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Abstract

Based on recent work that suggests that voters in proportional representation (PR) systems have incentives to cast strategic votes, the authors hypothesize that levels of strategic voting are similar in both first-past-the-post (FPTP) and PR systems. Comparing vote intentions in majoritarian elections in the United States, Mexico, Britain, and Israel to PR elections in Israel and the Netherlands, the authors find that a substantial proportion of

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the voters desert their most preferred candidate or party and that patterns of strategic voting across FPTP and PR bear striking similarities. In every election, smaller parties tend to lose votes to major parties. Because there tend to be more small parties in PR systems, tactical voting is actually more common under PR than under FPTP. The findings suggest that whatever the electoral system, voters focus on the policy consequences of their behavior and which parties are likely to influence policy outcomes following the election.

Keywords

tactical voting, strategic scrutiny, proportional representation, rational choice, coalitions

Introduction

The social choice literature has examined the question of whether electoral systems provide opportunities for strategic behavior. The Gibbard-Satterthwaite theorem provides a clear answer (Gibbard, 1973; Satterthwaite, 1975). Only voting systems that meet the conditions of Arrow's theorem are strategy-proof (that is, immune from rational deviations from "sincere" voting).¹ Thus, because dictatorship is the only preference aggregation rule that satisfies Arrow's conditions, it is logically possible that strategic voting will be found in proportional representation (PR) systems much as strategic behavior is found in extensively examined first-past-the-post (FPTP) systems.

Until recently though, many scholars believed the incentives for strategic voting to be much weaker in PR systems, as even parties with the support of only a small fraction of the public will likely gain representation in the legislatures. Recent analyses (Adams, Merrill, & Grofman, 2005; Aldrich, Blais, Indridason, & Levine, 2005; Bargsted & Kedar, 2007; Cox, 1997; Kedar, 2005a, 2005b; Rosema, 2004) argue voters in PR systems face similar incentives to cast a strategic vote. Although the distinction between weak and strong candidates may not be as relevant a motivation as in FPTP systems, voters in PR systems may face additional incentives rooted in institutions beyond the electoral system. For example, the need to form a multiparty coalition government in PR systems creates incentives for voters to vote strategically (or tactically) for parties other than the one whose policies (or leadership) they most prefer.

The existence of strategic opportunities does not imply that voters will act on them. How many voters actually vote for parties other than their favorite is still an open question. No attempt has ever been made to systematically compare levels of strategic voting across FPTP and PR systems. In this article, we compare vote intentions in two “pure” PR systems, Israel and the Netherlands, to FPTP elections in the United States, Mexico, England, and Scotland, and a run-off election for the Israeli prime minister in 1999 to test whether strategic voting is really more prevalent in FPTP than PR systems. For each of these elections, we analyze preelection survey data about vote intentions (see appendix for details on surveys).

In sharp contrast with the view that voters face weak strategic incentives in PR systems, we find that a high number of voters intended to cast strategic votes in PR systems. Under both FPTP and PR, the largest parties win the votes of the vast majority of their supporters (as measured by the respondents who ranked the party the highest using a battery of feeling thermometers). Smaller third (or fourth) parties do not retain nearly as high a percentage of their supporters. Although the propensity of voters to desert their most favorite party appears similar in FPTP and PR system, the proliferation of small parties under PR, and the greater number of voters ranking small parties first, implies that strategic voting may be even more prevalent in PR systems than under FPTP.

Theoretical Considerations and Definitions of Key Terms

According to Duverger’s (1963) law, first-past-the-post electoral systems produce a two-party system. Duverger argued that this was the result of two effects produced by FPTP systems. First, the “mechanical factor” of FPTP systems allocates a disproportionate share of the legislative seats to large parties. Second, a “psychological factor” causes voters to strategically defect from their preferred candidate because of concerns that their votes will be wasted on a hopeless cause.

Consequently, one might expect FPTP systems to yield larger numbers of strategic deviations from the party that tops the voters’ preference rankings, or “direct” preference. The simplicity of FPTP makes it easy for voters to ascertain when casting a strategic vote would be worthwhile and what actions are strategically desirable.

In contrast to FPTP, legislatures elected via proportional representation systems can be designed to reflect minute changes in the share of the vote won by each party and to guarantee representation for all but the tiniest of

parties, obviating the mechanical factor. As a result, PR systems tend to have more parties, increasing the odds that voters will find a party able to gain representation that shares their policy preferences. Few votes are wasted. Therefore, scholars have often assumed that the psychological factor is largely absent in PR systems.

Contrary to the claim that the psychological factor, and therefore strategic voting, is largely absent under PR, Cox and Shugart (1996) find evidence of strategic voting in multimember districts using a variety of voting rules. However, Cox (1997) conjectures that the incentive to act strategically to influence representation more or less vanishes when district magnitude (M) is greater than five. He points out that in general, the question is whether the voter prefers the candidate he or she expects to place M th, which wins a seat, to the $M + 1$ th (runner-up) candidate. As district magnitude increases, the informational requirements placed on the voter become ever more unwieldy: The voter must have more accurate information about the expected vote share and understand how the expected results benefit the candidates competing for the last seat. This diminishes the likelihood that the voter will vote strategically to maximize the number of seats won by a party but does not preclude voting strategically for other reasons.

A common assumption in the literature on strategic voting is that instrumental voters are motivated by considerations of how their votes affect the policy outcome. In FPTP systems with single-party governments, these considerations are uncomplicated and directly related to representation. Under PR, Adams et al. (2005); Duch, May, and Armstrong (2007); and Kedar (2005b) argue that voters' preferences over policy outcomes induce a preference ranking of the parties. In PR, simply gaining representation may not give a party much influence over postelection policy making because parties outside of the governing coalition have little input into policy making. In countries where the norm is multiparty coalition governments, voters may consider the potential coalitions that may form, the bargaining power of parties in the policy-making process within the legislature or the governing coalition, and who is likely to lead the government. Cox (1997) describes one variation of this behavior as "portfolio maximizing" in contrast to "seat maximizing" behavior. Maximizing these considerations may lead a voter to cast a strategic vote for a party other than the one that best represents the voter's policy preferences.

These incentives are not exclusive to PR systems. A considerable literature, for example, investigates whether American voters actively seek to have divided government, where different parties control the different

institutions. A preference for the expected policy outcomes that result from divided government leads strategic voters to split their votes between parties (see e.g., Fiorina, 1992; Lacy & Paolino, 1998; Mebane, 2000). Likewise, German voters will split their ballots to ensure the participation of small party in a governing coalition (Gschwend, 2004).

