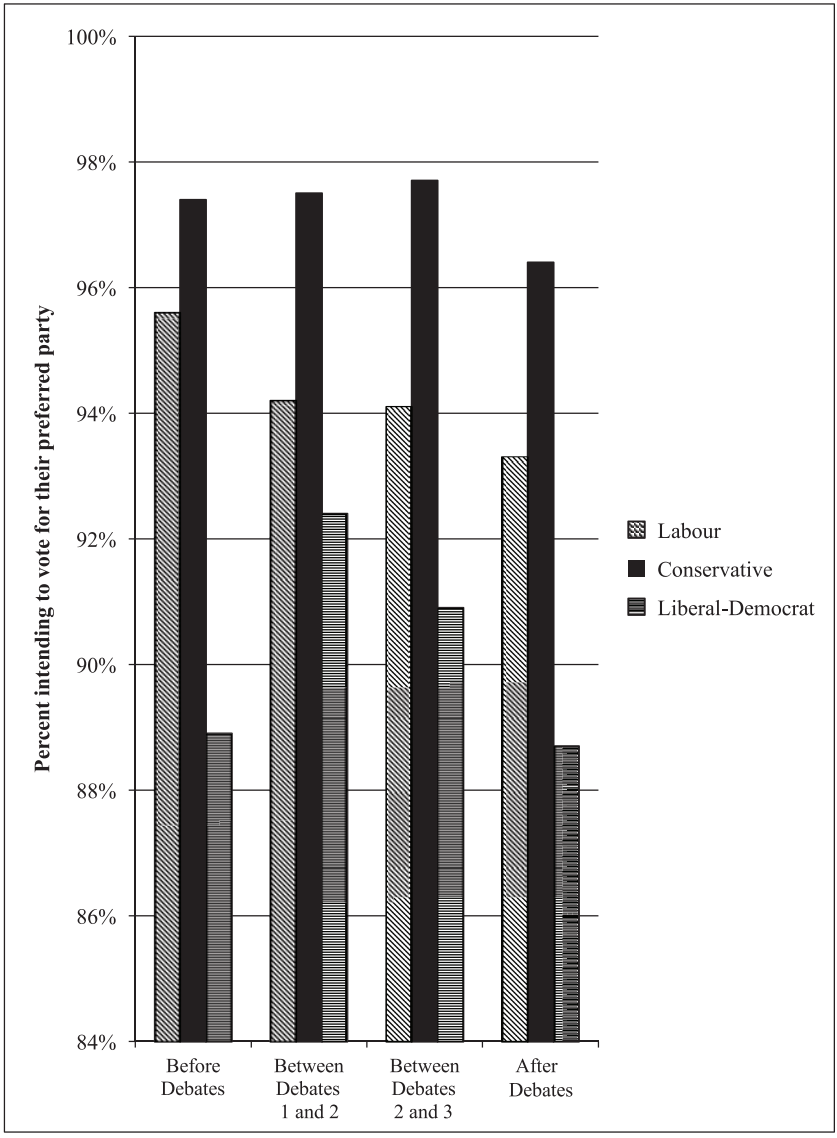

Fig. 2.2. *topvote* Proportion by Party and by Date

by-three table presented in table 2.1 using the actual observed proportion (and percentage) of respondents in each strategic context who reported an intention to vote for their second-choice party. The results in Table 2.2 support H1 (the hypothesis that the incidence of tactical voting should follow the rank-ordering of cells in table 2.1). Looking first at constituency-level incentives, we see that the incidence of tactical voting increased as expected—that is, tactical voting percentages increase across each row from minimal through moderate to the strongest incentives. Just 1.39% of voters who found themselves in the strategic context with minimal incentives to vote tactically reported an intention to vote for their second-choice party.[25] In contrast, 8.76% of those facing moderate incentives voted for their second-choice party, and 27.1% of those facing the strongest incentives did so. The differences between these categories are statistically significant. Thus, as predicted, voters' decisions about voting tactically do appear to be based on their expectations regarding the outcome within their local constituency.

