



National Election Data Archive

A Novice's Guide to Why the Ohio 2004 Exit Poll Discrepancy Matters to Americans and How We Can Ensure the Integrity of Future Elections

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This paper can be found on the Internet at:
ElectionArchive.org/ucvAnalysis/US/exit-polls/Ohio2004-US-future.pdf



## **Abstract**

The only reason for rehashing the 2004 election is to ensure that our votes are counted accurately in the future, the way voters intend. Why do Americans believe that our vote counts are accurate? Is wholesale electronic election tampering now possible? How is the evidence of vote tampering hidden?

The U.S. press has dismissed exit polls as surprisingly inaccurate in the 2004 presidential election. Are U.S. exit polls truly inaccurate? The 2004 exit polls were not randomly inaccurate. Errors were not roughly equal in both directions. Kerry won the election according to exit polls, but Bush won the election according to reported machine vote counts. The discrepancy between reported votes and exit poll shares tended to be more severe in precincts that reported more votes more for Bush. The pattern of discrepancy between exit polls and reported vote cannot be explained by random error.

Ohio was the swing state that gave GW Bush enough electoral votes to become president. Ohio is also the only state for which pollster Warren Mitofsky has publicly released sufficient precinct-level vote count and exit poll data for study. In Ohio there was a whopping 11.7% difference between exit polls and reported vote margins calculated from this precinct-level data. One explanation has been offered by the pollsters Edison & Mitofsky: "Kerry voters completed more exit polls than Bush voters". However, our analysis of observed exit poll patterns shows that Ohio's patterns of precinct-level discrepancy cannot be plausibly explained by a higher exit poll completion rate by Kerry voters; and are more consistent with outcome-altering vote miscounts.

If common sense measures to detect and correct vote count errors are not employed, then we cannot expect votes to be counted the way voters intend; and our republican form of government may cease to exist. To make sure that U.S. votes are accurately counted, independent vote count audits, more detailed election data reporting and analysis, and public exit polling data are needed, prior to candidate concession.

## **Who Cares About the 2004 Election Anymore?**

The 2004 election is over. GW Bush is in office. That isn't going to change. There is no reason to care about vote miscounts in Ohio -- unless the issue is to make sure that vote counts more accurately reflect voter intent next time. The future of democracy and U.S. elections are at stake. Measures need to be taken immediately in order to assure the integrity of future American election results. If we know how and where votes were miscounted, then we may be able to put a stop to it.

Ohio is the only state for which precinct-level exit poll and vote count data, along with sufficient raw exit poll surveys to estimate the number of exit poll respondents, has been publicly released. If pollsters would release the voting equipment used for each precinct they sampled, the poll discrepancies could be compared with the voting equipment used. This might allow analysts to detect irregular patterns for further investigation.

## **We Count Votes Accurately. Don't We?**

### **Computers Bank Accurately, so Computers Can Count Votes**

Banks conduct routine independent audits to detect and correct any errors and to prevent insider embezzlement. Bank depositors are given receipts of transactions, and bank staff knows who owns which accounts and how much money is in them. On the other hand, votes are deposited anonymously. Securing a voting system presents more challenges than securing banks. Even with security measures



that far exceed voting system security, bank systems have been breached; and because of the openness of bank records, it is easier to catch perpetrators and make corrections in the data than to correct wrongly recorded votes.

### **Election Officials Do “Logic & Accuracy” Testing**

“Logic and accuracy” testing is only what is normally called “functionality” testing in other fields. It is performed before an election to see if machines accurately count test ballots. Most voting equipment is placed in a test mode for functionality and data testing. The code for test mode could easily be written to operate the machine correctly so as to bypass detection of tampering, but the code for the actual election could count fraudulently. Therefore “logic and accuracy” testing will detect only some types of innocent errors, but is inadequate for detecting deliberate attempts to tamper.

### **Voting Machines Are Tested & Certified**

Many serious flaws have been missed in the current voting machine testing process. It is not possible to test enough to detect all possible errors or malicious programs. Backdoors as well as “Easter eggs” (hidden programs within the main application set to open and operate on a specific date) are easily programmed undetectably into any computer system. In addition, after testing, upgrades and updates to the software, hardware, or drivers of voting machines are often not tested. Just recently, illegal interpreted software that allows hackers to tamper with election results, while passing all logic and accuracy testing, was discovered on Diebold’s memory cards for both its DRE and its optical scan vote counting equipment. This caused California to decertify Diebold for a third time. Yet this illegal software was completely missed by the testing and certification process.

