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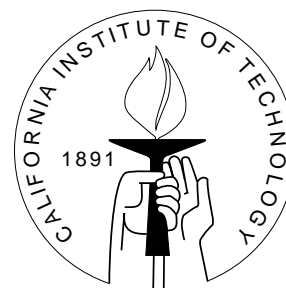
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A NEW APPROACH FOR MODELING STRATEGIC VOTING IN MULTIPARTY ELECTIONS

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SOCIAL SCIENCE WORKING PAPER 1023

October 1997

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Abstract

Whether voters vote strategically, using their vote to best further their interests, or vote sincerely, voting for their first choice among the alternatives, is a question of long-standing interest. We offer two innovations in searching for the answer to this question. First, we begin with a more consistent model of sincere voting in multiparty democratic systems than has been presented in the literature to date. Second, we incorporate new operationalizations of the objective potential for strategic behavior than have been used in the past. We offer a test of strategic voting in the 1987 British General Election based on the variance in strategic setting across constituencies in Britain. We allow voters to use available information in deciding whether or not to cast a strategic vote. We estimate a lower level of strategic voting than many other methods have estimated. We also demonstrate that the use of self-reported vote motivation causes errors in estimating the amount of strategic voting, and that this problem is exacerbated the further from the election the self-report is obtained.

A New Approach for Modeling Strategic Voting in Multiparty Elections*

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1 Introduction

Whether voters in democratic systems are “rational” has long been under debate. One of the central points of contention has been whether the Riker and Ordeshook (1968) “calculus of voting” is sound empirically (e.g. Green and Shapiro 1994; Aldrich 1993; Jackman 1993). There, the voter is assumed to calculate the costs and benefits of voting and to vote for the candidate bringing them the highest utility, if the utility of doing so outweighs the cost of voting.

When the “calculus of voting” model was extended to multiparty elections by McKelvey and Ordeshook (1972), though, the theoretical rationale for another form of rational behavior became quite clear. For the McKelvey and Ordeshook model demonstrated that in a multiparty election, a voter might be willing to vote for her second most preferred party if the more preferred party is unlikely to win and if there is a close contest between the second and third ranked parties. This rational behavior goes by many labels, called strategic, tactical, or sophisticated voting behavior (we will refer to this behavior as strategic voting in this paper).

Obviously, this sort of strategic behavior by voters was not noticed first by McKelvey and Ordeshook. In fact, there have been a number of theoretical developments of models of strategic voting behavior in single-member district plurality systems (Cox 1994, 1997; Myerson and Weber 1993; Palfrey 1989) as well as in many other types of electoral systems (Cox 1984; Dummett 1984; Gutowski and George 1993; Hoffman 1982; Ludwin 1978; Myerson and Weber 1993). But because of the obsession of much of the

*This is one of many papers by the authors; the ordering of names reflects alphabetic convention. Alvarez’s work was supported by the National Science Foundation through SBR-9709327; Nagler’s work was supported by the National Science Foundation through SBR-9413939 and SBR-9709214. We thank Jonathan Katz and Guy Whitten for supplying helpful data for this project. We also thank Gary Cox, Jonathan Katz, Gary King and Burt Monroe for discussions of this subject. Last, we thank Shaun Bowler for his work with us on a related project. A previous version of this paper was presented at the Annual Meetings of the Midwest Political Science Association, April 1997. The authors may be reached at: rma@crunch.caltech.edu, and nagler@wizard.ucr.edu, respectively.

political behavior literature on modeling two-party or two-candidate elections in the United States, strategic behavior was largely ignored by most researchers until the late 1970's and early 1980's. Two political developments fueled the rising interest in strategic voting research. One was the rise of multi-candidate presidential primary contests in the United States following the post-1968 reforms in the nomination processes in both of the major political parties. In some of these primary struggles, there were at least a half of a dozen candidates in each party primary; the fact that there were multiple viable candidates opened the door for strategic behavior by primary voters (Abramson et al. 1992; Bartels 1985).

The second development was the rise of third-party or third-candidate challengers in the United States and in the United Kingdom (Cain 1978; Galbraith and Rae 1989; Heath et al. 1991; Johnston and Pattie 1991; Niemi et al. 1992). In the United Kingdom, though, the sustained revival of the Liberal Party since 1970, the rise of nationalist parties in Wales and Scotland, and the new Social Democratic Party, poised significant challenges to the established two-party system. The rising importance of these new or resurgent parties in British politics actually seemed to work to the advantage of the Conservatives in the early 1980's as Conservative opposition was split among several parties. This led to explicit attempts by political leaders, by the popular press, and by political pundits to persuade voters to cast strategic votes in order to defeat the Conservative party in the 1987 general election (Galbraith and Rae 1989). Thus, the 1987 British general election has become an important case study for scholars interested in the problem of strategic voting in multiparty elections.

