



Misvotes, Undervotes and Overvotes: The 2000 Presidential Election in Florida

Alan Agresti; Brett Presnell

Statistical Science, Vol. 17, No. 4, Voting and Elections. (Nov., 2002), pp. 436-440.

Stable URL:

<http://links.jstor.org/sici?sici=0883-4237%28200211%2917%3A4%3C436%3AMUAOT2%3E2.0.CO%3B2-H>

Statistical Science is currently published by Institute of Mathematical Statistics.

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/about/terms.html>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/journals/ims.html>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

The JSTOR Archive is a trusted digital repository providing for long-term preservation and access to leading academic journals and scholarly literature from around the world. The Archive is supported by libraries, scholarly societies, publishers, and foundations. It is an initiative of JSTOR, a not-for-profit organization with a mission to help the scholarly community take advantage of advances in technology. For more information regarding JSTOR, please contact support@jstor.org.

Misvotes, Undervotes and Overvotes: The 2000 Presidential Election in Florida

Alan Agresti and Brett Presnell

Abstract. The 2000 presidential election was the most controversial U.S. election in recent history, mainly due to the disputed outcome of the election in Florida. Elsewhere in this issue, Richard Smith analyzes the high vote for Pat Buchanan in Palm Beach county. As background for his article, we summarize this and other voting-related issues that may have affected the outcome of the election in Florida, such as the undervote in counties that used a punch-card ballot and the overvote in counties that used multicolumn and multipage ballots.

Key words and phrases: Outlier, regression, ballot design.

1. INTRODUCTION

The state of Florida played a key role in determining the outcome of the 2000 presidential election. Although Al Gore won the nationwide popular vote by over 500,000 votes, he lost Florida by 537 votes. Florida's 25 electoral votes in turn gave George W. Bush a 4 vote (271 to 267) margin of victory in the Electoral College.

Several issues arose in the postelection controversy over the Florida vote. Just after election day, Palm Beach county's surprisingly strong vote for Pat Buchanan received considerable attention. This is the focus of Richard Smith's article in this issue. Our discussion below is intended to give readers a brief overview of this and other voting-related issues in that election. Besides the Buchanan vote, most prominent in the media was the undervote (e.g., "hanging chad") in counties that used a punch-card ballot. The high overvote rate associated with multicolumn and multipage ballots received less media attention, but may have been more important in determining the election's outcome.

Alan Agresti is Distinguished Professor in the Department of Statistics, University of Florida, Gainesville, Florida 32611-8545 (e-mail: aa@stat.ufl.edu). Brett Presnell is Associate Professor in the Department of Statistics, University of Florida, Gainesville, Florida 32611-8545 (e-mail: presnell@stat.ufl.edu).

2. THE BUCHANAN VOTE IN PALM BEACH COUNTY

In Palm Beach county, initial election returns reported 3,407 votes for the Reform party candidate, Pat Buchanan. Some people claimed these votes were largely intended for Al Gore, but wrongly cast for Buchanan because of the design of the butterfly ballot (see Figure 1), which many voters apparently found confusing. This prompted several researchers to perform statistical analyses to study whether the Buchanan vote was higher than could be expected, given various vote totals in this and other elections, registration totals for various parties and demographic variables. Smith (2002) reviews some of these analyses and provides his own detailed analysis.

Figure 2 illustrates why skepticism arose over the Buchanan vote. In 1996 the Reform party candidate for President was Ross Perot. Figure 2 plots the countywide vote for Buchanan in 2000 against the countywide vote for Perot in 1996. Palm Beach county is a clear outlier. Smith (2002) points out that ordinary linear regression is not suitable for modeling such data and he discusses the use of transformations. An alternative approach is to model the countywide Buchanan votes as binomial responses, using logistic regression, for example. Severe overdispersion relative to the binomial model is to be expected, but this can be accommodated by using quasiliikelihood methods or mixture models such as the beta binomial. However, for any reasonable model the message seems to remain