Table 2.2 also supports the hypothesis that voters' strategic calculations were influenced by their national-level expectations. Voters in the strategic context with minimal national-level incentives to vote tactically did so just

TABLE 2.2. Proportion and Percentage of Voters Reporting an Intention to Vote for Their Second-Choice Party, by Incentive Category

		Constituency			
		Minimal (1,2,3), (1,3,2), (3,1,2)	Moderate (2,1,3)	Strongest (2,3,1), (3,2,1)	*Total*
National	Minimal (1,2,3), (1,3,2), (3,1,2)	13/1774 (0.734%)	12/259 (4.63%)	68/299 (22.7%)	93/2332 (3.99%)
	Moderate (2,1,3)	9/74 (12.2%)	10/82 (12.2%)	7/30 (23.3%)	26/186 (14.0%)
	Strongest (2,3,1), (3,2,1)	7/232 (3.02%)	17/104 (16.3%)	47/122 (38.5%)	71/458 (15.5%)
	Total	29/2080 (1.39%)	39/445 (8.76%)	122/451 (27.1%)	190/2976 (6.38%)

3.99% of the time, while those facing moderate and the strongest such incentives did so 14.0% of the time and 15.5% of the time, respectively. The differences in proportion between minimal national incentives and both moderate and the strongest national incentives are statistically significant. The differences in the incidence of *secondvote* among voters facing moderate and the strongest incentives is not statistically significant, although, as predicted, the rate of voting for the second-choice party was higher in the strongest incentive category than in the moderate category. The data thus support the inference that both constituency- and national-level expectations factored into voters' decisions to vote tactically for their second-choice party.

Table 2.2 provides further evidence in support of H2 (tactical voting depends on the interaction between national and local strategic conditions). Table 2.2 supports this interaction between the constituency- and national-level incentives and the incidence of *secondvote* across the nine different strategic contexts, and table 2.3 illustrates this phenomenon a bit more directly. It shows the ordering of the actual rate of tactical voting across these nine different contexts; that ordering can then be compared with the theoretical expectations set out in table 2.1. Of the nine different contexts, just one was out of order according to our theoretical expectations (the actual cell with the sixth-highest incidence of *secondvote* was associated with the strategic context we expected to have the eighth-highest rate). Table 2.3 also reports for each cell—starting with the cell labeled 1 at the bottom right—which cell next in the ordered ranking is the first to have a statistically significant different rate of *secondvote*. Thus although the difference between cells 1 and 2 is as expected, it is not statistically significant; however, the difference between cells 1 and 3 is both as expected and statistically significant. Given the overall rate of tactical voting,[26] the small number of respondents who fell into some of the various strategic contexts,[27] and the fine grain of our theoretical predictions, table 2.3 offers strong support for the notion that tactical voting depends on both constituency- and national-level incentives and the idea that constituency-level incentives tend to dominate strategic considerations regarding an intention to vote for a second-choice party. Moreover, the fact that most voters voting for their second-choice party were found in the strategic contexts with the highest incentives for tactical voting indicates that in the 2010 British election, strategic considerations trumped any other voter motivations for deviating from their most preferred parties, such as casting a protest vote or a bandwagon vote.[28]

A sharp decline occurred in the absolute number of respondents in each

category of increasingly favorable incentives for tactical voting. About 60% of all respondents fell into the cells where we expected that strategic voters would engage in nearly no tactical voting. Conversely, only 4% of respondents faced a strategic context in which the incentives to vote tactically were the strongest. It is thus unsurprising that the overall percentage of those casting tactical votes is relatively low, even if every voter in England reasoned strategically. The great majority faced the straightforward strategy of voting for their sincere (that is, most preferred) choice. The vast majority of voters perceived themselves as facing a strategic context offering relatively weak or even no incentives to vote tactically. Careful examination of the full data array indicates that the variation in tactical voting seems to result more from constituency-level factors than national factors (see Lanoue and Bowler 1998 for similar findings from Canada). This is a helpful observation because, while reasonable observers disagreed about the outcome expected nationally, the only "true" variation in national competitiveness was genuine (but relatively modest) variation over time in expectations about the election results. Conversely, considerable true variation occurred in competitiveness across the various constituencies.

Finally, the concentration of the highest proportion of tactical voting in the cells marked strongest also supports the idea that an interaction occurred between strategic considerations at local and national levels. As table 2.3 shows, tactical voting increased far greater than merely linearly

TABLE 2.3. Actual Ordering of Incidence of *secondvote* (and Next-Ranked Cell with a Statistically Significant Different Level of *secondvote*)

		Constituency		
		Minimal (1,2,3), (1,3,2), (3,1,2)	Moderate (2,1,3)	Strongest (2,3,1), (3,2,1)
National	Minimal (1,2,3), (1,3,2), (3,1,2)	9 (N/A)	7 (9)	3 (5)
	Moderate (2,1,3)	6 (7)	5 (7)	2 (7)
	Strongest (2,3,1), (3,2,1)	8 (9)	4 (7)	1 (3)

and was especially high only when conditions were ripe for tactical voting at both levels. Thus, in addition to concluding that the local level provided the stronger context for strategic reasoning to induce tactical choices, we may also conclude that the strategic context's support for tactical voting at both the local and national levels raised the incidence of reported tactical voting to quite high levels—that is, to where more than a third of such relevant respondents chose to vote tactically.

