Political Sophistication and Conditional Strategic Behavior in U.S. Presidential Elections

Christopher N. Lawrence
Texas A&M International University
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Please direct all correspondence to:

Chris Lawrence
Department of Social Sciences
Texas A&M International University
5201 University Blvd
Laredo, Texas 78041-1960

Email: c.n.lawrence@gmail.com
URL: http://www.cnlawrence.com/

> It's true, we are aliens. But what are you going to do about it? It's a two-party system; you have to vote for one of us.
>
> — "Kodos" in "Treehouse of Horror VII," *The Simpsons* (Keeler, Greaney and Cohen 1996).

One of the best-known and durable theories of political institutions is that the use of plurality elections leads to the evolution of a two-party system. Although this theory existed prior to Maurice Duverger's statement of it (see Riker 1982b for a historical overview), his statement of "Duverger's Law" and explanation that it is the result of both mechanical and psychological consequences of the institution of plurality elections is the best-known articulation of the idea. This paper is concerned mostly with the latter, including the broader concept of strategic voting, and the capacity within the electorate to engage in it.[1]

Although minor parties have played a relatively marginal role in much of American history, with the exception of the ascension of the Republican Party to major-party status in the civil war period, presidential candidates of minor parties have had a pivotal role in many recent presidential elections. In the three of the four most recent presidential elections (1992, 1996 and 2000), minor party candidates robbed the plurality winner of an absolute majority of the popular vote, and in the 2000 election a number of candidates received sufficient votes to decide the disposition of Florida's and New Mexico's electors, despite their relatively paltry vote shares. Thus, clearly some segment of the electorate chose to express a "sincere" vote for minor candidates, even though that choice may have diminished the chances of their next-most-preferred candidate in the election. Why do some voters choose to vote sincerely, while others choose a strategic vote?

In this paper, I focus on the decision whether or not to support major-party candidates in the 1992, 1996 and 2000 presidential voters. For some voters, this was a sincere choice, while some others may have preferred third-party candidates but chose to vote strategically in an attempt to block the election of their least preferred major-party candidate. I show that voters who were predisposed to vote for a third-party candidate and in a state where the election was generally viewed as close (the so-called "battleground" states) were more likely to make a strategic choice, while voters in non-battleground states were more likely to vote sincerely. This effect, which I term *conditional strategic behavior*, was stronger among those voters who displayed higher levels of political sophistication.

1 Literature Review

As discussed above, the existence of Duverger's Law precedes Duverger himself. Riker (1982b) traces its evolution to the 19th century, noting that Henry Droop was the first to make a concise statement of the law, in 1881, 70 years prior to Duverger, and that the law as "commonplace" knowledge by 1901 (756). Duverger, however, did discuss the concept in greater detail than previous works, and concluded that both "mechanical" and "psychological" factors caused minor parties to fail to gain support in plurality systems. The "mechanical" effect is mostly one of disproportionality; parties need only receive a plurality of the vote to gain a whole seat in a legislature, so it is possible for a party to gain a majority position in the legislature while only receiving a minority of the popular vote, even independent of factors such as gerrymandering (Taagepera and Shugart 1989, 1993).

The "psychological" effect is perhaps more interesting, and the subject of greater controversy. Downs (1957) built on Duverger's Law to suggest the following:

> A rational voter first decides what party he believes will benefit him most; then he tries to estimate whether this party has any chance of winning. He does this because his vote should be expended as part of a selection process, not as an expression of preference. Hence even if he prefers part A, he is "wasting" his vote on A if it has no chance of winning, because very few other voters

[1] Also known as "tactical," "sophisticated," or "insincere" voting.

> prefer it to B or C. The relevant choice in this case is between B and C. Since a vote for A is not useful in the actual process of selection, casting it is irrational (48).

Thus, to the extent voters are rational, they should vote strategically. Riker, in reviewing the extant literature at the time, generally found that "a large amount of sophisticated voting occurs—mostly to the disadvantage of the third parties nationally—so that the force of Duverger's psychological factor must be considerable" (764). More recent behavioral studies in various countries (Alvarez and Nagler 1998, 2000; Duch and Palmer 2002; Wantchekon 1999) have generally arrived at similar conclusions, although researchers studying Canada (Bowler and Lanoue 1992; Gaines 1999; Blais 2002) have found surprisingly little strategic voting there, perhaps due to stronger distinctions between Canadian parties than their counterparts in other countries and the heterogeneity of party systems between provinces.

However, formal models of voting, focusing on parties and candidates as the strategic actors, have met with mixed success (Cox 1997; Feddersen 1992; Palfrey 1989), and individual-level models have scarcely fared better, with Ferejohn and Fiorina (1974) suggesting that strategic voting is, *contra* Downs, *irrational*, although Fey (1997) suggests a model that accounts for the strategic behavior of voters in response to polling data, and Bueno de Mesquita (2000) suggests in his study of Israel's 1990s experiment with separate, direct election of the prime minister that political actors account for strategic behavior by voters when making decisions to implement particular electoral laws (and the aggregate outcomes suggest that voters for minor parties did, in fact, react strategically to the introduction of direct election of the prime minister).

Most interest in strategic voting in the United States has focused on the primary process (Bartels 1985, 1988; Southwell 1991; Abramson et al. 1992), where the opportunities for strategic voting are more apparent and the candidates are generally better substitutes for each other. There has also been some interest in the incidence of strategic voting in terms of bloc voting against minority candidates (see e.g. Liu 2001). Explanations of strategic voting in presidential elections have been less widespread.

Most explanations of voting for minor-party candidates have focused on factors other than strategic considerations. One common theme has been that of disaffection and distrust of the political system: voters are more likely to support third-party candidates due to feeling alienated from the major parties. Peterson and Wrighton (1998) and Southwell (2003) both suggest that this is a primary cause of voting for minor candidates. However, Koch (2003) indicates that support for third-party candidates *leads to* these feelings of distrust and disaffection, and that for explanations of support for minor candidates we should look to the same explanations as those for support of major-party candidates. Other explanations have focused on issue-based "protest" voting motivated by the alleged failures of the two major parties on policy grounds (Rosenstone, Behr and Lazarus 1996); Donovan, Bowler and Terrio (2000) find some support for this thesis in a study of California third-party voters.[2]

Abramson et al. (1995), rather than attempting to explain support for third-party candidates George Wallace, John Anderson, and Ross Perot, examine the relative feeling thermometer evaluations of candidates in their respective elections and suggest that most of the failure of the minor candidates to win votes was a result of the mechanical features of Duverger's Law, rather than a psychological effect, although they find a drop-off effect in the support for all three minor candidates. In a similar vein, McCann, Rapoport and Stone (1999) find a drop-off in support for Perot before and after the campaign, although this effect was less marked among those who were more active Perot supporters in their sample.

[2]The difference between protest voting and more general disaffection is not necessarily very clear-cut; however, generally protest voting is believed to be motivated by particular issues (for example, the budget deficit in Ross Perot's 1992 campaign), while disaffection appears to be a more long-term phenomenon and less focused on particular issues than on failures of either the major parties or government in general.

2 Theory

If we assume that voters have transitive preferences, they will have a (possibly incomplete) rank-ordering of potential vote recipients. For example, in a four-candidate race, we can assume that a voter will rank at least some of those candidates in some order based on her preferences.[3] A voter is *sincere* if she votes for her most highly-ranked candidate; otherwise, the voter is *insincere*. We can consider a voter *strategic* if she votes for a candidate who will reduce the probability of a less-preferred candidate being elected. And, a voter's choice is *pivotal* if a change in their vote would change the outcome of the election.

For most voters, strategic voting is unnecessary. Voters who support a candidate who has a serious chance of winning will not find themselves in a situation where they must decide whether or not they will vote strategically—or, more accurately, their strategic choice is also the sincere choice, as a sincere vote for their preferred candidate will also accomplish the strategic goal of reducing the chances of a less preferred candidate taking office.

