SOCIAL SCIENCE
RESEARCH COUNCIL
http://www.ssrc.org

INTERIM REPORT ON ALLEGED IRREGULARITIES IN THE UNITED STATES PRESIDENTIAL ELECTION OF 2 NOVEMBER 2004

22 December 2004

Henry E. Brady, University of California (Berkeley)
Guy-Uriel Charles, University of Minnesota
Benjamin Highton, University of California (Davis)
Martha Kropf, University of Missouri (Kansas City)
Walter R. Mebane, Jr., Cornell University
Michael Traugott, University of Michigan

A Working Group of
THE NATIONAL RESEARCH COMMISSION ON ELECTIONS AND VOTING
A Project of the Social Science Research Council
810 Seventh Avenue
New York, NY 10019 USA

EXECUTIVE SUMMARY

Based on an analysis of available data and reports, this National Research Commission on Elections and Voting working group finds no current evidence of irregularities of sufficient magnitude or scope to change the popular vote or Electoral College winner in the most recent presidential election. However, incomplete data and insufficient transparency of the election administration process do not allow for a conclusive statement regarding the accuracy or fairness of specific results at this time. Public doubts and remaining uncertainties over allegations in specific instances reflect serious inadequacies in our election administration and oversight system that must be addressed in order to strengthen the integrity and credibility of the American electoral process.

Key findings include:

- **Discrepancies between early exit poll results and popular vote tallies in several states may be due to a variety of factors and do not constitute *prima facie* evidence for fraud in the current election.**

- **Recent studies noting disparities between county registration rates and voting outcomes in Florida, as well as apparent "machine effects" favoring George W. Bush, are of limited significance and cannot be considered as evidence of election fraud.**

- **Ohio witnessed significant variability in wait times in some districts, sporadic instances of machine malfunctions, and possible voting tabulation errors, undercounts, and overcounts. Based on data available to this working group, it is extremely unlikely that the absence of these irregularities would have shifted popular vote tallies sufficiently to change the declared winner in Ohio. However, continuing uncertainty over the extent of irregularities merits closer public scrutiny and full disclosure of relevant data.**

- **A definitive resolution of some allegations of malfeasance or irregularities in the most recent presidential election may never be possible, due to inadequate data and insufficient transparency of the election administration process in many states.**

- **To restore public credibility in our election system, and to ensure the effective resolution of electoral process controversies in future elections, full and transparent collection and public disclosure of electoral process data are vital.**

INTRODUCTION

In the wake of continuing public debates over several purported irregularities in the most recent presidential election, the National Research Commission on Elections and Voting has tasked a working group with reviewing and assessing the significance of current controversies concerning disparities between exit polls and final vote tallies in several states as well as alleged irregularities in Florida and Ohio.

This report describes the interim findings of the working group, based on publicly available data and arguments as of December 21, 2004. The first section reviews the significance of allegations that disparities between exit polls and vote tallies constitute evidence of errors in vote counting. The second section reviews two major controversies surrounding the election in Florida: wide disparities between county party registration breakdown and voting behavior, and statistical claims that electronic voting machines awarded excess votes to George W. Bush. The third section assesses the significance of alleged irregularities currently at issue in Ohio, including: variation in waiting time across precincts; machine distribution and residual vote rates;[1] and the handling of provisional ballots. Each consideration of purported irregularities concludes with suggestions for necessary follow-up research and implications for reform. The conclusion situates the findings of the study within a larger set of electoral process themes of concern to the Commission. A summary table of major recommendations follows the report.

[1] Residual votes are the sum of undervotes (where there is no apparent mark for any candidate in the election) and overvotes (where there are two or more marks that make the ballot invalid for that race).

DISPARITIES BETWEEN EXIT POLL RESULTS AND OUTCOMES IN BATTLEGROUND STATES

On November 2, early exit poll results showing significant leads for John Kerry in several battleground states were leaked to the public via the Internet.[2] One consequence was that observers could see shifts in the exit poll results through the afternoon and evening on the websites of both news organizations and well-known blogs, raising suspicions that the early exit poll results were correct and that the actual vote totals had been manipulated or reflected administrative or tabulation errors. Final popular vote tallies at the end of the evening often differed markedly from these early poll results. Table 1 provides some illustrative examples of these disparities, several of which were significantly larger than the standard "margin of error" reported by exit polling organizations. Indeed, disparities between exit poll results and final vote counts in the 2004 election were larger than those observed in other recent presidential elections.[3]

---

[2] These polls were taken by a consortium of Edison Media Research and Mitofsky International, known as the National Election Pool (NEP), for the major news services. (http://www.cnn.com/ELECTION/2004/pages/results/states/US/P/00/epolls.0.html, last accessed 12/14/04). In the aftermath of the election, many news services filed apologies and explanations for the erroneous polls. See, for example, Schlesinger, Richard. "Shortcomings of Exit Polls." *CBS Evening News*. November 3, 2004. (http://www.cbsnews.com/stories/2004/11/03/eveningnews/main653562.shtml, last accessed 12/14/04). NEP officials have told members of this working group that the Democratic bias of state exit poll results in this election was slightly worse than in 1992, the last election to have seen such wide disparities.

[3] See, Freeman, Steven. "The Unexplained Exit Poll Discrepancy." November 10, 2004. (http://election04.ssrc.org/research/11_10,unexplained_exit-poll.pdf, last accessed 12/20/04). For outline of controversies around the discrepancy see Teixeira, Ruy. "Public Opinion Watch - November 10, 2004." (http://www.americanprogress.org/site/pp.asp?c=biJRJ8OVF&b=246518, last accessed 12/14/04). Horn, John. "Exit Polls Bog Down the Blogs." *The Los Angeles Times*. November 3, 2004. (http://www.latimes.com/news/politics/2004/la-na-blog3nov03,1,5060124.story?coll=la-home-headlines, last accessed 12/14/04).

Although these disparities have alarmed many observers, for several methodological reasons there is no *a priori* reason to believe that these differences reflect problems with the actual vote tallies. Rather, exit polls as currently designed and administered in the United States are not suitable for use as point estimators for the share of votes that go to different candidates. Their results, in conjunction with other elements of statistical models used by the National Election Pool (NEP) and the decision desks of their news organization members, are best suited for determining the difference between the two leading candidates and whether it is safe to call a particular race for one of them. Furthermore, the current design of exit polls is not well-suited to estimating whether certain aspects of an election functioned properly or not (for instance, efforts to assess whether particular types of voting machines were accurate).

The usefulness of exit polls as currently administered in the United States is limited by (a) the sampling of a relatively small number of precincts, (b) the difficulty of knowing whether a random sample of voters was contacted at each precinct, and (c) the difficulty of combining Election Day information with data on absentee and early voters.[4] Exit polls rely on heavily clustered samples of interviews in relatively small numbers of precincts that are combined with other statistical data to make a projection of an outcome. There are actually two sets of exit polls that are conducted simultaneously-- a national poll and then a series of state polls. The national sample is based upon interviews conducted in a sample of approximately 250 precincts (out of an estimated 185,000 precincts in the United States),[5] and the state-level samples are based upon

[4] Some critics have alleged that exit polls failed to include provisional voters. However, a person who casts a provisional vote presumably thinks they have voted, so they should have the same probability as any other voter of being sampled systematically by an NEP interviewer upon leaving the polling place.

[5] Election Data Systems estimated that there were 184,259 precincts for the 2004 general election (see http://www.electiondataservices.com/EDSInc_DREoverview.pdf, last accessed on 12/21/04).

smaller samples of precincts.[6] Because exit polls may not obtain a strictly random sample of voters at each precinct, exit pollsters typically weight their data to adjust for non-response and for known characteristics of the population. The problem of estimation is further complicated by the fact that partial data, such as were released in the afternoon on Election Day, are often unadjusted, not yet weighted for known attributes of the population or historical patterns of voting behavior (including by time of day).[7] An unusual increase in turnout could introduce additional biases with regard to any or all of these assumptions.[8] Finally, the increasing number of absentee and early voters means that exit polls must be supplemented by telephone surveys (or other methods) to obtain information on people who do not vote on Election Day.[9] These surveys add additional uncertainty to the information provided by exit polls. For the independent analyst examining the results of exit polls after Election Day, these issues are complicated by the fact that exit poll organizations do not typically disclose details regarding the source and quality of raw data or the transformations that have been performed on them. By the time that exit data are archived, they have been adjusted for such things as patterns of non-response and weighted to the actual outcome of the election.

Thus, because of these and other limitations intrinsic to their sampling methods, current exit polls are not well-suited for estimating differences in measures like turnout or vote division by

---

[6] The number of sampled precincts varies between 14 and 50 per state, and the average number of polling place interviews per precinct is between 38 and 79. (http://www.exit-poll.net/election-night/MethodsStatementStateGeneric.pdf, last accessed 12/20/04).

[7] Freeman 2004, p. 3.

[8] For example, Florida had a turnout of 56.0% in the 2004 election compared to 47.9% in the 2000 election, based upon its voting age population (VAP). This increase of 16.9% is due to the mobilization of both the Democratic and Republican parties, which were very effective but differential across the state in 2004. Using alternative estimates of turnout by altering the denominator in the calculation will alter the rate of increase but not the relative size of the increase in relation to 2000. It is also likely that in such an unusual environment historic patterns regarding differences in patterns of voting by time of day may not hold true.