Microlevel Results

To test our microlevel model of individual tactical voting and the related hypotheses, H3–H5, we estimate a series of models of tactical voting using individuals' expected-utility differentials.[29] That is, we estimate a probit-regression form of equation 1 using the approach developed by Abramson et al. (1992). The right-side variables are the 2010 BES data on feeling thermometers (for the *b* terms) and constituency- and national-level electoral expectations (for the *p* terms).[30] The models include covariates measuring the strength of respondents' reported partisan identification for the most preferred party (*pid1*, ranging from 0 to 3), a dummy variable indicating whether respondents were contacted by the most preferred party (*contact1*), and a dummy variable indicating whether respondents were contacted by the second-most-preferred party (*contact2*).[31] The coefficient estimates for the *pb* variables provide the direct test of H3–H5.

We first estimated separate models for constituency- and national-level expectations. We then created two dummy variables, *tactnat* and *tactcon*, indicating whether the respondent voted in a strategic context—nationally and locally, respectively—that suggested tactical voting and ran two additional models including them. Table 2.4 presents the results.[32] We proceeded in this fashion because of the high level of multicollinearity that led to explosive increases in standard errors of estimates and related signs of very high levels of multicollinearity (see the appendix to this chapter). Thus, the inclusion of *tactnat* and *tactcon* presents the only viable way of including the two levels in one model. It represents a sort of fixed effect for one level, allowing fuller tests of hypotheses of variables measured at the other level.

As expected, all four models found a negative and statistically significant relationship between *secondvote* and the pb_{13} terms (supporting H4), and the coefficients appear to be large. Again as expected, a positive and statistically significant relationship between *secondvote* and the pb_{23} terms (supporting H5) was estimated for the constituency-level measure, but the

counterpart at the national level was small, incorrectly signed, and not significantly different from 0. Three of the four models estimate a negative relationship between *secondvote* and the pb_{12} terms (supporting H3). None of these estimated coefficients, however, is statistically significant at the 0.05 level. Thus, there is clear positive support for the overall microlevel model, but the results vary with respect to individual terms.[33] In particular, there is greater (if not quite complete) support for the constituency-level measures than for the national-level measures, for which only the estimate coefficient for the pb_{13} term was large and statistically significant.

The positive and statistically significant coefficient for *tactnat* in Model 3 supports H1 and the idea that national-level incentives matter for tactical voting, even in the presence of and controlling for constituency incentives (which supports H2).[34] Thus the data from the 2010 BES suggest

TABLE 2.4. Probit Regression Results

Probit Model	Model 1	Model 2	Model 3	Model 4
(Intercept)	–1.27*	–1.19*	–1.37*	–1.76*
	(0.11)	(0.10)	(0.15)	(0.15)
pb12con	–0.09		0.43	
	(0.73)		(0.93)	
pb13con	–4.38*		–4.64*	
	(0.38)		(0.49)	
pb23con	5.14*		5.58*	
	(0.58)		(0.72)	
pb12nat		–1.39		–0.19
		(0.84)		(1.03)
pb13nat		–1.76*		–1.86*
		(0.45)		(0.57)
pb23nat		–0.23		–0.15
		(0.72)		(0.93)
tactnat			0.27*	
			(0.10)	
tactcon				1.11*
				(0.11)
pid1	–0.32*	–0.25*	–0.28*	–0.31*
	(0.04)	(0.04)	(0.05)	(0.05)
contact1	–0.32*	–0.58*	–0.30*	–0.31*
	(0.09)	(0.08)	(0.11)	(0.10)
contact2	0.51*	0.71*	0.44*	0.46*
	(0.10)	(0.09)	(0.12)	(0.12)
N	3,704	3,766	2,413	2,471
AIC	1270.78	1462.33	841.88	892.90
BIC	1,444.86	1,636.87	1,027.11	1,078.90
log L	–607.39	–703.16	–388.94	–414.45

Note: Standard errors in parentheses; * indicates significance at $p < 0.05$.

