# Did Ralph Nader Spoil a Gore Presidency?
# A Ballot-Level Study of Green and Reform Party Voters
# in the 2000 Presidential Election[1]

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**Abstract**

The 2000 presidential race included two major party candidates—Republican George W. Bush and Democrat Al Gore—and two prominent third party candidates—Ralph Nader of the Green Party and Pat Buchanan of the Reform Party. While it is often presumed that Nader spoiled the 2000 election for Gore by siphoning away votes that would have been cast for him in the absence of a Nader candidacy, we show that this presumption is rather misleading. While Nader voters in 2000 were somewhat pro-Democrat and Buchanan voters correspondingly pro-Republican, both types of voters were surprisingly close to being partisan centrists. Indeed, we show that at least 40% of Nader voters in the key state of Florida would have voted for Bush, as opposed to Gore, had they turned out in a Nader-less election. The other 60% did indeed spoil the 2000 presidential election for Gore but only because of highly idiosyncratic circumstances, namely, Florida's extreme closeness. Our results are based on studying over 46 million vote choices cast on approximately three million ballots from across Florida in 2000. More generally, the results demonstrate how ballot studies are capable of illuminating aspects of third party presidential voters that are otherwise beyond scrutiny.

When asked if Green party candidate Ralph Nader spoiled the 2000 presidential election for then Vice-President Al Gore, prominent Democratic consultant James Carville proclaimed that the answer to this question was "obvious."[1] In an election that turned on, among other things, 537 votes in the state of Florida, the conclusion that the 97,488 Floridians who opted for liberal crusader Nader would have in his absence broken in sufficient numbers for Gore so as to reverse the election in Florida, and thus in the nation, borders on logical deduction. One might quibble that some of those who cast votes for Nader would not have voted at all had Nader not been on the 2000 ballot and that a Nader-less campaign would have unfolded in a way that altered the decisions of voters beyond those who supported Nader. Nonetheless, if testing for the presence of a spoiler involves assessing a counterfactual in which votes for the alleged spoiler are allocated to second choice candidates, the combination of Bush's minuscule Florida plurality in 2000, the relatively large number of votes cast there for Nader, and Nader's well-known leftward leanings obviates any real need to substantiate Nader's role as Democratic spoiler.

Undeterred by the apparent obviousness of Nader's contribution to the 2000 general election, in what follows we attempt to construct meticulously a counterfactual in which Nader voters in the key state of Florida and those voters who cast their lots for Reform Party presidential candidate Patrick Buchanan instead are forced to choose between George W. Bush and Gore, the two major party candidates for president in 2000. Our counterfactual is based on a statistical analysis of approximately three million individual Florida ballots and 46 million decisions that the people who cast these ballots made across the numerous contests presented to them in the 2000 general election.

We find that at most 60% of Nader voters in Florida would have voted for Gore had they turned out in a Nader-less 2000 general election and that, as others have alleged with varying degrees of vehemence, Nader was a spoiler for Gore (although, according to Burden (2003), this was not his intention). Nonetheless, what is striking about the 60% figure is its complement:

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[1] Ann McFeatters, " Criticism Stings Unrepentant Nader." *Pittsburgh Post-Gazette*. November 9, 2000.

at least 40% of Nader's Florida voters would have voted for Republican presidential candidate Bush in the absence of a Nader candidacy. Thus, Nader voters were not exclusively frustrated or misguided Democrats, and Nader's pivotality in 2000 was largely an artifact of the extreme closeness of Florida's presidential contest. This particular race, notably, featured many decisive factors that probably would have been considered thoroughly mundane in an ordinary election. Though generally not mentioned among the contributors to Bush's victory, Socialist Workers' party candidate James E. Harris drew a sufficient number of votes (562, to be precise) from Gore in Florida to turn the presidential election. So did Monica Moorehead (1,804 votes), the Workers World Party candidate in 2000.

The specter of future Naders—and, indeed, the somewhat muted reappearance of Nader himself as a presidential candidate in 2004—raises the general question of who exactly votes for prominent third party presidential candidates, particularly in close elections in which the potential for a spoiler is evident. This issue motivates our research and our construction of a Nader-less and Buchanan-less counterfactual for the 2000 presidential election.

We are hardly the first to study third party presidential voters (for example, Rosenstone, Behr and Lazarus 1996, Alvarez and Nagler 1995, Alvarez and Nagler 1998, Lacy and Burden 1999).[2] Our findings are broadly consistent with this previous literature that focuses on the 1992 and 1996 candidacies of H. Ross Perot and finds that voters for that third-party candidate are relatively non-partisan and that Perot draws votes away from both of the major party candidates.[3] What is uniquely powerful about our analysis, though, is the set of voting data that we bring to bear on our study of these individuals. Namely, we study actual election ballots or what are called ballot images. Each of our images is literally an electronic snapshot of a ballot that records the choice that a voter made in every contest all the way down the ballot. We use the patterns of votes cast

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[2]In the context of non-presidential races Lacy and Monson (2002).

[3]Because much of the previous work has focused on third-party candidates such as Perot who were perceived to hold centrist or off dimensional preferences, it is less clear that these earlier findings should carry over to Nader and Buchanan who were previously associated with major parties and who occupied relatively extreme positions on a conventional left–right dimension.

across the entire ballot tounderstand the types of voters who ultimately picked Nader or Buchanan.

While previous work on third-party candidate relies heavily on Nation Election Study and exit poll data, such data are of relatively little value in studying candidates receiving support at the low levels of Nader and Buchanan. For example, in 2000 the NES survey of 1,178 individuals includes only 33 who report voting for Nader or Buchanan. Even the 2000 Voter News Service (VNS) national exit poll survey of 13,225 voters includes only 521 respondents who reported voting for Nader and, of those, only 264 gave valid responses to the "second choice" question that bears on our central counterfactual (Voter News Service 2002).[4] Putting aside small sample sizes, survey data on candidate preference at least potentially suffer from various reporting biases (Wright 1990, Wright 1992, Wright 1993). The usual alternative to survey data in the study of presidential election vote choice is aggregate voting data (for example, Collet and Hansen 2002, Burden 2004) and rely on ecological inference, a controversial and at times questionable statistical technique (Achen and Shively 1995, King 1997, Tam 1998).

Ballot-level data have been used to estimate consitutuency preferences (Lewis 2001, Gerber and Lewis 2004), to study residual votes (Herron and Sekhon 2003, Mebane 2003), and to study ballot design (Wand, Shotts, Sekhon, Mebane, Jr., Herron and Brady 2001). Unlike surveys and ecological data, ballot images directly reveal voting behavior in its most raw form, unmitigated by hindsight, social desirability, or other intervening affects. Ballots record what voters truly did in a voting booth (of course, what a voter did the ballot booth may differ from what she intended to do).[5] Our (near) canvas of ballots cast in 10 Florida counties yields over 48,000 Nader and 8,000 Buchanan voters.