However, supporters of minor-party candidates and disaffected supporters of the major parties have to decide between voting sincerely and making a strategic choice. Voting for a candidate unlikely to win the election will have virtually no effect on the chances of each of the major candidates winning; thus, this sincere choice can be said to have no impact on the election—essentially having the same effect as abstaining. The voter can instead make a strategic and insincere choice by voting for one of the candidates with a chance of winning the election, which will reduce the chances of the other contending candidates.[4]

For these supporters, the strategic/sincere choice rests on whether their vote is likely to be pivotal. Although Downs (1957) argues that casting a non-strategic vote is irrational, that is only the case if the vote has a non-negligible chance of affecting the outcome of the election. Sincere voting for minor candidates is irrational in the sense that elections are not normally thought of as a forum for expressing general preferences, but rather as a "selection process"; however, if political actors respond to election results as if they are referenda on particular policies espoused by candidates, sincere voting for minor candidates may be rational in certain circumstances.[5] If a citizen's vote is almost certainly not pivotal, it may be rational for voters to show their public policy preferences by supporting a minor candidate.[6]

In the United States, the use of the Electoral College to elect the president creates an electoral environment in which voters will have varying incentives to engage in strategic voting. The use of the Electoral College means that presidential candidates compete in 51 separate elections[7] to gain electors, rather than a single nationwide contest.[8] As electors are selected on a per-state basis on an essentially at-large basis, and states have varying levels of support for the two major parties, the competitiveness of the election in each state is a function both of the relative popularity of the candidates in the electorate at large and the partisan dispositions of the electorate in a particular state.

Thus, voters may be considered rational if they express a preference, rather than merely taking part in a "selection process," in states where their vote is highly unlikely to make a difference in the outcome.

[3] The voter need not rank all candidates; she could simply rank one candidate above all the others.

[4] A voter could also vote insincerely, but not strategically, by voting for a candidate who is less preferred than their favorite candidate, but who will not reduce the probability of their least preferred candidate winning the election. This sort of voting behavior appears to be irrational, but could conceivably occur.

[5] For example, many politicians responded to the large percentage of the vote for Ross Perot in 1992 by attempting to balance the federal budget, while large votes for reformist and pro-temperance minor candidates in the late 19th and early 20th centuries encouraged politicians to enact a number of substantial political reforms and Prohibition.

[6] See e.g. Riker and Ordeshook (1968), Fiorina (1976), and Riker (1982a) who argued that voting should be seen as both "selection processes" and "referenda."

[7] There are votes to select electors in all 50 states and an election in the District of Columbia for its three electors. As a simplifying assumption, Maine and Nebraska—states that choose some of their electors at the congressional district level, rather than at-large—are treated as having statewide at-large elections. For a recent discussion of the impact of the Electoral College on presidential election outcomes, see Neubauer and Zeitlin (2003).

[8] Elections to legislatures in countries that use single-member district elections would also produce substantial opportunities for the strategic environment to differ in the same election; see e.g. Duch and Palmer (2002) and Gschwend (2001).

For example, according to CNN (2000), only 20 of the 51 elections for electors in 2000 were in so-called "battleground" states that were expected to be close.[9] Thus, a voter in one of the other 30 states or the District of Columbia could presumably vote for a third-party candidate and thus have virtually no expectation of affecting the presidential contest, as their vote would be highly unlikely to affect the disposition of their state's electors.[10]

Moreover, minor-party supporters with greater abilities to process and use information about politics—those who are more *politically sophisticated* (Luskin 1987)—should be able to distinguish more readily, and accurately, between an opportunity for expressing a sincere preference and a situation in which it is important to vote strategically to reduce the possibility of a less-preferred candidate taking office. Previous research has indicated that differences in citiens' political sophistication or expertise affects perceptions of national economic conditions (Duch, Palmer and Anderson 2000), voting in referenda (Althaus 1998) and presidential elections (Bartels 1996), and attitudes toward tax policy (Bartels 2005), contrary to arguments that members of the public for the most part act as-if they are fully informed or rational (Key 1966; Lau and Redlawsk 1997). Thus we would expect observed patterns of strategic voting to be conditioned both on the competitiveness of the state-level race and the voter's ability to recognize situations in which a sincere vote would be cost-free.

3 An Aggregate Analysis of the 1992–2000 Elections

The first test of this theory in the 1992, 1996 and 2000 elections is at the aggregate level: did more sincere voting for third-party candidates take place in states where the contest between the major parties was less competitive?

Electoral returns from Levin (2002) and Leip (2003) were used to estimate a simple regression model:[11]

$$\frac{\text{votes received by others}}{\text{total valid votes cast}} = \alpha + \beta_1 \frac{|\text{Republican votes} - \text{Democratic votes}|}{\text{Republican votes} + \text{Democratic votes}} + \beta_2(\text{Partisanship}) + \beta_3(\text{Independence}) + \epsilon$$

The dependent variable is the percentage of the vote received by third-party candidates in the state. The first term on the right is the *marginality* of the election, the plurality divided by the number of votes cast for the two candidates receiving the most votes. The second and third terms are the historic partisanship (percentage of Republican identifiers subtracted from Democratic identifiers) and independence (percentage of self-identified independents) among the state electorates from 1992–2001, derived from CBS/New York Times public opinion polls following the methodology established by Wright, Erikson and McIver (1987). All of these variables were expressed as proportions in the range 0–1.

We would expect that, if voters took account of the institutional context when deciding whether or not to vote strategically, the incidence of third-party voting would be lower in states where the major-party candidates are running close. We would also expect the incidence of minor party support to be proportional to the state's historic level of independent identifiers. In 1992 and 1996, we would expect a positive relationship between the partisanship variable and the level of minor party voting in the state, as Ross Perot's candidacy

[9] The battleground states identified by CNN were: Arizona, Arkansas, Delaware, Florida, Illinois, Iowa, Louisiana, Maine, Michigan, Missouri, Nevada, New Hampshire, New Mexico, Ohio, Oregon, Pennsylvania, Tennessee, Washington, West Virginia, and Wisconsin. A more scholarly assessment by McKee (2002) conducted after the election, based on the internal strategy of the Gore and Bush campaigns, identifies 17 battleground states, excluding Arizona, Illinois, and Nevada from the states identified by CNN.

[10] The distinction between "battleground" and "non-battleground" states is somewhat artificial; in truth, there is a continuum of competitiveness among states, from very competitive (for example, Florida in 2000) and non-competitive (The District of Columbia, in every election since its residents received representation in the Electoral College due to the 25th Amendment). However, the allocation of resources by presidential campaigns appears to follow this simplistic classification scheme very closely; see e.g. Shaw (1999).

[11] For more sophisticated forecasting models of elections in the states, see Campbell (1992) and Rosenstone (1983).

was generally more attractive to traditional supporters of the Republican Party than to Democrats. However, in 2000, as the most popular third-party candidate (Ralph Nader) was expected to be more attractive to Democratic partisans than Republicans, we would expect a negative relationship between the partisanship variable and the level of minor party voting in the state.

The results of this model for the three elections are shown in Table 1.[12] In 1992, the results suggest that relatively few voters incorporated strategic considerations into their vote choice; while the coefficient for marginality is in the expected direction—suggesting that voters were more likely to support a third-party candidate in states where the race between George H.W. Bush and Bill Clinton was not competitive—the effect does not reach conventional levels of statistical significance with a two-tailed test. As expected, Republican-leaning states were more likely to have higher levels of third-party support ($p(t) < .001$, two-tailed test), as were states with higher numbers of independent identifiers ($p < .01$). This dynamic suggests that many third-party voters genuinely believed that Ross Perot had a non-negligible chance of winning the election and that his campaign's efforts to negate beliefs that a vote for Perot was "wasted" were a least somewhat effective.

The results for the 1996 election show clear effects of marginality; third-party support was significantly higher ($p < .001$) in states where the race between major-party candidates Bill Clinton and Bob Dole was not very competitive. As in 1992, third-party candidates generally attracted greater support in more Republican states ($p < .001$)—perhaps in part as a result of many Republicans' dissatisfaction with their party's nominee (Dole). While support for third-party candidates improved in states with more independent identifiers, the effect was only marginally significant in the 1996 election ($p < .097$).

The results in 2000 indicate the effect of marginality, while fairly small, it is significant and in the expected direction ($p < .005$). As expected, states with high proportions of independent identifiers had significantly higher levels of voting for minor party candidates ($p < .001$); somewhat unexpectedly, minor party voting was also proportional to the relative strength of the Republican party in the state, although this effect is not significant.[13]

In summary, the aggregate evidence suggests that voters reacted to the strategic environment in the 1996 and 2000 presidential elections, but did not do so in 1992. However, due to the ecological inference problem (King 1997), we cannot simply assume that individuals made a conscious choice to vote strategically in closer states and vote sincerely in others. Thus an individual-level model of candidate choice should also be examined.