[9] http://www.exit-poll.net/election-night/MethodsStatementStateGeneric.pdf, last accessed 12/20/04.

voting device, as the samples are not designed to reflect counties, or even specific county groups. There are other forms of statistical analysis, based upon designs that look like a natural experiment, to address some of these issues, and these analyses will be pursued by researchers when the appropriate data on election returns become available. Nevertheless, some analysts inappropriately attempt to use current exit poll results to investigate whether the results in a locale (state or country) are accurate or whether fraud might be involved in an election.[10] A certain form of exit poll could be used for this purpose, but again the designs would have to be different. To validate results in specific precincts or from particular machines, the designs would have to incorporate larger numbers of interviews with voters leaving the polls for precision.[11] And the stratification strategy would also need to be different, focusing on a combination of machine types and geography, for example, including a larger number of precincts at the first stage. There is little likelihood that the member organizations in the NEP would be willing to support the costs of such a design. Instead of using exit polls for validation, this kind of analysis could be pursued more efficiently with a paper trail system to which a sample of precincts and ballots could be applied to check against the machine totals from those same locations.

Recommendations for Future Research and Reform: More definitive tests of current theories seeking to explain exit poll discrepancies will require full disclosure of both the raw data and the specific weightings and other refinements used to transform them over the course of Election

---

[10] In a system where a president is elected by popular vote, a properly designed exit poll would work better for this purpose, although that is not the current system for electing the U.S. president. And the design of the sample would greatly affect whether fraud could be detected in a local area or broadly across the electorate. Under one possible malfeasance scenario, knowing where the precinct samples were located, one could perpetrate fraud in other areas that would not easily be detectable by the exit poll through a check of localized returns.

[11] Recent elections in Venezuela and Ukraine suggest that there could be a growing interest in this particular application, perhaps focused on new democracies. This is actually a fairly straightforward sampling issue, although it is distinct from news organizations' interests on Election Day. And it would be more expensive because the quantity of data (number of interviews) required would be much larger.

Day. Such disclosures would allow researchers to test possible explanations (e.g., that there were too many women in the sample, or that Kerry voters were more likely to agree to be interviewed than Bush voters). There is also another national exit poll, conducted by the *Los Angeles Times*, and several state-level exit polls that could be used to compare methods and estimates to look for similarities and differences with the NEP data.[12]

To ensure that the public and researchers are fully able to assess the significance and limitations of current and future exit polls, this working group recommends that methods, data, and weighting procedures should be fully disclosed for all exit polls in accordance with accepted public opinion survey research practices, such as those endorsed by the American Association of Public Opinion Research (AAPOR) and the National Council on Public Polls (NCPP). The timely disclosure of such information would allow public observers to ascertain the significance and limitations of purported findings.

ALLEGED IRREGULARITIES IN FLORIDA

Major Claims

Since the 2004 presidential election, two major claims regarding possible irregularities in Florida have received widespread attention. One has focused on counties with high percentages of registered Democrats where vote counts showed Bush receiving a large majority of votes.[13] This

[12] At the time of writing, the authors did not have access to the raw data of these additional polling exercises.
[13] See, for example, Drexel, Dale. "Was There a Major Panhandle Democrat Defection?" (http://www.socsci.umn.edu/~trex0003/FL2004.html, last accessed 12/14/04).

pattern drew attention because some argued it indicated that the optically scanned paper ballots used in those counties had been systematically miscounted to favor Bush. The other claim has centered on statistical analysis of voting patterns across counties that purports to show that touch-screen voting machines awarded tens of thousands of excess votes to Bush.

Current Assessment of Evidence for Disparities between Registration and Voting Outcomes

Some observer groups have argued that Bush received more votes than would be expected in certain counties with majority-Democrat registration profiles.[14] This Commission working group, however, concludes that the pattern of largely Democratic counties voting Republican in the Florida Panhandle can be consistently explained by historical trends in Florida and other Southern States (what is now popularly known as the "Dixiecrat" phenomena), which can be robustly demonstrated through empirical analysis.

To see the historical pattern of voting by county in Florida, the most direct method is simply to look at the data on partisan registration and voting for president. Table 2 shows Democratic presidential voting (DemV) and party registration (DemR) data for all counties in Florida going back to 1992, grouped by the type of voting machine used by each in 2004, either electronic touch-screen (E) or optical scan paper ballots (O). Counties that have a high proportion of registered Democrats in 2004 (for instance, above 60%) and used optical scan machines do tend

---

Dopp, Kathy. "Surprising Pattern of Florida Election Results." (http://ustogether.org/election04/FloridaDataStats.htm, last accessed 12/14/04).

[14] Hartmann, Thom. "Evidence Mounts that the Vote May Have Been Hacked." *CommonDreams.org*. November 6, 2004. (http://www.commondreams.org/headlines04/1106-30.htm, last accessed 12/16/04).

to have lower proportions voting for the Democrat in 2004, but the same pattern is apparent in votes going back to 1992.

In fact, this pattern appears to hold true as far back as the 1984 election. For instance, in Bradford County in 1984, Ronald Reagan won 4,128 votes to Walter Mondale's 2,341.[15] A break in the pattern of registered, conservative Democrats voting heavily for the Republican candidate for president occurred only when Southerner Jimmy Carter was on the ballot. In Bradford County in 1980, Carter won 3,340 votes to Reagan's 2,771 votes.[16]

Current Analysis of Claims of Systematic Machine-Related Fraud

Some statistical analyses of voting outcomes in Florida have purported to show that voting machine type independently influenced voting outcomes. In Florida in 2004, counties that did not use optical scan ballots used electronic touch-screen voting machines. Support for this claim has come from anecdotal evidence reported to watchdog groups[17] and a regression analysis using county-level data done by graduate students and a faculty member at the University of California, Berkeley.[18] Hout et al. (2004) attempted to assess the statistical properties of touch-screen voting machines on voting patterns across Florida counties, controlling for prior voting trends and several other socioeconomic and demographic characteristics thought to influence

---

[15] Bradford County Board of Elections. "Election Results for Bradford County from 1980 to 2004 (in .doc format)." (http://www.bradfordelections.com/results.htm, last accessed 12/19/04).
[16] Ibid.
[17] Nonpartisan groups such as People for the American Way Foundation, Common Cause, and USAction Education Fund have all reported receiving anecdotal evidence to this effect.
[18] Hout, Mike Laura Mangels, Jennifer Carlson, and Rachel Best. "The Effect of Electronic Voting Machines on Change in Support for Bush in the 2004 Florida Elections". November 22, 2004. (http://ucdata.berkeley.edu/new_web/VOTE2004/election04_WPwappendices.pdf, last accessed 12/14/04).

voting behavior. Based on several regression analyses, the Hout team found that "[i]rregularities associated with electronic voting machines may have awarded 130,000 excess votes or more to President George W. Bush in Florida."[19]

The findings of the preliminary Berkeley study have been challenged by statistical investigations undertaken by other scholars. Two other studies by political scientists, one by Jasjeet Sekhon[20] and one by Jonathan Wand,[21] have used more rigorous statistical methods and do not find a similar pattern of excess votes for Bush. Sekhon's study addresses the problem of confounding--the complication that arises when an apparent causal pattern may be explained by other correlated variables. As Hout et al. acknowledge, most of the counties in Florida that used different types of voting machines in 2004 also differed in many other characteristics. Demographic composition, size, urban density, and many other attributes differ, along with party registration profiles. Any difference in voting outcomes that is correlated with machine type (optical scan versus electronic touch-screen) may also be correlated with many other attributes. This means it is ambiguous whether any such correlation that may be found is caused by the voting machines or by one of the many other correlated factors.

Sekhon uses a propensity score matching method that is designed to try to correct for such ambiguities. If the effect of voting machine type is estimated by comparing only similar counties

---

[19] Hout et al. 2004, summary statement.
[20] Sekhon, Jasjeet. "The 2004 Florida Optical Voting Machine Controversy: A Causal Analysis Using Matching." November 14, 2004. (http://jsekhon.fas.harvard.edu/papers/SekhonOpticalMatch.pdf, last accessed 12/19/04).
[21] Wand, Jonathan. "Evaluating the Impact of Voting Technology on the Tabulation of Voter Preferences: The 2004 Presidential Election in Florida." November 15, 2004. (http://wand.stanford.edu/elections/us/FL2004/WandFlorida2004.pdf, last accessed 12/19/04).

to one another, then the confounding effects of other factors may be ruled out. The goal is to achieve what is referred to as "balance" on all known covariates between each county that used optical scan machines and each county that used electronic touch-screen machines: the mean (suitably weighted) of each and every covariate should be the same in each set of counties. Sekhon finds that it is impossible to achieve balance if all the counties of Florida are included in the analysis. Indeed, only eight optical scan counties can be matched to seven electronic touch-screen counties. Estimating the effect of voting machine in this matched sub-sample, Sekhon finds no significant difference in the proportion of votes for Bush. This demonstration is sufficient to question the claim that optical scan machines systematically produced vote shares different from those electronic touch-screen machines produced. Any apparent machine effect that might be discovered involving the remaining 52 counties of Florida would be unavoidably confounded with other variables and hence causally ambiguous.

The only way to include all the counties of Florida in an estimate of a machine effect is to impose assumptions about the functional form of the relationships among all the many covariates. In general, there is no way to know whether such functional form assumptions are correct, so there is in general no way to know whether any results that depend on those assumptions are correct. With a county-level analysis, it is generally to be doubted that any functional form that may be specified corresponds to the processes that actually produced the votes recorded in the election.