In these two types of political settings — multiparty elections in Britain and presidential primaries in the United States — many scholars have tried to estimate the amount of strategic behavior by voters. As we report in Table 1, there is a great deal of variation in the estimates of strategic behavior reported in the literature, ranging from a low of 5.1% reported by Johnston and Pattie (1991) for the 1983 British elections to a high of 17% reported by Niemi et al. (1992) for the 1987 British election. The estimates in the literature for the 1988 U.S. presidential primary are in the vicinity of 14%.

Table 1 goes here

In this paper we develop a new approach for modeling strategic voting: we incorporate the variance in the likelihood of strategic voting across constituencies in a model of voter choice. This builds upon recent empirical work on modeling voter choice in multiparty democratic systems (Alvarez and Nagler 1998, 1995). As we argue below, our approach avoids many of the problems bedeviling past empirical work on strategic voting. In the end, using our new approach we estimate that 7.2% of the electorate cast strategic ballots in the 1987 British election; this estimate is less than half of some of the methodologically-troubled estimates which have been published in the literature. The structure of our paper is simple. We begin by examining the previous attempts to measure strategic voting. Next, we outline our model of strategic voting, and carefully distinguish between our approach the those in the existing literature. We then discuss our results, and conclude with a brief discussion focusing on the relevance of our work.

2 Strategic Voting and Past Studies

While there now seem to be political conditions in both the United States and the United Kingdom which give voters an incentive to behave strategically, the empirical literature has come up with very different estimates of the extent of strategic voting, even from researchers examining the same election in the same country. We believe that the reason for these divergent results lies in the different methodologies used in these studies to measure or to estimate the extent of strategic voting.

There have been three different approaches to measuring the extent of strategic voting used in the literature. The first is the **aggregated inference methodology**. Essentially these researchers use aggregate election returns, in different ways, to discern the extent of strategic voting. Some researchers use aggregate electoral data to attempt a direct constituency-by-constituency estimate of strategic voting (Cain 1978), while others look at shifts in vote shares between pairs of elections in different types of constituencies (Spafford 1972; Curtice and Steed 1988; Galbraith and Rae 1989; Johnston and Pattie 1991). Others have simply examined the support for minority parties in different political systems (plurality versus proportional representation systems) to infer the presence of strategic voting.

These studies all suffer from an obvious and problematic flaw. They all are using aggregated electoral data to infer individual-level preferences and expectations about the probabilities of various parties winning elections. In broader terms, these researchers are testing individual-level political theories with macro-level electoral data — producing exactly the “ecological inference” problem which has received much attention in the writing of prominent political methodologists in recent years (e.g. Achen and Shively 1995; King 1997). It is commonly known that estimates about individual behavior produced using aggregated data are often incorrect (King 1997). Thus, we must be very suspicious of estimates of an individual-level behavior like strategic voting produced using aggregate electoral data.

The second approach to measuring the extent of strategic voting is what we call the **self-reporting intentions methodology**. In this widely-used approach, researchers rely upon the reports of survey respondents about the motivations for their voting behavior (Heath et al. 1991; Niemi et al. 1992; Evans and Heath 1993). For example, in the 1987 British general election survey, respondents were asked to provide the main reason for supporting a particular party at the polls — one of the three response options often used to indicate strategic behavior was “I really preferred another Party but it had no chance of winning in this constituency.”

This type of survey question, in particular those in the 1987 British survey data, have been used quite widely in the literature on strategic voting. In fact, Niemi et al. (1992) use this survey question, and a subsequent open-ended question asking for the reasons a respondent cast the ballot they reported, to develop three different measures of strategic voting. Unfortunately researchers using these survey questions do not appear to have seriously considered the quality of the survey responses obtained for questions asking

for justifications of reported political behavior. In fact, there has been a serious debate in the American electoral behavior literature recently about the quality of post-election questions probing the respondent's vote (Wright 1990, 1992); this work has found that there is a strong bias towards reporting a vote for winning candidates the further the interview is from the election.

In Figure 1 we present percentages of self-reported strategic voters in each month following the election in which the interview was conducted in 1987 for the the three Neimi et al. (1992) measures of self-reported strategic voting. The bottom line in the figure gives the percentages of reported strategic voters in each of the postelection interview months as estimated by the closed-ended survey responses (indicated in the figure by triangles), the next line gives the same percentages but estimated from the open-ended responses (indicated in the figure by squares), while the top line gives the combined percentages from both sets of survey responses (indicated in the figure by diamonds).