It is useful at this point to clarify what we understand sincere and strategic voting to mean in this context. *Sincere voting* describes behavior in which the voter simply casts his or her vote for the party he or she most prefers, irrespective of any other considerations. Thus, the party's electoral prospects and the expected effect of the voter's choice on the outcome of the election do not factor into the voter's decision. *Strategic voting* on the other hand implies that the voter evaluates how his or her vote will influence the outcome and casts his or her vote so as to obtain as favorable an outcome as possible. Strategic votes depend on the strength of the voters' preferences for their first choice relative to their preferences for their second choice and voters' expectations about how each candidate (or party) will do in the election and the candidate's (or party's) subsequent ability to influence policy outcomes. Because we define sincere and strategic voting in terms of how the voter reaches a decision rather than what action he or she takes, his or her observed vote choice can be consistent with both sincere and strategic voting. Strategic party supporters may come to the conclusion, after due consideration of *both* their preferences and expectations, that their best choice is to support their favored party. Indeed, voting for one's favorite party should be a common conclusion, especially for those who most prefer the most popular parties.

The literature on strategic voting has often failed to appreciate the distinction between definitions of strategic voting in the formal theory literature and empirically observed strategic voting. To make this distinction clear in the remainder of the article we will use *strategic scrutiny* to refer to the assumption that voters consider how their vote choices influence policy outcomes and *tactical voting* to refer to instances in which a voter does not cast a vote for his or her most preferred candidate. In other words, we say voters vote tactically when their strategic considerations lead them to abandon their most preferred candidate.

Our definition of strategic scrutiny implies that more voters act strategically than most previous analyses that generally only focus on what we have termed *tactical voting* (see Alvarez & Nagler, 2000). Generally, tactical voters cast their vote for a candidate with a better chance of winning than their most preferred party because they perceive their chance of being pivotal to be greater. However, if we broadly understand strategic voters as

those who take into account the expected outcome of the election, then we include those voters whose sincere and tactical votes coincide.

According to this view, many strategic choices happen to be observationally equivalent to sincere voting, but they come about for different reasons, namely, the voters take account of the expected outcome in arriving at the decision of how to cast their votes. Farquaharson (1969) aptly calls this coincidence between sincere and strategic reasoning a “straightforward” choice because preferences and expectations point in the same direction. In a three-candidate race in FPTP, it follows that no less than two thirds of the electorate must face a straightforward choice because the top two contenders necessarily have the support of at least 66.7% of the electorate between them. Tactical voters can then be described as the subset of those voters who do not face a straightforward choice and act on incentives to cast a vote for someone other than their most preferred candidate.

In FPTP systems, *major parties* are the top vote getters in every election. Following American conventions, we call the smaller parties *third parties* but use the designation *fourth party* when there are three major parties or when we need to differentiate between small parties like the British Greens (who have never won a seat in Westminster) and somewhat larger parties like the Liberal Democrats (who are competitive with the major parties in some constituencies). In Israel, the Netherlands, and Scotland, the distinction between major parties and minor (third or fourth) parties is not as simple as in the United States and England because the competitiveness of individual parties tends to fluctuate and the major parties are not always the largest ones.² Generally, the analogous major parties under PR enjoy some combination of size and a location in policy space somewhere near the center of the political spectrum that enable them to seriously entertain ambitions of leading the government. For consistency and to make interelection comparisons clear, we treated a major party as such in every election even if its vote shares dropped in one election.

Note that strategic scrutiny does not imply that all those that prefer third (or fourth) parties will desert the party in favor of another party. A third-party supporter who is indifferent between the two major parties has no incentive to desert the third-party candidate, nor will a strategic voter defect if his or her vote is highly unlikely to influence the election outcome (or postelection bargaining).

In this article, we compare the number of voters who vote sincerely with those whose behavior conforms to strategic scrutiny. To consider the extent to which voters act sincerely, we compare voters' preferences for a

Table 1. Hypothetical Distribution of the Percentage of Respondents Who Intend to Cast Votes for Their Favorite Party or Candidate, Assuming Rational Voting (%)

A. Sincere Voting		Vote Intention for		
Highest Preference	Major Party 1	Major Party 2	Third Party	Total
Major Party 1	100	0	0	100
Major Party 2	0	100	0	100
Third party	0	0	100	100

B. Strategic Voting (Three Parties)		Vote Intention for		
Highest Preference	Major Party 1	Major Party 2	Third Party	Total
Major Party 1	100	0	0	100
Major Party 2	0	100	0	100
Third party	X	Y	100 – (X + Y)	100

C. Strategic Voting (Four Parties With Competitive Third Party)		Vote Intention for			
Highest Preference	Major Party 1	Major Party 2	Competitive Third Party	Fourth Party	Total
Major Party 1	100	0	0	0	100
Major Party 2	0	100	0	0	100
Competitive third party	0	0	100	0	100
Fourth party	X	Y	Z	100 – (X + Y + Z)	100

candidate or party with their intended vote. This is a common method that utilizes frequently available feeling thermometer data for the candidates (or parties) to create an individual-level ranking of each of the competitors. We assume that the candidate or party ranked the highest using the feeling thermometers is the respondent's *favorite candidate or party*. Sincere and straightforward voters intend to vote for their favorite option.

Table 1 shows the expected distribution of vote intentions under sincere voting behavior and strategic scrutiny for two- and three-way competitive elections (Niou, 2001; see also Kselman & Niou, 2005). If all respondents vote sincerely, all observations would fall on the main diagonal as in Table 1A. If however all respondents engage in strategic scrutiny, there would be 100% on the main diagonal for the Republican and Democratic Party nominees in the standard U.S. setting, whereas those who most preferred the third candidate would be scattered across the various columns (see Table 1B). The same logic applies to situations with three competitive alternatives. In these elections, the first three rows of the table would all have strategic voters voting straightforwardly and thus all choices falling on the main diagonal of the first three rows. Only in the fourth row are strategic and sincere voting not observationally equivalent (see Table 1C).

In the following analysis, we consider whether the assumption of strategic scrutiny is helpful in explaining patterns of vote intentions. In considering the assumption of strategic scrutiny, we use *apparent strategic scrutiny* to describe the observed pattern for three reasons. First, as we noted previously, at least two thirds of the electorate face straightforward choices and so most of the data cannot be used to address the question. Second, our evidence is exclusively preference based. These tables do not account for voters' expectations about the election outcome, which shape their incentives to vote strategically. Finally, following Niou (2001), we assume that tactical voting only involves deviations from minor parties to competitive parties.³ Thus, the questions we seek to answer are: first, what share of the vote can't be explained by sincere voting behavior but can potentially be explained by strategic voting and second, whether there are similarities in how useful the strategic scrutiny assumption is in explaining vote intentions across different electoral systems.