Wand's study addresses the problem of functional form in a somewhat less skeptical manner than the perspective implicit in Sekhon's study. Wand uses a method for robust estimation of a

binomial regression model. This method commits to a particular functional form but allows that the assumed model may not be a reasonable approximation to the processes that produced all of the data. If the votes in one or more counties are not well described by the same model that describes the votes in most of the counties, then the estimated model does not depend on the discrepant counties, and the discrepant counties are flagged as outliers. These methods proved effective in detecting anomalous outcomes in Florida and elsewhere in the 2000 presidential election.[22] Wand estimates a county-level model for the Kerry-Bush vote split where the regressors include: vote in the 2000 election, changes in voter registration, campaign contributions, and machine type (optical scan versus electronic touch-screen). He finds no significant effect for machine type and only one outlier, namely Duval County, which used optical scan machines and (relative to the model) had an excess of votes for Kerry.

The Sekhon and Wand studies were originally prepared to address claims that there were suspiciously too many votes for Bush in the optical scan machine counties, but the demonstrations that there was no systematic machine effect challenge the results subsequently reported by Hout et al. Hout et al.'s result depends on the peculiar and seemingly arbitrary functional form they use. Many other, more natural models produce no significant estimate of a machine effect. For instance, the most direct model is to regress the logarithm of the number of votes for Bush in 2004 on the logarithm of the number of votes for Bush in 2000 and on a variable to indicate whether optical scan or electronic touch screen machines were used in each county. In that model the machine effect is estimated by ordinary least squares to be -0.012 with

[22] Wand, Jonathan, Kenneth Shotts, Jasjeet Sekhon, Walter Mebane, Michael Herron, and Henry Brady. "The Butterfly Did It: The Aberrant Vote for Buchanan in Palm Beach County, Florida." *The American Political Science Review*. 95:4 (December 2001).

a standard error of 0.026.[23] If the proportion of votes for Bush (out of the votes cast for either Bush or Kerry) is used instead of the number, then the effect is estimated to be -0.017 with a standard error of 0.019.[24] Perhaps the most compelling recent critique of the Hout et al. study is the demonstration by McCullough and Plassmann[25] that, using the same model but changing the dependent variable to be vote for Kerry instead of vote for Bush, produces an apparent excess of votes for Kerry on the electronic touch-screen machine.

Based on a review of these various studies, it is the consensus of this group that the county-level data currently available to the public cannot support the claim that electronic voting machines systematically awarded excess votes to George W. Bush. Other statistical models using county-level data do not find that voting machine type has an effect on outcomes. Estimates that reduce the confounding effects of other variables through careful pairwise comparisons have also failed to find a pattern.

Recommendations for Future Research and Reform: Although county-wide comparisons of voting technology and vote outcomes in Florida do not find a robust and independent "machine effect," only complete ballot and precinct-level data on voting patterns associated with different machine types would allow for a conclusive test of possible machine biases. In order to provide the transparency necessary to fully assess whether there may be "machine effects" present in specific precincts (in Florida or elsewhere), these authors recommend that precinct-level data

[23] Estimating the effect using the same regressors in an overdispersed Poisson model gives an estimate of -0.036 with a standard error of 0.020.
[24] The effect is estimated by weighted least squares, assuming that the residual variances are proportional to the total of the number of votes for Bush and the number for Kerry.
[25] McCullough, B.D. and Florenz Plassmann. "A Partial Critique of Hout, Mangels, Carlson and Best's 'The Effect of Electronic Voting Machines on Change in Support for Bush in the 2004 Florida Elections'." December 2, 2004. (http://election04.ssrc.org/research/critique-of-hmcb.pdf, last accessed 12/19/04).

and, where technically feasible, ballot-level data be made readily accessible. Further, these authors believe that a voter-verifiable audit trail may be necessary to assure citizens that their votes are counted correctly.

EXTENT AND SIGNIFICANCE OF ALLEGED IRREGULARITIES IN OHIO

Currently, several election administration concerns in Ohio are being debated and considered by public authorities and parties in legal disputes (including direct lawsuits against Secretary of State Kenneth Blackwell, President George W. Bush, other Republican officials[26] and two requests for recounts).[27] These concerns[28] include allegations that the type and availability of voting machines differed systematically across precincts, leading to longer lines and higher residual rates in some types of jurisdictions than in others. Other controversies focus on whether provisional ballots were unequally distributed and/or whether election administrators fully conformed with federal and state laws in providing instructions to voters.[29] There are also

---

[26] Dao, James and Albert Salvato. "As Questions Keep Coming, Ohio Certifies Its Vote Count." *The New York Times.* December 7, 2004. (http://www.nytimes.com/2004/12/07/national/07ohio.html?oref=login, last accessed 12/14/04). "Delay sought in Ohio electoral vote." *CNN*. December 13, 2004. (http://www.cnn.com/2004/ALLPOLITICS/12/13/ohio.electoralcollege.ap/index.html, last accessed 12/19/04).

[27] The National Voting Rights Institute (NVRI), the counsel for the two third-party candidates, David Cobb and Michael Badnarik, sued originally on November 22, 2004 and again on December 7, 2004 for a recount in Ohio. (http://www.nvri.org/defend-the-recount.html, last accessed 12/14/04). NVRI keeps a diary of updates about the recount status. (http://www.nvri.org/about/ohio_recount.shtml, last accessed 12/20/04).

[28] Fitrakis, Bob, Steve Rosenfeld, and Harvey Wasserman. "Startling New Revelations Highlight Rare Congressional Hearings on Ohio vote." *The Free Press*. December 13, 2004. (http://www.freepress.org/departments/display/19/2004/985, last accessed 12/14/04). Pitt, William Rivers. "Conyers Alarmed at Efforts to Obstruct Ohio Recount Effort, Calls Witness to Monday Hearing to Detail Such Efforts." *Truthout*. December 13, 2004. (http://truthout.org/docs_04/121404Z.shtml, last accessed 12/20/04).

[29] Another issue to gain some public attention, and to spark allegations of wrongdoing, was the double count of some ballots in one county. In late November of 2004, election officials in Sandusky County (voting age population of approximately 61,792) disclosed that 2,600 ballots from nine precincts had been mistakenly double counted, but this was found to be likely caused by human error. Media reports indicated that some of the ballots had to be placed on the floor. Mooney, Brian C. "Voting Errors Tallied Nationwide." *The Boston Globe.* December 1, 2004. (http://www.boston.com/news/politics/president/articles/2004/12/01/voting_errors_tallied_nationwide/, last accessed 12/19/04).

emerging allegations of malfeasance on the part of certain election officials regarding other aspects of the election administration process.[30]

Voting Access: Long Lines and Machine Availability

Anecdotal evidence released by watchdog groups thus far strongly suggests that there was widespread variation in wait times across at least some precincts in the state.[31] Most of these delays reflected fewer working machines available per voter. At least a portion of these instances occurred in urban districts with high minority concentrations.[32] Several eyewitnesses reported observing prospective voters leaving polling places without having voted because of very long wait times in certain precincts.[33]

---

[30] In particular, new concerns have been raised in the course of the recount proceedings. Numerous reports have been filed that charge that certain members of voting machine companies have gained unfettered access to voting machines due to be recounted. Others have charged that election officials, including Secretary of State Blackwell, have tried to stop the recount proceedings. Sherole Eaton's Affidavit. Filed December 10, 2004. (http://www.truthout.org/mm_01/5.121004.Robersondep.pdf, last accessed 12/20/04). Fitrakis, Bob, Steve Rosenfeld and Harvey Wasserman. "American Democracy Hangs by a Thread in Ohio." *The Free Press.* December 13, 2004. (http://www.freepress.org/departments/display/19/2004/986, last accessed 12/20/04). "Observers Document Widespread Problems with Ohio Recount." December 20, 2004. (http://www.votecobb.org/press/2004/dec/pr2004-12-20.php, last accessed 12/21/04). Rios et al. v. Blackwell (http://moritzlaw.osu.edu/electionlaw/docs/ohio/Rios/complaint.pdf, last accessed 12/17/04).

[31] 464 of the 3390 separate incidents of election-related problems in Ohio reported to the two hotlines (1-866-OUR-VOTE and 1-866-MY-VOTE-1) were coded as "long lines." (https://voteprotect.org/index.php?display=EIRMapNation&tab=ALL, last accessed 12/20/04). See also "A Report from the Voters: A First Look at the 2004 Election Data". *Common Cause*. December 7, 2004. (http://www.commoncause.org/atf/cf/{FB3C17E2-CDD1-4DF6-92BE-BD4429893665}/REPORT_TO_NATION2.PDF, last accessed 12/20/04). "Shattering the Myth: An Initial Snapshot of Voter Disenfranchisement in the 2004 Elections." *People for the American Way Foundation*. December 7, 2004. (http://www.pfaw.org/pfaw/dfiles/file_477.pdf, last accessed 12/20/04).

[32] The urban counties Cuyahoga (141 "long line" incidents), Delaware (199), and Franklin (54) represent 394 of the 464 reported incidents. (https://voteprotect.org/index.php?display=EIRMapState&tab=ALL&state=Ohio&cat=12&start_time=&start_date=&end_time=&end_date=&search=&go=Apply+filter, last accessed 12/20/04).