4 Hypotheses

A number of general hypotheses about the voting behavior of individual voters are suggested by the literature. Fundamentally, respondents who are more strongly attached to a major political party or a major-party candidate should never vote strategically in a general election; partisans should have a candidate available from their party, with rare exceptions, and will be disposed to vote for them.

Among those who favor a minor-party candidate (or a minor party in general), however, the decision calculus is more complex: if the election between the major party candidates is close, per Downs supporters of a minor-party candidate should defect from that candidate and vote strategically for less-objectionable major-party candidate. However, if the election is not close, minor-party supporters should continue to favor the minor-party nominee, as the probability of their vote making a difference in the general election is virtually zero. In other words, we should expect *conditional strategic behavior* on the part of voters, where the behavior is conditioned on their ability to recognize whether or not a sincere vote would be a "wasted" one.

[12] As the minimum reasonable value of the dependent variable is zero, a tobit model (Tobin 1958) was also estimated for each election; the results of that model were essentially identical to the ordinary least squares estimates.

[13] It is possible that, because more strongly Republican states tended also to be less competitive in this particular election, Democratic identifiers in those states felt more free to vote for Nader as their votes were less likely to be pivotal.

Independent Variable	Coefficients (Standard Error) 1992	1996	2000
Marginality of election in state	0.101	0.175***	0.053**
	(0.062)	(0.041)	(0.018)
Partisanship of state electorate	0.390***	0.203***	0.038
	(0.063)	(0.049)	(0.024)
Independence of state electorate	0.399**	0.172†	0.243***
	(0.119)	(0.101)	(0.051)
Intercept	0.070†	0.033	−0.046*
	(0.040)	(0.033)	(0.018)
Adjusted R^2	0.457	0.363	0.361
$F(3, 47)$	15.01***	10.49***	10.43***

- Coefficients are ordinary least squares linear regression estimates. $N = 51$.
- The dependent variable is the proportion of the vote received by third-party and independent candidates in the state or District of Columbia.
- *** indicates $p(t) < .001$; ** $p < .01$; * $p < .05$; † $p < .10$ (two-tailed test).

Table 1: Aggregate-level analysis of third-party voting in the 1992, 1996, and 2000 presidential elections.

This discussion assumes that the voter is rational and has sufficient information to decide whether to vote strategically. Yet many voters are uninformed or misinformed. Hence we would expect more sophisticated voters to be more conscious of the need to make a choice to vote strategically in a close election. This effect should be particularly pronounced among voters who favor policies advocated by the minor-party nominee and, to a lesser extent, by the less-objectionable major party nominee. The hypotheses tested in the models, including the "control" hypotheses, are shown in Table 2.

5 Data and Methods

To test these hypotheses, mass survey data collected from a random cross-section of the United States electorate by the American National Election Studies (ANES) project in 1992, 1996, and 2000 was used (Rosenstone et al. 1999a,b; and Burns et al. 2002); each survey consisted of separate pre-election and post-election waves conducted using a combination of telephone and face-to-face interviews. As none of these surveys included a direct measure of strategic voting behavior, the vote choice reported by the respondent in the post-election wave was used as the dependent variable.[14] In order to simplify the analysis, only voters who reported a vote for a major-party nominee or the leading independent candidate were included in the analysis.[15]

For each election, a number of independent variables were included in the model to control for known demographic influences on vote choice, including whether the respondent was female, African-American, or a white southerner; whether the respondent was a self-identified white born-again Christian;[16] whether the respondent was married; the age, level of education, and household income of the respondent; and whether or not anyone in the respondent's household was a member of a labor union. The respondent's party identification was also included,[17] as was the respondent's level of political sophistication and a "feeling thermometer"

[14] The use of post-election data, instead of vote intentions expressed before the election, is a matter of some debate in the literature; see Wright (1990); Gronke (1992); and Wright (1992) for a discussion of the issues, centered on reported voting in House elections.

[15] Specifically, each election was modelled as a three-way choice: Bush, Clinton, or Perot in 1992; Clinton, Dole, or Perot in 1996; Bush, Gore, or Nader in 2000.

[16] See, e.g. Wilcox and Rozell (1997) and Green, Rozell and Wilcox (2003).

[17] To ease interpretation of the results and to avoid including polynomial or collinear terms, the party identification scale was split into two scales: strength of Republican identification, and strength of Democratic identification. Respondents who identified as

1. White southerners and white born-again Christians should be more likely to support Republican candidates.
2. Black voters should be more likely than non-blacks to support Democratic candidates.
3. Voters in union households should be more likely than those in non-union households to support Democrats.
4. Female voters should be more likely than male voters to favor major-party candidates, and Democrats in particular.
5. Older and more educated voters should be more likely to support major-party nominees.
6. Strong partisans should be more likely to support their own parties' nominees, and less likely to support the opposite major-party nominee than a third-party candidate.
7. Voters in "battleground" states should be more likely to support major-party nominees than voters in non-battleground states.
8. Voters who have greater affinity toward minor-party nominees should be more likely to support them over major-party candidates.
9. More sophisticated voters should be more likely to vote for minor-party candidates in non-battleground states than in battleground states, particularly as their affinity for minor-party candidates increases.

Table 2: Hypotheses tested in the models of strategic voting.

rating of the leading third-party candidate (Perot in 1992 and 1996; Nader in 2000). A "battleground" variable was coded 1 for respondents interviewed in states that were considered to be battleground states for either of the two major-party candidates in that election year, as classified by Shaw (1999) for the 1992 and 1996 presidential elections and by McKee (2002), with guidance from Shaw, for 2000.[18]

The measure of political sophistication was estimated from an item-response theory model of respondents' abilities to correctly answer knowledge items included in the NES as well as their ability to make correct relative placements of the parties and candidates on a variety of issue scales; for further details of the measure, see the appendix below.

In the 1996 and 2000 elections, a measure of policy interest in the outcome of the election was included: for 2000, as both Gore and Nader were known for their advocacy of environmental causes, the respondent's evaluation of the importance of environmental issues was used to measure this policy interest; we would expect respondents with higher levels of knowledge and higher interest in the environment to favor Gore, who would be more likely to be in a position to promote pro-environment causes from within the government (due to Nader's slim chances at election), while less knowledgeable voters with interest in the environment might favor Nader and not be thinking strategically. In 1996, a "deficit concern" measure was constructed from the respondent's responses to four questions on trade-offs between taxes, spending, and deficit reduction.[19] A summary of the variables taken from the 1992, 1996, and 2000 studies are listed in Table 3, and the coding of the variables included in the models are indicated in Table 4.

As the dependent variable indicates a choice among three, unordered options, a multinomial model

independents were coded zero on both scales; all other respondents were coded on the appropriate scale based on their strength of identification (1–3) and coded zero on the other scale; for example, a "weak Democrat" would be coded 2 on the Democratic scale and 0 on the Republican scale, while an "Republican-leaning independent" would be coded 0 on the Democratic scale and 1 on the Republican scale.

[18] McKee's classifications were similar to those produced by CNN (2000); however, I chose to use McKee's to improve comparability between elections, and because the CNN classifications were unavailable for 1992 and 1996.

[19] Attempts to find or construct a suitable "policy interest" measure for the 1992 election within the 1992 ANES data set proved fruitless; shockingly, respondents were not asked any questions about their personal attitudes toward the budget deficit, although they were asked to identify whether they blamed the president or Congress more for its size. A series of questions *were* asked of panel participants in 1990, some of whom carried over into the 1992 ANES, but this would have excluded over 1000 respondents from the 1992 survey.

Variable	1992	1996	2000
Vote choice	V925612	V961082	V001249
Respondent's gender	V924201	V960066	V001029
Respondent's race	V924202	V960067	V001006A
Where respondent grew up	V924125	V960711	V001014
Marital status	V923904	V960606	V000909
Born-again Christian	V923847	V960601	V000903
Respondent's age	V923903	V960605	V000908
Level of education	V923908	V960610	V000913
Union household	V924101	V960698	V000990
Household income	V924104	V960701	V000994
Party identification	V923634	V960420	V000523
Pol. sophistication	V924205	V960070	V001033
Cand. feeling thermometer	V923307	V960274	V000363

Table 3: Correspondence between common included variables and ANES variable numbers.

is appropriate. A number of potential models have been suggested in the literature, including multinomial logit or MNL (Whitten and Palmer 1996), conditional logit (McFadden 1974), nested multinomial logit, mixed logit or MXL (Glasgow 2001), and multinomial probit or MNP (Alvarez and Nagler 1998; Schofield et al. 1998; Quinn, Martin and Whitford 1999), each of which has various benefits and drawbacks.[20] Following Whitten and Palmer (1996), I used the MNL specification. The MNL models were estimated in *R* 2.4.0 (Ihaka and Gentleman 1996; R Development Core Team 2006) with the `vglm` (vector generalized linear model) procedure using the `multinomial` link in the `VGAM` package via `Zelig` (Yee and Wild 1996; Imai, King and Lau 2006). Missing data for the independent variables were multiply imputed using `mice` (Van Buuren and Oudshoorn 2005).

