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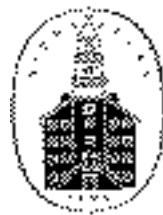
by

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The Fuzzy Math on Butterfly Ballots and the Buchanan Vote

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The Fuzzy Math on Butterfly Ballots and the Buchanan Vote

At the core of the Democrats' challenge to the November 7, 2000 election results in Florida was the ballot design for Palm Beach County. The "butterfly ballot" was said to easily confuse voters. On such a ballot there are two columns of candidates with a single line of punch holes that a voter removes to indicate his or her choice. The butterfly ballot in Palm Beach County listed George W. Bush at the top of the left column, Pat Buchanan at the top of the right column, and Al Gore below Bush. Florida Democrats argued that voters who intended to vote for Gore inadvertently marked the second (not the third) punch and thus accidentally voted for Buchanan.

For all the hue and cry about the reliability and accuracy of manual counts and recounts, the magnitude of the Buchanan vote in Palm Beach County warrants a closer look. In this brief note, we use simple bilinear regression to predict the number of Buchanan votes in Palm Beach County using three measures of voter registration or votes cast. The primary source of information on registered voters and vote totals for each of Florida's 67 counties is election.dos.state.fl.us, the web site for Florida's Division of Elections.

To project the Buchanan vote for Palm Beach County alone, the Reform Party or Buchanan vote was regressed separately on each one of the following predictors: (i) the

total number of voters registered with the Reform Party as of October 10, 2000 (*REFORMREG2000)*; (ii) the total number of votes cast for the Reform Party presidential candidate (Ross Perot) in the November 5, 1996 General Election (*REFORM1996*); and (iii) the total number of votes cast for Pat Buchanan in the March 12, 1996 Republican Presidential Primary (*BUCHANAN1996*).

All three regressions were run excluding the observation on Palm Beach County. To determine the predicted Buchanan vote for Palm Beach County, the value of the regressor for Palm Beach County was plugged into each regression equation. The regression results for *REFORMREG2000* were:

$$BUCHANANVOTE = 50.85 + 2.47 \ REFORMREG2000$$
$$(3.96) \ \ (20.63)$$
$$R^2 = .87$$

where absolute *t*-ratios are in parentheses. In this case, the value of the regressor for Palm Beach County was 357 and the predicted Buchanan vote was 884. For *REFORM1996* (the value of the regressor was equal to 30739) and *BUCHANAN1996* (8788), the predicted Buchanan vote was 796 and 692, respectively. By comparison, the actual Buchanan vote on November 7, 2000 in Palm Beach County was 3411 votes. The difference between the actual Buchanan vote total in Palm Beach County and what would be predicted for Buchanan using various measures of Reform Party strength ranges from 2527 to 2719 votes. Al Gore lost the election in the state of Florida (the state's electoral votes and hence the presidential election) by 537 votes.