[33] See testimonies of Bill Moss (the lead plaintiff in Moss v. Bush) and Matthew Segal before a special meeting of the House Judiciary Committee, Washington, DC (December 7, 2004) and testimonies from the New Faith Baptist Church Public Hearing, Columbus, Ohio (November 13, 2004) (http://freepress.org/images/departments/4254PublicHearing.txt, last accessed 12/15/04) and the Franklin County Courthouse Public Hearing, Columbus, Ohio (November 15, 2004)

It is logical to speculate that excessive wait times may lower voter turnout. If long lines were more common in certain types of districts, then it is possible that these obstacles had systematic effects on voting outcomes. For example, if the ratio of registered voters to voting machines varies across precincts and/or counties, then simply by virtue of living in one geographic area or another-- a factor that ought not to be related to access-- some people will face greater obstacles (i.e., time commitments) to voting. Given the anecdotal evidence that long lines were concentrated in urban areas, there is special cause for concern because the impacts of long lines would likely not be partisan- or race-neutral, as urban areas have greater numbers of Democrats and minorities than suburban, exurban, and rural areas.

The body of anecdotal evidence available to date suggests that excessive wait times were, in fact, more common in Democratic-leaning urban districts than ex-urban Republican or rural districts. Using the ratio of registrants to voting machines as a proxy for wait times (with a larger ratio indicating that voters likely had to wait longer), available data for Franklin county--which includes Columbus-- shows that precinct-level support for Kerry was positively associated with wait time.[34] Figure 1 summarizes percentages of turnout and Kerry votes broken down by precincts with different ratios of machines to registered voter (Table 3 provides the same information in tabular format). In precincts where there were fewer than 275 registrants per voting machine, Kerry received an average of 46.6% of the vote. In precincts with 275-325

(http://freepress.org/images/departments/4263PublicHearing.txt, last accessed 12/15/04). Other testimonies are included in Verified Election Contest Petition in the Supreme Court of Ohio Case No. (R. C. 3515.08). (http://freepress.org/images/departments/Election_Contest.pdf, last accessed 12/16/04).

[34] See also http://copperas.com/machinery/ and http://copperas.com/machinery/fcunofficial.zip for comparisons of machines to number of registered voters, by party, as well as official election results.

registrants per voting machine, he received 55.7% of the vote. In precincts with the highest number of registrants per voting machine (over 325), and therefore likely the longest lines, Kerry received 65.3% of the precinct-level vote. Ratios of registrants per machine also appear to be negatively correlated with turnout percentages: in precincts with more registrants per machine, turnout figures were lower.

Given the apparent inverse correlation between the ratio of registrants to machines and levels of Kerry support, coupled with a similar negative relationship between the ratio of registrants to machines and turnout, it is tempting to conclude that Kerry lost votes due to long lines brought about by the relative scarcity of voting machines in precincts where Kerry support was the strongest. Such an argument depends on an assumption that turnout differences associated with registrant to machine ratios were in fact caused by these machine availability differences. But other causal factors may also explain turnout differences. For example, prior research has demonstrated that less educated citizens of all races and partisan affiliations have lower turnout than better educated ones.[35] If precincts with larger registrant to machine ratios have higher numbers of less educated registrants (perhaps because they are located in urban and less affluent areas), then one would expect lower turnout in these precincts, *even if there were no effect of registrant to machine ratios on turnout.*

---

[35] See, for example, Burnham, Walter Dean. "The Appearance and Disappearance of the American Voter". In *Electoral Participation: A Comparative Analysis*. Ed. Richard Rose. Beverly Hills, CA: Sage, 1980. Jackman, Robert W. "Political Institutions and Voter Turnout in the Industrial Democracies." *The American Political Science Review*. 81:2 (June 1987). Lijphart, Arend. "Unequal Participation: Democracy's Unresolved Dilemma." *The American Political Science Review*. 91:1 (March 1997). Piven, Frances Fox and Richard A. Cloward. *Why Americans Don't Vote*. New York: Pantheon Books, 1988. Rosenstone, Steven J. and John Mark Hansen. *Mobilization, Participation, and Democracy in America*. New York: Macmillan, 1993. Verba, Sidney, Kay Lehman Schlozman, and Henry E. Brady. *Voice and Equality: Civic Volunteerism in American Politics.* Cambridge: Harvard University Press, 1995. Wolfinger, Raymond E. and Steven J. Rosenstone. *Who Votes?* New Haven, CT: Yale University Press, 1980.

Thus, a more definitive analysis would first need to measure possible effects of other variables explaining turnout that are associated with machine availability in order to estimate the independent effect of machine ratios on turnout. At the time this report was completed, sufficient data to control for these other influences were not publicly available.[36] What would be the likely outcome if an analyst could control for other plausible factors related to turnout? Just as it is implausible to attribute all of the differences in turnout associated with varying registrant to machine ratios to machine availability, it seems equally implausible to argue that machine availability (and hence wait times) has no effect on turnout. Consequently, although with current data we cannot measure the independent effect of machine availability on turnout, we believe it reasonable to argue that long wait times in more Democratic districts suppressed turnout to some degree.[37]

Recommendations for Future Research and Reform: To provide full transparency needed to confirm the fair administration of elections, election officials in all states should be required to collect data on average wait times, machine availability, and demographic characteristics of voters across all precincts. Prior to any election, the distribution of voting machines should be managed in a fashion that both keeps the average wait time as short as possible and insures that the maximum wait time is uniform across precincts. Machine calibration, reliability, and training

[36] Members of the National Research Commission on Elections and Voting intend to secure this data and issue a preliminary analysis. The difficulty of securing such data underscores the recommendation contained in this report that electoral data should be made more publicly transparent, centralized, and available.

[37] It should be noted that, even if a precise turnout suppression effect of low machine availability could be determined, the findings of recount efforts in affected districts would not change. Votes that were not cast cannot be counted or recounted. In this regard, arguments justifying recounts are unrelated to those concerning the effects of long lines.

standards of poll workers should be uniformly enforced across precincts in accordance with state and federal laws.

Machine Error Rates, Vote Counting, and Provisional Ballots

In part because Ohio was a closely watched state during the 2004 election cycle, allegations concerning election process irregularities have received considerable public attention.[38] In addition to public controversies over long lines and machine placement, other debates continue over alleged overcounting and undercounting of votes. These debates focus on three major issues: the types and condition of voting equipment across precincts; the allegation that certain legitimate provisional votes may not have been counted;[39] and related accusations about poll worker training and administration irregularities. All of these debates are being played out within a number of legal struggles. After a brief description of the allegations contained in several recent legal challenges, this section considers the current scientific evidence and implications of irregularities stemming from differences in residual vote rates across machines and the administration of provisional ballots.

Recent Legal Challenges to the Ohio Election Results

The most serious allegation in the courts-- *Moss v. Bush*-- was filed with the Ohio State Supreme

[38] Many of these purported irregularities may have occurred in other states where media and public attention has not been focused. The watchdog groups that monitored the nonpartisan hotlines have a total 38,064 incidents recorded nationwide as part of their Election Incident Reporting System (EIRS). (https://voteprotect.org/index.php?display=EIRMapNation, last accessed 12/20/04).

[39] Franklin County, among others, has provided a complete list of persons issued provisional ballots. (http://www.co.franklin.oh.us/boe/content/1104_provisional.pdf, last access 12/17/04).

Court on December 13, 2004 and re-filed on December 17. Given state court precedent, the case is unlikely to go far. In order to prevail, the plaintiffs must prove by clear and convincing evidence that "(1) one or more election irregularities occurred, and (2) the irregularity or irregularities affected enough votes to change or make uncertain the result of the election."[40] Likewise, the court must first determine whether the plaintiffs have provided sufficient facts to conclude that there was fraud or irregularity in the presidential election and that the fraud or irregularity was so great that one cannot have any confidence in the outcome.[41] The plaintiffs allege that the discrepancy between the exit polls and the actual results indicated fraud. The questions are whether this discrepancy constitutes fraud or an irregularity by clear and convincing evidence and whether the plaintiffs can prove that the outcome would change by clear and convincing evidence. Even assuming that the plaintiffs are correct that there was a discrepancy between the exit polls for Ohio and the final certified results,[42] the court is unlikely to find that this discrepancy is the equivalent of fraud or is an irregularity. The cases in Ohio have found irregularities, not fraud, where election officials or other individuals engaged in wrongdoing.[43] It is unlikely that the court will infer fraud from the discrepancy alleged by the plaintiffs. Unless the plaintiffs present actual evidence of fraud or evidence from which one can reasonably infer fraud, the petition as it now stands is likely to be dismissed. Additionally, it is highly unlikely that the plaintiffs can provide sufficient facts to prove by clear and convincing evidence that the irregularities they allege would change the outcome of the vote. In their

---

[40] In re of Election of November 6, 1990 for Office of Attorney General of Ohio, 569 N.E. 2d 447, 450 (Ohio 1991).
[41] In re Petition of Concerned Citizens of Ward, 17, 468 N.E.2d 791, 793 (1984).
[42] See the first section of this report for our analysis on exit poll discrepancies, and as to why current evidence is not strong enough to suggest systemic fraud.
[43] In re Election, 452. Similarly, a court found irregularity where a registrar intentionally registered as voters individuals whom he knew were not qualified to vote and assisted individuals to vote whom he knew were unqualified to vote. In re Petition of Concerned Citizens, 793. For example, in In re Election of November 6, 1990, Chief Justice Moyer (who will hear the Plaintiffs' petition) concluded that the failure by election officials to properly rotate the order the candidates names on the ballot for Ohio Attorney General constituted an irregularity.

petition, the plaintiffs allege a specific number of votes by county that should have been cast on behalf of Kerry-Edwards. It is unclear from the petition how the plaintiffs arrive at those numbers. It is quite clear that a court will refuse to infer clear and convincing evidence on the basis of the allegations of the plaintiffs.