[Figure 1 Goes Here]

It is quite clear that there is a postelection bias *in favor of finding increased levels of strategic voting* the further the interview is conducted from election day. This effect is particularly strong in the open-ended method of measurement, since we see clear increases in each successive postelection month in the reported percentage of strategic voting. Of those respondents who were interviewed six months following the 1987 election, the open-ended approach of survey-based measurement of strategic voting would assert that they were over twice as likely as respondents interviewed one month after the election to report strategic voting. This strong positive bias in the extent of reported strategic voting using the open-ended survey measurement approach also clearly biases the "combined" measures (which use information from both the open- and closed-ended measures of strategic voting). We even find that there is a small positive bias in estimated strategic behavior the further the interview was conducted from the election when we look at the closed-ended measure.

The percentages and the positive slopes of the three lines in Figure 1 demonstrate that relying on the self-reports of respondents to measure the incidence of strategic voting is problematic, and is likely to produce overstated estimates of the proportions of the electorate who are voting strategically. For many of these self-reports are not really strategic voting, but misreporting of vote biased towards the winner—which is observationally equivalent to reporting a strategic vote. Thus we believe that these artifacts of the survey design (that the survey was conducted for such a long period after election day and that the quality of the answers to these questions about strategic behavior deteriorate following the election) provide strong evidence against the use of these survey questions for the measurement of strategic behavior.

The third approach to measuring the extent of strategic voting in the literature is the closest to the theoretical models of strategic behavior in multiparty democracy. This approach tries to model strategic voting directly as the objective differences between the

stated vote and the preference rankings of individuals (Black 1978; Cain 1978) or the subjective differences between the vote cast and a rank-ordering of parties or candidates (Abramson et al. 1992; Bartels 1988; Blais and Nadeau 1996; Brady and Johnson 1987). This approach involves obtaining measures of the expected vote shares of each party or candidate and the true rank-orderings of parties or candidates for each voter, so we call this the **direct measurement methodology**.

We believe that this approach is the one most likely to produce unbiased estimates of the extent of strategic voting in multiparty democracies. However, we are not convinced that the literature has yet advanced an appropriate way to measure the true rank-orderings for parties or candidates for voters. The usual approach in the literature is to rely upon feeling thermometer rankings to produce rank-orderings of parties or candidates for voters. The implicit assumption here is that responses to feeling thermometer questions elicit sincere preferences, an assumption which seems dubious at best.¹ We find that there is no reason to believe that feeling thermometer questions are adequate measures of sincere preferences; no strong justification for this assumption has appeared in the literature. So we advance a different approach for studying the extent of strategic voting in the next section of this paper.

3 A New Approach for Modeling Strategic Voting

Our new approach for modeling strategic voting follows the general approach of the third aspect of the literature we just discussed, but with two important innovations. First, we begin with a more consistent model of sincere voting in multiparty democratic systems than has been presented in the literature to date. We use a methodological technique (multinomial probit) which allows us to examine the full choice set available to voters while explicitly allowing voters to see some parties as close substitutes (thus avoiding imposing the restrictive “independence of irrelevant alternatives” assumption on voters in this application). Second, we use a new operationalization of the objective strategic setting. We take advantage of the electoral structure of British elections that allows for cross-constituency variance in the likelihood of strategic voting. In this section of the paper we discuss both these innovations and then conclude by discussing the specific expectations we have of our model’s predictions.

Our model of sincere voting is based heavily upon recent work on modeling multiparty elections using individual-level survey data (Alvarez and Nagler 1998, 1995; Alvarez, Bowler and Nagler 1997). There are two important dimensions of this work which are relevant for our study of strategic voting. The first dimension is that this approach utilizes a well-specified model of voter decisionmaking. The data we are analyzing comes from the 1987 British General Election and we offer a model of voter decisionmaking which allows for retrospective economic, issue-based prospective, and class-based voting behavior (Alvarez, Bowler and Nagler 1997). Thus our model of sincere voting provides a vehicle for us to control for all of the important perspectives on British electoral behavior simultaneously; this allows us to test for strategic voting without worrying about

competing effects.

We view the voters' utility for each party to be a function of the voter's position on the issues *relative to the party* and of characteristics of the voter which we describe below. The inclusion of issue variables in our models stems from the growing realization that "issues matter" in British elections, just as they "matter" in the electoral politics of many industrial democracies (Inglehart 1977). This stems also from the realization that the effect of class in British elections has slipped considerably (Crewe 1974; Crewe, Sarlvik and Alt 1977; Sarlvik and Crewe 1983). Working from the framework of the spatial model of elections, we include variables for the distance between the voter and each party on defense, government emphasis on inflation versus unemployment, taxes, redistribution of income, nationalization of industry, crime, and social welfare programs. The parties' position on each issue is taken to be the mean of the party placement on the 11 point issue scale by all respondents. We use the absolute value of the difference between respondents' position and the party's position as a measure of issue distance on each item.²

Hand in hand with the realization that issues are replacing class in framing voter decisions in British elections is a growing realization of the effects of voter perceptions of the economy. This has occupied much of the empirical work on British elections (Alt 1979; Lewis–Beck 1988; Studlar, McAllister and Ascui 1990). Accordingly, we include in our models variables for the respondent's perceptions of recent changes in inflation, unemployment, and taxation levels (McAllister and Studlar 1992). This allows a test of the retrospective voting model in a three party setting.