Our approach, described in detail below, is to use votes cast on a large collection of ballots to infer the unobserved or latent partisanships of the voters who cast the ballots. We do this by

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[4]Similarly, there were only 76 Buchanan VNS respondents of whom only 33 gave valid second choice responses. Interestingly, the estimates we present below fall within the VNS exit poll's wide 59.1% to 77.9% confidence interval for the level of "second choice" preference for Gore over Bush among Nader voters.

[5]Differences between exit polls and ballots was made abundantly clear in November, 2004 when exit poll results from the 2004 general election predicted, wrongly, that Democrat John Kerry would win the presidential race.

considering the votes each ballot contains on a set of federal, state and local offices, judge retention elections, and state and local ballot propositions. In so doing, we treat the voting "records" of voters across ballots in the same way that NOMINATE (Poole and Rosenthal 1997) treats roll call records of legislators.

We assume that the partisanship of each voter (i.e., ballot) can be located on a single spatial dimension that best predicts votes across all contests in which the voter participated. Because almost all of the contests in Florida in 2000 pitted a Democrat versus a Republican, it is perhaps not surprising that the dimension we recover from our ballots captures Democratic–Republican partisanship. This is not to say that voting in the 2000 general election was solely driven by a single dimension. Rather, our single dimension captures a major-party cleavage, and for our purposes this is sufficient: we need only that one dimension is highly predictive of voter behavior in contests that involve only Democrat and Republican candidates. Given voter positions along this Democrat–Republican demension, we then reallocate Nader and Buchanan voters to Gore and Bush in proportion to the support given to each candidate by voters located at each point on our partisan scale.

Readers who are skeptical of spatial models in general or low dimensional spatial models in particular may be reassured by a set of complementary nonparametric results. Our nonparametric results make no assumptions about dimensionality or existence of an underlying spatial model, and they yield reallocations of Nader and Buchanan votes that are very similar to those generated under the assumption of a single spatial dimension.

By recovering the distribution of ballot or voter locations on our single partisan dimension, we can address two related questions that are otherwise—i.e., without ballot-level data—quite difficult if not impossible to answer. First, how do the support bases of Buchanan and Nader voters compare with the bases for Bush and Gore voters, i.e., were Nader voters pro-Democrat down the ballot, pro-Republican, or something else? Second, how did the inclusion of Nader and Buchanan affect the vote totals received by major party candidates (the standard spoiler counterfactual)?

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Like all sources of data ballot images have their limitations. In particular, we have access to ballot data from only ten counties in Florida.[6] There are no selection issues within counties, since our ballot archive includes essentially all ballots cast, but there are selection effects across counties. Namely, our ten counties are more Democratic than the rest of the United States (which was approximately split between Gore and Bush), and this means that we are missing, so to speak, some Bush and Buchanan ballots. As a consequence, and we elaborate on this later, the 60% figure we have noted above is an upper bound: at most 60% of Nader voters would have voted for Gore had they faced a two-candidate election, and at least 40% of the would have chosen Bush. Our conclusion about the partisan centrism of Nader and Buchanan voters is therefore understated, and this means that our having access only to ten counties of data makes our results conservative.

Moreover, since our ballots are from a single state, Florida, that was known prior to polling day in 2000 to be competitive, we do not have any leverage on the extent to which non-Nader and non-Buchanan voters would have voted for Nader and Buchanan had they lived in a state that was not forecasted to be tightly contested. Again, though, this makes our primary conclusion conservative. If any, say, Nader voters decided to vote for Gore because they were worried about being pivotal in a close presidential race, it stands to reason that these voters were more politically centrist than the relatively extremist Nader voters who chose to support Nader regardless. So, it follows that voters overall with Nader leanings were if anything more centrist than we find them to be. A similar argument applies to Buchanan voters and support for Bush.

## Ballot Images from the 2000 General Election

We analyze a collection of 2.95 million Florida county general election ballot images maintained by the National Election Study.[7] This NES ballot image archive contains a (nearly) com-

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[6]A list the ten counties is shown in Figure 3 and detailed data on the number of votes cast in each of these counties included in the [supplementary web materials].

[7]The archive is at `http://www.umich.edu/~nes/florida2000/data/ballotimage.htm`.

plete records of all ballots cast in ten counties. Given the frantic atmosphere that surrounded the Florida recount—see Merzer (2001) and Posner (2001) for details—it is not surprising that we are unable to exactly match the ballot image totals to the reported county-level statements of the vote.[8]

Our ten counties used Votomatic punchcard voting technology in 2000 (none use it now due to changes in Florida state laws), and each ballot image is a sequence of zeroes and ones where a zero reflects a punchcard chad read by an electronic card reader as not having been punched and a one indicates a chad that was read as punched. Each Votomatic punchcard contained 312 chads, and consequently each ballot image contains a sequence of 312 zeroes and ones.[9]

Our ten counties vary dramatically in number of ballots cast, Miami-Dade being the largest with 610,708 total ballots and Highlands the smallest with 22,237.[10] Nonetheless, even the number of voters in Highlands County dwarfs the typical number of voters interviewed by the NES after surrounding general election and includes 359 Nader voters and 84 Buchanan voters.[11]

As the zeros and ones in each ballot image correspond to a sequence of vote choices, we can compare a given ballot's presidential vote with a summary of the ballot's non-presidential votes. Consider, for example, a given ballot from Broward County, which had 58 contested races in November, 2000. Such a Broward ballot records a single voter's choice in the race for president, for Florida's open U.S. Senate seat, for Representative in Florida's 19th Congressional District if applicable, for Representative in Florida's 20th Congressional District if applicable, and so forth. We can ask, then, if a Broward County ballot with a valid vote for Gore, a Democrat, also contains valid Democratic votes in Congressional races, in Broward county races, and so forth. Note that these sorts of questions cannot be studied without ballot images. Also, note that note all voters in Broward County vote on the same collection of races.

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[8]Nonetheless, when we compare aggregated, certified, vote returns to the vote totals in our ballot image dataset, we find only minor discrepancies or discrepancies that do not affect our results (see Appendix **??** for details).

[9]Note that zeros and ones are present even for those chads that do not correspond to any valid candidates.

[10]While Highlands County did in fact have absentee voters in 2000, the NES ballot image archive does not contain any images from these voters.

[11]A detailed enumeration of the number of votes cast for each candidate by county and voter type (absentee or election day) is included in the supplemetary materials and is available online.