Other court challenges have included a series of cases around punch-card machine residual vote rates-- an ongoing controversy after the 2000 Florida debacle. The use of punch-cards and other forms of equipment that do not alert the voters when their completed ballots contain errors was the subject of a recent federal court case, resolved when the judge found in favor of the state of Ohio on December 14, 2004.[44] Other litigants have argued that punch-cards run higher risks of voter error than other methods, because the vote marking column is not directly attached to the names of the candidates, making it possible for the card to become misaligned during the voting process.[45]

Still another legal challenge centers on the implementation of the provisional ballot provision of the Help America Vote Act (HAVA), one of the two provisions that went into effect this year.[46] Ohio Secretary of State Kenneth Blackwell, who gained national attention when he attempted to

---

[44] The court's decision effectively upheld the continued use of punch-card ballots in Ohio, as well as central count optical scan machines. However, the Secretary of State does continue the plan to replace these technologies. See Effie Stewart et al. v. J. Kenneth Blackwell. An opinion by Honorable David D. Dowd was filed on December 14, 2004. (http://www.ohnd.uscourts.gov/Clerk_s_Office/Notable_Cases/02-2028.opinion.pdf, last accessed 12/17/04). It should also be noted that there are different types of punch-card machines—Votomatic and DATAVOTE. The latter is reputed to be more accurate, but was not used extensively this election cycle. DelValle v. McGuffage , No. (N.D. Ill. filed Feb. 5, 2001) and Common Cause v. Jones, No. (C. D. Cal. filed Apr. 17, 2001) were both filed against the Votomatic model.

[45] Brady, Henry E., Justin Buchler, Matt Jarvis, and John McNulty. *Counting All the Votes: The Performance of Voting Technology in the United States*. September 2001. (http://ucdata.berkeley.edu/new_web/countingallthevotes.pdf, last accessed 12/19/04).

[46] Most provisions are to be fully implemented by 2006. This year, only the change in ID requirements and provisional ballots were mandated, as most states decided to waiver implementation of the other requirements until 2006.

require that voter registration forms only be accepted if they were printed on at least 80 pound paper stock,[47] also came under attack for instructing poll workers not to count provisional ballots cast outside voters' correct precincts. On October 23, 2004, the Sixth Circuit Court of Appeals reversed a lower court and issued an order stating that Blackwell's directive did not violate HAVA.[48] Thus, provisional ballots were to be counted only if they were cast in the correct precinct; casting them in the correct county was not sufficient. The Sixth Circuit issued its full opinion on October 26, reiterating that HAVA permitted Ohio voters to cast provisional ballots only in their precinct of residence.[49] In a related lawsuit, a federal judge held that Blackwell could reasonably require that provisional ballot voters orally provide their numerical identifier to poll workers by the close of polling and that this requirement did not violate HAVA.[50]

People for the American Way Foundation filed suit November on 26 in the Eighth Ohio District Court of Appeals against Ohio Secretary of State Ken Blackwell and the Cuyahoga County Board of Elections. The action charges that poll workers and precinct judges "were deeply confused" about how to handle the provisional ballots and that Blackwell failed to provide clear instructions. People for the American Way requests that the court order Blackwell and the county elections boards to check electronic voter registration rolls against paper registration records, to notify each voter who cast an invalidated ballot why it was rejected, and to give these voters a means to challenge the invalidation. The plaintiff also wants ballots counted if voters

---

[47] Candisky, Catherine. "Blackwell Ends Paper Chase: Some could be unable to vote because of flap over registration forms". *Columbus Dispatch*. September 29, 2004.
[48] Sandusky County Democratic Party et al. v. Blackwell, 386 F.3d 815, 815-16 (6th Circ. 2004).
[49] Sandusky County Democratic Party et al. v. Blackwell, 387 F.3d 565, 568 (6th Circ. 2004).
[50] League of Women Voters v. Blackwell, 340 F.Supp.2d 823, 828 (N.D.Ohio 2004).

cast them in the wrong precincts because polling place officials failed to first send them to the correct precincts.[51]

Systematic Effects of Different Machine Error Rates on Election Outcomes

It has been well documented that different types of voting machines have different average residual vote rates. Different residual vote rates can reflect both machine type and the propensity of voters to make errors during the voting process.[52] Punch-card machines tend to have the highest rates of residual ballots at the top of the ticket-- approximately 3% of all presidential votes on punch-card machines are residual.[53]

In compliance with HAVA, Ohio is currently in the process of converting to new voting technologies, retiring older punch-card machines and replacing them with direct recording electronic voting machines (DREs). The Secretary of State's office has announced that it intends

---

[51] Other relevant lawsuits have been decided in Florida and Michigan. A Florida federal district court held that HAVA requires the issuance of provisional ballots to voters who believed they were registered, but further held that HAVA did not require that ballots cast in wrong precincts be counted. Florida Democratic Party v. Hood, 2004 WL 2414419 (N.D.Fla. 2004). The court relied on 42 U.S.C. § 15482(a)(4): "If the appropriate state or local election official ... [ultimately] determines that the individual is eligible under state law to vote, the individual's provisional ballot shall be counted as a vote in that election in accordance with state law." According to the district court, "eligible under state law" incorporates Florida's requirement that voters cast their ballots in the correct precinct. The court pointed to statements from the floor of congress that supported its conclusion. In Michigan, a federal court addressed a similar but slightly different question. Michigan law requires voters to vote within their "jurisdiction." In Michigan election law, "jurisdiction" refers to a city, village or township and a precinct is a subdivision of the "jurisdiction." Bay County Democratic Party v. Land, 2004 WL 2345560 (E.D.Mich. 2004). The court held that "no current provision in the Michigan election law disqualifies or renders ineligible a voter who casts a provisional ballot for a federal office for which he or she is qualified to vote within his or her jurisdiction but outside of his or her home precinct." Ibid.

[52] Ansolabehere, Stephen et al. "Residual Votes Attributable to Technology: An Assessment of the Reliability of Existing Voting Equipment." The Caltech/MIT Voting Technology Project. March 30, 2001. (*http://www.hss.caltech.edu/~voting/CalTech_MIT_Report_Version2.pdf*, last accessed 12/19/04). This year's election saw the highest residual vote rates in New Mexico. See Brosnan, James and Thomas Hargrove. "N.M. Leads Nation in 'Undervote'." *Scripps Howard News Service*. December 14, 2004. (http://www.abqtrib.com/albq/nw_state/article/0,2564,ALBQ_19863_3398082,00.html, last accessed 12/20/04).

[53] Ansolabehere 2001, p. 9.

to have the conversion process complete by the end of 2005. The state legislature also recently passed a law that would require a voter-verified paper trail on all the new DRE machines.[54] Electronic machines are also in the process of undergoing security checks.

These anticipated reforms and upgrades not withstanding, at present there remains substantial variation in machine type across counties. Table 4 provides the breakdown of machine type and party registrations for all 88 Ohio counties. The county-wide data available to these authors at this time does not suggest that the variation correlates to party registration, a claim made by some activists.[55] A comprehensive assessment of machine distribution effects would require full knowledge of machine type and availability in all precincts in Ohio, as well as data regarding the demographic profile of all eligible voters in each precinct, and ballot level data (including undervote and overvote rates).

More substantial data from the 2000 presidential election in Ohio do permit a more sophisticated preliminary evaluation of possible machine effects in that race.[56] In 2000, the residual vote rate was almost twice as high in Ohio for Votomatic punch-cards (about 2.25%) than for other systems (1.15% for non-punch-card systems, which include electronic, lever, and optical scan). These differences persist even when the average education level (a known predictor of residual vote rates[57]) in the counties is controlled for, although counties with low average levels of

---

[54] House Bill 262. Passed by the 125th General Assembly. (http://www.legislature.state.oh.us/bills.cfm?ID=125_HB_262, last accessed 12/19/04)
[55] This claim has been circulating in certain online forums, such as Democratic Underground. (www.democraticunderground.com, last accessed 12/20/04).
[56] Data on the 2000 elections is from a dataset used in Brady et al. 2001. Ohio-specific data is not contained in the report because of restrictions in the data-purchasing agreements made by the authors.
[57] Discussed in an earlier section of this report.

education using Votomatic punch-cards had significantly higher residual vote rates than those with higher average levels.

Drawing on this data, an analysis of the 2000 Ohio vote does not reveal a clear pattern of bias helping either the Republican or Democratic ticket. In the 2000 race, the number of voters who voted Republican in Votomatic punch-card counties was larger than the number who voted Democrat (there were about 1.60 million votes for Gore in punch-card counties and 1.73 million votes for Bush). Still, one might argue that punch-cards hurt Democrats more than Republicans in 2000 because counties with low education levels using punch-cards (and hence having high Votomatic style residual vote rates) were also disproportionately Democratic compared to punch-card counties with high education levels (with presumably lower residual vote rates). But this is not borne out in the evidence. Among counties using Votomatic style punch-cards, there is no systematic relationship between the percentage voting Republican (or Democrat) and education level.

Thus, even though it is true in Ohio in 2000 that those counties with higher education levels using punch-cards had lower residual vote rates, there is no partisan effect because there is no systematic relationship between education level of the county and its partisan make-up in the election. This data suggest that it is not very likely that the use of punch-cards in 2004 hurt the Democrats more than the Republicans.[58] If the 2004 data looks like the 2000 data, then there is no reason to believe that there were enough votes lost this year to change the election results.