Evidence of Apparent Strategic Scrutiny in Vote Intentions

Majoritarian Systems (FPTP and Run-Off)

The American National Election Studies include preelection feeling thermometer and vote intention data for third-party candidates who won at least 2% of the vote in four elections: 1980, 1992, 1996, and 2000. We present these results in Tables 2A through 2D. These tables closely approximate the patterns presented in Table 1, at least if mentally adding in some

measurement error. We show that Niou's (2001) hypothesis is statistically supported in the following sense. Suppose we assume that the 95% of those who most preferred a Democrat or a Republican and voted for him is essentially the expected 100% with a modest level of measurement error (modest for survey data, at least). Because no major party candidate won less than 95.8% of the votes, the results satisfy the first part of the hypothesis—that strategic (as well as sincere) voters (nearly) always support their most preferred candidate if that candidate is the most or second most likely to win.

The third-party candidates won a much lower percentage of the votes of those respondents who most preferred them. Ross Perot in 1996 won the highest percentage, with 68.1% of his supporters' vote. In contrast, only 26.6% of the supporters of Ralph Nader intended to vote for Nader. More than half of Nader's supporters intended to vote for Al Gore.

We can next ask if the proportion that supports their most preferred party/candidate differs between the groups who most favor a major party/candidate and those who most favor the third party/candidate using a simple difference of proportions test. Not surprisingly, the difference between the percentage of supporters intending to vote for a major party candidate and the small percentage of supporters who intended to vote for a minor candidate was significant for every election at $p < .01$.

We can also ask the magnitude question more precisely, via an analogue of the proportionate reduction in error (PRE) measure. If everyone voted sincerely, every observation would fall on the main diagonal in Table 1. Thus, if we assume sincere voting, the number of observations in the off-diagonal cells tells us how many errors there are in the data. We can compute a similar number of errors for apparent strategic scrutiny by counting the observations in the off-diagonal cells of the first two rows in the 3×3 case or the first three rows in the 4×4 case but not the observations in the last row. The quantity of off-diagonal entries in the last row is a measure of success for apparent strategic scrutiny (or tactical voting) relative to sincere voting. We can then compute the PRE statistic as the ratio of the reduction in error in predictions between sincere voting and strategic scrutiny assumptions to the total number of errors in the sincere voting case. If apparent strategic scrutiny predicts no additional cases correctly, the PRE is 0%, but if all sincere errors fall in the off-diagonal cells of the last row, then the statistic is 100%. In Table 2A there are a total of 79 errors in the sincere voting case, 59 of which were consistent with apparent strategic scrutiny and tactical voting (i.e., in the off-diagonal cells of the third row), resulting in a PRE score of 74.7%. We conclude that the apparent strategic scrutiny

Table 2A. How Respondents Voted or Intended to Vote, by Favorite Candidate or Party, United States, Israel, Mexico, and Britain: U.S. Presidential Candidates, 1980

Highest Preference	Voted for			Total (%)	Number
	Carter (%)	Reagan (%)	Anderson (%)		
Carter	97.3	1.6	1.1	100.0	445
Reagan	1.2	98.1	0.7	100.0	410
Anderson	20.3	16.0	63.8	100.1	163

Source: 1980 American National Election Study, preelection interviews. Only includes respondents with strict highest preferences.

Table 2B. How Respondents Voted or Intended to Vote, by Favorite Candidate or Party, United States, Israel, Mexico, and Britain: U.S. Presidential Candidates, 1992

Highest Preference	Voted for			Total (%)	Number ^a
	Clinton (%)	Bush (%)	Perot (%)		
Clinton	99.2	0.6	0.2	100.0	735
Bush	3.9	95.8	0.3	100.0	597
Perot	30.7	13.8	55.6	100.1	241

Source: 1992 American National Election Study, preelection interviews. Only includes respondents with strict highest preferences.

^aWeighted sum.

Table 2C. How Respondents Voted or Intended to Vote, by Favorite Candidate or Party, United States, Israel, Mexico, and Britain: U.S. Presidential Candidates, 1996

Highest Preference	Voted for			Total (%)	Number ^a
	Clinton (%)	Bush (%)	Perot (%)		
Clinton	98.0	1.3	0.7	100.0	698
Bush	2.1	97.4	0.5	100.0	394
Perot	11.1	20.9	68.1	100.1	85

Source: 1996 American National Election Study, preelection interviews. Only includes respondents with strict highest preferences.

^aWeighted sum.

hypothesis gives a significantly and substantively better fit to the data than does the sincere voting hypothesis. Even stronger results are found in 1992

Table 2D. How Respondents Voted or Intended to Vote, by Favorite Candidate or Party, United States, Israel, Mexico, and Britain: U.S. Presidential Candidates, 2000

Highest Preference	Voted for			Total (%)	Number ^a
	Gore (%)	Bush (%)	Nader (%)		
Gore	96.2	3.8	0.0	100.0	372
Bush	2.5	97.2	0.3	100.0	363
Third party	56.2	17.1	26.6	99.9	131

Source: 2000 American National Election Study, preelection interviews. We excluded 2 respondents who intended to vote for Buchanan.

^aWeighted sum.

Table 2E. How Respondents Voted or Intended to Vote, by Favorite Candidate or Party, United States, Israel, Mexico, and Britain: Israeli Prime Minister Candidates, 1999

Highest Preference	Vote Intention for			Total (%)	Number
	Barak (%)	Netanyahu (%)	Mordechai (%)		
Barak	95.6	3.2	1.3	100.1	317
Netanyahu	5.3	94.3	0.4	100.0	247
Mordechai	15.9	8.5	75.6	100.0	82

Source: Israel Election Study, 1999. Jewish respondents only.

and 2000, with a PRE in 1992 of 77.5% and a PRE in 2000 of 80%. In 1996, the relatively high level of loyalty shown by supporters of all three candidates resulted in a PRE of 52.9%.

In Tables 2E through 2H we report the results for three additional races conducted in majoritarian systems, the Israeli prime ministerial contest of 1999 (majority run-off), the Mexican presidential election of 2000 (FPTP), and the British legislative election of 2005 (FPTP).⁴ These cases give us another example of a three-candidate race with only two strong candidates, a case with three candidates who appeared to have a chance of winning, and two cases with more than three parties.