Table 1 describes the distribution of votes in Florida's U.S. Senate race by presidential vote choice and reveals the sort of insight than can only be provided by ballot-level data. There were six Senate candidates on Florida's presidential ballot—their names, listed in official Florida order, are in the top row of the table. Beyond the ten official presidential candidates, each ballot can contain a presidential undervote (a presidential vote that, for some reason, is missing) or an overvote (a vote for more than one presidential candidate). For the Senate race, and henceforth for all non-presidential races as well, Table 1 aggregates both undervotes and overvotes as abstentions.[12]

One can see from Table 1 that 83% of ballots with a valid Bush vote also had a valid McCollum vote, that 86% of the ballots with a valid Gore vote also had a valid Nelson vote, that 7% of valid Gore voters voted for the Republican Senate candidate McCollum, and so forth. We can assemble tables like Table 1 for all non-presidential races, and such an exercise shows that Gore voters tended to vote for Florida's Democratic candidate for U.S. Senate, that Bush voters supported the Republican candidate, and so forth.

Beyond the presidential race, our approximately three million ballot images have the following races in common: U.S. Senate, Florida Treasurer, Florida Commissioner of Education, three non-partisan retention votes for justices on the Florida Supreme Court, and three Florida Constitutional Amendments. Moreover, many ballot images share other common contests. All images from Palm Beach County, for instance, contain votes on the Palm Beach County sheriff race. Moreover, some ballots from Palm Beach County and some from Highlands County contain votes for the election held to fill Florida's 16th Congressional District seat. The point here is that our many images are linked through a common set of races, and there are many pairwise linkages as well across the images. This is very important for our statistical method—discussed shortly—as we wish to place scalar partisanship measures from our approximately three million ballots on a common scale, i.e., on a single partisanship line. This would not be possible if the ballots we study lacked races in

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[12]Write-in votes for all races are treated as undervotes. The NES ballot image archive does not keep track of write-in candidate names.

Table 1: Votes in Florida's U.S. Senate Race by Presidential Vote Choice

| | Abstain | McCollum (R) | Nelson (D) | Simonetta (Law) | Deckard (Reform) | Logan | Martin | McCormick | Total |
|---|---|---|---|---|---|---|---|---|---|
| Bush | 0.04 | 0.83 | 0.11 | 0.00 | 0.00 | 0.01 | 0.00 | 0.00 | 1289697 |
| Gore | 0.04 | 0.07 | 0.86 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 | 1606059 |
| Nader | 0.06 | 0.27 | 0.47 | 0.05 | 0.04 | 0.08 | 0.01 | 0.02 | 48238 |
| Buchanan | 0.07 | 0.30 | 0.46 | 0.02 | 0.09 | 0.03 | 0.01 | 0.02 | 8384 |
| Libertarian | 0.08 | 0.30 | 0.30 | 0.10 | 0.06 | 0.07 | 0.02 | 0.07 | 6791 |
| Socialist Workers | 0.39 | 0.10 | 0.26 | 0.07 | 0.05 | 0.06 | 0.04 | 0.03 | 345 |
| Natural Law | 0.09 | 0.14 | 0.20 | 0.43 | 0.02 | 0.07 | 0.03 | 0.02 | 1355 |
| Socialist | 0.16 | 0.14 | 0.49 | 0.07 | 0.04 | 0.03 | 0.02 | 0.03 | 469 |
| Constitution | 0.14 | 0.39 | 0.16 | 0.04 | 0.08 | 0.07 | 0.05 | 0.06 | 559 |
| Workers World | 0.13 | 0.23 | 0.32 | 0.06 | 0.04 | 0.08 | 0.06 | 0.09 | 965 |
| Undervote | 0.45 | 0.21 | 0.30 | 0.02 | 0.00 | 0.01 | 0.00 | 0.00 | 44969 |
| Overvote | 0.26 | 0.19 | 0.50 | 0.01 | 0.01 | 0.02 | 0.01 | 0.01 | 59870 |

Note: Senate candidates Logan, Martin, and McCormick lacked party affiliations; candidate orderings reflect official Florida order.

common.[13]

Table 2 describes the distribution of common partisan race votes among ballots with valid Bush, Gore, Nader, and Buchanan votes. A partisan race is one that features competing candidates whose party designations appear on the ballot, and all such common partisan races from our set of ten Florida counties include both Democratic and Republican candidates. The Florida U.S. Senate race included six candidates, the Treasurer race two candidates, and the Commissioner of Education race, three. Table 2 reinforces a pattern noted above, namely that Bush and Gore voters are the presidential level were strong partisans when considering non-presidential races. For instance, Panel A shows that 68.62% of Bush voters voted for all three Republican candidates in our collection of common partisan races. Among Gore voters and Democratic candidates, the comparable figure is 57.59%, as in Panel B.

In contrast, Panels C and D of Table 2 show that Nader and Buchanan voters did not behave in a strict partisan sense at all. For instance, 18.36% of Nader supporters voted for all three Democratic candidates within our set of common partisan races. However, 14.57% voted for all three Republicans! If Nader voters were strong Democratic partisans, which is what one might think based on the Green Party's ostensible left wing leanings, then we would expect these individuals to have supported Democratic candidates in non-presidential races. This did not always happen, nor did Buchanan voters vote overwhelmingly for Republican candidates in these races. [14]

Ballot data, for obvious reasons, cannot speak directly to questions about voter turnout: we do not have any ballots from Florida voters who stayed home on November 7, 2000. We cannot,

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[13]We could, in theory, place our ballot-level partisanship measures in a common space (i.e., comparable metric) if there were as few as two common races on each of our approximately three million ballots. In our case, the partisanship line is overidentified by the presence of multiple common races across all the ballots in the NES archive.

[14]In the subsequent analyses, we ignore uncontested races in our ten counties and we also ignore punched chads that do not correspond to any races. We also ignore races that allowed voters to pick more than one candidate; these races involved only very small numbers of voters. Finally, of the three Florida Supreme Court retention races, involving Justices R. Fred Lewis, Barbara J. Pariente, and Peggy A. Quince, and of all other judge races, we retain for analysis only the Lewis retention vote. Judge races are anomalous compared to our other races insofar as voters vote in multiple judge contests; in contrast, they only vote in one presidential race, one Congressional race, one state legislative race, and so on. So that our partisanship line is not simple a judge partisanship line, we drop all non-Lewis judge contests.