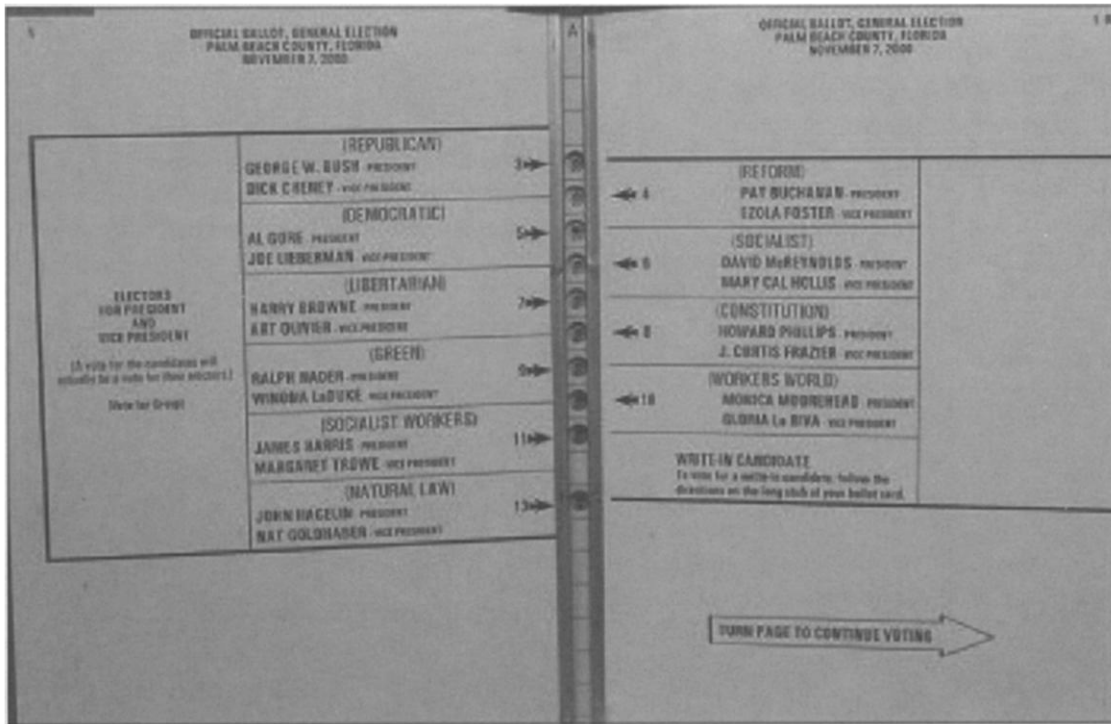


FIG. 1. *The Palm Beach county butterfly ballot.*

the same: the Buchanan vote in Palm Beach county was highly anomalous.

Besides statistical modeling, other analyses supported the contention that Buchanan may have received many votes intended for Gore. For instance,

Wand et al. (2001) noted that in Palm Beach county, Buchanan’s proportion of the vote on election-day ballots was four times his proportion on absentee (non-butterfly) ballots, yet the Buchanan proportion did not differ appreciably between election-day and absentee

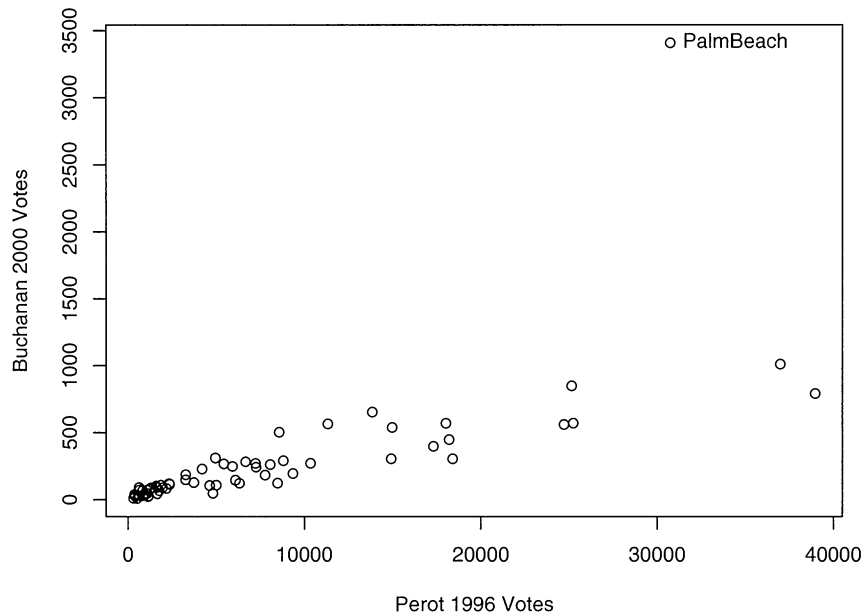


FIG. 2. *Total vote, by county, for Reform party candidates Buchanan in 2000 and Perot in 1996.*

ballots in any other Florida county. On the butterfly ballot, shown in Figure 1, Bush appeared first, followed by Buchanan, Gore and the Socialist party candidate, David McReynolds. If many who intended to vote for Gore had difficulty with this ballot, one would also expect an abnormally high vote for McReynolds. In fact, McReynolds received 302 votes in Palm Beach county, nearly half his statewide total of 622. Regression models predict a vote for him that is about 10% of his actual vote. The name on the ballot after the Socialist Party candidate was the Libertarian candidate, Harry Browne. The rest of Florida had 50 times as many Libertarian votes as Socialist votes, but in Palm Beach county there were only twice as many (Adams, 2001).