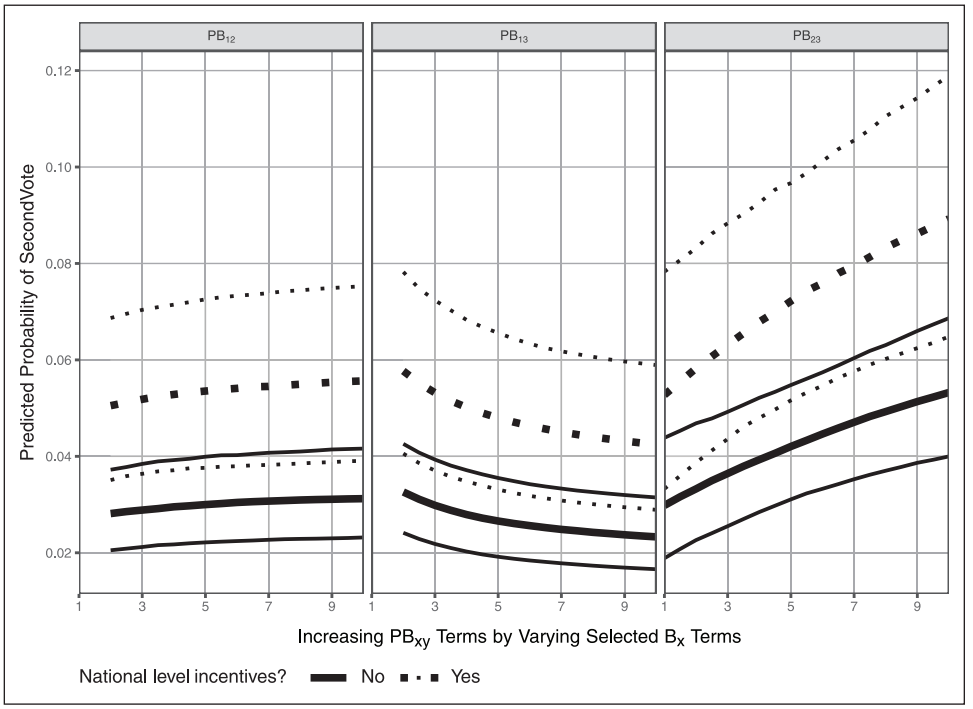

Fig. 2.3. Predicted Probabilities Showing Effects of National-Level Incentives

that the behavior of the British electorate was consistent with our theory of strategic voting. To examine the nonlinear relationship between the independent variables and *secondvote* in our probit regression, figure 2.3 illustrates a series of first-differences plots using Model 3. The plots show how the presence of national-level incentives to vote tactically affect the predicted values for *secondvote* over a range of values for a selected component of the pb_{xy} terms while holding all else constant.[35] We achieve this by simulating 1,000 times the predicted probability that a respondent would declare an intention to vote for Party 2 across specified values for the independent variables using the probit model.[36] For example, figure 2.3(b) contains curves showing the relationship between pb_{13} and *secondvote* for voters with national-level incentives to vote tactically and for voters without such incentives. Both curves show the theoretically expected negative relationship between pb_{13} and *secondvote*—as the expected utility from Party 1 increases, the likelihood of voting for Party 2 declines. The predicted values for *secondvote* are lower for the range of pb_{13} when *tactnat* is 0, which

is also consistent with our expectations. Similarly, figures 2.3(a) and 2.3(c) each depict two curves—one with *tactnat* equal to 1 and one with *tactnat* equal to 0—showing the relationship between pb_{12} and pb_{23}, respectively, and *secondvote*, holding all other variables constant. The upward slope of the curves for pb_{12} in figure 2.3(a) is contrary to our expectations but statistically insignificant, and it nevertheless shows the theoretically expected relationship between the existence of national-level incentives and likelihood of voting for Party 2. Figure 2.3(c) conforms to all our expectations.

High collinearity led us to run separate estimations using the respondents' national- and constituency-level viability assessments. One reason this is not surprising is that one component of the *pb* terms, the respondents' evaluations of the parties, is the same across contexts. Nonetheless, we both assessed the predictions of our microlevel models *and* assessed whether improved predictability occurs when results from the model employing national viability assessments are considered.