Table 2: Distribution of Common Race Votes among Bush, Gore, Nader, and Buchanan Voters

**(a) Bush voters** ($N = 1289697$)

| | | Votes for Republicans | | | |
| --- | --- | --- | --- | --- | --- |
| | | 0 | 1 | 2 | 3 | Total |
| Votes for Democrats | 0 | 2.51 | 2.53 | 8.20 | 68.62 | 81.86 |
| | 1 | 0.54 | 1.72 | 10.79 | | 13.05 |
| | 2 | 0.48 | 3.24 | | | 3.72 |
| | 3 | 1.33 | | | | 1.33 |
| | | 4.86 | 7.49 | 18.99 | 68.62 | 100.00 |

**(b) Gore voters** ($N = 1606059$)

| | | Votes for Republicans | | | |
| --- | --- | --- | --- | --- | --- |
| | | 0 | 1 | 2 | 3 | Total |
| Votes for Democrats | 0 | 2.81 | 0.81 | 1.05 | 2.80 | 7.47 |
| | 1 | 3.06 | 2.84 | 8.32 | | 14.22 |
| | 2 | 7.24 | 13.44 | | | 20.68 |
| | 3 | 57.59 | | | | 57.59 |
| | | 70.70 | 17.09 | 9.37 | 2.80 | 100.00 |

**(c) Nader voters** ($N = 48238$)

| | | Votes for Republicans | | | |
| --- | --- | --- | --- | --- | --- |
| | | 0 | 1 | 2 | 3 | Total |
| Votes for Democrats | 0 | 5.53 | 4.00 | 6.78 | 14.57 | 30.88 |
| | 1 | 6.74 | 7.57 | 15.17 | | 29.48 |
| | 2 | 8.67 | 12.54 | | | 21.21 |
| | 3 | 18.36 | | | | 18.36 |
| | | 39.30 | 24.11 | 21.95 | 14.57 | 100.00 |

**(d) Buchanan voters** ($N = 5206$)

| | | Votes for Republicans | | | |
| --- | --- | --- | --- | --- | --- |
| | | 0 | 1 | 2 | 3 | Total |
| Votes for Democrats | 0 | 5.13 | 5.43 | 12.99 | 25.44 | 48.99 |
| | 1 | 4.31 | 7.56 | 15.87 | | 27.74 |
| | 2 | 5.05 | 9.31 | | | 14.36 |
| | 3 | 8.87 | | | | 8.87 |
| | | 23.36 | 22.30 | 28.86 | 25.44 | 100.00 |

Note: Each cell is the percentage of Florida voters who cast a given number of votes for Democrats and Republicans across three partisan races: U.S. Senate (six candidates including one Democrat and one Republican), Florida Treasurer (one Democrat and one Republican), and Florida Commissioner of Education (one Democrat, one Republican, and one candidate with no party affiliation). Cells are shaded in proportion to the frequency with which voters fall into them.

therefore, compare ballots of voters with ballots of non-votes in the way that NES scholars can compare the demographic profiles of survey respondents who claim to have voted with profiles of those who claim otherwise.

As it turns out, Nader voters had quite high down-ballot participation rates: we find, in fact, that Nader voters were sometimes more likely than voters for other presidential candidates to vote in non-presidential races (see Figure 3). While turning out to vote and voting down the ballot presumably involve separate considerations, the notion that any sizable fraction of Nader's voters were so alienated by business-as-usual partisan politics that they would refuse to participate in elections that involved only mainstream candidates is not supported by our data. This make us suspicious of the claim, made by 33% of VNS exit poll participants who supported Nader, that they would have stayed home had Nader not been a candidate for president. Moreover, the down-

ballot participation rates of Nader voters suggest that Nader's candidacy per se did not have a dramatic effect on voter turnout.

## Statistical Methods

Consider a single ballot image, and note that this image contains a presidential vote followed by a sequence of non-presidential votes, all of which can be treated as independent choices (notwithstanding some dropped races as discussed above). If we knew the partisanship of the voter who produced our hypothetical image, we could estimate the effect that this partisanship had on each of his or her non-presidential vote choices. It would be natural to use logit models for these various estimation problems, one per each non-presidential race. For instance, we could use a (perhaps multinomial) logit model to analyze whether extreme Democratic partisans tended to vote Democratic in Florida's U.S. Senate race. Some races split on the partisan dimension, meaning that voter partisanship predicts vote choice very reliably, but some will not. Moreover, some races will involve incumbency or a valence advantage for a particular contestant where this contestant receives support from a large set of voters due to issues like name recognition as opposed to partisanship (for example, Groseclose 2001). Such advantages would be captured in the intercept of our hypothetical logit regression.[15]

Of course, we cannot observe voters' underlying partisanships, and therefore logit models like the ones proposed are not feasible. Nonetheless, the objective of scaling is using choices on a sequence of votes (here, non-presidential races) to estimate *simultaneously* voter partisanship levels and the effect of voter partisanship on vote choice. This is akin to using vote choices of members of Congress to estimate ideology levels or ideal points (Poole and Rosenthal 1997) and votes of Justices to study partisanship on the Supreme Court (Martin and Quinn 2002).

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[15]The intercept parameters also reflects information about the location of a given candidate on the partisan dimension. Thus, it is not possible to separately identify the exact locations of the candidates on the partisan dimension or their valences.

Very similar estimators to the one that we employ here are commonly used in the scoring of standardized tests where no explicit assumption of an underlying spatial model is made (Bock and Aitken 1981).[16] For readers uncomfortable with the spatial model of voting, our scaling can be thought of as akin to test scoring. Like those in educational testing, we seek to recover an underlying predictive or descriptive attribute from a set of polytomous items. Where we are measuring partisanship, those in the test literature are measuring, for example, academic aptitude. Each voting decision reveals information about a voter's partisanship just as each test item reveals information about aptitude. The key feature of the statistical method is that it allows for variation in, and estimates of, the degree to which each item (electoral contest or test question) discriminates between Democrat and Republican partisans or high and low aptitude students. By allowing for variation in the degree to which each contest or test item is related to partisanship or aptitude, these methods translate the votes or answers given by individuals into estimated partisanships or aptitudes that are more accurate and reliable than would be achieved, for example, by simply summing the number of Republican votes or correct answers.

In contrast to legislative voting or lengthy standardized tests where a large number of choices are observed for each respondent, each of our Florida voters casts votes on only roughly 15 or so races. Standard fixed-effects scaling models including NOMINATE are well-known to be inconsistent when the number of observed choices is small (Londregan 2000, Lewis 2001).[17] Because our interest is in the distribution of voter preferences within types (i.e., Nader and Buchanan voters) of the voter population and not with estimating the exact spatial location of each ballot or voter, we can gain consistent estimates of subgroup parameters by directly estimating the distribution of voters within subgroup without the intermediate step of estimating each voters' position and subsequently aggregating to subgroup. The estimator that we employ is an extension of Lewis (2001) and Gerber and Lewis (2004) to the multinomial or multi-candidate case, and it is described in

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[16]In particular, there are no ideal points and question alternative associated with particular locations.

[17]Fixed effects models in this context treat both the parameters associated with each electoral contest and the parameter associated with each voter as a fixed constant to be estimated.

detail in the [supplementary web materials].

We divide our voters into $10 \times 12 \times 2 = 240$ different subgroups. This cross-product reflects the ten counties, the type of presidential vote (undervote, valid vote for one of ten candidates, or overvote), and time of vote (election day or absentee). Then, for each of our 240 types, we scale the votes on all observed voting profiles for contests down the ballot, ignoring most judge races and so forth as discussed above. This necessitates contending with 46,515,369 different vote choices. The result of our scaling algorithm is a partisanship measure for each of our 240 voter groups, and we can also generate estimated standard errors for these measures.