We also include demographic measures of the respondents. To allow for the possibility that class did matter in the 1987 election, we also include a number of control variables. First, we have an indicator of the voters' class affiliation: whether the voter occupied a blue-collar occupation or not.³ Union membership has long been considered a staple of Labour support, but it is possible that this source of support has diminished considerably with the dismantling of the trade union movement during the first two Thatcher administrations. We include a dummy variable for trade union members to examine the effect of union membership on voter choice. As a third control for the effects of class, we have a dummy variable which measures whether or not the voter was a public sector employee.⁴

Demographic variables other than class have loomed large in research on British elections. The regional divisions in recent British elections have spurred a flurry of works on regional influences on voting, even though the growing North–South political cleavage in British voting may be more of an artifact of economic divisions than anything specific to certain regions (Crewe 1992; McAllister and Studlar 1992). We include regional dummy variables in our models to test these assertions. With the massive sales of council houses during the Thatcher years, no doubt motivated to appeal to the moderately well-off working classes, it is asserted that home ownership played some role in Thatcher's success in 1987 (Crewe 1992). Accordingly, we have a dummy variable in the model for

home ownership. We also include measures of the respondent’s age, sex, income, and education.

Importantly, our approach to studying multiparty electoral behavior is fundamentally different from the previous studies. Here, we begin with a random utility framework for studying voter behavior in multiparty elections which allows us to examine the full choice set of parties available to voters in any particular election. Any model of voter choice should allow voters to consider simultaneously all three parties. It should allow voters to weigh the parties’ positions on the issues, to consider the parties’ performance on the economy, and it should allow voters of different demographic traits to have different preferences for different parties. So, our framework does not impose the restrictive *independence of irrelevant alternatives* assumption. We estimate the model using multinomial probit.⁵

We follow the Alvarez–Nagler (Alvarez and Nagler 1995, 1998) implementation of multinomial probit which assumes that the respondent’s utility is a function of choice-specific and individual-specific characteristics:

$$U_{ij} = A_i\psi_j + X_{ij}\beta + \epsilon_{ij} \quad (1)$$

where:

U_{ij} = utility of the i^{th} voter for the j^{th} party

A_i = characteristics of the i^{th} voter

X_{ij} = characteristics of the j^{th} party relative to the i^{th} voter

ψ_j = a vector of parameters relating the characteristics of a voter to the voter’s utility for the j^{th} party

β = a vector of parameters relating the relationship between the voter and the party (X_{ij}) to the voter’s utility for the party

ϵ_{ij} = random disturbance for the i^{th} voter for the j^{th} party

prospective issue), and two sets of ψ ’s. One set of ψ ’s examines the relative effect of each voter attribute on the likelihood of the voter choosing Conservative over Alliance, the second set of ψ ’s examines the relative effect of each voter attribute on the likelihood of the voter choosing Labour over Alliance.⁶

In particular, the multinomial probit technique is well-suited for the study of recent British elections. Since 1945, there have been three viable national parties in British politics, but it was not until the dual elections of 1974 that the Liberal party, in this period the electorally weakest party, began obtaining roughly 20% of the national vote. And in 1983, with the Liberal/Social Democratic Alliance (Alliance) obtaining 25.4% of the national vote, just two percent lower than the Labour party, it looked as if British voters may have finally had a “real” third alternative. Thus, the emergence of the Alliance as an option offered British voters in 1983 and 1987 three choices.