[58] Indeed, even if we make the very extreme assumption that all of the 1% higher residual votes in punch-card counties were Democratic votes in 2000, the total number of votes lost by Democrats in 2000 would have been about 35,400. (That is, 1% of the total voters who came to the polls in those counties, which was about 3.54

Recommendations for Future Research and Reform: Previous studies provide sufficient evidence to suggest that voting equipment-specific variables may have different residual vote rates, even controlling for other factors. If machines with higher residual vote rates are more concentrated in certain types of precincts more than others, such differences could have systematic effects on election results. Although it is doubtful that differences in residual vote rates decided the winner of the presidential race in Ohio in 2004, scholars should undertake an analysis of the residual vote rates and voting equipment in Ohio precincts to encourage acceleration in the process of converting voting equipment to systems that have lower residual vote profiles. Given that ballot format and usability variables can also affect residual vote rates, analysts should also include these characteristics in their analyses of ballot errors as well.

Problems with Administration of Provisional Ballots

In the weeks immediately following the 2004 presidential election, some observers have charged that provisional ballots were unequally distributed to different demographic groups.[59] Other litigants have argued that Ohio's provisional ballot law is not consistent with federal law. Further, one current provisional ballot court case charges that election judges in Cuyahoga County often did not understand the affirmations and personal information required of

---

million)." Hence, even under this extraordinarily extreme assumption, residual votes could not make a significant change in the outcome in Ohio.

[59] Some evidence shows that a greater number of the provisional ballots that were later counted in Cuyahoga County came from predominantly African-American areas. It is uncertain why so many provisional ballots had to be issued to voters who were later found to be legitimate registrants. Analysis and mapping done by Joe Knapp. (http://www.dailykos.com/story/2004/12/15/143151/76, last accessed 12/19/04). See also Phillips, Richard Hayes. "Not Counting the Votes." *The Free Press*. November 24, 2004. (http://www.freepress.org/departments/display/19/2004/943, last accessed 12/19/04).

provisional voters.[60] Litigants contend that precinct officials gave inconsistent and sometimes erroneous directions to voters casting provisional ballots, violating "right to vote" laws. The plaintiffs argue that the Secretary of State's failure to provide clear, uniform, and legally valid standards and the actions taken by the county boards of elections when providing and counting these provisional ballots led to the rejection of thousands of provisional ballots cast on Election Day.

Based on the data and evidence available to this working group, it is not possible to establish with certainty whether, and to what extent, provisional ballot administration irregularities may have affected the measured outcome of the popular vote in Ohio. Although the numbers of provisional ballots at issue do not appear high enough to have decided the winner of the popular vote in Ohio (under any reasonable scenario), the possibility of such an occurrence would have been significantly higher in a closer election.

Recommendations for Future Research and Reform: Empirical analysis should be conducted in order to understand whether there were discrepancies in how provisional ballots were administered, particularly across different demographic and political groups. For instance, using precinct-level data, researchers could analyze whether counties with more African Americans and/or Democratic voters saw higher numbers of provisional ballots utilized, controlling for other factors, such as mobility. With appropriate data, analysts could also ascertain whether certain groups of voters had higher ballot disqualification rates than others, and if so, why.

---

[60] Mackey et al. v. Blackwell et al (http://moritzlaw.osu.edu/electionlaw/docs/ohio/MackeyMandamus.pdf, last accessed 12/17/04).

These findings could be used to inform a more uniform and transparent set of procedures governing the administration of provisional ballots in the future.

CONCLUDING STATEMENT

This interim briefing report concludes that fears of widespread election fraud based on national exit poll discrepancies or county voting patterns in Florida are not supported by the balance of publicly available evidence at this time. Continuing public allegations of irregularities in polling place conditions, voting machine distribution, vote counting, and provisional ballot administration in Ohio merit scrutiny of all available data and evidence. While these authors do not believe that the alleged irregularities in Ohio, if confirmed to be true, are of a sufficient magnitude to have changed the winner of the popular vote in that state, we believe that a systematic, nonpartisan review of all available evidence is necessary to confirm that the results of the election are legitimate.

Throughout this report, we have emphasized that full data disclosure and transparency of the election administration process are absolutely necessary to restore confidence in the American election system, reduce the likelihood of irregularities occurring in the future, and resolve allegations of misconduct should they be made. Although the authors of this report do not believe at this time that the current election was "stolen," we nonetheless acknowledge that nonpartisan observers will never know with full confidence whether all aspects of the most recent election were administered according to applicable laws. This is because the necessary data are either not collected or not publicly available, and because many details of the election

administration process in most states and counties are not fully disclosed to outside observers. In the wake of the 2000 election, some states have passed new "sunshine" laws that have significantly improved the quality and availability of information needed to assure the integrity of the election process. Recent legislation passed in Florida may serve as a model for some of these reforms.

Thus, based on lessons learned from the current election and additional analysis now being undertaken for a final report, the National Research Commission on Elections and Voting strongly endorses new national standards to ensure the collection and dissemination of baseline electoral process data in all future elections, including but not limited to: ballot-level demographic and voting outcome records; polling place training and election administration practices and conditions; machine distribution, functionality, calibration, and residual vote rates; precinct- and county-wide registration and voting records; numbers of absentee, provisional, and spoiled ballots; and records of new registration requests received, processed, and accepted. Especially because the American electoral system is now entering a dynamic period of change--with new technologies and upgrades of methods of tabulating votes-- it is vital that a robust system for monitoring and auditing election processes be built and deployed as soon as possible. Citizens must be confident that every eligible voter has a chance to participate in our elections and that when they do their votes will be tabulated as they were cast.

Summary of Recommendations for Future Research and Election Reform

Disparities between Exit Polls and Voting in Certain States	Alleged Irregularities in Florida
Recommendations for Future Research and Reform: More definitive tests of current theories seeking to explain exit poll discrepancies will require full disclosure of both the raw data and the specific weightings and other refinements used to transform them over the course of Election Day. Such disclosures would allow researchers to test possible explanations (e.g., that there were too many women in the sample, or that Kerry voters were more likely to agree to be interviewed than Bush voters). There is also another national exit poll, conducted by the *Los Angeles Times*, and several state-level exit polls that could be used to compare methods and estimates to look for similarities and differences with the NEP data. To ensure that the public and researchers are fully able to assess the significance and limitations of current and future exit polls, this working group recommends that methods, data, and weighting procedures should be fully disclosed for all exit polls in accordance with accepted public opinion survey research practices, such as those endorsed by the American Association of Public Opinion Research (AAPOR) and the National Council on Public Polls (NCPP). The timely disclosure of such information would allow public observers to ascertain the significance and limitations of purported findings.	*Recommendations for Future Research and Reform:* Although county-wide comparisons of voting technology and vote outcomes in Florida do not find a robust and independent "machine effect," only complete ballot and precinct-level data on voting patterns associated with different machine types would allow for a conclusive test of possible machine biases. In order to provide the transparency necessary to fully assess whether there may be "machine effects" present in specific precincts (in Florida or elsewhere), these authors recommend that precinct-level data and, where technically feasible, ballot-level data be made readily accessible. Further, these authors believe that a voter-verifiable audit trail may be necessary to assure the public that their votes are counted correctly.

Alleged Irregularities in Ohio

Voting Access: Long Lines and Machine Availability

Recommendations for Future Research and Reform:

To provide full transparency needed to confirm the fair administration of elections, election officials in all states should be required to collect data on average wait times, machine availability, and demographic characteristics of voters across all precincts.

Prior to any election, the distribution of voting machines should be managed in a fashion that both keeps the average wait time as short as possible and insures that the maximum wait time is uniform across precincts. Machine calibration, reliability, and training standards of poll workers should be uniformly enforced across precincts in accordance with state and federal laws.

Machine Error Rates and Possible Undercounts

Recommendations fo Future Research and Reform:

Previous studies provide sufficient evidence to suggest that voting equipment-specific variables may have different residual vote rates, even controlling for other factors. If machines with higher residual vote rates are more concentrated in certain types of precincts more than others, such differences could have systematic effects on election results.

Although it is doubtful that differences in residual vote rates decided the winner of the presidential race in Ohio in 2004, scholars should undertake an analysis of the residual vote rates and voting equipment in Ohio precincts to encourage acceleration in the process of converting voting equipment to systems that have lower residual vote profiles.

Given that ballot format and usability variables can also affect residual vote rates, analysts should also include these characteristics in their analyses of ballot errors as well.

Problems with Provisional Ballots

Recommendations for Future Research and Reform:

Empirical analysis should be conducted in order to understand whether there were discrepancies in how provisional ballots were administered, particularly across different demographic and political groups. For instance, using precinct-level data, researchers could analyze whether counties with more African Americans and/or Democratic voters saw higher numbers of provisional ballots utilized, controlling for other factors, such as mobility.

With appropriate data, analysts could also ascertain whether certain groups of voters had higher ballot disqualification rates than others, and if so, why. These findings could be used to inform a more uniform and transparent set of procedures governing the administration of provisional ballots in the future.

Summary Statement

The National Research Commission on Elections and Voting strongly endorses new national standards to ensure the collection and dissemination of baseline electoral process data in all future elections, including but not limited to: ballot-level demographic and voting outcome records; polling place training and election administration practices and conditions; machine distribution, functionality, calibration, and residual vote rates; precinct- and county-wide registration and voting records; numbers of absentee, provisional, and spoiled ballots; and records of new registration requests received, processed, and accepted.

Especially because the American electoral system is now entering a dynamic period of change-- with new technologies and upgrades of methods of tabulating votes—it is vital that a robust system for monitoring and auditing election processes be built and deployed as soon as possible.

Citizens must be confident that every eligible voter has a chance to participate in our elections and that when they do their votes will be tabulated as they were cast.