The first case, the 1999 Israeli race for prime minister was, in principle, a run-off contest. If no candidate received a majority in the first round, the top two contenders would meet in a second round. The prime minister race had three serious contenders: Yitzhak Mordechai (Center Party), Ehud

Table 2F. How Respondents Voted or Intended to Vote, by Favorite Candidate or Party, United States, Israel, Mexico, and Britain: Mexican Presidential Candidates, 2000

Highest Preference	Vote Intention for			Total (%)	Number
	Fox (%)	Labastida (%)	Cardenas (%)		
Fox	90.0	7.2	2.9	100.0	279
Labastida	6.7	89.6	3.7	100.0	268
Cárdenas	8.2	9.1	82.7	100.0	110

Source: Mexican Election Panel Study.

Barak (Labor), and Benjamin Netanyahu (Likud). As we would expect for an essentially pure FPTP system with clear front-runners, the pattern in Table 2E looks very much like the pattern from the United States. Only a few who most preferred the major parties' candidates planned to vote for someone else. A good many more, a full quarter of those who most preferred Mordechai, planned to "defect" and vote for another candidate. This difference in proportions is statistically significant, with a PRE of 41%. Evidence reported in Abramson et al. (2004) indicates that those interviewed in the second half of the surveying period defected from Mordechai in very high proportions, and indeed such polling results served as the impetus for Mordechai to withdraw on the eve of the election.

In Mexico in 2000, there were three presidential candidates. Unlike in the United States, there was no clear consensus among Mexican respondents in the last preelection wave of the 2000 Mexican Election Panel study about who would win. Most voters pegged Vicente Fox of the moderately conservative Partido Acción Nacional (PAN) or Francisco Labastida of the Partido Revolucionario Institucional (PRI), the long-time ruling party, as the favorite, but less than 20% thought that *both* Fox and Labastida had a better chance of winning than Cuauhtémoc Cárdenas of the Partido de la Revolución Democrática (PRD), on the left.⁵ Almost 90% of those who preferred the two leading candidates intended to vote for them (see Table 2F), which is a slightly lower percentage than we observed in the United States and Israel. Given that nearly 8 in 10 thought that Cárdenas had at least as good a chance of winning as one of the other two candidates, we would expect the uncertainty about the outcome to greatly attenuate the incentives to defect from one's favored choice. Indeed, almost 83% of those

Table 2G. How Respondents Voted or Intended to Vote, by Favorite Candidate or Party, United States, Israel, Mexico, and Britain: British Parliamentary Election 2005, England

Highest Preference	Labour (%)	Conservatives (%)	Vote Intention for				Total (%)	Number
			Liberal Democrats (%)	Same Fourth (%)	Other Fourth (%)			
Labour	92.7	2.6	4.7	—	0.0	100.0	383	
Conservatives	2.3	95.4	1.6	—	0.8	100.1	388	
Liberal Democrats	10.0	10.5	78.4	—	1.1	100.0	190	
Fourth party	32.6	18.4	27.7	21.3	0.0	100.0	141	

Source: British Election Study, 2005.

Fourth includes Greens and UK Independence Party. We include English respondents who had already decided how to vote or said they were leaning toward voting for some party. We exclude respondents who intended to vote for parties for which we did not have feeling thermometer data.

Table 2H. How Respondents Voted or Intended to Vote, by Favorite Candidate or Party, United States, Israel, Mexico, and Britain: British Parliamentary Election 2005, Scotland

Highest Preference	Vote Intention for					Total (%)	Number
	Labour (%)	Conservatives (%)	Scottish National Party (%)	Liberal Democrats (%)	Greens (%)		
Labour	96.8	0.9	1.8	0.5	0.0	100.0	221
Conservatives	0.0	97.3	2.7	0.0	0.0	100.0	74
Scottish National Party	11.1	3.7	82.4	2.8	0.0	100.0	108
Liberal Democrats	12.3	3.5	3.5	80.7	0.0	100.0	53
Greens	42.2	22.9	7.2	18.1	9.6	100.0	83

Source: British Election Study, 2005.

Includes respondents who rated the Scottish National Party and who had already decided how to vote or said they were leaning toward voting for some party. We exclude respondents who intended to vote for parties for which we did not have feeling thermometer data.

who liked Cárdenas best intended to vote for him, much more than the percentage of third-party supporters who intended to vote for their favorite candidate in the United States.⁶ Because there were almost as many defections from the major candidates as there were from the third candidate, the PRE analogue is a much lower 25%.

The 2005 British legislative elections were contested by the usual two major parties (the Labour Party and the Conservatives), a significant third party (the Liberal Democrats), a couple of smaller fourth parties (the Greens and the United Kingdom Independence Party), as well as several regional parties. Although only the Labour and Conservative parties can be considered the competitive parties at the national level, the Liberal Democrats are nevertheless competitive in some constituencies and won 62 seats. We therefore present the vote intentions of voters who most favored the Liberal Democrats and the fourth parties separately. Because the Liberal Democrats are competitive in relatively few constituencies, our expectation remains that Labour and Conservative supporters predominantly vote straightforwardly for their most preferred party while all others are more likely to defect to one of the front-runners.⁷ We examine the Scottish respondents from the same survey separately. The Scottish National Party (SNP) is quite popular and is a serious contender for winning seats to the national parliament. We also consider this (at least at the national level) as an instance of the 3×3 case, but have listed all five parties rated.

In England, the Labour and Conservative parties held on to very high percentages of those who most preferred them while the Liberal Democrats held on to “only” 78% of those who most preferred them (see Table 2G). Fourth parties (Greens and UK Independence) fared poorly, as only 21% of those who ranked these parties the highest intended to vote for the party.

The results for Scotland are also largely in line with our expectations with the exception of the Conservative party, which, despite coming in third or lower in each election since 1997, managed to hold on to 97% of the voters who most preferred the party. Relative to Labour and the Conservatives, the SNP and the Liberal Democrats suffered from defections (see Table 2H). The Greens failed to even hold on to 10% of their supporters. One potential explanation for these patterns is that the identity of the two front-runners varies considerably more across constituencies in Scotland than in England. Moreover, the total number of constituencies in Scotland was reduced from 72 to 59, so that there was a substantial change in constituency boundaries between the 2001 and 2005 general elections, which might create additional uncertainty in voter expectations. However, in both England and Scotland, the PREs are fairly substantial (56% and

62%, respectively) and the differences in proportions tests between sincere voting and apparently strategic scrutiny are statistically significant.⁸

PR Systems

The Netherlands and Israel employ a form of PR where the entire country is one district ($M = 150$ and 120 , respectively) and the threshold of representation is low. If voters are only interested in seat maximization, we should not expect similar patterns of strategic scrutiny in these countries. Tables 3A through 3F report the proportion of voters who voted for their most preferred party in five PR elections, treating these cases akin to FPTP. The cases for comparison are the 1999, 2003, and 2006 Israeli Knesset elections and the 1998, 2002, and 2006 Dutch elections. As in the previous tables, we consider each of the large, major parties separately while grouping the small parties together. For purposes of comparison to the FPTP cases, the only tactical choices we consider involve defecting from a minor party to a major party. In this way, we compare only like behavior to see if the different systems yield similarities.