Yet British voters presumably do not view these three choices as truly distinct alternatives. Common wisdom holds that the Alliance is a substitute for Labour, or at least closer to Labour than to the Conservative party. However, even with this common wisdom, few empirical papers consider the possibility of the grouping of choices nor the possible violation of the independence of irrelevant alternatives assumption (for example, see McAllister and Studlar (1992) or Stewart and Clarke (1992) on the 1987 British election). The multinomial probit model we use is useful precisely because it allows us to both test for the violation of the independence of irrelevant alternatives assumption, and if independence of irrelevant alternatives is violated, the model will also provide us insight into the structure of the choice process. Is the Alliance considered by voters as a substitute for Labour? Is the Alliance seen by voters as a choice more similar to Labour than to the Conservative party? What would happen if the Alliance dissolved? The multinomial probit model allows us to answer precisely these questions.⁷

The multinomial probit model we use, then, provides the best model of strategic voting which we can operationalize, specify and estimate. The next step in our analysis of strategic voting in the 1987 British General Election involves operationalization of the strategic situation facing individual voters in their own constituencies. The operative hypothesis is that people vote strategically: that they cast a vote for candidates or parties they think ‘can win’, rather than ‘waste’ their vote. Fortunately, British elections provide a fertile ground to test the theory; since voters participate in single-member constituencies, we have significant variance across constituencies as to the likelihood of a vote for a given party being wasted. We are able to examine the behavior of voters who ought to have similar preferences for a given party being elected (assuming those preferences are based on the attributes of individuals we measure), but we are able to observe those voters in two different sorts of constituencies: constituencies where Labour has a chance of winning the constituencies and constituencies where Labour has no chance of winning. In these latter sorts of constituencies voters preferring Labour might want to consider voting strategically. This structure of the electoral system allows for a test of the strategic voting hypothesis.

We want to allow voters to cast their vote in a way likely to maximize the utility of their vote; which may *not* necessarily mean voting for the candidate they would most like to see win. Consider a voter whose first choice is Labour (L) and who’s complete preference ordering is: $L > A > C$. If this voter were to behave strategically, then the voter would be unlikely to vote for his/her first choice (L) *if*: Labour were sure to lose the constituency, *and* the voter’s vote could help A to defeat C . In such a constituency, a vote for Labour would be ‘wasted.’

We could write the i^{th} voter’s utility of casting a vote for Labour as:

$$U_{iL} = \psi_L A_i + \beta X_{iL} + W_{iL} \quad (2)$$

where W_{iL} is a measure of the characteristics of the i^{th} voter’s constituency associated with a vote for Labour being ‘wasted’, and ψ , β , A , and X are defined as in equation (3)

above. So we want W_{iL} to encompass measures relating the probability of the vote for Labour being wasted. What are the characteristics of a constituency where it would be pointless to vote for Labour?

First, Labour would have to be too far behind in the race to have any reasonable chance of winning. Second, the race between the Conservatives and Alliance would have to be close. If both Labour and Alliance were going to be trounced by the Conservatives, and provided the voter was going to vote at all, then there would be no benefit to casting a strategic vote for Alliance rather than a sincere vote for Labour.

We can measure both of these concepts. The first is given by:

$$M1_{iL} = |Max(CON, ALL) - LABOUR| \quad (3)$$

where CON , ALL , and $LABOUR$ denote the expected vote shares of the Conservative, Alliance, and Labour parties, respectively; and $Max(CON, ALL)$ denotes the maximum of CON and ALL (i.e., the party running second).⁸ This gives the amount that Labour is ‘out of it’. We expect that the larger the value of $M1_L$, the more likely that a vote for Labour would be wasted, and the less likely a voter is to cast such a vote.

The second concept is given by:

$$M2_{iL} = 1/|(CON - ALL)| \quad (4)$$

The closer the race between Conservative and Alliance, the larger the value of $M2_{iL}$. And the larger the value of $M2_{iL}$, the costlier it would be to waste a vote by voting for Labour, and the more likely that the voter should act strategically and vote either Conservative or Alliance. However, note that the impact of this variable ought to be contingent upon the value of $M1_{iL}$. For instance, in a three-way tie the value of $M2_{iL}$ would approach infinity; yet there would be zero reason to vote strategically because a vote for Labour is called for. Hence $M2_{iL}$ should enter the model multiplied by $M1_{iL}$. We include $M2_{iL}$ by itself, as well as multiplied by $M1_{iL}$, so that we can correctly interpret the coefficients. We construct similar measures for the Alliance and the Conservative party.

Thus, our approach to modeling strategic voting in the 1987 British General Election is relatively simple. We add our two measures of the potential for strategic behavior for each party, in each constituency, and estimate these parameters for each party controlling for all of the other potential influences on voter decisionmaking. Thus, for each party, we estimate:

$$U_{iL} = \beta X_{iL} + \psi_{iL} A_i + \gamma_1 * M1_{iL} + \gamma_2 * M2_{iL} + \gamma_3 * (M1_{iL} * M2_{iL}) \quad (5)$$

$$U_C = \beta X_C + \psi_{iL} A_i + \gamma_1 * M1_{iC} + \gamma_2 * M2_{iC} + \gamma_3 * (M1_{iC} * M2_{iC}) \quad (6)$$

$$U_A = \beta X_A + \psi_{iL} A_i + \gamma_1 * M1_{iA} + \gamma_2 * M2_{iA} + \gamma_3 * (M1_{iA} * M2_{iA}) \quad (7)$$

where L, C, A index Labour, Conservative and Alliance, respectively. X_{iJ} measures issue distances between the party and voter, A measure attitudes and characteristics specific to the voter. Of critical interest for the purposes of this paper, though, are the coefficients on the strategic voting terms. By the logic of the operationalization of these measures we expect that if strategic voting occurs, then: $\gamma_1 < 0$, $\gamma_2 < 0$, and $\gamma_3 < 0$.