We consider only a subset of the 240 types of voters, and in particular we focus here on ballots from our ten counties with valid votes for Bush, Gore, Nader, and Buchanan cast on election day and via absentee voting. This yields a total of $10 \times 4 \times 2 = 80$ different types or subgroups of voters. In future work we will describe the partisanships of presidential undervoters and overvoters and will also examine the partisanships of voters who supported very minor third party candidates in 2000, i.e., the Workers World candidate. Virtually nothing is known about these voters, due primarily to the fact that their numbers are so small. Yet, as the 2000 has shown, even small groups of voters can be pivotal and hence deserve scrutiny.

As with any scaling model, the direction, location, and scale of our underlying dimension is arbitrary. We assume without loss of generality that low partisanship levels are associated with Democratic partisanship and large values with Republican partisanship.[18] Thus, following convention, Democratic partisans are located on the left and Republican partisans are located on the right in the graphs presented below. To establish the scale, we set the most Democratic of our 240 voter types to have a mean partisan location of -1 and the most Republican of the voter types to have a mean partisan location of 1. The objective of our scaling algorithm, then, is the estimation of the remaining 238 different voter group mean locations—for example, election day Gore voters from Lee County.

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[18]See the Web appendix

We treat partisanship as one dimensional because, ultimately, we are interested in the way that people (i.e., Nader and Buchanan supporters) vote when forced to choose between Democratic and Republican candidates. Whether there is a second, or third or fourth, dimension in which candidates compete for votes is not germane to our analysis. Indeed, there may be a cleavage along a dimension such as trade policy where Nader and Buchanan shared similar positions that deviated from a single position shared by Bush and Gore.

Figure 1: Locations of Presidential Voters
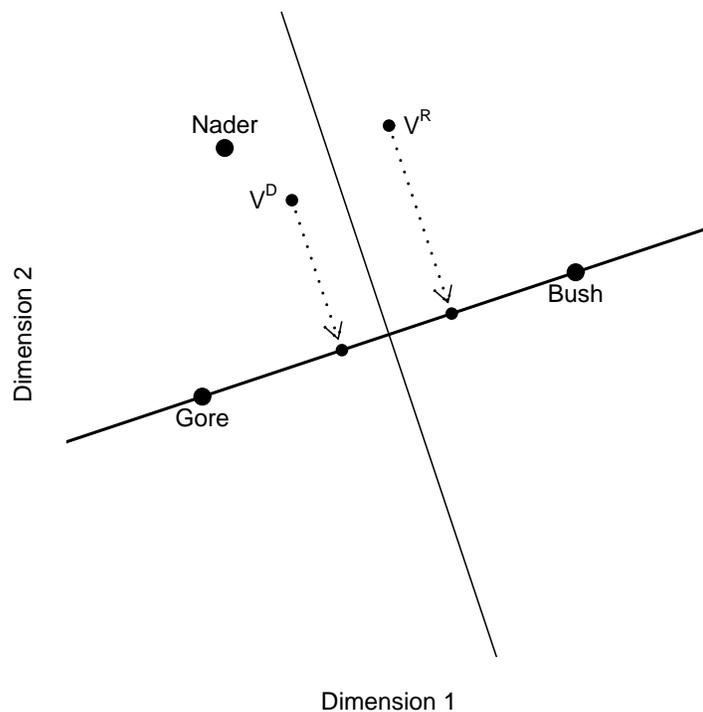


Note: Illustrates hypothetical locations in two dimensions of Bush, Gore, Nader, and two voters ($V^D$ and $V^R$). Both voters are closer to Nader and hence would prefer him among the three presidential candidates (putting aside any valence considerations). When considering a choice of only Bush versus Gore, each voters' preference can be represented by a projection of an ideal point onto the line joining Bush's and Gore's ideal points.

Consider, then, a hypothetical world in which Nader is differentiated from Bush and Gore mainly along on a second dimension, as pictured in Figure 1. Two simplify matters suppose that

no candidate enjoys a valence advantage. In the figure, we see two Nader voters, $V^R$ and $V^D$; both are located closer to Nader than to Bush or to Gore. However, in the absence of Nader, the two voters would be expected to support different candidates insofar as $V^D$ is closer to Gore and $V^D$ is closer to Bush. Given our simple spatial model, each voter's relative preference for one of the major party candidates over the other is entirely a function of the distance between the voter and a so-called cutting line that divides supporters Bush from Gore supporters (as shown in the figure).[19] Those distances are preserved if each voter is projected onto the line through Gore's position and Bush's position. Call this line the Bush–Gore dimension, the dimension that indexes relative affinity for Bush versus Gore. This analysis is obviously complicated by the addition of valence factors which advantage major party candidates over minor party candidates. However, the basic intuition that voters can be projected onto a Bush–Gore dimension remains.

Assuming that the locations of Democrat and Republican candidates in down ballot races fall roughly along the same line that connects Gore and Bush, the Bush–Gore dimension can also be thought of as a Democrat–Republican dimension. The locations of Nader voters, indeed all voters, along this Democrat–Republican dimension can be inferred from choices that voters make on down ballot contests that are dominated by Democrat and Republican candidates because it is the locations the voters along this dimension that parameterize the choices between Democratic and Republican candidates.

Of course, as with any latent variable statistical model, the substantive meaning of the spatial dimension we uncover is in the eye of the beholder. Like the first NOMINATE dimension, which almost all Congressional researchers treat as legislator ideology, the single dimension we recover presumably includes a mixture of partisan and ideological components. To our eye, partisan, i.e., Democrat-Republican, leanings appear to be the larger part, and we call the dimension that we recover the "partisan dimension." In contrast, NOMINATE's first dimension appears to

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[19]In the statistical model, this cutting line need not be equidistant between the two candidates due to differences in valence. See detailed description of the empirical model given in the [suplementary web materials].

capture something more akin to the NES's *lib-con* question asked of survey respondents—"Where would you place yourself on [a seven point ideology scale which ranges] from extremely liberal to extremely conservative?" Our recovered dimension is more akin to a continuous version of the NES's *partyid* question—"Generally speaking, do you think of yourself as a Republican, a Democrat, an Independent, or what?" Regardless of how our single spatial dimension is labelled, each voter's position along the dimension *is* the best single predictor of all of their votes that can be constructed.[20]

Because many of the down ballot races are two-candidate elections pitting a Democrat against a Republican, we are confident that the single dimension extracted by the scaling will be a Democratic–Republican dimension. That is, Democrat–Republican will be the main dimension that accounts for variation in voter choices in the data. Assuming the Bush–Gore dimension parallels the overall Democrat–Republican dimension, the recovered Democratic–Republican dimension will also predict how Nader and Buchanan voters would vote in a hypothetical two-candidate Presidential election pitting Bush against Gore.