### **Election Officials Guard Voting Equipment**

Proponents of paperless electronic voting equipment would like us to believe that programmers never make innocent errors and that tampering with vote counting processes can be prevented by having election officials guard the voting equipment from “outsiders” and “voters”. However, any system is most at risk of attacks, hacking and tampering, not from outsiders, but from insiders within the system.

### **How Is the Evidence of Vote Miscounts Hidden?**

There is a huge financial incentive to tamper with vote counts. Election winners control budgets and contracts worth millions, even billions, of dollars.

It is difficult or impossible to detect or correct vote miscounts because:

- Detailed exit poll data may be withheld by the private exit polling firm and their media clients
- Detailed vote count data may be withheld by county election officials. Insiders can pad votes for one candidate in one vote type while simultaneously subtracting votes for a different candidate in another vote type, without raising any suspicions, because the counts are added together before they are publicly reported.
- New electronic and old mechanical voting equipment may not leave any discernable evidence when tampering has occurred.
- Many voting systems lack voter verified hand-countable paper ballots that can be used to perform independent audits of vote count accuracy.
- Election officials may misinform or under-inform reporters.



The American system for counting votes gives complete freedom to insiders, including election officials, janitors, and voting machine vendor staff, to innocently or deliberately miscount votes with the knowledge that errors will not be detected.

### The ABC's of Exit Poll Discrepancy

Exit polls are designed to predict vote counts to within one or two percent. Why are U.S. exit polls so different from reported machine vote counts? Are vote counts corrupted or are the exit polls inaccurate?

Random samples of voters walking out of individual polling locations after voting come close to satisfying ideal conditions for polling and are more accurate than pre-election opinion polls. The discrepancy between vote counts and exit poll data is calculated one precinct at a time, and then the individual precinct results are compared to one another. *Within Precinct Discrepancy* (WPD) is illustrated with the following example.

Example with Kerry and Bush used as candidates for a precinct:

If Bush has a 5% higher share of supporters in the exit poll than Kerry, but Bush had 2% less of the vote count than Kerry, then the WPD is 7% (discrepancy between the poll and the vote count.)

If Kerry had a 6% higher share of supporters in the exit poll than Bush, but Kerry had 3% less of the vote count than Bush, then the WPD is - 9% (discrepancy between the poll and the vote count, expressed as a negative number in Kerry's case.)

For those who are interested in the mathematical formula for calculating WPD, it is:

$$\text{WPD} = \text{Vote Share Margin} - \text{Exit Poll Margin}$$

$$\text{WPD} = (\text{Bush vote share} - \text{Kerry vote share}) - (\text{Bush exit poll share} - \text{Kerry exit poll share})$$

WPD is positive if the exit polls for Bush are higher than his vote count. WPD is negative if the polls for Kerry are higher than Kerry's vote count. The larger the difference between polls and vote count, the larger the magnitude of WPD. Simply by knowing the magnitude and sign of WPD, one can know how large the discrepancy and who scored higher in exit polls and vote counts for a given precinct.

### Precinct-level Exit Polls are Almost Perfect Random Samples

Unlike pre-election or post-election opinion polls, exit polls are almost perfect random samples of actual voters in the precinct, rather than a selective sample of prospective voters. Think of drawing a bunch of sealed envelopes out of a hat. There are no obvious visible markers for a voter's preference and the selection is from actual voters who just voted. Pollsters are instructed to count voters coming out of a polling location and to ask one out of every certain number of voters ( in mathematical language "every nth voter")<sup>1</sup> to fill out an exit poll survey. An effort is made to get a sample of at least 50 voters polled. Precinct samples with 20 or fewer responses are discarded.

The only ways in which the selection of voters for exit polls can be non-random are:

- a) There may be a bias in the type of individual(s) that the pollster approaches first. For example, pollsters may be inclined to approach younger, or minority, voters who may tend toward Kerry.

<sup>1</sup> When n=1 the pollster is instructed to try to get every voter coming out of the precinct to complete an exit poll survey, for n=2 every other voter, n=3 every third voter, and so on. The value of n is determined by the size of the precinct and the effort to get an exit poll sample of 50 or more voters.



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This could occur if several people come out together, so some personal choice is involved in selecting individuals.