6 Results

The results of the analyses are presented in Tables 5–7. For each election year, coefficient estimates for the logged odds-ratio of selecting each of the major party nominees versus the third-party candidate are presented, which allow us not only to see whether or not strategic behavior took place, but also to see which major-party candidates were affected by that behavior. Positive coefficients indicate a higher level of the independent variable increases the odds of choosing the given major-party candidate, while negative coefficients indicate increases in the independent variable increase the relative odds of selecting the minor-party candidate. The model's predictions of the behavior of "typical" independent-identifying male voters are shown graphically in Figures 1–3. In each of these figures, the independent variable is the hypothetical respondent's feeling thermometer evaluation of the third-party candidate, while the dependent variable is the predicted probability of the respondent voting for that candidate. Each figure includes four panels, corresponding to the level of sophistication of the hypothetical voter illustrated; in each panel, the predicted behavior of a voter in a battleground state is compared to that of a voter in a non-battleground state.[21]

[20] Most notably, MNL is subject to the "independence of irrelevant alternatives" or IIA assumption. However, alternative models generally must be estimated using simulation techniques like Markov chain Monte Carlo (MCMC), don't allow individual-level variables (in the case of conditional logit), require choice-specific variables to provide non-fragile estimates (Keane 1992), and/or generally are not provided by common statistical packages. Moreover, the degree to which the IIA assumption is problematic in political science research is subject to some debate; see Whitten and Palmer (1996, 255–56) for a discussion.

[21] In each panel, the other variables are set to their means in that year's ANES (for continuous or ordinal variables) or the modal category. Both partisan identification variables are set to zero ("true independent").

Variable	Description
White southerner	Coded 1 for self-identified white respondents who grew up in the South (ANES state/country codes 141–159).
Black	Coded 1 for self-identified black respondents.
Female	Coded 1 for female.
Married	Coded 1 for married respondents.
White born-again Christian	Coded 1 for white respondents who consider themselves "born-again" Christians.
Age	Respondent's age in years.
Education	Seven-point scale indicating respondent's level of education (range: 1–7).
Union household	Coded 1 for respondents who reported a union member in their household.
Household income	Respondent's household's income category (range 1–24 in 1992 and 1996; 1–22 in 2000).
Party identification strength	See text.
Battleground	See text.
Candidate feeling thermometer	Respondent's evaluation of the candidate on a 101-point scale (range: 0–100).
Political sophistication	Interviewer's evaluation of the respondent's level of political information. 5-point scale, reversed (range: 0–4).
Deficit spending (1996)	Responses to trade-off questions between deficit reduction and budget changes; higher levels indicate greater support for measures to reduce the deficit. Five-point scale constructed from V961219, V961221, V961227, and V961228 (range: 0–4).
Environmental importance (2000)	How important the respondent considers environmental issues, from V000777 (range: 1–5).

Table 4: Coding of variables in the models

Independent Variable	Coefficient (Std. Err) log(Bush/Perot)	log(Clinton/Perot)
(Intercept)	-3.503†	-0.972
	(2.058)	(2.020)
White southerner	0.603*	0.117
	(0.239)	(0.243)
Black	0.944	2.150***
	(0.655)	(0.549)
Female	0.533**	0.444*
	(0.187)	(0.181)
Married	0.174	-0.307
	(0.208)	(0.200)
White, born-again	0.165	-0.636**
	(0.202)	(0.221)
Age	0.014*	0.013*
	(0.006)	(0.006)
Education	0.164*	0.166*
	(0.066)	(0.066)
Union household	0.023	-0.119
	(0.236)	(0.223)
Household income	-0.009	-0.026
	(0.020)	(0.019)
Democratic ID strength	-0.252†	0.743***
	(0.132)	(0.102)
Republican ID strength	0.697***	-0.477***
	(0.104)	(0.131)
Battleground	1.982	0.910
	(1.505)	(1.482)
Sophistication	1.719*	1.125
	(0.762)	(0.748)
Perot feeling thermometer	0.028	-0.020
	(0.035)	(0.034)
Battleground × Soph.	-0.987†	-0.606
	(0.552)	(0.547)
Battleground × Perot FT	-0.034	-0.002
	(0.027)	(0.025)
Soph. × Perot FT	-0.035**	-0.014
	(0.013)	(0.013)
Battleground × Soph. × Perot	0.020*	0.008
	(0.010)	(0.009)
Log likelihood (L)	-911.698	
Wald test versus intercept-only model $\chi^2(38)$	1589.854***	
Percent correctly classified	75.99%	
Proportional reduction in error	54.34%	

- Coefficients are multinomial logit maximum-likelihood estimates. $N = 1445$
- *** indicates $\Pr(t) < .001$, ** $p < .01$, * $p < .05$, † $p < .10$ (two-tailed test).

Table 5: Results of the 1992 individual-level model.

Independent Variable	Coefficient (Std. Err) log(Clinton/Perot)	log(Dole/Perot)
(Intercept)	4.536*	1.275
	(2.174)	(2.257)
White southerner	−0.327	−0.171
	(0.400)	(0.403)
Black	3.110*	0.187
	(1.205)	(1.581)
Female	0.682*	0.227
	(0.323)	(0.331)
Married	−1.346**	−1.132**
	(0.420)	(0.431)
White, born-again	−0.210	0.563
	(0.374)	(0.366)
Age	0.023*	0.038***
	(0.011)	(0.011)
Education	0.125	0.152
	(0.119)	(0.119)
Union household	0.277	−0.512
	(0.385)	(0.398)
Household income	0.086*	0.127***
	(0.035)	(0.037)
Democratic ID strength	0.954***	−0.346
	(0.195)	(0.228)
Republican ID strength	0.112	0.966***
	(0.224)	(0.212)
Sophistication	−0.801	−0.391
	(0.754)	(0.762)
Battleground	0.975	1.374
	(3.440)	(3.460)
Perot feeling thermometer	−0.103***	−0.083**
	(0.030)	(0.030)
Soph. × Battleground	−0.906	−1.013
	(1.138)	(1.144)
Battleground × Perot FT	−0.027	−0.018
	(0.060)	(0.060)
Soph. × Perot FT	0.010	0.008
	(0.011)	(0.011)
Soph. × Battleground × Perot FT	0.019	0.015
	(0.020)	(0.020)
Deficit attitudes	−0.429	−0.096
	(0.364)	(0.389)
Deficit × Soph.	0.095	−0.015
	(0.143)	(0.151)
Log likelihood (L)	−414.251	$N = 942$
Wald test versus intercept-only model $\chi^2(42)$	1164.152***	
Percent correctly classified	84.08%	
Proportional reduction in error	65.68%	

Table 6: Results of the 1996 individual-level model.

Independent Variable	Coefficient (Std. Err) log(Gore/Nader)	log(Bush/Nader)
(Intercept)	4.443	4.123
	(4.966)	(5.069)
White southerner	−0.133	0.164
	(0.824)	(0.814)
Black	−0.467	−0.702
	(1.177)	(1.284)
Female	0.694	0.448
	(0.528)	(0.535)
Married	−0.475	−0.301
	(0.574)	(0.583)
White, born-again	−0.574	0.373
	(0.628)	(0.617)
Age	0.046*	0.037†
	(0.020)	(0.020)
Education	0.071	−0.138
	(0.186)	(0.189)
Union household	−0.362	−0.527
	(0.639)	(0.657)
Household income	0.080	0.091
	(0.078)	(0.078)
Democratic ID strength	1.941***	0.409
	(0.420)	(0.437)
Republican ID strength	0.250	1.392***
	(0.404)	(0.387)
Sophistication	−1.035	−0.015
	(1.615)	(1.644)
Battleground	16.399†	16.002†
	(9.486)	(9.551)
Nader feeling thermometer	−0.008	−0.049
	(0.046)	(0.047)
Soph. × Battleground	−4.501	−4.517
	(2.789)	(2.808)
Battleground × Nader FT	−0.258*	−0.223†
	(0.125)	(0.127)
Soph. × Nader FT	−0.017	−0.009
	(0.015)	(0.015)
Soph. × Battleground × Nader FT	0.072†	0.064†
	(0.037)	(0.038)
Environmental importance scale	−1.356	−0.371
	(0.992)	(0.980)
Env. import × Soph.	0.492	0.123
	(0.307)	(0.300)
Log likelihood (L)	−263.733	$N = 793$
Wald test versus intercept-only model $\chi^2(42)$	1321.553***	
Percent correctly classified	88.15%	
Proportional reduction in error	75.58%	

Table 7: Results of the 2000 individual-level model.