TABLE 1: COMPARISON OF EXIT POLL AND POPULAR VOTE RESULTS IN ELEVEN STATES FOR PRESIDENTIAL ELECTION OF NOVEMBER 2, 2004[61]

State	Bush Predicted	Kerry Predicted	Predicted Differential		Bush Tallied	Kerry Tallied	Tallied Differential		Tallied vs. Predicted		Sample Size
Colora-do	49.9%	48.1%	Bush	1.8	52.0%	46.8%	Bush	5.2	Bush	3.4	2515
Florida	49.8%	49.7%	Bush	0.1	52.1%	47.1%	Bush	5	Bush	4.9	2846
Iowa	48.4%	49.7%	Kerry	1.3	50.1%	49.2%	Bush	0.9	Bush	2.2	2502
Michi-gan	46.5%	51.5%	Kerry	5	47.8%	51.2%	Kerry	3.4	Bush	1.6	2452
Minne-sota	44.5%	53.5%	Kerry	9	47.6%	51.1%	Kerry	3.5	Bush	5.5	2178
Nevada	47.9%	49.2%	Kerry	1.3	50.5%	47.9%	Bush	2.6	Bush	3.9	2116
New Hamp-shire	44.1%	54.9%	Kerry	10.8	49.0%	50.3%	Kerry	1.3	Bush	9.5	1849
New Mexico	47.5%	50.1%	Kerry	2.6	50.0%	48.9%	Bush	1.1	Bush	3.7	1951
Ohio	47.9%	52.1%	Kerry	4.2	51.0%	48.5%	Bush	2.5	Bush	6.7	1963
Pennsyl-vania	45.4%	54.1%	Kerry	8.7	48.6%	50.8%	Kerry	2.2	Bush	6.5	1930
Wiscon-sin	48.8%	49.2%	Kerry	0.4	49.4%	49.8%	Kerry	0.4	None	0	2223

[61] Adapted from Freeman 2004, p.2.

TABLE 2: COMPARISONS OF DEMOCRATIC REGISTRATION AND VOTING OUTCOMES IN FLORIDA COUNTIES: 1996 – 2004[62]

	DemV04	DemV00	DemV96	DemV92	DemR04	DemR00	DemR96
Broward (E)	0.65	0.69	0.69	0.63	0.65	0.51	0.53
Charlotte (E)	0.44	0.46	0.49	0.48	0.42	0.34	0.36
Collier (E)	0.34	0.33	0.35	0.33	0.31	0.24	0.25
Miami-Dade (E)	0.53	0.53	0.60	0.52	0.55	0.44	0.48
Hillsborough (E)	0.47	0.48	0.51	0.47	0.54	0.44	0.48
Indian River (E)	0.39	0.41	0.42	0.39	0.37	0.31	0.33
Lake (E)	0.39	0.42	0.46	0.43	0.42	0.36	0.37
Lee (E)	0.40	0.41	0.45	0.42	0.38	0.32	0.34
Martin (E)	0.42	0.44	0.42	0.37	0.34	0.27	0.28
Nassau (E)	0.26	0.30	0.37	0.37	0.43	0.48	0.56
Palm Beach (E)	0.61	0.64	0.63	0.57	0.59	0.45	0.46
Pasco (E)	0.45	0.50	0.58	0.53	0.48	0.40	0.43
Pinellas (E)	0.50	0.52	0.55	0.50	0.49	0.37	0.39
Sarasota (E)	0.52	0.47	0.48	0.45	0.53	0.31	0.31
Sumter (E)	0.37	0.44	0.54	0.54	0.48	0.48	0.57
Alachua (O)	0.57	0.58	0.61	0.62	0.64	0.53	0.57
Baker (O)	0.22	0.30	0.38	0.37	0.74	0.83	0.89
Bay (O)	0.28	0.33	0.38	0.36	0.47	0.48	0.54
Bradford (O)	0.30	0.36	0.45	0.45	0.68	0.70	0.77
Brevard (O)	0.42	0.46	0.48	0.42	0.45	0.38	0.40
Calhoun (O)	0.36	0.43	0.51	0.49	0.87	0.88	0.91
Citrus (O)	0.43	0.46	0.52	0.49	0.48	0.41	0.46
Clay (O)	0.23	0.26	0.30	0.29	0.31	0.29	0.31
Columbia (O)	0.32	0.39	0.47	0.46	0.64	0.64	0.68
DeSoto (O)	0.41	0.44	0.50	0.46	0.70	0.64	0.70
Dixie (O)	0.31	0.40	0.55	0.57	0.84	0.86	0.89
Duval (O)	0.42	0.41	0.47	0.43	0.56	0.50	0.54
Escambia (O)	0.34	0.36	0.38	0.38	0.48	0.46	0.51
Flagler (O)	0.49	0.52	0.54	0.52	0.48	0.40	0.42
Franklin (O)	0.41	0.45	0.57	0.48	0.83	0.81	0.87
Gadsden (O)	0.70	0.67	0.71	0.68	0.88	0.85	0.88
Gilchrist (O)	0.29	0.37	0.51	0.52	0.66	0.72	0.78
Glades (O)	0.41	0.44	0.53	0.52	0.72	0.69	0.76
Gulf (O)	0.33	0.40	0.51	0.42	0.72	0.79	0.84
Hamilton (O)	0.45	0.45	0.53	0.54	0.84	0.86	0.91
Hardee (O)	0.30	0.38	0.45	0.41	0.70	0.73	0.79
Hendry (O)	0.41	0.41	0.50	0.45	0.65	0.63	0.66
Hernando (O)	0.47	0.52	0.56	0.52	0.48	0.40	0.42
Highlands (O)	0.37	0.41	0.48	0.44	0.47	0.42	0.45
Holmes (O)	0.22	0.30	0.42	0.37	0.77	0.83	0.90
Jackson (O)	0.38	0.43	0.48	0.45	0.77	0.79	0.82
Jefferson (O)	0.56	0.55	0.58	0.60	0.78	0.79	0.83
Lafayette (O)	0.26	0.32	0.42	0.45	0.86	0.89	0.94
Leon (O)	0.62	0.61	0.60	0.60	0.68	0.59	0.61

[62] The table is compiled using vote and registration data collected from Florida Division of Elections sources by Jonathan Wand and machine type data collected by Kathy Dopp.

TABLE 2 (Continued)

Levy (O)	0.37	0.44	0.53	0.53	0.68	0.67	0.72
Liberty (O)	0.36	0.44	0.49	0.42	0.92	0.94	0.96
Madison (O)	0.49	0.50	0.56	0.57	0.84	0.84	0.86
Manatee (O)	0.43	0.46	0.49	0.44	0.43	0.35	0.37
Marion (O)	0.41	0.45	0.47	0.47	0.48	0.42	0.45
Monroe (O)	0.50	0.51	0.56	0.51	0.48	0.39	0.44
Okaloosa (O)	0.22	0.25	0.29	0.27	0.30	0.28	0.32
Okeechobee (O)	0.42	0.48	0.59	0.51	0.66	0.65	0.69
Orange (O)	0.50	0.51	0.50	0.43	0.53	0.41	0.41
Osceola (O)	0.47	0.52	0.54	0.44	0.55	0.42	0.44
Polk (O)	0.41	0.45	0.50	0.44	0.52	0.46	0.50
Putnam (O)	0.40	0.47	0.55	0.55	0.67	0.63	0.67
St.Johns (O)	0.46	0.33	0.38	0.38	0.39	0.34	0.39
St.Lucie (O)	0.42	0.54	0.56	0.49	0.42	0.41	0.44
Santa Rosa (O)	0.31	0.26	0.29	0.27	0.35	0.35	0.44
Seminole (O)	0.22	0.44	0.43	0.38	0.33	0.33	0.35
Suwannee (O)	0.29	0.34	0.44	0.47	0.70	0.71	0.76
Taylor (O)	0.36	0.40	0.53	0.49	0.80	0.82	0.87
Union (O)	0.27	0.38	0.46	0.45	0.81	0.84	0.91
Volusia (O)	0.51	0.54	0.56	0.52	0.53	0.43	0.46
Wakulla (O)	0.42	0.46	0.51	0.47	0.73	0.74	0.80
Walton (O)	0.26	0.32	0.41	0.40	0.42	0.53	0.63
Washington (O)	0.28	0.36	0.46	0.41	0.73	0.74	0.82

TABLE 3: VOTING MACHINE AVAILABILITY, TURNOUT, AND KERRY SUPPORT IN FRANKLIN COUNTY, OHIO IN THE 2004 PRESIDENTIAL ELECTION[63]

Number of Registrants per Voting Machine	Number of Precincts	Average Kerry Vote	Average Turnout
Under 275	276	46.6	63.6
275-325	264	55.7	58.0
Over 325	248	65.3	48.5
TOTAL	788	55.5	57.0

[63] Data obtained from the Franklin County Board of Elections via Joe Knapp. "Registrants per Voting Machine" is the number of registrants in a precinct divided by the number of voting machines used in that precinct. "Average Kerry Vote" is the average of the number of votes cast for Kerry divided by the number of Kerry and Bush voters, by precinct. "Average Turnout" is the average of the number of votes cast divided by the number of registrants, by precinct.