4 Empirical Evidence for Strategic Voting in the 1987 British Election

In Table 1 we present the full multinomial probit results from the estimation of this model. The results we obtain here are very similar to those presented in previous work on this same election, so we will refer interested readers to that research (Alvarez, Bowler and Nagler 1997). All we wish to note here is that most of the variables are signed in theoretically-expected manners, many are statistically significant, and this model correctly classifies 71% of the reported votes cast by the 2080 voters in our sample.

[Table 1 Goes Here]

The important coefficients to focus on for our purposes are those on the three strategic voting variables. In the previous section we had argued that we expected each of these three coefficients to be negatively signed. We find that two of the three coefficients (those on $M1$ and the $M1 * M2$ interaction) are negative and statistically significant, although the interaction term is significant at the looser $p = .10$ level. The $M2$ coefficient, though, is positive and is also significant at the $p = .10$ level.

The marginal effects of each of the objective strategic voting variables are:

$$\frac{\partial U_j}{\partial M1_{ij}} = -.80 - .40 * M2_{ij} \quad (8)$$

$$\frac{\partial U_j}{\partial M2_{ij}} = +.05 - .40 * M1_{ij} \quad (9)$$

Thus, the partial effects of $M1$ are always negative, as predicted by our earlier discussion (this is true since $M2$ is always positive). The further behind Labour is expected to run in a constituency, the less likely a voter is to cast a vote for Labour. This is strategic voting. However, the partial effects of $M2$ are negative only when $M1 > .125$ (i.e., only when the third party is sufficiently far behind). This applies to 46% of constituencies for the Labour party, 46% of constituencies for the Alliance, and 7% of constituencies for the Conservative party. In our sample of respondents, how close the top two parties are expected to be in the constituency affects the respondents' probability of voting for Labour and Alliance in the predicted manner in 46% and 43% of cases, respectively. In the other cases, given how competitive Labour and Alliance are in the constituency—the closeness of the other two parties does not persuade the respondent to abandon Labour or Alliance and vote strategically for one of the other two parties. For only 7% of our respondents is the Conservative party expected to be so far behind the other two parties that the closeness of the other two parties prompts a strategic vote by a Conservative supporter.

However, what of the important substantive question — what is the estimated extent of strategic voting in this particular election? Was it as high as the 17% reported by Niemi and associates (1992) or was as low as the 6% reported by others (Evans and Heath 1993; Johnston and Pattie 1991)? Obviously, dramatic differences like these in estimates

of the extent of strategic voting lead to different interpretations of British politics, of this specific model of strategic voter behavior, and even of the general rational choice approach for studying politics.

We report our estimates of the extent of strategic voting in Table 2. There we have classified each of the voters in our survey sample in two different ways. The first classification scheme is given by the rows of the table. To compute the row entries we used the model reported in Table 1, but hypothesized that all voters were in constituencies where the three parties had equal chances of winning (i.e., each party had a vote share of $33\frac{1}{3}\%$ in the 1983 election in the constituency). We set variables M1 and M2 to zero, and used the estimated coefficients from Table 1 to compute the utility of each party for each voter. We then assign the voter's choice to the party they have the highest utility; this gives us each voter's **sincere vote**. Then, using the full model presented above, including the strategic voting variables, we predict each voter's **strategic votes** for the parties; these are presented in the columns of Table 2.

[Table 2 Goes Here]

The entries along the main diagonal of the table give the numbers and percentages of voters in our sample whose predicted sincere and strategic votes are the same. The off-diagonal voters are those who are strategic voters, since we predict that these voters change from their sincere vote due to the objective probabilities of each party's victory in the constituency. Adding the off-diagonal elements in Table 2, we see that there are 149 strategic voters in our sample, or 7.2% of the electorate. This number is in line with some of the estimates offered in the literature (Evans and Heath 1993; Johnston and Pattie 1991). But our estimate suggests that those who have used subjective recall questions to estimate strategic voting (e.g. Niemi et al. 1992) appear to have dramatically over-estimated the proportions of strategic voters, possibly due to the over-reporting problem we discussed earlier.