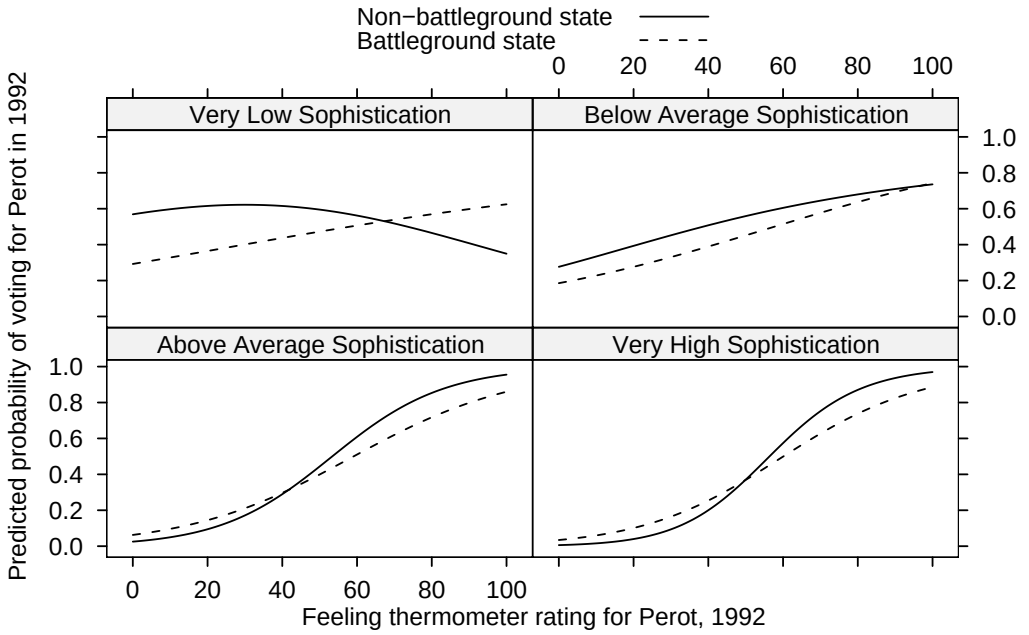

Figure 1: Predicted probabilities of an independent voter casting a ballot for Ross Perot in 1992.

The results in 1992 strongly support the hypothesis that strategic behavior was conditional on both the electoral environment and the voter's ability to recognize that environment. Figure 1 illustrates the interaction between sophistication, the respondent's affinity for Perot, and whether or not the state was a "battleground" state. For less sophisticated voters (in the "Below Average Sophistication" pane of the graph), the effect of the strategic environment is minimal: there is a simple, direct relationship between affinity for Perot and the voter's odds of choosing to vote for him over Bush or Clinton. However, among more sophisticated voters, we see a significantly "flatter" relationship in battleground states than in non-battleground states, suggesting that more sophisticated voters were attuned to the possibility of "wasting" their votes in more competitive states. An examination of the coefficients underlying these effects suggests that for voters in 1992, the strategic choice was primarily between Perot and Bush, indicating that Perot's support among independent voters was largely due to disaffection with Bush.

The demographic and other control variables in 1992 suggest that female, older and better-educated voters were significantly more likely to favor one of the major-party nominees over Perot. White southerners were significantly more likely than non-black northerners (the reference category) to favor Bush over Perot. African-Americans were significantly more likely to favor Clinton over Perot—hardly a surprise, given Perot's disastrous appearance before the NAACP in July of 1992, which precipitated his brief exit from the race—while white born-again Christians were more likely to favor Perot over Clinton. As we might expect, stronger partisans ("in-partisans") were more likely than independents to support their party's nominee over Perot, while "out-partisans" were less likely to do so.

The conditional strategic behavior hypothesis, however, fares poorly in 1996. While the graphical evidence in Figure 2 suggests that the most sophisticated voters did engage in strategic behavior in battleground states, none of the interactions are statistically significant. Instead, we see a fairly clear, direct relationship between support for Perot and the respondents' odds of choosing him over Clinton or Dole. The lack of evidence for conditional strategic behavior may simply indicate that most voters, on the basis of media coverage and polling data, concluded that the race between Clinton and Dole was so lopsided that most voters in "battleground" states did not actually believe the disposition of their state's electors would affect the national outcome.

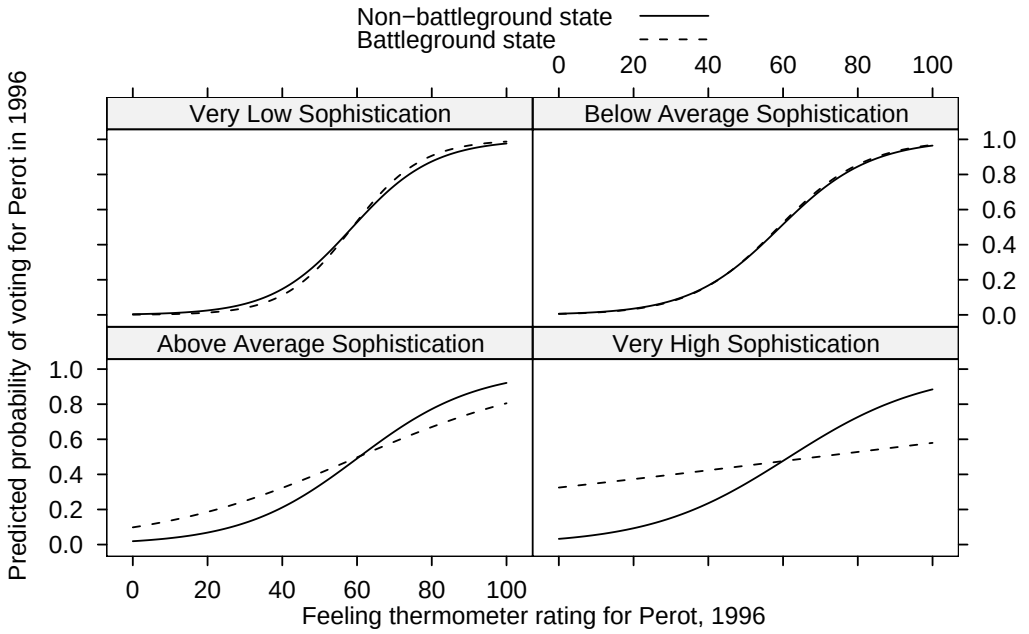

Figure 2: Predicted probabilities of an independent voter casting a ballot for Ross Perot in 1996.