We assessed the predictions of our microlevel models by comparing the predictions of the regressions with the actual results observed in our sample. To do so, we reconsidered table 2.2, our reporting of *secondvote*, sorted by strategic context. We repopulate the table cells using several methods: by performing a series of 100,000 draws of *secondvote* values from the full sample (excluding entries for which data were incomplete); by filling all cells with the mean value of *secondvote* (5.17%); by filling all cells with the modal value of *secondvote* (0); by filling the cells with the values predicted by the model using only constituency-level expectations (Model 1); by filling the cells with the values predicted by the model using only national-level expectations (Model 2); and by filling the cells with the values predicted by a model using both constituency- and national-level expectations (Model 3). We then calculated the root-mean-square error (RMSE) for each method compared with the actual results from table 2.2. Figure 2.4 presents the results. The plot shows the density plot of the RMSEs for the 100,000 bootstrapped cells. The Average Deviation vertical line depicts the RMSE from using the mean value of *secondvote* to fill all cells. The No Deviation vertical line depicts the RMSE from using the modal value of *secondvote* for all cells. The Constituency Only vertical line depicts the RMSE from using the predictions from the model using only constituency-level expectations. The National Only vertical line depicts the RMSE from using the predictions from the model using only national-level expectations. And the National + Constituency vertical line depicts the RMSE from using the predictions from the model using both constituency- and national-level expectations.

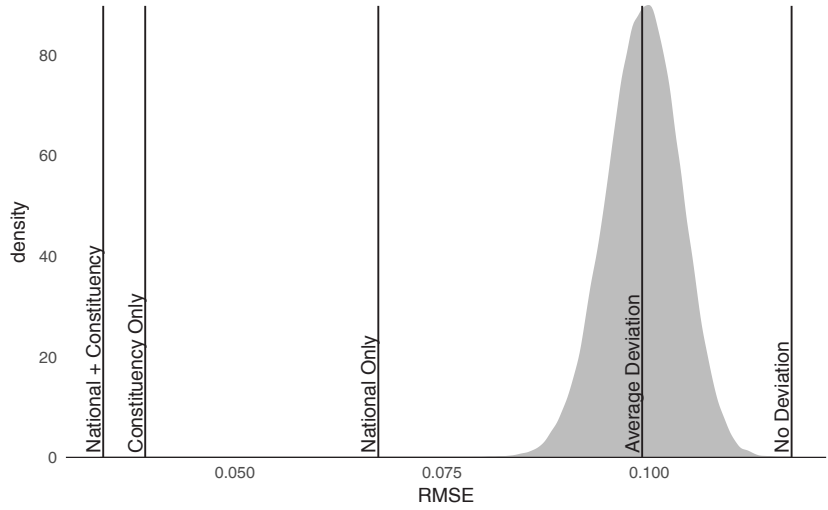

Fig. 2.4. Comparison of RMSE

Figure 2.4 shows that the predictions of all three models significantly outperform either null hypothesis (that is, either the mean or modal values of *secondvote*). Moreover, all three models outperform an overwhelming majority of the predicted probability tables generated by randomly permuted data. Among the three models, National + Constituency has the most predictive power. Both Constituency Only and National Only estimates of tactical voting based on the strategic context help explain the variance in tactical voting. But the difference between Constituency Only and National Only confirms our earlier finding—consistent with our theory—that constituency-level incentives tend to drive the decision to vote tactically more than do national-level incentives.

Conclusion

Some observers argue that voters in a democratic society should reveal nothing but their true preferences in the voting booth. But voters value their votes and when the appropriate circumstances present themselves act in a way to make those votes consequential. That is, they engage in the same sort of trade-offs between policy and winning that torture practicing politicians. In every election under FPTP with many districts, voters will

have concerns about "wasting" their votes by casting a vote for a party with no chance of winning. The 2010 British election and the 2010 BES dataset present a rich and varied context in which to rigorously test fine-grained predictions derived from the theory of strategic voting. We find strong support for four of our five hypotheses, which together provide a quite precise explanation of how individuals' decisions to vote tactically vary by strategic context.

Most English voters in the 2010 UK election faced a strategic context that allowed them to vote straightforwardly in accordance with their sincere preferences. After all, the theory of tactical voting suggests that voters have incentives to strategically deviate from their top-choice candidate or party when they believe their second-choice option has a better chance of defeating their last-choice alternative. In the 2010 UK election, then, the phenomenon of tactical voting occurred infrequently among Conservative voters, because their party typically ran first or second in the polls. Among Labour and Lib Dem voters, however, the strategic context more often suggested voting *against* the worst option than voting *for* the favorite option. Moreover, such voters took into account likely national outcomes in addition to the probable election results in the local constituency. Fully understanding the strategic context facing potential tactical voters in the 2010 UK election requires looking at the relative preferences regarding the candidates and the relative expectations for the various candidates in both local and national races. The evidence presented here suggests that voters were aware of their electoral context and voted tactically (or not) in accordance with the predictions of a rational-choice theory of strategic voting.