## Results

Figure 2 displays estimated partisanship levels for Bush, Gore, Nader, and Buchanan voters. Each shape in the figure represents a county, and the location of a shape (square, circle, triangle, or diamond) in the plot specifies partisanship levels for a pair of election day and absentee voters. Recall that low (high) partisanship numbers refer to Democratic (Republican) partisanships; in particular, we normalized our estimates so that the most extreme Democratic partisanship is set to negative one and the most extreme Republican, positive one. Highlands County is not included in Figure 2 because we have no records on absentee voters from this county. The ellipses in the

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[20]See Variable 000439 of the 2000 NES for the liberal-conservative question; for the party identification question, see Variable 000519.

figure are 95% confidence sets based on 150 bootstrap repetitions. The confidence sets are longer vertically than they are horizontally, and this reflects the fact that the number of election day voters exceeds that of absentee voters. Note that some confidence sets in Figure 2 are so small that they are completely masked by a colored shape. This indicates that our scaling algorithm is pinning down tightly the locations of the larger voter subgroups.

Figure 2: Locations of Presidential Voters
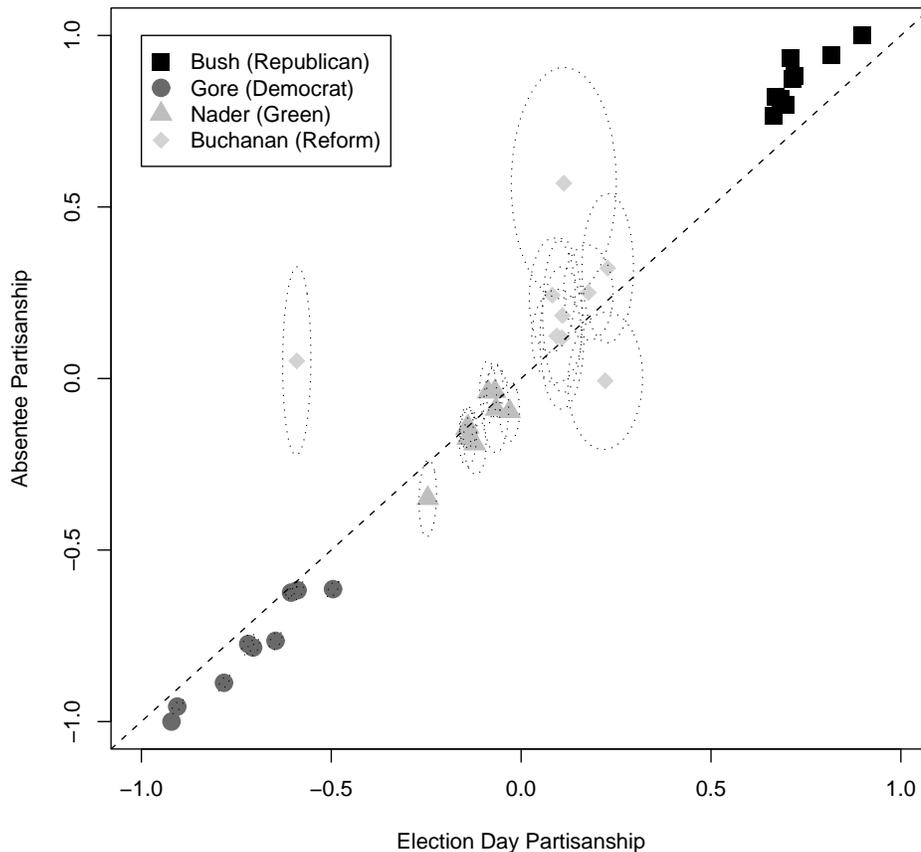


The circles in Figure 2 are in the lower left corner of the figure, meaning that their election day and absentee partisanship levels are both close to negative one. We conclude from this that voters who selected Gore were very committed Democratic partisans insofar as voting Democratically in

practically all non-presidential contests. A related statement applies to Figure 2's squares, which represent Bush voter partisanship levels. Thus, Gore and Bush voters displayed strong allegiances to non-presidential Democratic and Republican candidates, respectively, when they considered races beyond the presidential contest.

Note that the circles in Figure 2 fall under the figure's dashed 45-degree line yet the squares are over the line. This means that absentee voters who supported Gore and Bush voted in a more partisan way than their election day counterparts. There are a number of potential explanations for this result. Absentee voters may in general tend to be more committed partisans than election day voters. Or, absentee voters may have similar partisanship levels as election day voters, all of whom may want to vote straight party, yet the former may commit fewer voting errors due to a lack of time pressure.

Figure 2 also displays the partisanships of Nader voters (triangles) and Buchanan voters (diamonds). The triangles and diamonds in Figure 2 show that Green party voters were slightly pro-Democratic and Reform party voters, slightly pro-Republican. One clear exception to this rule is the diamond with an election day mean of somewhat less than -0.5 and an absentee mean of approximately zero. This diamond's election day coordinate is relatively Democratic and in fact is more Democratic than Lee County's Gore location on election day and roughly equivalent to Pasco County's Gore election day level. The Democratic-looking Buchanan diamond is from Palm Beach County, and its anomalous location in Figure 2 reflects the county's butterfly ballot.

What is perhaps most striking about the estimated Nader and Buchanan locations in Figure 2 is how non-partisan they are. Ralph Nader's platform in 2000 was pro-environment and anti-free trade, and both of these policy positions place Nader close to stereotypical Democratic preferences. Despite this, Nader supporters were clearly mavericks in the polling booth and they were not uniformly loyal to Democratic candidates. Note that the cloud of triangles in Figure 2 is clearly distinct from the corresponding cloud of circles (and that the standard error ellipses surrounding the triangles do not intersect the standard error ellipses from the circles).

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Similarly, Figure 2 shows that Buchanan voters were, on average. only mildly pro-Republican, this despite the fact that Pat Buchanan was perceived publicly as being much closer to standard Republican positions than to Democrats. If Reform party supporters choose Buchanan simply on the basis of his policy positions and if they vote on the basis of policy positions down the ballot, then we expect that the estimated partisanship levels among Buchanan supporters would be very similar to and might even surpass the partisanship levels we find among Bush supporters. Clearly, this is not the case.

We see, therefore, that average Nader and Buchanan voters were close to the middle of the Democrat–Republican spectrum. One might conjecture that Nader voters are more Democratic than Gore voters and Buchanan voters are even more stridently Republican than Bush voters. In fact, Nader voters are more pro-Republican than Gore voters are Buchanan voters, more pro-Democrat.