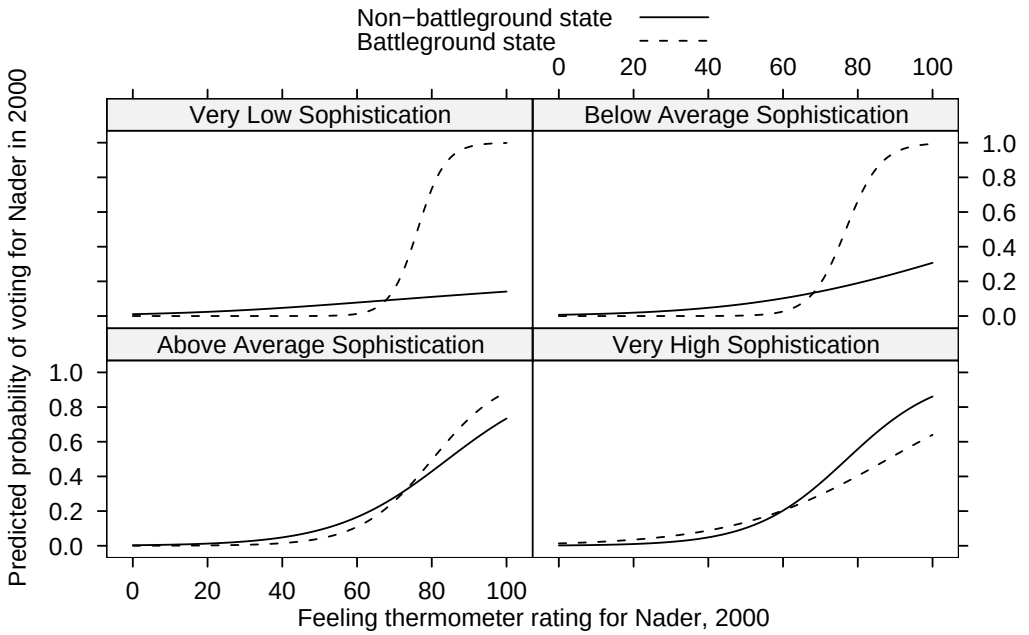

Figure 3: Predicted probabilities of an independent voter casting a ballot for Ralph Nader in 2000.

As in 1992, older voters were significantly more likely than younger voters to prefer both major-party nominees, as were voters with higher household incomes. Also like 1992, black voters were significantly more likely to prefer Clinton over Perot; female voters were also more likely to prefer Clinton over Perot. Unlike in the previous election, however, white southerners and born-again Christians were no more likely to prefer Perot over the Republican nominee. The partisan effects in 1996 were similar for "in-partisans"; however, "out-partisans" were no more likely to prefer Perot over the opposite party's nominee than independents, suggesting Perot's cross-over appeal had diminished by 1996.

In the 2000 election, the conditional strategic behavior hypothesis performs fairly well.[22] Surprisingly, the effects indicate that Nader attracted strategic behavior relative to both candidates (the 1992 results only showed conditional strategic choice between George H.W. Bush and Perot), and are illustrated graphically in Figure 3. The results suggest that among less sophisticated voters, support for Nader was generally low (except among voters who rated Nader very high on the feeling thermometer scale); by contrast, in the "Very High Sophistication" panel we see conditional strategic behavior: the voters who rate Nader the highest on the feeling thermometer are less likely to vote for him in battleground states than in non-battleground states. Unlike in earlier elections, the control variables perform rather poorly; as in 1992 and 1996, older voters are more likely to support a major-party nominee than Nader, and we see the familiar "in-partisan" effects.

7 Conclusions

In this paper, I have advanced a theory of *conditional strategic behavior*—that voters decide between casting a strategic or sincere ballot based on their perception of the electoral environment. Voters with higher levels of political knowledge are more likely to perceive the electoral environment—whether or not an election will be close—correctly, and demonstrate higher levels of Downsian rational behavior. The results of an analysis using the 1992, 1996, and 2000 American National Election Studies suggest that conditional strategic behavior took place in at least 1992 and 2000; while the 1996 results do not suggest this behavior took place, it may simply be due to the national electoral environment in that year being uncompetitive due to a moderately popular incumbent president seeking re-election against a weak opposition-party nominee.

One avenue for future research would be to broaden the analysis to use an indicator of competitiveness that is more nuanced than the "battleground"–"non-battleground" dichotomy, using indicators such as poll results as used in typical forecasting models (e.g. Rosenstone 1983 and Campbell 1992) or perhaps measures of campaign spending in particular states (Shaw 1999). This type of analysis would perhaps improve our understanding of the effects of campaign expenditures and the psychological impact of poll results on vote choice. Other potential measures would include the respondent's estimate of the closeness of the election in his or her state, or the actual marginality of the election in the particular state.[23]

As Duch and Palmer (2002) show, differences in strategic behavior within the electorate are not unique to U.S. presidential contests; they demonstrate that more sophisticated voters, when presented with hypothetical electoral environments, select between sincere and strategic choices—they behave with Downsian rationality when the electoral environment requires a strategic choice (in the Hungarian case, when their preferred party's candidate has a negligible chance of reaching a run-off round), but will cast sincere ballots when the overall outcome is not in question. This effect should be observable in any context where the voting system allows for strategic behavior to be preferable to a sincere choice.[24]

The idea of conditional strategic behavior is also related to the interest in the American context in whether or not voters prefer divided or unified government, and whether voters act on that preference

[22] Due to the significantly smaller 2000 ANES sample, and the small (but consistent with overall returns) number of respondents who reported voting for Nader, the 2000 results should be viewed with some degree of caution.

[23] The closeness question, alas, was only asked about the national result in the 2000 ANES.

[24] Arrow (1970) argues that all electoral systems that include choices between more than two options cannot be "ideal"; this is known as "Arrow's Impossibility Theorem." All electoral rules appear to fail this "idealness" test by permitting strategic behavior of some form or another.

when casting their ballots—what Lacy and Paolino (1998) and Smith et al. (1999) term "nonseparable preferences." Specifically, voters may have nonseparable preferences—for example, they may prefer a Democratic-controlled executive and a Republican-controlled legislature—but be in an electoral situation where a strategic vote to accomplish that end is meaningless, as one election is (or both elections are) non-competitive. In these circumstances, while it might be rational to cast a ballot consistent with these preferences, a sincere vote on other grounds is possible—either for the major-party candidate who is likely to win, or a minor-party candidate. Thus survey and other evidence showing that many voters' choices aren't consistent with "cognitive Madisonianism" may be the result of the lack of competitiveness of many districts and states. This might be a worthwhile area for further research.

It would also be desirable to follow-up this research with data collected to better understand the nature of voting for minor-party candidates. The present ANES, with its limited sample size, relative lack of interest in minor-party candidates, and lack of questions on strategic motivations, is insufficient for the deeper understanding that research on the strategic motivations of voters requires in the future. Fielding of survey-experiment hybrids in the United States, like the Hungarian example used by Duch and Palmer (2002), might improve our ability to find the determinants of who votes strategically and why.

Appendix: An Item-Response Theory Model of Political Sophistication

Traditionally, political sophistication has been measured by users of the American National Election Study using one of two methods: either producing an index based on the number of correct answers to the political knowledge items included in the NES, or relying on the interviewer's evaluation of the respondent's level of political knowledge.

I depart from these techniques by employing an *item-response theory* model (Johnson and Albert 1999) to measure respondent sophistication in this analysis. IRT models were developed for use in educational psychology to facilitate standardized testing, and have been adapted for use in political science previously to estimate the ideal points of Supreme Court justices (Martin and Quinn 2002) and legislators (Clinton, Jackman and Rivers 2004). In addition, the technique has also been proposed for the measurement of political knowledge (Delli Carpini and Keeter 1996; Levendusky and Jackman 2003; Lawrence 2003) but has not been widely used to date in the literature. For estimation of respondent sophistication, the IRT model has two key advantages over the use of a naïve index: the estimates inherently give greater weight to more "useful" items, and the IRT estimates are less coarse than additive indices, which take on only integer values.

The method is briefly as follows: assume each subject j has a latent ability or ideal point θ_j and each item (survey question) i has two parameters associated with it: a *difficulty* denoted α_i (how "hard" the question is—a measure of how likely a randomly-selected subject is to get it correct) and a *discrimination parameter* denoted β_i (how well the question distinguishes between subjects with varying levels of the latent trait). Then we can define z_{ij}, the probability that the observed response x_{ij} is correct, as:

$$z_{ij} = -\alpha_i + \beta_i \theta_j + \epsilon_{ij}$$

We cannot observe this probability directly; however, we can treat z_{ij} as an unobserved utility, and use a random utility approach (as in the standard probit and logit models):

$$\Pr(x_{ij} = 1 | \theta_j) = F(z_{ij})$$

Generally, F is the standard normal cumulative density function (Φ). With suitable constraints on the distribution of α and β (namely, that they are distributed normally with a mean of zero and a precision[25] of one) and $theta$ (assumed to be normally distributed as well), the model is identified sufficiently to produce

[25] In the Bayesian framework, precisions are used instead of variances. The precision is simply the reciprocal of the variance.

a solution.[26] Estimation of this model via Markov chain Monte Carlo is readily available in `MCMCpack` for R (Martin, and Quinn 2006).

The responses used to estimate the respondents' level of sophistication fall into two broad categories: knowledge items included on the NES, and the correctness of the relative placement of the major parties and major-party politicians on ideological and issue scales.