- b) The pollster may poll too few or too many people, because voters leave too quickly, leave in groups, or because the pollster takes a break, or miscounts, etc. This kind of “clumping” would mean that not every *n*th voter is polled (in other words, the selection sequence has “clumps”). In this case the sample could be *biased toward either* candidate in the case when a “clump” is made up of voters who have similar preferences, for example, family members or friends.
- c) Kerry supporters and Bush supporters may agree to complete the exit poll at different rates. For example, Bush supporters may exhibit a statistically significant, greater reluctance toward providing private (even anonymous) data to “authorities” of any kind. This, together with the possible affects of a) above, has been called the “reluctant Bush responder” (rBr) hypothesis. Moreover, there may be a lower exit poll completion rate for Bush supporters in precincts with a majority of Kerry voters, as they may want to vacate the polling area quickly to avoid political socializing, or they may be concerned that their exit poll will not be sufficiently anonymous.<sup>2</sup>
- d) Voters may lie to pollsters in spite of the anonymity of their answer. Of course this begs the question of why they would agree to complete the exit poll in the first place. Moreover, as with point a), in order for this to cause bias, supporters of one candidate would have to lie at a *greater rate* than supporters of the other candidate.
- e) The exit pollsters may make errors. These should be more or less random and unbiased.
- f) The exit pollsters may deliberately falsify the results. While it’s conceivable that select individual pollsters might do this (perhaps based on the mistaken idea that this would give their candidate an advantage), it’s implausible that a large number of exit pollsters would do this.

### Ohio’s Exit Polls are Out-of-Whack – Everyone Agrees

Over 40% of Ohio’s precincts had significant discrepancy between exit polls and machine vote counts, where “significant” means less than a 5% chance of occurring. This is four times what is expected! 90% of this significant discrepancy resulted from Kerry exit polls being much higher than Kerry’s reported vote, and only 10% resulted from Bush exit polls being much higher than Bush’s reported vote. Exit Pollster Warren Mitofsky, the Election Science Institute, and the National Election Data Archive all agree that such a large amount of significant discrepancy was not caused by random chance.

The following chart shows the pattern of exit poll<sup>3</sup> “within precinct discrepancies” (WPD) for each of Ohio’s 49 exit-pollled precincts.<sup>4</sup> Precinct-level exit poll discrepancy (WPD) is *negative* when Kerry’s precinct’s exit poll share is more than Kerry’s reported vote.<sup>5</sup> Conversely, WPD is *positive* when Bush’s precinct’s exit poll share is less than Bush’s reported vote share.<sup>6</sup>

<sup>2</sup> This has been dubbed the “reluctant Bush responder in mixed political company” hypothesis. See “Analysis of the 2004 Presidential Exit Poll Discrepancies”, NEDA/USCV March (updated April) 2005, available at:

[http://www.uscountvotes.org/ucvAnalysis/US/Exit\\_Polls\\_2004\\_Edison-Mitofsky.pdf](http://www.uscountvotes.org/ucvAnalysis/US/Exit_Polls_2004_Edison-Mitofsky.pdf)

<sup>3</sup> See [http://www.votewatch.us/Members/stevenhertzberg/report.2005-07-19.2452304843/report\\_contents\\_file/](http://www.votewatch.us/Members/stevenhertzberg/report.2005-07-19.2452304843/report_contents_file/).

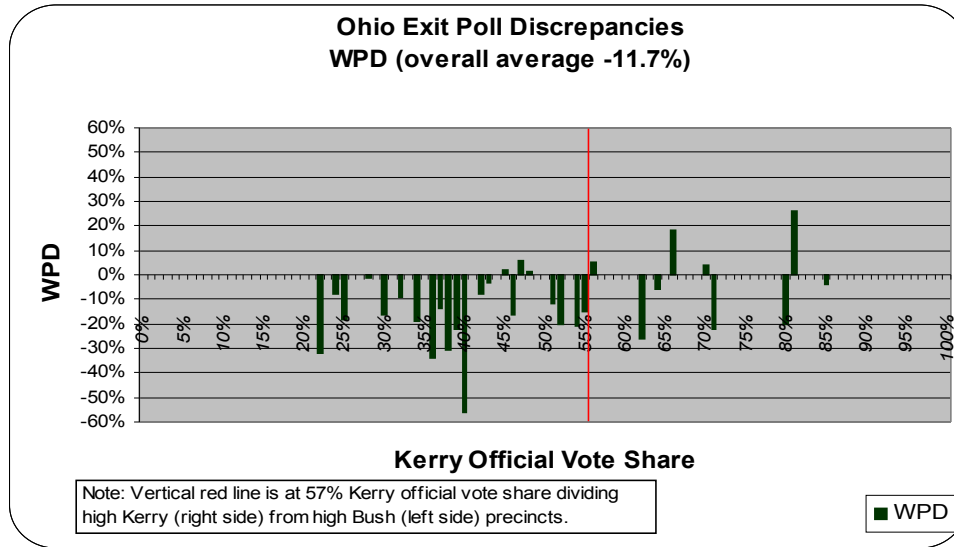
<sup>4</sup> Note that the WPD of 5% at the 57% Kerry official vote share is an average of two precincts: one with a positive WPD of 32%, and the other with a negative WPD of -22%. Additional positive WPD’s that are averaged in the graph appear at Kerry reported vote shares of 48% (14%), 47% (12%), 45% (8%), 43% (8%), and 30% (4%).