The 1999 Knesset vote occurred simultaneously with the vote for prime minister discussed previously. For the 1999 Knesset vote, we observed preferences for five parties: Barak's Labor Party, Netanyahu's Likud Party, Mordechai's Center Party, left-wing Meretz, and a religious party, Shas.⁹ In 2003, we observe preferences for eight parties including Labor and Likud. In 2006, the emergence of Ariel Sharon's Kadima party obliges us to present the case as a 4×4 table with three major parties.¹⁰ In 2006, we have feeling thermometer data for four additional small parties.

There is sufficient variation across the three elections to warrant presenting each of the results separately. In Table 3A, we present the results from cross-tabulating the party preferences and the voting intention in 1999. More than 93% of the supporters of Labor and Likud intended to vote for their favorite party. Only 61.3% of those who ranked Center, Meretz, and Shas highest intended to vote for that party.¹¹ The high levels of defections from the third parties make these results look much like the results for the FPTP elections. The difference in proportions of defecting from the most preferred party is statistically significant. The proportional reduction of errors between sincere voting and strategic voting is 50.8%.

Concerned that the direct election of the prime minister only encouraged voters to cast votes for small parties, Israel eliminated these elections, and the last prime ministerial election was held in 2001 (Kenig, Rahat, & Hazan, 2005). Ironically, in the next election, the rate of defection from Labor and

Table 3A. Percentage of Respondents Who Intend to Cast Votes for Their Favorite Party: Preferences and Choice—Israeli Knesset Parties, 1999

Highest Preference	One Israel (%)	Likud (%)	Same Third (%)	Other Third (%)	Total (%)	Number
One Israel	94.7	1.9	—	3.4	100.0	207
Likud	1.8	93.6	—	4.6	100.0	218
Third ^a	27.5	7.5	61.3	3.8	100.0	83

Source: Israel Election Study, 1999.

Table excludes respondents who intended to vote for some party other than the five parties for which we have feeling thermometer data. Only includes Jewish respondents with strict highest preferences.

^aThird includes the two other parties rated using feeling thermometers, Center, Meretz, and Shas. We treat the thermometer for Shas’s party leader, Aryeh Deri, as a proxy for the party.

Table 3B. Percentage of Respondents Who Intend to Cast Votes for Their Favorite Party: Preferences and Choice—Israeli Knesset Parties, 2003

Highest Preference	Labor (%)	Likud (%)	Vote Intention for		Total (%)	Number
			Same Third (%)	Other Third (%)		
Labor	81.9	5.3	—	12.8	100.0	94
Likud	2.2	90.2	—	7.7	100.0	183
Third ^a	8.0	15.2	72.5	4.3	100.0	349

Source: Israel Election Study, 2003.

Only includes Jewish respondents who intended to vote for one of the parties for which we have feeling thermometer data and those with strict highest preferences.

^aThird includes the other six parties rated using feeling thermometers: Meretz, Mafdal, Shinui, Ihud Leuni, Shas, and Yisrael B’Aliya.

Likud rose. In 2003, Labor and Likud held onto 81.9% and 90.2% of their support, respectively (see Table 3B). Those who most favored one of the remaining parties held on to 72.5%. Likud was the recipient of most of these defections. Aldrich et al. (2005) argue that many of the defections were strategic attempts to influence an expected Likud-led coalition. The PRE analogue for this pattern is 61.7%.¹²

As we noted previously, there were three major parties in 2006, as Labor and Likud trailed the newly formed Kadima Party in the polls. In Table 3C, we see a familiar pattern, in which the three major parties held on to more

Table 3C. Percentage of Respondents Who Intend to Cast Votes for Their Favorite Party: Preferences and Choice—Israeli Knesset Parties, 2006

Highest Preference	Vote Intention for						Total (%)	Number
	Kadima (%)	Labor (%)	Likud (%)	Same Fourth (%)	Other Fourth (%)			
Kadima	93.1	3.0	1.8	—	2.1	100.0	332	
Labor	0.7	96.4	0.7	—	2.2	100.0	137	
Likud	2.7	0.0	92.9	—	4.4	100.0	113	
Fourth ^a	3.6	6.9	6.4	79.7	3.4	100.0	360	

Source: Israeli Election Study, 2006. Jewish respondents only.

^aFourth includes the other six parties rated using feeling thermometers: Meretz, Ihud Leumi-Mafdal, Yisrael Beitenu, and Shas.

than 93% of those who favored them while less than 80% of those who most preferred another party reported voting for it. This difference is statistically significant, with a PRE score of 55.8%.

In the three Dutch Parliamentary elections in our analysis, there are three large parties: the Partij van de Arbeid (Labour Party or PvdA), the liberal Volkspartij voor Vrijheid en Democratie (People's Party for Freedom and Democracy or VVD), and the Christen Democratisch Appèl (Christian Democratic Appeal or CDA). Over the past 30 years, two of these three parties have ruled together in a coalition government, often with a smaller party, but the VVD has never been the largest party nor supplied the prime minister. The data on voter preferences are very rich for 1998 and 2002 because the Dutch Parliamentary Election Studies include feeling thermometer data for all of the parties that won seats in either election, plus two parties in 1998 that failed to cross the threshold. In 2006, the survey included thermometers for six parties.

The results from the Dutch election studies are also consistent with our expectations. We present results from 1998 election in Table 3D, the results from the following election in 2002 in Table 3E, and the results from 2006 in Table 3F (there was no preelection survey in 2003). In each election, about 95% of those who ranked the CDA the highest on the thermometers intended to vote for their favorite party. The other two parties did not consistently retain their supporters' votes under very different circumstances. In 1998, only 86.8% of the PvdA's supporters intended to vote for the PvdA even though the party won 8 more seats in that election compared to the

Table 3D. Percentage of Respondents Who Intend to Cast Votes for Their Favorite Party: Preferences and Choice—Netherlands Tweede Kamer Election, 1998

Highest Preference	Vote Intention for						Total (%)	Number
	PvdA (%)	CDA (%)	VVD (%)	Same Fourth (%)	Other Fourth (%)			
PvdA	86.8	6.0	4.0	—	3.3	100.0	151	
CDA	2.9	96.1	0.0	—	1.0	100.0	102	
VVD	0.0	1.5	97.0	—	1.5	100.0	135	
Fourth ^a	11.1	6.7	6.2	69.8	14.2	100.0	225	

Source: Dutch Parliamentary Election Study, 1998.

