

BALLOT CONFUSION

Some Palm Beach County voters are complaining that they inadvertently voted for Reform Party candidate Patrick Buchanan when they thought they were voting for Al Gore. They blame what they say was a confusing ballot.

OFFICIAL BALLOT, GENERAL ELECTION
PALM BEACH COUNTY, FLORIDA
NOVEMBER 7, 2000

Voters in Palm Beach County who wanted to vote for Al Gore were supposed to punch No. 5. But some said they thought they thought No. 4 was the right hole to punch for Gore.

(REPUBLICAN) GEORGE W. BUSH - PRESIDENT DICK CHENEY - VICE PRESIDENT	3 →		
(DEMOCRATIC) AL GORE - PRESIDENT JOE LIEBERMAN - VICE PRESIDENT	5 →	← 4	(REFORM) PAT BUCHANAN - PRESIDENT EZOLA FOSTER - VICE PRESIDENT
(LIBERTARIAN) HARRY BROWNE - PRESIDENT ART OLIVIER - VICE PRESIDENT	7 →	← 6	(SOCIALIST) DAVID McREYNOLDS - PRESIDENT MARY CAL HOLLIS - VICE PRESIDENT
(GREEN) RALPH NADER - PRESIDENT WINONA LaDUKE - VICE PRESIDENT	9 →	← 8	(CONSTITUTION) HOWARD PHILLIPS - PRESIDENT J. CURTIS FRAZIER - VICE PRESIDENT
(SOCIALIST WORKERS) JAMES HARRIS - PRESIDENT MARGARET TROWE - VICE PRESIDENT	11 →	← 10	(WORKERS WORLD) MONICA MOOREHEAD - PRESIDENT GLORIA La RIVA - VICE PRESIDENT
(NATURAL LAW) JOHN HAGELIN - PRESIDENT NAT GOLDHABER - VICE PRESIDENT	13 →		
		WRITE-IN CANDIDATE To vote for a write-in candidate, follow the directions on the long stub of your ballot card.	

How would we know if Pat
Buchanan got “too many votes”
in Palm Beach County?

Look at the ballots



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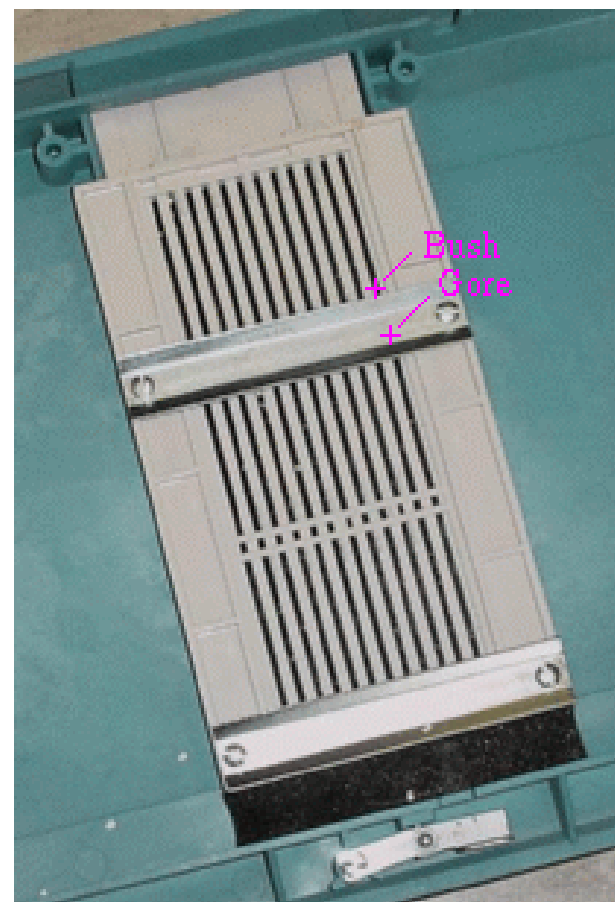
OFFICIAL BALLOT, GENERAL ELECTION
PALM BEACH COUNTY, FLORIDA
NOVEMBER 7, 2000