To reduce bias due to aggregation, statistical analyses should preferably use ballot-level or precinct-level rather than county-level data. See (Wand et al., 2001) for such analyses. Of course no statistical analysis can prove that Buchanan's Palm Beach county vote was mostly unintended, but the analyses by Smith (2002), Wand et al. (2001) and others suggest strongly that it was.

3. THE OVERVOTE IN PALM BEACH COUNTY

Also noteworthy in Palm Beach county was a relatively high number of ballots (19,235, or 4.2%) disqualified as "overvotes"—voting for more than one Presidential candidate. *The Palm Beach Post* inspected these ballots and reported (March 11, 2001) that Gore appeared on 15,371 (80%), Buchanan on 8,689, McReynolds on 4,567, Browne on 4,218 and Bush on 3,751. Of these, 5,330 voted for Gore and Buchanan and 2,908 voted for Gore and McReynolds. In 1996, with a standard ballot, only 3,073 overvotes occurred. This story also investigated associations with other votes on the ballot. For instance, 83% of the Gore–Buchanan overvote ballots had votes for Democrat Bill Nelson for U.S. Senator; Nelson received 62% of the vote countywide.

The evidence about the overvotes and the regression analyses of the Buchanan legal vote suggest that the butterfly ballot design is likely to have cost Gore a substantial number of votes in Palm Beach county. Given the small margin of victory statewide for Bush (537 votes), it is plausible that the ballot design cost Gore the election.

4. HIGHER UNDERVOTE FOR PUNCH-CARD BALLOTS

Miscast votes and overvotes cannot be counted as legal votes. Thus, the legal case brought by the Gore

campaign in the weeks after the election focused on the undervote (ballots reported as not showing a preference for President). In contesting the state-certified count, the Gore legal team claimed that punch-card ballots caused a relatively high undervote in the counties for which it requested recounts. The undervote rate was 0.3% in counties using ballots with optical scanning, but 1.5% in counties using the punch-card ballot; in the key county of Palm Beach, it was 2.2%.

The United States Supreme Court eventually blocked a manual recount of votes ordered by the Florida Supreme Court on the basis of the Gore appeal. However, a major study by the National Opinion Research Center (NORC) at the University of Chicago analyzed the rejected ballots. Their Florida Ballots Project has developed computer data bases based on detailed inspections of the 175,010 rejected ballots from all 6,000 Florida precincts. *The New York Times* reported (November 12, 2001) that the winner of the recounted election would have varied according to the standard used to determine voter intent, but that in every scenario the margin was narrower than Bush's final 537 vote lead. As of this writing, the web pages of *The New York Times* provide an interactive feature (<http://www.nytimes.com/images/2001/11/12/politics/recount/>) that uses the NORC data to compute the Florida vote that would have resulted from a recount under various standards for determining voter intent.

5. OVERVOTES AND BALLOT DESIGN

Palm Beach was not the only county with a serious overvote problem. For instance, the overvote in Duval county was 7.5%, a total of 21,942 ballots. The Duval county ballot had candidates for President on two pages. *The New York Times* (November 18, 2000) reported that more than 20% of the ballots in predominantly African–American precincts of Duval county were tossed out. The overvote was 11.6% in Gadsden county, the Florida county with the highest percentage of African–Americans.

An analysis, published by *The Miami Herald* and several other newspapers (May 11, 2001), reviewed 111,000 overvotes and 61,000 undervotes in Florida. Of the overvotes, Gore was marked on 84,197 ballots and Bush on 37,731. Voter intent was clear on only 3% of these ballots (e.g., on some ballots voters had both voted for Gore and written his name on the write-in line). These overvotes, if counted, would have yielded a net of 682 more votes for Gore than Bush.