Table 2 reveals how those 149 strategic votes were distributed. Under sincere voting, we predict a 33.5% vote-share for Labour. However, we estimate 54 (7.8%) of those voters to have voted strategically for Alliance, and 3 of them to have voted strategically for the Conservative party. But Alliance is the biggest victim of strategic voting. We predict Alliance would have gotten an 18.7% share of the vote under sincere voting. However, with strategic voting we estimate a 17.6% share. Of those we expect to defect strategically from Alliance, we estimate that they split almost evenly between the Conservative and Labour parties (10.5% and 10.8%, respectively). The Conservative party is the overall beneficiary of strategic voting: their estimated sincere vote share is 47.8%; while their estimated strategic share is 49.5%.

These results match the intuition of the 'wasted vote.' If voters do not want to waste their vote on a party with a poor chance of winning the contested seat, then the parties with the lowest expectations of winning a seat will be hurt. Also, the 'wasted vote' phenomenon in the 1987 British election harmed the party the least likely to win a significant share of constituencies — the Alliance. Therefore the net impact of strategic

behavior in this election was for the Conservatives to pick up almost two full percentage points of national vote share; both Labour and Alliance lose vote share as a result of strategic behavior, with Alliance losing the most.

5 Discussion and Conclusions

We have made three important arguments in this paper. First, we have argued that past approaches for the measurement of strategic voting have largely been flawed. From analyses that use ecological inference to those using self-reporting of strategic behavior, we have argued that these approaches are likely to produce incorrect measures of the likelihood of strategic behavior. In particular, using reported strategic voting to measure strategic voting is a dangerous proposition because such self-reports are contaminated by a tendency to overreport voting for the winner, a tendency exacerbated by self-reports collected further away from the election. Since self-reports for the winner when the voter's preference may have been for another candidate are observationally equivalent to strategic voting, measurement using such self-reports will overstate the degree of strategic voting. We think Figure 1 demonstrates the problem quite clearly.

Second, it is possible to take advantage of the electoral structure of British politics to test for strategic voting. The British case offers variance across constituencies in the expected amount of strategic voting. By utilizing this information, a well specified model of voter preferences, and a flexible estimation technique (multinomial probit), we can better measure the extent of strategic voting. We believe that the combination of an objective measure of the likelihood of strategic voting and our multinomial probit model of voter choice is the best approach for modeling strategic voting behavior in multiparty democracies.

Last, using our new approach, we find the amount of strategic voting in the 1987 British General Election is on the low end of the range of previously reported estimates; with some previous estimates being inflated by at least a factor of two. There has been considerable variation in the estimated extent of strategic voting in this particular election, with estimates ranging from roughly 6-7% (Evans and Heath [1993]; Heath et al. [1991]; Johnston and Pattie [1991]), to a slightly higher range of 10-12% (Galbraith and Rae 1989), to as high as 17% (Niemi et al. 1993). Our estimate is an important substantive finding, since it verifies that some strategic behavior occurred in this particular British election — but only a slight amount of strategic behavior.

This leaves open the question of whether voters generally do or do not behave as strategic models of politics predict. Our results here indicate that a small subset of the electorate did behave strategically in this one election. The truth is out there; but to determine if such strategic behavior is a general phenomenon, we will have to examine other British elections and elections in other democratic multiparty nations. Only then will we be in a position to know how much strategic behavior occurs in multiparty

elections, and what institutional features of different political systems play a role in either mitigating or enhancing the likelihood that voters behave strategically.

6 References

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Notes

¹This assumption seems to run counter to one of the most common uses for feeling thermometers in the electoral studies literature — a measure of party or candidate preferences, and ultimately, voting behavior (e.g., Kelley and Mirer 1974). Feeling thermometers, especially those for political parties, have also been used to measure partisan affiliation, which also seems quite at odds with the use of these survey questions as measures of sincere voting preferences if partisanship is conceptually distinct from voting behavior (e.g., Alvarez 1990; Weisberg 1980). Given that researchers uses these survey questions to measure such diverse concepts clearly calls into question what feeling thermometer questions really measure. This is obviously beyond the scope of this paper, but it does lead us to be wary of analyses of strategic voting based on feeling thermometers.

²By using the distance from the respondents' self-placement to the mean placement of each party—rather than the distance from the respondents' self-placement to the respondents' placement of the party—we avoid contaminating our measure with the tendency of respondents to project their favored candidates closer to their own ideal issue position.

³Categories one through six of the occupation variable (as well as military) were coded as blue-collar; see Heath (1989) for a full listing of the occupation codes.

⁴We have examined alternative operationalizations for the role of class in this election. In particular, we used the Heath–Goldthorpe categorization of individuals into occupation groups (Salariat, Routine nonmanual, Petty bourgeoisie, Foremen and technicians, and working class [Heath et al. 1985]). This alternative specification of class did not add explanatory power to our model, and we do not present those results here. They are available from the authors.