This chapter constitutes a novel attempt to tease out how national- and constituency-level expectations factor into strategic voting. By taking advantage of a very large dataset, we show that both constituency- and national-level expectations influence vote intentions and model voting behavior utilizing both constituency- and national-level expectations consistent with the calculus of voting. Our models confirm that the combinations of constituency- and national-level expectations and preferences predict whether or not voters intend to vote for their favorite party. We find evidence that although constituency-level viability estimates are more powerful, national-level expectations do drive decisions to vote tactically even in noncompetitive constituencies. Thus, empirical models that rely solely on constituency-level factors to explain tactical voting and estimate its effects on national elections (see, e.g., Kim and Fording 2001) may underestimate the frequency and impact of tactical voting. Similarly, studies seeking to estimate the effects of tactical voting on national results that

restrict their analyses to voters who expect their preferred party to finish third (and thereby exclude voters who expect that their favorite party will finish second behind their second-most-preferred party nationally or locally; [e.g., Kiewiet 2013]) may also be underestimating the effects of tactical voting.

As we hypothesized, respondents are most likely to vote for a party other than their most preferred when both national- and constituency-level expectations predict tactical voting because the favorite party is in last place. While constituency conditions outweighed national conditions in determining the casting of a tactical vote, as our theory implies and figure 2.4 makes clear, both were shown to be significant and substantial forces in shaping strategic voting decisions. We also find tactical voting when only constituency expectations or national expectations predict such behavior, including when the favorite party is expected to finish second behind the second-most-preferred party.

The theory of strategic voting assumes that voters struggle with a difficult calculus in making voting decisions. To vote rationally and strategically, a voter needs to know the relative standing of the parties. Fluid national polls and highly variable constituency-level considerations complicate such calculations. Nevertheless, we found that tactical voting conformed to a variety of sometimes quite specific, testable hypotheses derived from rational-choice theory. Voters, like all other political actors, tend to make trade-offs based on rational calculations in their political best interests.

APPENDIX

This study presents evidence that constituency- and national-level considerations influence voters' strategic decisions regarding voting. Ideally, we would be able to show additional evidence for such interactions via our probit regressions. In fact, we ran several additional models that included terms to estimate the interactions between constituency- and national-level expectations. One such model simply interacted the various constituency and national *pb* terms; another interacted simply the constituency and national *p* terms; and a third interacted the constituency and national *p* terms, normalized across the various comparison pairs (12, 13, and 23).

The interactive terms did not add to our model's explanatory power. Of the nine interactive terms tested across the three models, only one was statistically significant. The standard errors associated with the estimated coefficients for these interactive terms were quite high.

Not surprisingly, issues with multicollinearity appear to be to blame.

When we calculated the correlation coefficient between the variables included in our models, we found high values. These high correlations existed within our base model: the pb_{12} term for the constituency level was correlated with the corresponding national-level term at 0.471. The similar measures for the pb_{13} and pb_{23} terms were 0.384 and 0.290, respectively. And the correlations between the pb_{12} and pb_{13} terms were high (0.544 for the constituency term, 0.643 for the national term) because they incorporated much of the same information. This is an unavoidable artifact of our modeling approach as well as our data. The *b* terms we used for individuals were based on feeling thermometer scores for the various parties—the BES did not collect different scores for the particular candidates. And the respondents' expectations regarding the outcomes in their local constituencies and the national race also tended to be highly correlated.

But the correlations between the base *pb* terms and the interaction terms was even higher. For example, the interaction between the constituency-level pb_{12} term and the interactive pb_{12} term we created for the normalized model was 0.850, while the similar terms for pb_{13} and pb_{23} were 0.893 and 0.881, respectively. These high correlations resulted in multicollinearity issues that forced us to abandon our hopes of modeling interactions between constituency- and national-level incentives.

NOTES

1. A hung parliament is simply a case in which no one party wins a majority of seats in Commons and therefore can form the government on its own. Since World War II, no party has won a majority of the vote, but the leading party almost always sees its plurality of votes translated into a majority of seats. The 2010 election was one of those rare exceptions: the Conservatives held a large plurality of seats and formed a majority government by coalescing with the Lib Dems, who had finished third in votes and in seats.