TABLE 4: OHIO COUNTY COMPARISON: MACHINE TYPE VS % VOTE FOR BUSH AND KERRY IN OHIO IN THE 2004 PRESIDENTIAL ELECTION [64]

County Name	Machine Type	% Vote (Bush)	% Vote (Kerry)	% Vote (Other)
Adams	Punch Card	63.78%	35.67%	0.55%
Allen	Optical Scan	66.13%	33.45%	0.42%
Ashland	Optical Scan	64.89%	34.33%	0.78%
Ashtabula	Punch Card	46.33%	52.99%	0.68%
Athens	Punch Card	36.10%	63.23%	0.67%
Auglaize	E-Voting	73.87%	25.64%	0.50%
Belmont	Punch Card	46.79%	52.74%	0.47%
Brown	Punch Card	63.58%	35.89%	0.53%
Butler	Punch Card	65.87%	33.71%	0.42%
Carroll	Punch Card	54.54%	44.64%	0.83%
Champaign	Punch Card	62.41%	37.11%	0.48%
Clark	Punch Card	50.78%	48.74%	0.48%
Clermont	Optical Scan	70.69%	29.07%	0.24%
Clinton	Punch Card	70.26%	29.42%	0.32%
Columbiana	Punch Card	52.07%	47.36%	0.57%
Coshocton	Optical Scan	57.12%	42.35%	0.54%
Crawford	Punch Card	63.69%	35.65%	0.66%
Cuyahoga	Punch Card	32.89%	66.56%	0.55%
Darke	Punch Card	69.56%	29.82%	0.61%
Defiance	Punch Card	61.54%	37.68%	0.78%
Delaware	Punch Card	66.05%	33.62%	0.33%
Erie	Optical Scan	46.41%	53.42%	0.17%
Fairfield	Punch Card	62.92%	36.51%	0.57%
Fayette	Punch Card	62.73%	36.87%	0.40%
Franklin	E-Voting	45.12%	54.35%	0.53%
Fulton	Punch Card	62.13%	37.46%	0.41%
Gallia	Punch Card	61.30%	38.34%	0.36%
Geauga	Optical Scan	60.21%	39.35%	0.44%
Greene	Punch Card	61.03%	38.51%	0.46%
Guernsey	Punch Card	55.84%	43.54%	0.62%
Hamilton	Punch Card	52.50%	47.09%	0.41%
Hancock	Optical Scan	70.50%	29.05%	0.45%
Hardin	Optical Scan	63.03%	36.53%	0.45%
Harrison	Punch Card	52.71%	46.61%	0.68%
Henry	Punch Card	65.56%	33.83%	0.61%

[64] Based on data collected by Joe Knapp and from the Ohio Secretary of State's Elections website. (http://www.sos.state.oh.us/sos//elections/index.html, last accessed 12/20/04).

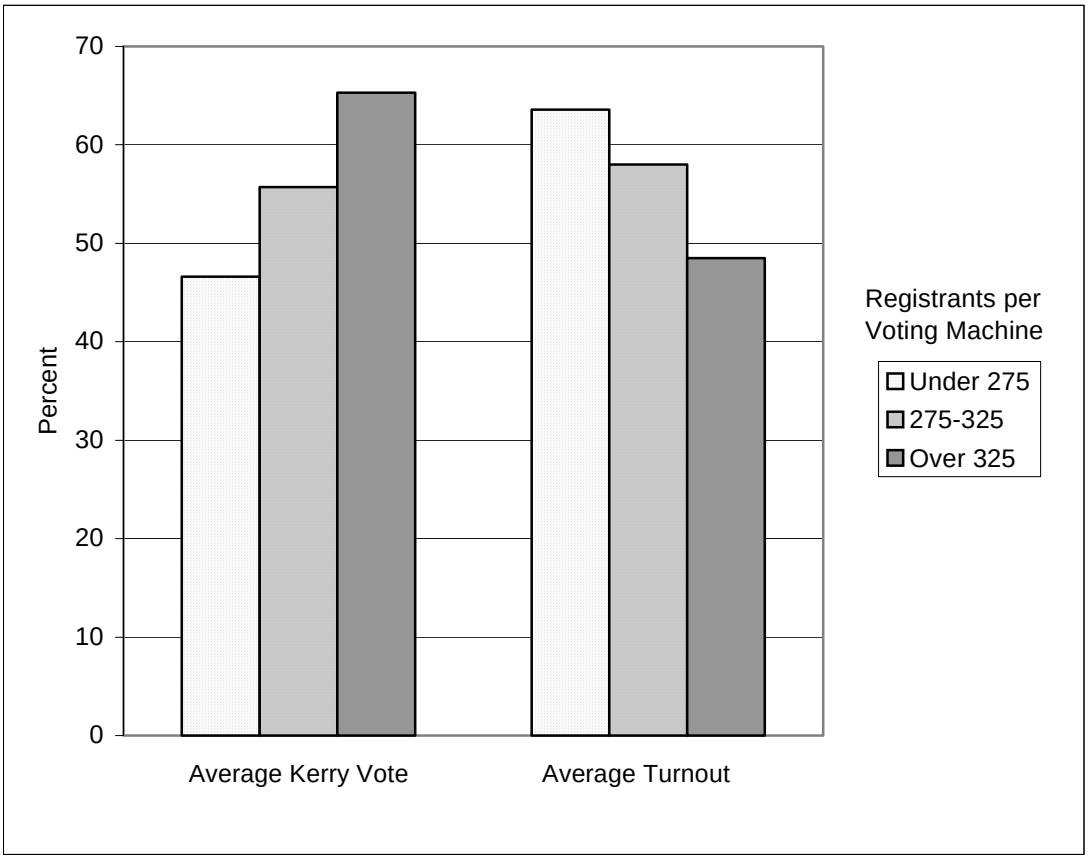
TABLE 4 (Continued)

Highland	Punch Card	66.08%	33.51%	0.41%
Hocking	Punch Card	52.55%	46.78%	0.67%
Holmes	Punch Card	75.47%	24.02%	0.51%
Huron	Punch Card	57.96%	41.36%	0.68%
Jackson	Punch Card	59.90%	39.76%	0.34%
Jefferson	Punch Card	47.25%	52.30%	0.45%
Knox	E-Voting	63.11%	36.31%	0.58%
Lake	E-Voting	51.05%	48.47%	0.48%
Lawrence	Punch Card	55.79%	43.71%	0.50%
Licking	Punch Card	61.72%	37.84%	0.44%
Logan	Punch Card	67.63%	31.90%	0.48%
Lorain	Punch Card	43.48%	56.11%	0.40%
Lucas	Optical Scan	39.56%	60.19%	0.25%
Madison	Punch Card	63.92%	35.64%	0.45%
Mahoning	E-Voting	36.70%	62.58%	0.72%
Marion	Punch Card	58.69%	40.78%	0.54%
Medina	Punch Card	56.77%	42.73%	0.49%
Meigs	Punch Card	58.24%	41.19%	0.57%
Mercer	Punch Card	74.92%	24.50%	0.58%
Miami	Optical Scan	65.67%	34.01%	0.32%
Monroe	Punch Card	44.30%	54.90%	0.80%
Montgomery	Punch Card	48.97%	50.60%	0.43%
Morgan	Punch Card	56.07%	42.88%	1.04%
Morrow	Punch Card	64.15%	35.37%	0.48%
Muskingum	Punch Card	57.25%	42.25%	0.49%
Noble	Punch Card	58.73%	40.58%	0.69%
Ottawa	Optical Scan	51.92%	47.79%	0.29%
Paulding	Punch Card	62.81%	36.54%	0.65%
Perry	Punch Card	51.72%	47.78%	0.50%
Pickaway	E-Voting	61.97%	37.54%	0.49%
Pike	Punch Card	51.84%	47.63%	0.53%
Portage	Punch Card	46.43%	53.07%	0.51%
Preble	Punch Card	65.01%	34.43%	0.56%
Putnam	Punch Card	76.24%	23.30%	0.46%
Richland	Punch Card	59.63%	39.84%	0.53%
Ross	E-Voting	54.40%	44.13%	1.46%
Sandusky	Optical Scan	55.94%	43.70%	0.36%
Scioto	Punch Card	51.87%	47.80%	0.33%
Seneca	Punch Card	58.85%	40.60%	0.55%
Shelby	Punch Card	70.90%	28.59%	0.51%
Stark	Punch Card	48.93%	50.59%	0.48%
Summit	Punch Card	42.91%	56.67%	0.42%

TABLE 4 (Continued)

Trumbull	Punch Card	37.89%	61.65%	0.46%
Tuscarawas	Punch Card	55.53%	43.94%	0.52%
Union	Punch Card	70.12%	29.45%	0.42%
Van Wert	Punch Card	72.02%	27.61%	0.36%
Vinton	Punch Card	54.82%	44.70%	0.47%
Warren	Punch Card	72.06%	27.58%	0.36%
Washington	Optical Scan	58.07%	41.44%	0.49%
Wayne	Punch Card	61.49%	38.16%	0.35%
Williams	Punch Card	64.60%	34.77%	0.63%
Wood	Punch Card	53.03%	46.41%	0.56%
Wyandot	Punch Card	65.70%	33.57%	0.73%

FIGURE 1: AVERAGE KERRY VOTE AND TURNOUT PERCENTAGES BROKEN DOWN BY REGISTRANTS PER VOTING MACHINE IN FRANKLIN COUNTY, OHIO IN THE 2004 PRESIDENTIAL ELECTION[65]



[65] Data obtained from the Franklin County Board of Elections via Joe Knapp. "Registrants per Voting Machine" is the number of registrants in a precinct divided by the number of voting machines used in that precinct. "Average Kerry Vote" is the average of the number of votes cast for Kerry divided by the number of Kerry and Bush voters, by precinct. "Average Turnout" is the average of the number of votes cast divided by the number of registrants, by precinct.