⁵See our previous work for a systematic discussion of the multinomial probit model (Alvarez and Nagler 1995, 1998).

⁶We also estimate three error correlations. In this analysis the disturbances are assumed to be multivariate normal, with mean zero and covariance matrix Σ . The off-diagonal elements of Σ give the correlations between pairs of disturbances, assuming that variance of each disturbance is one.

⁷These models can also give insight into the dynamics of the possible groupings of choices by British voters. It is quite possible that as party fortunes change, as their positions and general ideologies change, or as they go in and out of control of Parliament, that the similarities voters see between the parties may change as well.

⁸We use each party's vote share in from the 1983 election in each constituency as the expected vote share. This has the benefit of being widely available to voters before election day in 1987; the previous vote share in each constituency should be the basis from which voters form their expectations about each party's chances in 1987.

Table 1: Published estimates of strategic voting

Study	Election	Estimate of strategic voting
Johnston and Pattie (1991)	1983 UK	5.1%
Lanoué and Bowler (1992)	1983 UK	5.8%
Blais and Nadeau (1996)	1988 Canada	6.0%
Evans and Heath (1993)	1987 UK	6.3%
Heath et al. (1991)	1987 UK	6.5%
Lanoué and Bowler (1992)	1987 UK	6.6%
Johnston and Pattie (1991)	1987 UK	7.7%
Heath and Evans (1994)	1992 UK	9.0%
Galbraith and Rae (1989)	1987 UK	10-12%
Abramson et al. (1992)	1988 US S.T. Dem.	13%
Abramson et al. (1992)	1988 US S.T. Rep.	12.7-13.9%
Cain (1978)	1970 UK	14.6%
Niemi et al. (1993)	1987 UK	17.0%

Table 2: Multinomial Probit Estimates, 1987 Election

Independent Variables	Conservatives / Alliance		Labour / Alliance
Defense		-.14*	
		(.01)	
Unemployment/Inflation		-.09*	
		(.02)	
Taxation		-.13*	
		(.02)	
Nationalization		-.14*	
		(.01)	
Redistribution		-.07*	
		(.01)	
Crime		-.08*	
		(.04)	
Welfare		-.10*	
		(.01)	
M1 (First Choice Hopeless)		-.80*	
		(.19)	
M2 (1, 2 Close)		.05**	
		(.03)	
M1*M2 (Interaction)		-.40**	
		(.24)	
Constant	.10		1.49*
	(.54)		(.52)
South	-.03		-.07
	(.11)		(.13)
Midlands	-.20*		-.05
	(.09)		(.13)
North	-.09		.35*
	(.11)		(.13)
Wales	-.29		.98*
	(.30)		(.20)
Scotland	-.28**		.52*
	(.15)		(.16)
Union Member	-.45*		.22*
	(.08)		(.07)
Public Sector Employee	.10**		.01
	(.06)		(.09)
Blue Collar	.05		.52*
	(.10)		(.10)
Female	.26*		-.03
	(.10)		(.09)
Age	.04		-.14*
	(.04)		(.03)
Home Ownership	.39*		-.32*
	(.10)		(.09)
Family Income	.06*		-.04*
	(.02)		(.02)
Education	-.60**		-.34
	(.22)		(.23)
Inflation	.24*		-.02
	(.08)		(.07)
Unemployment	.23*		.01
	(.04)		(.05)
Taxes	.02		-.08**
	(.05)		(.04)
δ_{LA}		.32*	
		(.09)	
δ_{CL}		-.30*	
		(.10)	
Number of Obs		2131	
LL		-1418.0	

Standard Errors in parenthesis. * indicates significance at 95% level; ** indicates significance at 90% level.

Table 3: Predicted Strategic and Sincere Votes
 Predicted Sincere Votes

		Conservative	Labour	Alliance	<i>Strategic Totals</i>
Predicted Strategic Votes	Conservative	986 (99.1)	3 (.4)	41 (10.5)	1030 (49.5)
	Labour	2 (.2)	639 (91.8)	42 (10.8)	683 (32.8)
	Alliance	7 (.7)	54 (7.8)	306 (78.7)	367 (17.6)
<i>Sincere Totals</i>		995 (47.8)	696 (33.5)	389 (18.7)	2080 (100.0)

Note: Entries are numbers of respondents, followed by column percentages in parentheses. Each off-diagonal cell represents strategic voting. Marginals at the end of each row give predicted votes with strategic voting. Marginals at the bottom of each column give predicted votes with only sincere voting.

Figure 1: Increases in Reported Strategic Voting Following the 1987 Election