One possible explanation for the relatively non-partisan nature of Nader and Buchanan voters is that those voters might have unusually high abstention races in non-presidential contests. Our scaling algorithm treats abstentions as missing at random, i.e., independent of the underlying Democratic-Republican partisanship dimension. So, if abstention were more likely among those at the ends of our partisan dimension, and if those voting for minor party candidates were more likely to abstain on non-presidential races, then our estimates of third party voter partisanships could be biased toward the center.

However, Table 3 shows that Nader and Buchanan voters were not systematically more likely to abstain or possibly vote invalidly in down-ballot contests compared to Gore and Buchanan voters. In particular, the table reports the fraction of down-ballot races (ignoring uncontested races and so forth) that different types of voters could in theory have voted in. For example, in Broward County the median number of races in which a voter could have participated was 24; this number varies across and within counties due to local ballot propositions, variance in uncontested state legislative

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Table 3: Rates of Down Ballot Participation by Presidential Vote Choice and County

| President | Broward | Highlands | Hillsborough | Lee | Marion | Miami-Dade | Pasco | Palm Beach | Pinellas | Sarasota |
|---|---|---|---|---|---|---|---|---|---|---|
| Bush | 0.82 | 0.82 | 0.83 | 0.81 | 0.87 | 0.73 | 0.84 | 0.82 | 0.84 | 0.82 |
| Gore | 0.81 | 0.78 | 0.82 | 0.79 | 0.86 | 0.74 | 0.82 | 0.73 | 0.81 | 0.79 |
| Nader | 0.83 | 0.81 | 0.82 | 0.81 | 0.85 | 0.78 | 0.83 | 0.63 | 0.82 | 0.79 |
| Buchanan | 0.82 | 0.87 | 0.85 | 0.80 | 0.86 | 0.78 | 0.85 | 0.81 | 0.84 | 0.79 |
| Median number of races | 24 | 20 | 30 | 29 | 17 | 17 | 20 | 24 | 22 | 29 |

races, and so forth.[21] The leftmost column of Table 3 shows that Bush voters in Broward County voted in 82% of all possible races, Gore voters in 81%, Nader voters in 83%, and Buchanan voters, 82%.

In general, Table 3 shows that Nader and Buchanan voters did not have unusually high down-ballot abstention rates. Indeed, these types of voters sometimes participated in down-ballot contests at higher rates than did Bush and Gore voters. We thus conclude that unusual abstention rates cannot explain the partisan centrism of Nader and Buchanan voters that is depicted in Figure 2

**Creating a Nader-less and Buchanan-less Counterfactual**

Whether Nader was a spoiler for Gore ultimately depends on how Nader voters would have voted had they treated the 2000 general election as a Bush versus Gore contest. Thus, we now propose two ways to reallocate Buchanan and Nader votes to Bush and Gore. First, we reallocate votes based on the partisanship measures depicted in Figures 2 and **??**. Second, we implement two non-parametric reallocations of Nader and Buchanan votes based in part on Table 2.

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[21]We determine the number of possible races faced by a given voter by examining the voting records of all voters in the given voter's precinct. If 30% of these latter voters participated in a given race, then we say that the hypothetical voter could have participated in the race as well.

Table 4: Reallocating Buchanan and Nader Voters to Bush and Gore

| | Absentee | | | | Election day | | | |
| | Nader | | Buchanan | | Nader | | Buchanan | |
| County | Percent | Swing | Percent | Swing | Percent | Swing | Percent | Swing |
|---|---|---|---|---|---|---|---|---|
| Broward | 0.63 | 155 | 0.42 | -13 | 0.64 | 1826 | 0.48 | -35 |
| Highlands | | | | | 0.51 | 10 | 0.34 | -27 |
| Hillsborough | 0.59 | 57 | 0.34 | -14 | 0.59 | 1202 | 0.37 | -214 |
| Lee | 0.60 | 60 | 0.54 | 4 | 0.57 | 437 | 0.41 | -49 |
| Marion | 0.52 | 8 | 0.32 | -20 | 0.53 | 98 | 0.41 | -88 |
| Miami-Dade | 0.71 | 107 | 0.42 | -6 | 0.66 | 1663 | 0.43 | -73 |
| Palm Beach | 0.57 | 58 | 0.51 | 1 | 0.62 | 1233 | 0.83 | 2176 |
| Pasco | 0.56 | 35 | 0.42 | -9 | 0.58 | 485 | 0.46 | -43 |
| Pinellas | 0.63 | 218 | 0.39 | -27 | 0.63 | 2431 | 0.42 | -145 |
| Sarasota | 0.62 | 96 | 0.25 | -20 | 0.60 | 733 | 0.44 | -30 |
| Total | 0.61 | 794 | 0.41 | -103 | 0.61 | 10117 | 0.59 | 1471 |

Note: Percent refers to the fraction of a given voter type that is allocated to Gore, and swing is the number of votes Gore received from the reallocation minus the number of votes Bush received. There are no absentee numbers for Highlands County because there are not absentee ballot images from this county in the NES ballot archive.


**Reallocations based on Estimated Voter Partisanships**

Our reallocation approach based on estimated voter partisanships calls for reallocating the Buchanan and Nader voters who occupy a given location on our unidimensional partisanship space to Bush and Gore in proportion to the shares that these two candidates were estimated to have received among other voters at the given position. Reallocation results are displayed by county and by time of voting in Table 4. In addition, the bottom row of the table shows the total number of votes that Nader and Buchanan voters would have contributed to Bush and Gore had they voted for one of these two candidates.

The various "Percent" columns in Table 4 indicate the fraction of a county's election day or absentee ballots that would have been cast for Gore rather than Bush in our Nader-less and Buchanan-less counterfactual. Relatedly, "Swing" is the difference between reallocated Gore votes and real-

located Bush votes. Positive swing numbers, then, highlight gains for Gore.

The Gore swing numbers in Table 4 are relatively small in light of the collection of ballots (approximately three million), and this is true for both election day and absentee reallocations. Note that the absentee swings are smaller than the election day swings due to the relative paucity of absentee voters. The largest Gore swing is found in Pinellas County where Gore lost 2,431 on account of Nader's presidential candidacy.

In Broward County, for instance, we estimate that Nader and Buchanan voters combined would have contributed 1,971 votes to Gore had the 2000 presidential election been a two candidate race (this is the sum of the Gore swings in the top row of Table 4). This number is tiny compared to the number of ballots we have considered. Indeed, 1,933 can only be thought of as large because the Bush-Gore margin in Florida was so incredibly tight. In fact, the total Nader swing away from Gore is 10,117 votes (this combines election day and absentee allocations), meaning that Gore lost only slightly more than ten thousand votes in our ten counties due to Nader's candidacy.

Still, the Nader swing figures in Table 4 are all positive, and this implies that Gore lost relative to Bush as a consequence of Nader. With respect to Buchanan, the swing figures are mostly negative and smaller than comparable Nader swings. Hence, Bush lost votes to Gore thanks to Buchanan's candidacy.