ELECTORS FOR PRESIDENT AND VICE PRESIDENT <small>(A vote for the candidates will actually be a vote for their electors.)</small> <small>(Vote for Group)</small>	(REPUBLICAN)	3 →
	GEORGE W. BUSH · PRESIDENT DICK CHENEY · VICE PRESIDENT	
	(DEMOCRATIC)	5 →
	AL GORE · PRESIDENT JOE LIEBERMAN · VICE PRESIDENT	
	(LIBERTARIAN)	7 →
	HARRY BROWNE · PRESIDENT ART OLIVIER · VICE PRESIDENT	
	(GREEN)	9 →
	RALPH NADER · PRESIDENT WINONA LaDUKE · VICE PRESIDENT	
	(SOCIALIST WORKERS)	11 →
	JAMES HARRIS · PRESIDENT MARGARET TROWE · VICE PRESIDENT	
	(NATURAL LAW)	13 →
	JOHN HAGELIN · PRESIDENT NAT GOLDHABER · VICE PRESIDENT	

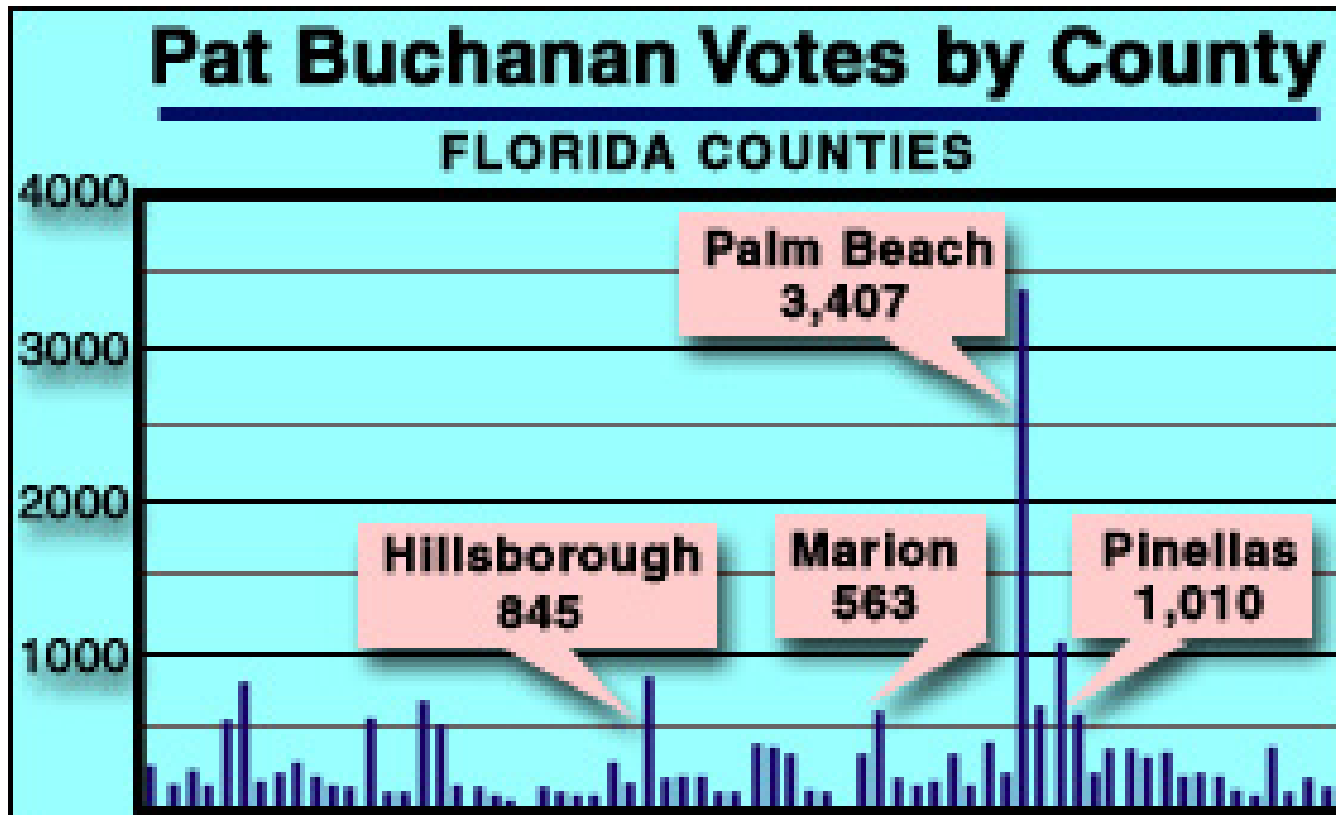
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OFFICIAL BALLOT, GENERAL ELECTION
PALM BEACH COUNTY, FLORIDA
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← 4	(REFORM)
	PAT BUCHANAN · PRESIDENT EZOLA FOSTER · VICE PRESIDENT
← 6	(SOCIALIST)
	DAVID McREYNOLDS · PRESIDENT MARY CAL HOLLIS · VICE PRESIDENT
← 8	(CONSTITUTION)
	HOWARD PHILLIPS · PRESIDENT J. CURTIS FRAZIER · VICE PRESIDENT
← 10	(WORKERS WORLD)
	MONICA MOOREHEAD · PRESIDENT GLORIA La RIVA · VICE PRESIDENT
	WRITE-IN CANDIDATE To vote for a write-in candidate, follow the directions on the long stub of your ballot card.