2. As Brennan and Hamlin (1998) show, what they call expressive voting is neither simple nor simple-minded. What this chapter calls strategic voting, they refer to as instrumental voting. They carefully consider the possibility that everyone might simultaneously have a mixture of instrumental and expressive considerations, and they outline models for that circumstance, much as Fiorina (1976) does (see chapter 1).

3. Murr (2013, 15) finds that in UK elections between 1974 and 2005, if British citizens used even a randomly selected national campaign poll to predict the eventual winner of the election, then they would be correct at least 80% of the time.

4. Kiewiet (2013), however, finds that many Labour voters responded to constituency-level signals to cast tactical votes for the Lib Dems from 1983 to 2005.

5. This is similar to what Reed (1990) found with respect to the slow development of Duvergerian results in postwar Japan.

6. Most previous work on tactical voting asserted that it is restricted to supporters of parties that are expected to finish third out of three parties (see, e.g., Alvarez, Boehmke, and Nagler 2006; Ordeshook and Zeng 1997), but Kselman and Niou (2010) demonstrate that voters have incentives to cast rationally tactical votes in some circumstances where the most preferred party is second to the second-most-preferred party (see also Blais and Nadeau 1996, which looks at tactical voting among voters whose second-most-preferred party has a higher expectation of winning than their most preferred party).

7. That is, voters perceive their chances of being pivotal in the nation as the chances of being pivotal in selecting the local candidate and the chances that that winning candidate is pivotal in the parliament in terms of government formation.

8. These scholars assume that the voters have some knowledge about the closeness of the race in their constituency, but the scholars can only observe incumbency, a variable that makes a great deal of difference in the chances of a nonincumbent party winning that seat.

9. We assume that there is a normally distributed variance in estimation, as reported by the "how close" measure. Obviously, if we had available complete subjective probability distributions, we could exploit a more fully developed treatment of the assumed stochastic term.

10. This chapter employs data from the 2010 "rolling cross-sectional" Campaign Internet Panel Survey (CIPS) wave of the 2010 BES. After completing a precampaign survey over the Internet, respondents were asked to complete the CIPS at a randomly selected time so that representative subsamples of the panel responded on each day of the campaign. Respondents were then asked to complete a follow-up survey after the election. CIPS had a total sample size of 14,973, and respondents to the internet waves of the BES are randomly selected from YouGov's pool of more than 350,000 Britons. The survey firm employs complex recruitment techniques, matching methods, and weighting procedures to produce representative samples of target populations. On the similarity of results obtained via this and probability-based sampling methods for the 2005 BES, see Sanders et al. 2007.

11. We excluded respondents who expressed a vote intention for a party other than the three national parties because the BES did not include feeling thermometers for smaller parties such as the United Kingdom Independence Party or British Independence Party. The survey did include feeling thermometers for the Scottish National Party and Plaid Cymru, but we excluded non-English respondents from our analyses because of the unique regional effects of these two parties.

12. Some respondents reported the same feeling thermometer scores for different parties (i.e., ties). With only 11 unique scores to assign with the feeling thermometers and at least three parties to score, respondents might tie two parties even if they had a slight preference for one over the other. When a respondent reported an intention to vote for one of the tied parties, we used that vote intention to break the tie. In all other cases, the ties remained. This is a conservative procedure in that ties were broken, if at all, in a direction that limits the extent of tactical voting at least as observed in the data.

13. Of course, voters may deviate from their true preferences for reasons other than tactical voting, and just because voters cast a vote for their top choice does not mean they are not behaving strategically.

14. Less than 0.40% of respondents (27 out of 6,791) indicated an intention to vote for their third-favorite party.

15. Among the 396 voters voting for their second-favorite party, 170 said they "really prefer[red] another party" and 73 said they "vote[d] tactically." Among the remaining such voters, 67 said "the party has the best policies," 32 said "the party has the best leader," and 54 cited "other reasons."

16. This difference is statistically significant with a two-tailed *p*-value of less than 0.0002. The 95% confidence interval around the difference in percentages of 51.6% is 46.6% to 56.5%.

17. While two voters may face the same strategic context of, say, 1,2,3, which party is designated 1—that is, the most preferred—can differ from voter to voter. Further, the expectation gap between the first- and second-place parties may differ considerably from voter to voter. But for this macro model, we are concerned only with ordinal rankings. The cardinal expectation (and preference) scores will be considered in the micro model.

18. Those six orderings are (1,2,3), (1,3,2), (2,1,3), (2,3,1), (3,1,2), and (3,2,1).

19. Casting a decisive vote in the nation means that the voter cast a decisive vote in the district and that the candidate who thereby won became the MP whose seat transformed his/her party into a majority within the Commons.