An exception to the pro-Bush nature of Buchanan voters is the positive Buchanan-related, election day Gore swing in Palm Beach County. In comparison with the nine negative Buchanan-related election day swings in Table 4, the positive sign of the Palm Beach County swing is indicative of the county's butterfly ballot. To be precise, we estimate that Gore's net loss of votes to Bush as a consequence of the butterfly ballot was at least 2,176 votes (recall that the official Bush-Gore margin in Florida was 537 votes). Nonetheless, the butterfly effect on Gore was certainly greater than 2,176 as, according to our data, Palm Beach County's true Gore swing due to Buchanan should have been negative and not simply zero. Our estimate of the butterfly ballot effect for Gore is roughly comparable to the estimated butterfly effects—between approximate 2,456 and 2,973

votes lost to Gore—in Wand et al. (2001)

Without Palm Beach County and is associated Buchanan anomaly, Buchanan voters supported Gore at a rate of approximately 42%. We conclude, therefore, that 58% of Buchanan voters would have voted for Bush had neither Nader nor Buchanan run for president in 2000. This is remarkably close to the 61% figure we calculate for Gore support among Nader voters.

**Non-parametric Reallocations of Nader and Buchanan Voters**

We now return to Table 2 and consider Nader and Buchanan vote reallocations based on the number of Democratic and Republican votes cast within the set of common partisan races that were contested across all of Florida. In particular, we first divide our ballots into groups based on county, time of vote (election day versus absentee), and number of Democratic and Republican votes cast among these three races. Then, based on frequencies in which Gore and Bush votes existed in these groups, we reassign Nader and Buchanan votes to Gore and Bush.

For example, if in one such group, for example, election day voters in Pinellas County who among the three common partisan races voted for two Democrats and one Republican, 60% of voters supported Gore, then we assume that 60% of election day Nader voters in Pinellas County who voted for two Democrats and one Republican in the common races would also have voted for Gore.

Such a non-parametric reallocation scheme is independent of our estimated partisanship levels, and it functions as a consistency check on our scaling results. If our non-parametric reallocations are dramatically different than our previous reallocations, then this would cast doubt on our scaling approach in general. Our non-parametric reallocation method is indeed non-parametric insofar as it does not require that we make any parametric assumptions about voter partisanship levels.

According to our non-parametric reallocations, 61% of Nader and 45% of Buchanan supporters would have voted for Gore had the 2000 presidential contest been a two-candidate race. These two numbers, with particular attention to the Nader figure, are extremely close to the partisanship

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reallocations figures we have discussed before.

We find almost identical numbers if we modify our non-parametric reallocation method so that it encompasses more races—U.S. Senate, Florida Treasurer, Florida Commissioner of Education, U.S. Congress, Florida Senate, and Florida House—and considers the particular candidates for whom voters voted. Before, recall that we classified voters by the number of Democrats for whom they voted among a collection of races. Now we refine our categories and classify voters by their exact vote choices.

Using this latter non-parametric approach, we find that 57.5% of Nader voters would have voted for Gore. Note the closeness of this number to the 61% above and to the reallocation percentage of 61% based on complete ballot scaling.

The closeness of these three percentages is important because it suggests that the assumptions behind our scaling algorithm were not overly restrictive. Our scaling procedure, like all statistical procedures, is based on a set of assumptions, i.e., unconditional partisanship levels for each of our 240 voter groups are normally distributed and partisanship is one dimensional. These twin assumptions give us the ability to draw detailed conclusions about voter partisanships, about spatial locations as in Figure 2, about posterior distributions as in Figure **??**, and so forth. Nonetheless, assumptions have costs and can even drive results, and we have tried to verify if our scaling assumptions are leading us astray. If they were, then the non-parametric reallocations of Nader and Buchanan voters should have led to different results when compared to our parametric scaling reallocations. That they have not leads to us to conclude that our scaling results in general—the reallocation results and others as well—are not assumption-driven.

## Conclusion

This paper is a study of third party presidential voters and in particular of voters who in November, 2000 supported Ralph Nader and Pat Buchanan, the two prominent third party presidential

candidates in the 2000 general election. Our objective was assessing the partisanships of Nader and Buchanan voters in order to understand whether these two candidates stole a significant number of votes from the major party candidates in the 2000 presidential race.

How do our results stack up against conventional wisdom, which holds that Ralph Nader spoiled the 2000 presidential election for Gore? We find that this common belief is justified, but our results show clearly that Nader spoiled Gore's presidency only because the 2000 presidential race in Florida was unusually tight. Had Florida had a more typical Bush-Gore margin in 2000, Nader would not have been a spoiler.

This is because, to put it simply, Nader and Buchanan voters were not strong Democratic or Republican partisans, respectively. Only approximately 60% of Nader voters would have supported Al Gore in a Nader-less election. This percentage is much closer to 50% than it is to 100%. One might have conjectured, that is, that Nader voters were solid Democrats who in 2000 supported a candidate politically left of the actual Democratic candidate. This conjecture, we have shown, is wrong: Nader voters, what participating in non-presidential contests that were part of the 2000 general election, often voted for Republican candidates. Correspondingly, Buchanan voters voted for down-ballot Democratic candidates. Thus, the notion that a left-leaning (right-leaning) third party presidential candidate by necessity steals votes from Democratic (Republican) candidates does not hold.

Our results on the partisanships of Nader and Buchanan voters are based on vote patterns in a collection of more than three million ballots cast in ten counties in Florida. None of our results rely on voter self-reports, and they are therefore not subject to the potential biases that affect pre- or post-election voter surveys. As far as we know, our study is the first to use ballot images to study third party presidential voters.

We plan on extending our ballot-level analysis in three ways. First, we plan on writing about the partisanships of voters who cast invalid presidential votes. This will extend the work of Mebane (2003), who has conducted a limited ballot-level study of presidential non-votes. Mebane's analy-

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sis is constrained by the fact that much of the ballot data on which it depends describes only two voters per ballot.

Second, it is our understanding that very little is known about presidential voters who support truly minor third party candidates, i.e., socialist and libertarian candidates. Contemporary voting literature ignores these individuals, surveys only sample a minute number of them if any at all, and yet such voters, as the 2000 presidential election shows, can be pivotal. The statistical techniques described here can be used to estimate minor third party presidential voter partisanships, just as it was used to estimate the partisanships of Nader and Buchanan voters.

Finally, we plan to use our ballot images from the 2000 presidential election to study the effects of voter partisanship on down-ballot contests in general elections. Does voter partisanship effect state legislative races, or are these races dominated by incumbency effects or other valence factors? What about judicial races and county-level contests? Very little is known about the factors that drive vote choices in races below president, Congress, state governor, and so forth, and our ballot data will facilitate a new look at these contests.

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