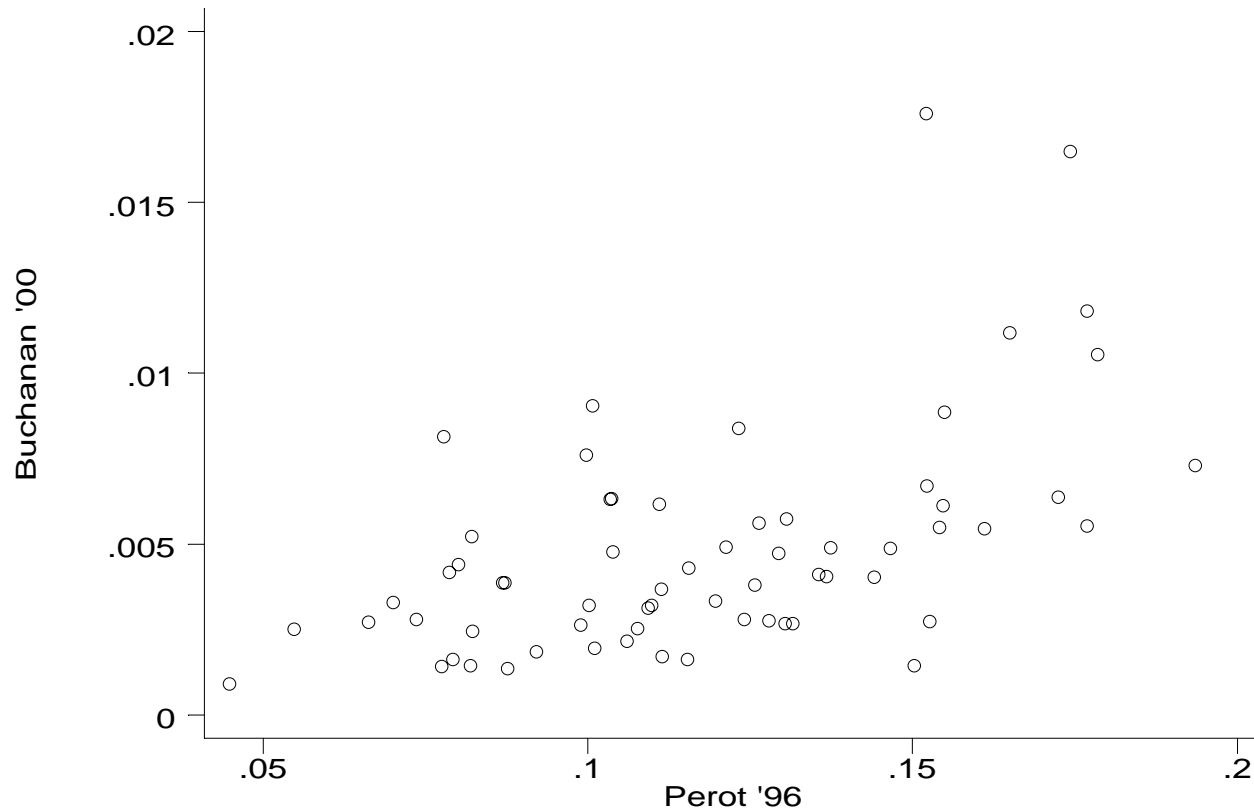


Look at the trends

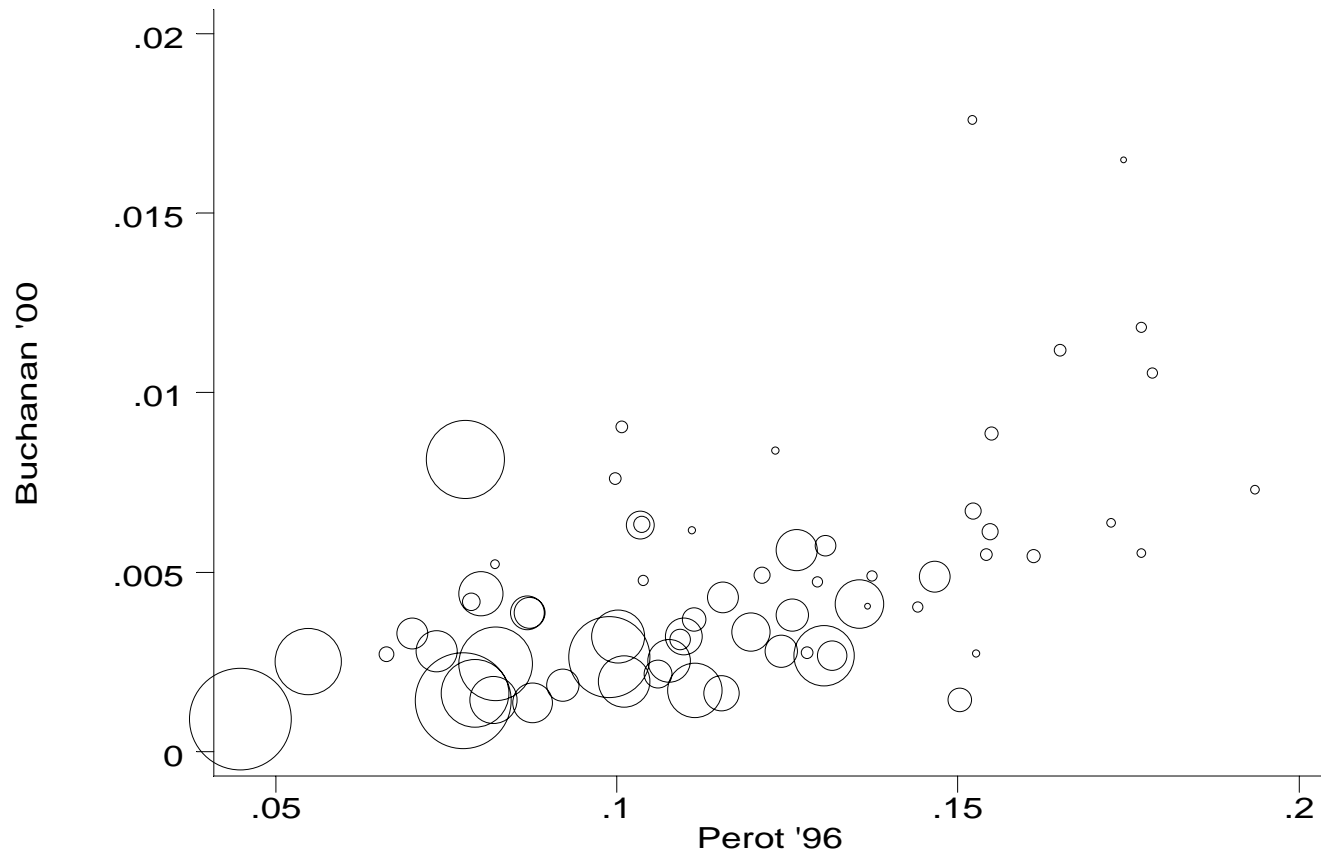


Do statistical analysis

Florida: Perot vote in '96 vs. Buchanan vote in '00 (I)



Florida: Perot vote in '96 vs. Buchanan vote in '00 (II)