20. Thus $pb_{12} = (p_1 - p_2)^*(b_1 - b_2)$.

21. More technically, it is increasing not in probabilities of a party winning but of a vote being pivotal in creating a winner. These two probabilities will be the same (we assume) as the probability of winning increases from 0 to 0.5. Since virtually no one believed any party had a probability of winning greater than 0.5 in this election (at least when constraining probabilities to sum to one), the two probabilities are purely monotonically increasing in each other, so we use the simpler (and empirically available) measure of the probability of a party winning the election.

22. Given that the BES interviewed across the full campaign period, these changes indicate that prospective voters faced changing national conditions, which means that true changes in expectations occurred over that time. This empirical variation provides us with unusual leverage. In addition, the BES interviews were done to reflect a (small) random sample of the respondents each day.

23. In specifying our independent variables, we follow Abramson et al. 1992 and develop measures of tactical voting derived from measures of respondents' reported feelings about the national parties and their expectations regarding the electoral performance of the parties. However, the BES did ask a more direct question about voters' motivations for casting their ballots. Among English voters, 5.1% stated they had "voted tactically," and another 7.4% reported voting the way they did because their truly preferred party had "no chance of winning." On the similarities and differences in the conclusions about tactical voting with the direct and indirect measurement, see Blais, Young, and Turcotte 2005.

24. The 2010 BES includes data on the respondents' constituencies, including the breakdown of the vote. Media lists of battleground constituencies drawn during the 2010 campaign closely correspond to the constituencies that had the smallest winning margins in 2005. See, e.g., http://news.bbc.co.uk/2/shared/election2010/results/

25. Kselman and Niou (2010) argue that *no* tactical voting can occur in such

cells and that any *secondvotes* in such cells must result from other reasons, such as a protest vote or a bandwagon vote. Given our relaxation of the perfect knowledge of probabilities assumption regarding voters' estimates of the parties' chances, our theory, in contrast, permits some (albeit very little) tactical voting within such strategic contexts.

26. In cells with the highest incentives for and incidence of tactical voting, we observed nearly 40% of respondents reporting an intention to vote for their second-choice party.

27. Of the 2,976 respondents for whom data are reported in table 2.2, 1,774 (59.6%) were within a strategic context that provided minimal incentives at both the constituency and national levels to vote tactically, while just 4.10% were within a strategic context that provided the strongest incentives from constituency- and national-level considerations.

28. Of course there were additional (and new) parties (e.g., the United Kingdom Independence Party) that could have attracted protest votes that the three long-standing UK parties did not. United Kingdom Independence Party, which was sparked when Nigel Farage took over as its leader in 2009, continued to influence British politics at least through the Brexit vote, after which Farage resigned as leader, leaving the party's future uncertain.

29. That is, we estimate a model explaining *secondvote* as a function of pb_{12}, pb_{13}, and pb_{23} where pb_{xy} is equal to

$$(p_x - p_y)^*(b_x - b_y)$$

30. Kselman and Niou argue that models of tactical voting that include voters who face no incentives to vote tactically are misspecified, but because our model estimates both straightforward and tactical strategic voting, we model all voters, not just those who face some incentive to vote tactically.

31. Other covariates considered but rejected for failing to improve model fit include measures of attention to the 2010 campaign, education level, income, and reported feelings of political efficacy.

32. These models were estimated using the Zelig package (Imai, King, and Lau 2012) in the R computer language (R Core Team 2012).

33. The set of *pb* variables collectively is statistically significant.

34. Of course, the very large and statistically significant coefficient for *tactcon* in Model 4 further supports H2.

35. Because the various pb_{xy} terms contain the same components (e.g., both pb_{12} and pb_{13} have as components p_1 and b_1), we had to construct specific scenarios to illustrate the effects of only one of the pb_{xy} terms. To create the plot showing the effects of varying pb_{12}, we varied b_1, the feeling-thermometer score for Party 1, and left constant p_1, the expectation that Party 1 will win. But to eliminate any effects of pb_{13}, we set p_1 equal to p_3. We followed an analogous procedure for the other two plots, varying b_1 and setting p_1 equal to p_2 to show the effect of pb_{13} and varying b_2 and setting p_1 equal to p_2 to show the effect of pb_{23}.

36. The range of these 1,000 simulated plots provides an illustration of the confidence intervals of our estimates. We present the 90% confidence interval around our estimates.

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