PvdA = Partij van de Arbeid (Labour Party); CDA = Christen Democratisch Appèl (Christian Democratic Appeal); VVD = Volkspartij voor Vrijheid en Democratie (People's Party for Freedom and Democracy).

^aFourth includes all other parties that won seats: D66, GroenLinks, SGP, GPV, RPF, and SP, as well as two others included on the feeling thermometer scores, Centrumdemocraten and AOV. We exclude respondents who were undecided or who planned to vote for a party not evaluated with the thermometer scores.

Table 3E. Percentage of Respondents Who Intend to Cast Votes for Their Favorite Party: Preferences and Choice—Netherlands Tweede Kamer Election 2002

Highest Preference	Vote Intention for						Total (%)	Number
	PvdA (%)	CDA (%)	VVD (%)	Same Fourth (%)	Other Fourth (%)			
PvdA	93.1	1.4	0.7	—	4.9	99.9%	144	
CDA	1.0	95.9	1	—	2	100.0	193	
VVD	0.8	4.2	88.3	—	6.7	100.0	120	
Fourth ^a	6.9	8.2	3.6	74.6	6.7	100.1	449	

Source: Dutch Parliamentary Election Study, 2002.

PvdA = Partij van de Arbeid (Labour Party); CDA = Christen Democratisch Appèl (Christian Democratic Appeal); VVD = Volkspartij voor Vrijheid en Democratie (People's Party for Freedom and Democracy).

^aFourth includes Democrats 66 (D66), GroenLinks, and Pim Fortuyn. We exclude undecided respondents as well as those who plan to vote for a party not evaluated with the thermometer scores.

Table 3F. Percentage of Respondents Who Intend to Cast Votes for Their Favorite Party: Preferences and Choice—Netherlands Tweede Kamer Election 2006

Highest Preference	Vote Intention for			Same Fourth (%)	Other Fourth (%)	Total (%)	Number
	PvdA (%)	CDA (%)	VVD (%)				
PvdA	92.5	2.4	0	—	5.2	100.1	212
CDA	0.4	94.7	4.1	—	0.8	100.0	247
VVD	0.8	0.8	95.8	—	2.5	100.0	119
Fourth*	11.9	11.4	4.6	66.2	5.9	100.0	219

Source: Dutch Parliamentary Election Study, 2006.

PvdA = Partij van de Arbeid (Labour Party); CDA = Christen Democratisch Appèl (Christian Democratic Appeal); VVD = Volkspartij voor Vrijheid en Democratie (People's Party for Freedom and Democracy).

*Fourth includes Democrats 66 (D66), GroenLinks, and Socialist Party (SP). We exclude undecided respondents as well as those who plan to vote for a party not evaluated with the thermometer scores.

previous parliament. In 2002 and 2006, this percentage rose to 93.1% and 92.5%, respectively, even as the party lost seats compared to the previous parliament. In 1998, 97% of the supporters of the VVD intended to vote for the VVD. In 2002, only 88% of those who most preferred the VVD intended to vote for the party in an election that saw the VVD lose 14 seats. The low percentage of supporters won by the VVD in 2002 was still higher than the percentage of respondents who preferred a fourth party and also intended to vote for that party. In 1998, 69.8% of these respondents intended to vote for the party they most preferred. In 2002, the percentage rose to 74.6%. In 2006, about the same percentage of supporters of two of the three fourth parties for which we have data, the Socialist Party (SP; the third largest party in the Tweede Kamer in that election, 72.4%) and the GroenLinks (74.2%), intended to vote for their favorite party. The third party, Democrats 66 (D66), won only 3% of the vote after less than 10% of the party's supporters actually intended to cast a vote for the party, causing the overall percentage to decline to 66.2%. The PRE in 1998 was 56.3%, 57.5% in 2002, and 56.5% in 2006.

Summary of Results

A comparison of the patterns of voting intentions in FPTP systems (Tables 2A-2H) and in PR systems (Tables 3A-3F) reveals strong similarities. First,

the major parties in both types of systems are highly successful in holding onto those voters who most prefer the party. There are of course differences in what constitutes a major party in each type of system. Although there is no well-defined criteria for determining which parties are considered major parties on those terms, the results are unambiguous: Certain, usually larger, parties are successful in holding onto their supporters.

Second, voters who prefer minor parties are relatively more likely to defect and vote for one of the major parties in both FPTP and PR systems. As a result, we find a similar proportional reduction in errors across many elections conducted using different electoral rules and under varying electoral circumstances and fortunes. Arguably, there is considerable variance in the percentage of minor party supporters who stick with their most preferred party. Defections badly hurt the smallest parties with dispersed support in England and Scotland. However, our data also indicate that the desertion rates do not depend much on the type of system, as between 60% and 80% of many third- or fourth-party supporters in Israel, the Netherlands, the United States, and Britain intended to vote for their favorite party (see Table 4). In Mexico, where the third party was seen as having a chance of finishing in the top two, we observe the highest percentage of supporters intending to cast votes for that party. Consequently, we also observe the lowest PRE for Mexico.

These observations have an interesting implication for our understanding of how institutions influence voting behavior. Because PR elections are generally contested by more parties, the expected policy distance between a voter and the party that best represents his or her policy preferences will, other things being equal, be smaller. That party is also less likely to be one of the major parties. Thus, the number of voters that most prefer a minor party will generally be larger, and thus, the set of voters who may have an incentive to defect from their preferred party will be larger. Because our data indicate that the defection rates to large parties across the two systems are fairly similar, we can conclude that more voters vote tactically in PR systems than in FPTP systems. This is reflected in the higher PRE statistics for PR systems.