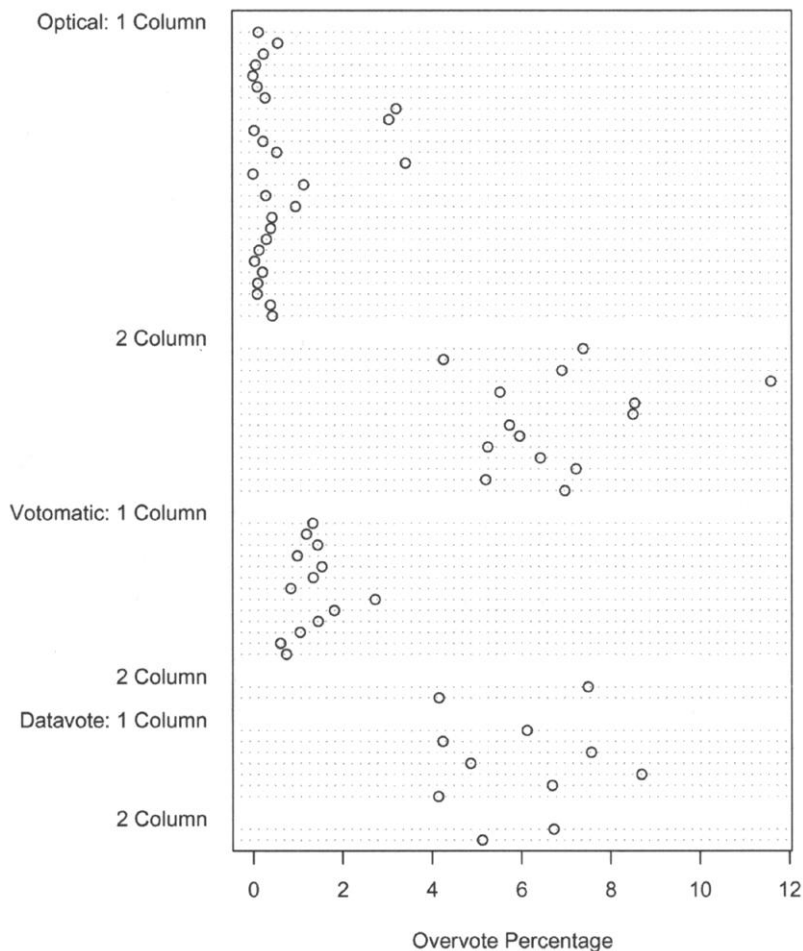


FIG. 3. Overvote percentages for 65 Florida counties. Union county, which used a hand ballot, and Martin county, which used a lever operated voting machine, are not shown.

The voting machinery that produced undervotes received considerable attention in the days following the election, but there were nearly twice as many overvotes as undervotes in Florida. The NORC study found that ballot design was critically important, regardless of the technology used. The overvote rate was five times as high in the 18 counties that used a two-column ballot as in those that used a one-column ballot. Figure 3 illustrates this, showing the overvote percentages for 65 Florida counties broken down according to number of columns on the ballot and the ballot type—optical scanning, Votomatic (where voters manually punch out chads) and Datavote (the voter presses a lever that punches out the chad mechanically). Clearly the effect of poor ballot design on the overvote rate was as strong in counties using an optically scanned ballot as in those using a punch-card ballot, so that upgrading voting technology alone will not solve this problem.

6. ERRORS IN PURGE LISTS

Ballot and voting machine problems were not the only things that prevented Floridians from registering their intended vote in the 2000 election. Many were purged from voter rolls and turned away from the polls after being incorrectly identified as felons on lists provided by the state to county elections supervisors. These errors have primarily been attributed to overly broad matching criteria used by the state to construct the lists.

The reported data on the lists are somewhat contradictory. According to a story in *The Palm Beach Post* (May 27, 2001), elections supervisors in 20 counties were so skeptical of the lists' accuracy that they ignored them altogether. It was widely reported in the press that roughly 2,900 voters previously convicted of felonies, but with their legal right restored, were nevertheless purged from voter rolls (*The Washington Post*, June 10, 2001). These lists also figured promi-

nently in a report by United States Commission on Civil Rights on voting irregularities in Florida during the 2000 presidential election (<http://www.usccr.gov/>). *The Palm Beach Post* reported that 88% of those purged were black, and with exit polls indicating that 90% of black voters favored Gore (*The Washington Post*, May 31, 2001), mistakes in these lists may have worked to Bush's advantage in the election. However, it seems very unlikely that the effect of errors in these lists on the 2000 presidential election can ever be accurately determined.

7. SUMMARY

In many ways, the 2000 Presidential election in Florida appeared to be a "statistical tie." The difference between the state-certified vote for Gore and Bush is likely to be much smaller than the potential number of additional votes if all truly legal votes could be accurately counted. Evidence provided by the inspection of

ballots in the NORC Florida Ballots Project supports this conclusion.

Sadly, there was a very large number of illegal votes, as well as votes apparently cast for other than the intended candidate, due to such factors as the butterfly ballot, the two-column and two-page ballots, voter confusion and voter carelessness. Much of the available information suggests that these factors worked primarily against Al Gore, perhaps in the magnitude of thousands, or even tens of thousands of votes.

REFERENCES

- ADAMS, G. (2001). Voting irregularities in Palm Beach, Florida. *Chance* **14**(1) 22–24.
- SMITH, R. L. (2002). A statistical assessment of Buchanan's vote in Palm Beach county. *Statist. Sci.* **17** 441–457.
- WAND, J. N., SHOTTS, K. W., SEKHON, J. S., MEBANE, JR., W. R., HERRON, M. C. and BRADY, H. E. (2001). The butterfly did it: The aberrant vote for Buchanan in Palm Beach County, Florida. *American Political Science Review* **95** 793–810.