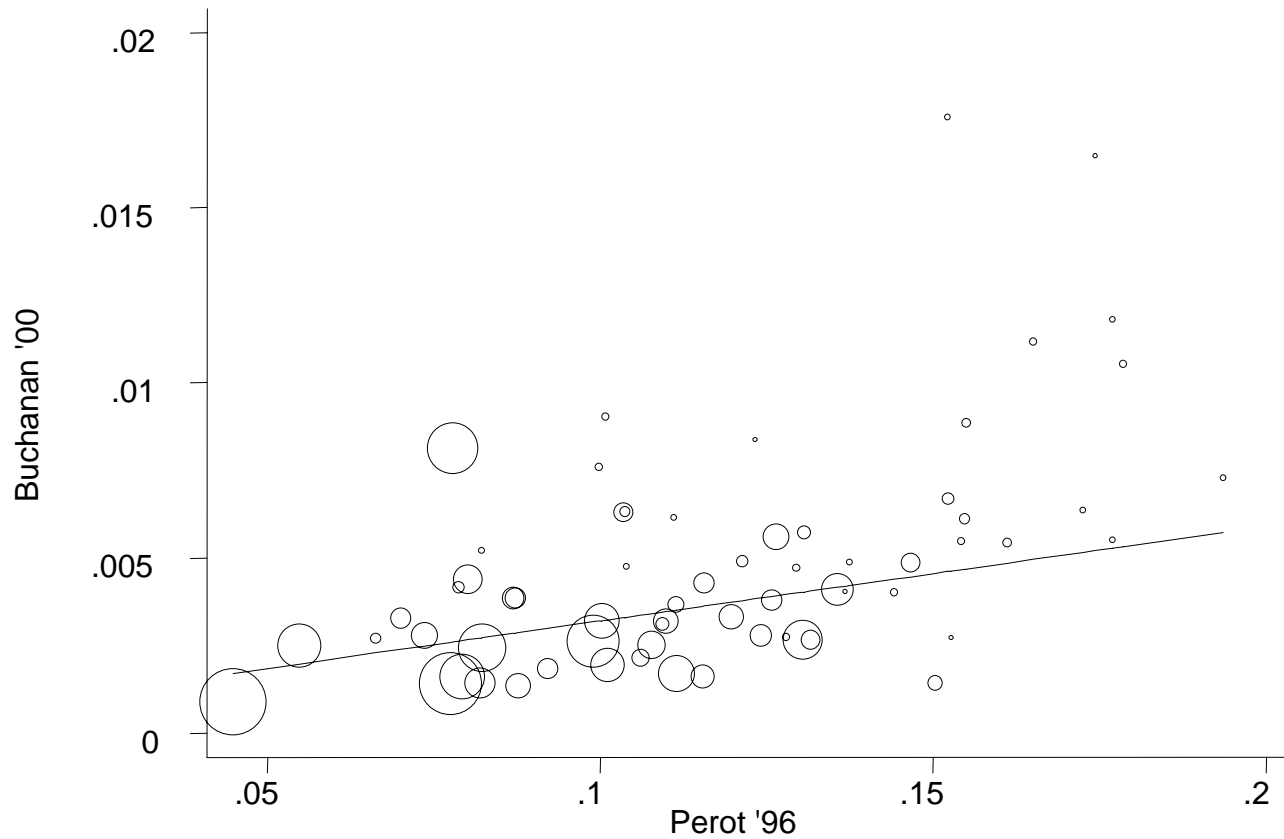


Run the regression

- $E(\text{Buchanan \% in 2000}) =$
 $.0005 + .027 (\text{Perot \% in 1996})$
 $(.0008) \quad (.009)$

$$R^2 = .14$$

The regression line



Account for Palm Beach

2000 vote for Buchanan = 0.81%

Accounted for as follows:

1996 vote for Perot = 0.26%

(.0005 + .027 x 0.26%) = 0.12%

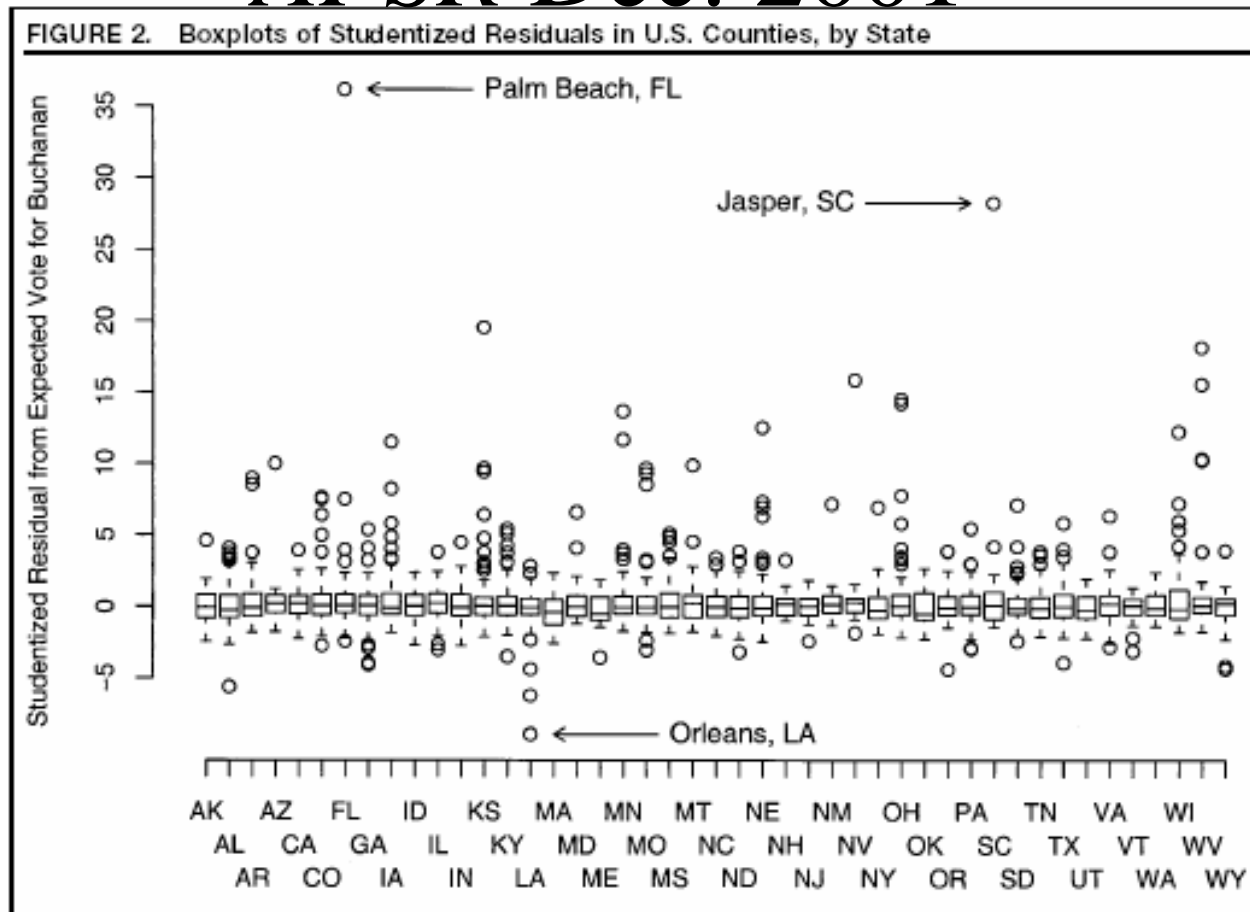
“Error” = 0.69% (=0.81% - 0.12%)

Therefore, Buchanan *most likely* got 2,478 more votes
(i.e. .0069 x 359174 = 2,478) than he “should have.”

Wand, et al

“The Butterfly Did It: The Aberrant
Vote for Buchanan in Palm Beach,”

APSR Dec. 2001



What's the best voting technology?

	% of counties using technology		% of population covered by technology	
	1980	2000	1980	2000
Paper ballots	40.4	12.5	9.8	1.3
Lev. Machines	36.4	14.7	43.9	17.8
Punch card				
“VotoMatic”	17.0	17.5	30.0	30.9
“DataVote”	2.1	1.7	2.7	3.5
Opt. Scanned	0.8	40.2	9.8	27.5
Electronic (DRE)	0.2	8.9	2.3	10.7
Mixed	3.0	4.4	10.4	8.1

How do the technologies fare?

“Residual vote”

Machine type	Residual vote			N
	Average	Margin of error	Median	
Paper ballot	2.0%	+/- 0.14%	1.9%	1,020
Lever machine	1.6%	+/- 0.10%	1.3%	1,072
Punch card				
“VotoMatic”	2.9%	+/- 0.09%	2.5%	1,462
“DataVote”	3.2%	+/- 0.33%	2.3%	296
Optical scanned	2.3%	+/- 0.19%	1.6%	958
Electronic (DRE)	3.0%	+/- 0.17%	3.1%	294
Mixed	2.1%	+/- 0.23%	1.7%	322

How do the technologies fare?

Multivariate analysis

Machine contrast	Estimated Diff. In % R.V.	Margin of error
Paper ballot v. Levers	-0.70	+/- 0.53
“VotoMatic” v. Levers	1.13	+/- 0.52
“DataVote” v. Levers	1.95	+/- 0.80
Opt. Scan v. Levers	0.20	+/- 0.44
DRE v. Levers	1.23	+/- 0.39