Conclusion

In conclusion, we find that the sincere voting hypothesis does a poor job of predicting the intended vote of voters who most prefer third parties and that these defections are apparently consistent with the strategic scrutiny

Table 4. Summary of Results

	Percentage of Those Who Ranked Voter Highest on Feeling Thermometer Who Also Voted For Favorite . . .			Proportionate Reduction in Error
	Major Parties	Third Party	Fourth Parties ^a	
First-Past-the-Post (FPTP)				
United States 1980	97.3, 98.1	63.8		74.7
United States 1992	99.2, 95.8	55.6		77.5
United States 1996	98.0, 97.4	68.1		52.9
United States 2000	96.2, 97.2	26.6		80.0
Israel 1999	95.6, 94.3	75.6		41.4
Mexico	89.6, 90.0	82.7		25.3
England	92.7, 95.4	78.4	21.3	56.0
Scotland	96.8, 97.3	80.7, 82.4	9.6	62.0
Proportional Representation (PR)				
Israel 1999	93.6, 94.7	61.3		51.0
Israel 2003	81.9, 90.2	72.5		61.8
Israel 2006	92.9, 93.1, 96.4		79.7	55.8
Netherlands 1998	86.8, 96.1, 97.0		69.8	56.2
Netherlands 2002	88.3, 93.1, 95.9		74.6	57.4
Netherlands 2006	92.5, 94.7, 95.8		66.2	56.5

Source: Tables 2 and 3.

^a*Fourth parties* refers to minor parties in elections with three major parties (Israel in 2006 and the two Dutch elections) and to differentiate between regional or semicompetitive third parties in the United Kingdom (like the Liberal Democrats) and noncompetitive parties like the Greens.

assumption. An even more interesting and striking aspect of our findings is that there is very little difference in these patterns of defections across the different electoral systems. Indeed, they are barely distinguishable by our measures. That is, strategic considerations are just as valuable for understanding the patterns in PR as in the FPTP elections.

We can only speculate as to what motivates tactical voters in PR systems. Indridason (2008) offers a formal model that highlights the three types of incentives voters face when policy choices are made by postelectoral coalitions. First, voters have an incentive to vote for parties that are likely to be included in the governing coalition as votes for coalition parties have greater impact on policy outcomes. This incentive corresponds to the notion of voters as “portfolio maximizers” (Aldrich et al., 2005; Bargsted & Kedar,

2007; Blais, Loewen, & Bodet, 2004; Bowler, Donovan, & Karp, 2007; Cox, 1997; Meffert & Gschwend, 2007; Rosema, 2004). Second, voters have an incentive to influence the identity of the formateur because the formateur influences which coalition forms. The formateur party may also enjoy disproportionately more cabinet and policy clout relative to the size of the party (Ansolabehere, Snyder, Strauss, & Ting, 2005). Third, given a government coalition, voters have an incentive to vote for a coalition partner that is more extreme than they are themselves to pull the policy outcome closer to their preferred policy (Kedar, 2005b).

Another factor that appears to facilitate tactical behavior is that the circumstances under which a voter might consider voting for a party other than his or her favorite may be broader and less dramatic when there are many parties (such as is common under PR) and more than one party may be an acceptable option (Arian & Shamir, 2002; Gschwend & Hooghe, 2008; Tillie, 1995). When choosing among several desirable parties, voters who pursue portfolio maximizing or policy balancing strategies may support a small party instead of their favorite if the party is likely to be included in the governing coalition (see Aldrich et al., 2005). If this is the case, then even some of the voting behavior that we treat as either sincere or strategic, and therefore do not factor into the PRE analogue we report previously, may indeed be the product of strategic scrutiny.

Future scholarship should focus on understanding what causes strategic voting. The high rate of defections from some small parties without geographic concentrations of support in both Britain and the United States indicates that it would be premature to dismiss Duverger's (1963) observation that there is a psychological effect that leads to concerns that votes will be wasted. However, the similarities between the elections across the different systems indicate that Duverger's observation should not be treated as necessary or sufficient for the establishment of a two-party system.¹³

The next step would appear to be for scholars to turn their attention to a comparison of voter expectations that may buttress the psychological factor. In this article, we only used data about voter preferences. With data about expectations for both parties and postelection coalition considerations, scholars can test models that might explain the behavior we have described in both systems. Sadly, cross-national data about such expectations are difficult to come by despite their potential contribution to our understanding of how electoral systems shape voting behavior. Fortunately, there will always be another election in each of the countries we have examined, so perhaps future election studies will include a battery of expectations along with the data on preferences we analyze here.

Appendix

Information About the American, Israeli, British, Mexican, and Dutch Surveys

American National Election Studies

Burns, N., Kinder, D. R., Rosenstone, S. J., & Sapiro, V. American National Election Study, 2000. The preelection survey was in the field starting on September 5, 2000, and consisted of 1,006 face-to-face interviews and 801 telephone interviews.

Rosenstone, S. J., Kinder, D. R., Miller, W. E., & the National Election Studies. American National Election Study, 1996: Pre- and Post-Election Survey. This study included 1,316 interviews conducted with empanelled respondents who had been interviewed in 1992 and/or 1994 and 398 new respondents.

Miller, W. E., Kinder, D. R., & Rosenstone, S. J. American National Election Study, 1992: Pre- and Post-Election Survey (Enhanced With 1990 and 1991 Data). Includes 2,485 respondents from the 1992 Pre- and Post-Election Surveys; 1,359 individuals of whom also participated in the 1990 Post-Election survey (ICPSR 9548) or in the 1991 Political Consequences of War Survey (ICPSR 9673), or both.

Miller, W. E., & the National Election Studies/Center for Political Studies. American National Election Study, 1980. The data are available at <http://www.electionstudies.org>.

British Election Study, 2005

David J. S., Whiteley, P. F., Clarke, H. D., & Stewart, M. British Election Study 2005. The precampaign 2005 British Election Study used face-to-face interviews using a sample of people 18 years of age or older drawn from the British postcode address file. There was a booster sample for Wales and Scotland. Fieldwork was conducted by the National Centre for Social Research (NATCEN) under the supervision of Research Director Katarina Thomson. The *N* for the precampaign survey is 3,589. Data and questionnaires are available at <http://www.essex.ac.uk/bes/>.

Dutch Parliamentary Election Studies

Aarts, K., van der Kolk, H., & Kamp, M. Dutch Parliamentary Election Study, 1998, ICPSR version, 1999. The preelection wave of face-to-face

interviews was conducted from March 30 through May 5, 1998, before the May 6 election to the Netherlands Second Chamber of Parliament (Tweede Kamer). Fieldwork was carried out by the Institute of Applied Social Research at the University of Nijmegen under the supervision of Aarts, van der Kolk, and Kamp. The research was conducted under the auspices of the Dutch Electoral Research Foundation SKON (Stichting Kiezersonderzoek Nederland). Respondents were selected using a multi-stage sampling to select 4,207 adults among whom 2,101 completed the interviewer.