The knowledge items used are correct identification of the vice president (1992 and 1996) or prominent cabinet member (Janet Reno in 2000), the chief justice of the United States, a prominent foreign leader (Boris Yeltsin in 1992 and 1996; Tony Blair in 2000), the speaker of the House (1992 and 1996) or Senate majority leader (2000), and correctly identifying the majority party in each chamber of Congress. In 1992, two additional questions are included—one testing respondents' knowledge of the Supreme Court's power of judicial review, the other testing if respondents know who is responsible for nominating judges to the federal bench. In 2000, biographical questions about the major-party presidential candidates and their running-mates were also included in the scale.

The relative placement items included (in years the questions were available) placement of both the major-party presidential candidates and their parties on the liberal-conservative 7-point scale; the services-spending scale; the government/private health insurance scale; the government/individualist jobs scale; the aid to blacks scale; the abortion scale; a crime policy scale; an environmentalism versus jobs scale; a environment versus business regulation scale; and a gun control scale.

For the 1992 American National Election Study, the Pearson's correlation coefficient (r) between the generated sophistication measure and the interviewer evaluation was 0.58 and the polyserial correlation[27] was 0.60; for 1996, the Pearson's r was 0.41 and the polyserial correlation was 0.53; and for 2000, the Pearson's r was 0.59 and the polyserial correlation was 0.61. In all cases, the correlation was statistically significant at the 99.9% confidence level. Further validity tests of the measure are presented in Lawrence (2007).

References

Abramson, Paul R., John H. Aldrich, Phil Paolino and David W. Rhode. 1992. ""Sophisticated" Voting in the 1988 Presidential Primaries." *American Political Science Review* 86:55–69.

Abramson, Paul R., John H. Aldrich, Phil Paolino and David W. Rhode. 1995. "Third-Party and Independent Candidates in American Politics: Wallace, Anderson, and Perot." *Political Science Quarterly* 110:349–67.

Althaus, Scott L. 1998. "Information Effects in Collective Preferences." *American Political Science Review* 92:545–558.

Alvarez, R. Michael and Jonathan Nagler. 1998. "When Politics and Models Collide: Estimating Models of Multiparty Elections." *American Journal of Political Science* 42:55–96.

Alvarez, R. Michael and Jonathan Nagler. 2000. "A New Approach for Modelling Strategic Voting in Multiparty Elections." *British Journal of Political Science* 30:57–75.

Arrow, Kenneth J. 1970. *Social Choice and Individual Values.* 2nd ed. New Haven, Ct.: Yale University Press.

Bartels, Larry M. 1985. "Expectations and Preferences in Presidential Nominating Campaigns." *American Political Science Review* 79:804–15.

[26] It may also be helpful to identify the sign of one of the β parameters to constrain the directionality of the recovered latent factor, for ease of interpretation.

[27] The polyserial correlation is preferred to Pearson's r when one variable is ordinal and reflects a conceptually-continuous variable; see e.g. Drasgow (1986).

Bartels, Larry M. 1988. *Presidential Primaries and the Dynamics of Public Choice.* Princeton, N.J.: Princeton University Press.

Bartels, Larry M. 1996. "Uninformed Votes: Information Effects in Presidential Elections." *American Journal of Political Science* 40:194–230.

Bartels, Larry M. 2005. "Homer Gets a Tax Cut: Inequality and Public Policy in the American Mind." *Perspectives on Politics* 3:15–31.

Blais, André. 2002. "Why Is There So Little Strategic Voting in Canadian Plurality Rule Elections?" *Political Studies* 50:445–54.

Bowler, Shaun and David J. Lanoue. 1992. "Strategic and Protest Voting for Third Parties: The Case of the Canadian NDP." *Western Political Quarterly* 45:485–99.

Bueno de Mesquita, Ethan. 2000. "Strategic and Nonpolicy Voting: A Coalitional Analysis of Israeli Electoral Reform." *Comparative Politics* 33:63–81.

Burns, Nancy, Donald R. Kinder, Steven J. Rosenstone, Virginia Sapiro and the National Election Studies. 2002. *American National Election Study, 2000: Pre- and Post-Election Survey [Computer file].* Ann Arbor, Mich.: University of Michigan, Center for Political Studies/Inter-university Consortium for Political and Social Research. ICPSR Study No. 3131.

Campbell, James E. 1992. "Forecasting the Presidential Vote in the States." *American Journal of Political Science* 36:386–407.

Clinton, Joshua, Simon Jackman and Douglas Rivers. 2004. "The Statisical Analysis of Roll Call Data." *American Political Science Review* 98:355–37.

CNN. 2000. "Battleground States: Election 2000.".
URL: *http://www.cnn.com/2000/ALLPOLITICS/stories/10/25/campaign.wrap/*

Cox, Gary W. 1997. *Making Votes Count: Strategic Coordination in the World's Electoral Systems.* New York: Cambridge University Press.

Delli Carpini, Michael X. and Scott Keeter. 1996. *What Americans Know about Politics and Why It Matters.* New Haven, Conn.: Yale University Press.

Donovan, Todd, Shaun Bowler and Tammy Terrio. 2000. "Support for Third Parties in California." *American Politics Quarterly* 28:50–71.

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

Drasgow, F. 1986. "Polychoric and polyserial correlations." In *The Encyclopedia of Statistics*, ed. N. Johnson and S. Kotz. Vol. 7 New York: Wiley. pp. 68–74.

Duch, Raymond M. and Harvey D. Palmer. 2002. "Strategic Voting in Post-Communist Democracy." *British Journal of Political Science* 32:63–91.

Duch, Raymond M., Harvey D. Palmer and Christopher J. Anderson. 2000. "Heterogeneity in Perceptions of National Economic Conditions." *American Journal of Political Science* 44:635–652.

Feddersen, Timothy J. 1992. "A Voting Model Implying Duverger's Law and Positive Turnout." *American Journal of Political Science* 36:938–62.

Ferejohn, John A. and Morris P. Fiorina. 1974. "The Paradox of Not Voting: A Decision Theoretic Analysis." *American Political Science Review* 68:525–36.

Fey, Mark. 1997. "Stability and Coordination in Duverger's Law: A Formal Model of Preelection Polls and Strategic Voting." *American Political Science Review* 91:135–47.

Fiorina, Morris P. 1976. "The Voting Decision: Instrumental and Expressive Aspects." *Journal of Politics* 38:390–413.

Gaines, Brian J. 1999. "Duverger's Law and the Meaning of Canadian Exceptionalism." *Comparative Political Studies* 32:835–61.

Glasgow, Garrett. 2001. "Mixed Logit Models for Multiparty Elections." *Political Analysis* 9:116–36.

Green, John C., Mark J. Rozell and W. Clyde Wilcox, eds. 2003. *The Christian Right in American Politics: Marching to the Millennium.* Washington, D.C.: Georgetown University Press.

Gronke, Paul. 1992. "Overreporting the Vote in the 1988 Senate Election Study: A Response to Wright." *Legislative Studies Quarterly* 17:113–29.

Gschwend, Thomas. 2001. "Ticket-Splitting and Strategic Voting in Mixed Electoral Systems." Presented at the 2001 Annual Meetings of the American Political Science Association, San Francisco.
URL: *http://www.sowi.uni-mannheim.de/lehrstuehle/lspol1/gschwend02.pdf*

Ihaka, Ross and Robert Gentleman. 1996. "R: A Language for Data Analysis and Graphics." *Journal of Computational and Graphical Statistics* 5:299–314.

Imai, Kosuke, Gary King and Olivia Lau. 2006. *Zelig: Everyone's Statistical Software.* R package version 2.7-4.
URL: *http://gking.harvard.edu/zelig*

Johnson, Valen E. and James H. Albert. 1999. *Ordinal Data Modeling.* New York: Springer-Verlag.

Keane, Michael P. 1992. "A Note on the Identification in the Multinomial Probit Model." *Journal of Business and Economic Statistics* 10:193–200.

Keeler, Ken, Dan Greaney and David S. Cohen. 1996. "Treehouse of Horror VII." In *The Simpsons.*

Key, V. O. 1966. *The Responsible Electorate: Rationality in Presidential Voting, 1936–60.* Cambridge, Mass.: Belknap Press of Harvard University.

King, Gary. 1997. *A Solution to the Ecological Inference Problem: Reconstructing Individual Behavior from Aggregate Data.* Princeton, N.J.: Princeton University Press.