Irwin, G., Holsteyn, J. J. M., & den Ridder, J. M. Dutch Parliamentary Election Study, 2002/3 (Amsterdam). The respondents were selected using a multistage sampling procedure of 4,207 adults. Of respondents, 2,101 completed Netherlands: Dutch Electoral Research Foundation (SKON), 2003. The Dutch Parliamentary Election Study 2002-2003 conducted face-to-face interviews with 1,907 respondents between April 18, 2002, and May 14, 2002, before the election on May 15, 2003. The interviews were conducted by TNS-NIPO under the supervision of an academic consortium, the Foundation for Electoral Research in the Netherlands (Stichting Kiezersonderzoek Nederland).

Aarts, K., van der Kolk, H., Rosema, M., & Brinkman, M. Dutch Parliamentary Election Study 2006 (Amsterdam; Dutch Electoral Research Foundation, SKON, and the Centraal Bureau voor de Statistiek, CBS). More than 90% of the 2,806 interviews were conducted face to face in October and November 2006. About 5% were conducted by telephone and a small percentage by mail. Data and questionnaires are available at the Nationaal Kiezersonderzoek (Dutch Parliamentary Electoral Studies) Web site: <http://www.dpes.nl/> or <http://easy.dans.knaw.nl>.

Israel Election Studies

Arian, A., & Shamir, M. Israel Election Study, 1999, ICPSR version, 2001. The preelection wave of the 1999 Israel Election Study was fielded prior to the elections held on May 17, 1999. Face-to-face interviews were conducted by Mahshov, a private research institute, on a representative sample of the population ($N = 1,225$) between April 4, 1999, and May 14, 1999.

Arian, A., & Shamir, M. Israel Election Study, 2003. Haifa, Israel: Asher Arian/Tel-Aviv, Israel: M. Shamir. Jerusalem, Israel: Hebrew University, Israel Social Sciences Data Center). The 2003 Israel Election Study consists of a total of 1,234 telephone interviews in Hebrew, Russian, and Arabic performed between January 12, 2003, and January 25, 2003. The study was

directed by Arian and Shamir. The study was conducted by Mahshov, a private research institute, using a representative sample of the adult population.

Arian, A., & Shamir, M. *Israel Election Study, 2006* (Haifa, Israel: Asher Arian/Tel-Aviv, Israel: Michal Shamir [producers]. Jerusalem, Israel: Hebrew University, Israel Social Sciences Data Center). The 2006 Israel Election Study was conducted between February 28, 2006, and March 23, 2006. Mahshov research institute carried out the fieldwork using Hebrew, Russian, and Arabic telephone interviews ($N = 1,919$). The data are available from the Israel Social Sciences Data Center at the Hebrew University of Jerusalem, <http://isdc.huji.ac.il>.

Mexican Election Panel Study, 2000

Lawson, C., Basáñez, M., Camp, R., Cornelius, W. A., Domínguez, J., Estevez, F., et al. The 2000 Mexican Election Panel Study consists of five separate surveys conducted over the course of the campaign and following the election, using a hybrid panel/cross-sectional design. We use data from the last preelection wave, interviewed from June 2 to June 18. There were 976 respondents in this wave, all of whom answered the question about their vote intention. No more than 914 provided feeling thermometer data. The data were collected through personal interviews using participants randomly selected from the universe of noninstitutionalized adult residents aged 18 and older. Data are available at ICPSR (<http://www.icpsr.umich.edu>), Study Number 3380.

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The authors declared that they had no conflicts of interests with respect to their authorship or the publication of this article.

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Notes

1. The result also assumes that the outcome is not chosen at random.
2. In two of the Tweede Kamer elections, a “fourth” party won more votes than one of the major parties. In 2002, List PIM Fortuyn won more votes than the party of the incumbent prime minister (Partij van de Arbeid; Labour Party or PvdA) and Volkspartij voor Vrijheid en Democratie (VVD). In 2006, the Socialist Party (SP) won more votes than the VVD. In the 2006 Knesset election, Shas won more votes than the Likud.
3. We urge readers to recognize that this is an assumption that potentially ignores certain types of policy-balancing strategic behavior and strategic voters who wish to ensure some political pay-off short of a victory (e.g., earning enough voters to qualify for a spot on the ballot in the next election). Cox and Shugart (1996) find that deviations from weak to strong were much more common than the reverse.
4. Information about the surveys is in the appendix. We only used preelection data because postelection data can inflate levels of support for tactical voting (Alvarez & Nagler, 2000; but see Abramson, Aldrich, & Rohde, 2003).
5. On a scale running from 0 to 10, the mean estimates for Fox and Labastida were 6.4 and 7.0. The average expectation for Cárdenas was significantly smaller and the proportion of voters was 4.7, significantly lower than for the other candidates but much higher than for many hapless third-party or independent candidacies in the United States. The survey did not collect feeling thermometer data for the three other registered candidates.
6. The proportion of sincere or straightforward voting for Cárdenas was significantly smaller than the proportion of voters who intended to cast sincere or straightforward voters for the major candidates at the $p < .05$ (one-tailed test).
7. The Liberal Democrats should experience fewer defections where the party is competitive. There is limited evidence that there are some constituencies where Conservatives may have voted for Liberal Democrats to prevent a Labour candidate from winning (see Curtice, Fisher, & Steed, 2005).
8. Treating the cases as having a different number of major parties does not change the substantive significance of the results. If we treat England as having only two major parties, then by coincidence, the proportionate reduction in error (PRE) is unchanged. If we treat Scotland as having the same two major parties, the PRE rises to 69.0%. If we treat the Scottish National Party (SNP) and the Liberal Democrats as major parties, the PRE is 66.2%.
9. Labor ran under the banner “One Israel” with two small parties in 1999. We used a feeling thermometer for Shas’s charismatic party leader, Rabbi Aryeh Deri, as a proxy for affect toward the party.
10. Even though we treat Labor and Likud as major parties in each of these elections, voters may not have been confident that they would be the top two parties. In 1999, Shas nearly eclipsed Likud. In 2003, Shinui won nearly as many seats as Labor, and we find that 27% of Jewish

Israelis did not expect Labor and Likud to be the largest parties and thus could rationally have decided to vote for whatever "third" party they thought might be among the front-runners. In 2006, Shas won 17,000 more votes than Likud. However, even when winning more votes than a major party, these "third" parties never win the votes of 90% of those who prefer them to all other parties. For example, in 2006, 83% of Shas supporters tended to vote for the party.

11. There is little variation among these three parties in the percentage of supporters who voted sincerely.
12. The one-tailed difference in proportions is statistically significant at the .05 level for 2003. All other years are significant at the .01 level.
13. It is still possible to conceive of Duverger's (1963) law without the psychological factor by emphasizing elite-level decisions to abandon hopeless candidacies (see Riker, 1982).

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