Koch, Jeffrey W. 2003. "Political Cynicism and Third-Party Support in American Presidential Elections." *American Politics Research* 31:48–65.

Lacy, Dean and Philip Paolino. 1998. "Downsian Voting and the Separation of Powers." *American Journal of Political Science* 42:1180–99.

Lau, Richard R. and David P. Redlawsk. 1997. "Voting Correctly." *American Political Science Review* 91:585–98.

Lawrence, Christopher N. 2003. *The Impact of Political Sophistication on the Decision-Making Processes of Voters.* PhD thesis. Oxford, Miss.: University of Mississippi.

Lawrence, Christopher N. 2007. "Should Voters Be Encyclopedias? The (Mis?)estimation of Voter Sophistication Based on Political Knowledge Items." Presented at the 2007 annual meeting of the Southern Political Science Association, New Orleans, La.
URL: *http://www.cnlawrence.com/*

Leip, David. 2003. "Dave Leip's Atlas of U.S. Presidential Elections.".
URL: *http://www.uselectionatlas.org/*

Levendusky, Matthew S. and Simon D. Jackman. 2003. "Reconsidering the Measurement of Political Knowledge." Working Paper.
URL: *http://www.stanford.edu/class/polisci353/2004spring/reading/levendusky_final.pdf*

Levin, Jermome D., ed. 2002. *Presidential Elections, 1789–2000.* Washington, D.C.: CQ Press.

Liu, Baodong. 2001. "Racial Contexts and White Interests: Beyond Black Threat and Racial Tolerance." *Political Behavior* 23:157–80.

Luskin, Robert C. 1987. "Measuring Political Sophistication." *American Journal of Political Science* 31:856–99.

Martin, Andrew D., and Kevin M. Quinn. 2006. *MCMCpack: Markov chain Monte Carlo (MCMC) Package.* R package version 0.7-4.
URL: *http://mcmcpack.wustl.edu*

Martin, Andrew D. and Kevin M. Quinn. 2002. "Dynamic Ideal Point Estimation via Markov Chain Monte Carlo for the U.S. Supreme Court, 1953–1999." *Political Analysis* 10:134–53.

McCann, James A., Ronald B. Rapoport and Walter J. Stone. 1999. "Heeding the Call: An Assessment of Mobilization into H. Ross Perot's 1992 Presidential Campaign." *American Journal of Political Science* 43:1–28.

McFadden, Daniel. 1974. "Conditional Logit Analysis of Qualitative Choice Behavior." In *Frontiers in Econometrics*, ed. Paul Zarembka. New York: Academic Press.

McKee, Seth C. 2002. "Was Turnout Significantly Higher in the Battleground States in the 2000 Presidential Election?" Presented at the 2002 annual meeting of the Midwest Political Science Association, Chicago, Ill.
URL: *http://www.la.utexas.edu/depts/gov/papers/seth%5Fmid.pdf*

Neubauer, Michael G. and Joel Zeitlin. 2003. "Outcomes of Presidential Elections and the House Size." *PS: Political Science and Politics* 36:721–25.

Palfrey, Thomas R. 1989. "A Mathematical Proof of Duverger's Law." In *Models of Strategic Choice in Politics*, ed. Peter C. Ordershook. Ann Arbor, Mich.: University of Michigan Press. pp. 69–92.

Peterson, Geoff and J. Mark Wrighton. 1998. "Expressions of Distrust: Third-Party Voting and Cynicism in Government." *Political Behavior* 20:17–34.

Quinn, Kevin M., Andrew D. Martin and Andrew B. Whitford. 1999. "Voter Choice in Multi-Party Democracies: A Test of Competing Theories and Models." *American Journal of Political Science* 43:1231–47.

R Development Core Team. 2006. *R: A language and environment for statistical computing.* Vienna, Austria: R Foundation for Statistical Computing. ISBN 3-900051-07-0.
URL: *http://www.R-project.org*

Riker, William H. 1982a. *Liberalism Against Populism: A Confrontation Between the Theory of Democracy and the Theory of Social Choice.* San Francisco: W. H. Freeman.

Riker, William H. 1982b. "The Two-Party System and Duverger's Law: An Essay on the History of Political Science." *American Political Science Review* 76:753–66.

Riker, William H. and Peter C. Ordeshook. 1968. "A Theory of the Calculus of Voting." *American Political Science Review* 62:25–42.

Rosenstone, Steven J. 1983. *Forecasting Presidential Elections*. New Haven, Ct.: Yale University Press.

Rosenstone, Steven J., Donald R. Kinder, Warren E. Miller and the National Election Studies. 1999a. *American National Election Study, 1992: Pre- and Post-Election Survey (enhanced with 1990 and 1991 data) [Computer file]*. Ann Arbor, Mich.: University of Michigan, Center for Political Studies/Inter-university Consortium for Political and Social Research. ICPSR Study No. 6067.

Rosenstone, Steven J., Donald R. Kinder, Warren E. Miller and the National Election Studies. 1999b. *American National Election Study, 1996: Pre- and Post-Election Survey [Computer file]*. Ann Arbor, Mich.: University of Michigan, Center for Political Studies/Inter-university Consortium for Political and Social Research. ICPSR Study No. 6896.

Rosenstone, Steven J., Roy L. Behr and Edward H. Lazarus. 1996. *Third Parties in America: Citizen Response to Major Party Failure*. 2nd ed. Princeton, N.J.: Princeton University Press.

Schofield, Norman, Andrew D. Martin, Kevin M. Quinn and Andrew B. Whitford. 1998. "Multiparty Electoral Competition in the Netherlands and Germany: A Model Based on Multinomial Probit." *Public Choice* 97:257–93.

Shaw, Daron R. 1999. "The Methods behind the Madness: Presidential Electoral College Strategies, 1988–1996." *Journal of Politics* 61:893–913.

Smith, Charles E., Robert D. Brown, John M. Bruce and L. Marvin Overby. 1999. "Partisan Preferences in Two Institutional Dimensions: Policy Balancing and Voting for Congress in the 1996 National Elections." *American Journal of Political Science* 43:737–64.

Southwell, Priscilla L. 1991. "Open versus Closed Primaries: The Effect on Strategic Voting and Candidate Fortunes." *Social Science Quarterly* 72:789–96.

Southwell, Priscilla L. 2003. "The Politics of Alienation: Nonvoting and Support for Third-Party Candidates Among 18–30-year-olds." *Social Science Journal* 40:99–107.

Taagepera, Rein and Matthew Soberg Shugart. 1989. *Seats and Votes: The Effects and Determinants of Electoral Systems*. New Haven, Conn.: Yale University Press.

Taagepera, Rein and Matthew Soberg Shugart. 1993. "Predicting the Number of Parties: A Quantitative Model of Duverger's Mechanical Effect." *American Political Science Review* 87:455–64.

Tobin, J. 1958. "Estimation of relationships for limited dependent variables." *Econometrica* 26:24–36.

Van Buuren, S. and C.G.M Oudshoorn. 2005. *mice: Multivariate Imputation by Chained Equations*. R package version 1.14.
URL: *http://web.inter.nl.net/users/S.van.Buuren/mi/hmtl/mice.htm*

Wantchekon, Leonard. 1999. "Strategic Voting in Conditions of Political Instability: The 1994 Elections in El Salvador." *Comparative Political Studies* 32:810–34.

Whitten, Guy D. and Harvey D. Palmer. 1996. "Heightening Comparativists' Concern for Model Choice: Voting Behavior in Great Britain and the Netherlands." *American Journal of Political Science* 40:231–60.

Wilcox, Clyde and Mark J. Rozell, eds. 1997. *God at the Grass Roots, 1996: the Christian Right in the American elections*. Lanham, Md.: Rowman and Littlefield.

Wright, Gerald C. 1990. "Misreports of Vote Choice in the 1988 NES Senate Election Study." *Legislative Studies Quarterly* 15:543–63.

Wright, Gerald C. 1992. "Reported Versus Actual Vote: There Is a Difference and It Matters." *Legislative Studies Quarterly* 17:131–42.

Wright, Gerald C., Robert S. Erikson and John P. McIver. 1987. "Measuring State Partisanship and Ideology with Survey Data." *Journal of Politics* 47:469–89.

Yee, Thomas W. and C. J. Wild. 1996. "Vector generalized additive models." *Journal of the Royal Statistical Society, Series B (Methodological)* 58:481–93.