<sup>5</sup> If third candidate vote is negligible so that Kerry plus Bush exit poll and vote shares are both equal to one, WPD is (approximately) two times (Kerry Vote Share – Kerry Exit Poll Share).

<sup>6</sup> WPD in this case will equal two times (Bush Exit Poll Share – Bush Vote Share).



Precincts are ordered left to right by their reported Kerry vote shares from lowest to highest. For example, 20% Kerry share (assuming a nominal third candidate vote) means 80% Bush share.



As can be seen, large discrepancies (negative bars) where Kerry's reported vote count is less than his exit poll share are pervasive throughout Ohio exit-pollled precincts and the pattern is not random.

### A Little History

On January 19, 2005 Edison/Mitofsky (E/M), the polling firm that conducted exit polls for the 2004 election, released a report acknowledging that exit polls in 2004 had the largest discrepancies from reported election results ever recorded; and that the discrepancies were overwhelmingly negative (i.e. Kerry's exit polls were higher than his reported machine vote counts.) and were highly significant for many states, especially "battle ground" states.<sup>7</sup>

E/M claimed, without providing any supporting analysis that the 2004 exit poll discrepancies could be entirely accounted for by a "reluctant Bush responder" (rBr) "hypothetical" (p. 31) saying:

"While we cannot measure the response rates by Kerry and Bush voters, hypothetical response rates of 56% among Kerry voters and 50% among Bush voters overall would account for the entire Within Precinct Error that we observed in 2004."<sup>8</sup>

The E/M report contends, without providing the data to prove it, that because pollsters were often young and well-educated they disproportionately selected Kerry voters for exit polling. Another factor was *not* raised in the E/M report, but was relayed to the National Election Data Archive by an anonymous individual claiming to be an "insider" in one of the big media companies.<sup>9</sup> This person said that E/M's internal analysis showed that the *partisanship of the pollsters* had a stronger correlation with WPD than other factors; that most of the pollsters were Kerry supporters and this caused the "rBr" bias in the exit

<sup>7</sup> "Evaluation of Edison/Mitofsky Election System 2004" prepared by Edison Media Research and Mitofsky International (E/M) for the National Election Pool (NEP), January 19, 2005, available at: <http://www.exit-poll.net/election-night/EvaluationJan192005.pdf>

<sup>8</sup> Since factors b) and e) would not cause bias, and d) and f) seem utterly implausible and/or offensive to supporters of either candidate, this explanation seems to be based on an assumption of significant a) and c) effects which cause Kerry exit poll share to be higher than Kerry's reported vote share.

<sup>9</sup> The media clients for the E/M exit poll in 2004 were the "National Election Pool" (NEP) consortium of: ABC, AP, CBS, CNN, Fox, and NBC.



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polls; and that this analysis was withheld because of a fear that it would provoke bad publicity for the firm and its media clients.

In March 2005 the National Election Data Archive released a report noting that exit poll completion rates were slightly higher in precincts with larger reported Bush vote share.<sup>10</sup> These precincts with high reported Bush vote share had far greater average discrepancy than precincts with high reported Kerry vote share. The USCV report shows that highly unexpected changes in Bush and Kerry voter exit poll response rates would be necessary to explain the differences in average discrepancy (WPD) and completion rates in precincts with differing Kerry and Bush vote share.

The analysis of the National Election Data Archive was dismissed by Edison/Mitofsky who claimed that an analysis of *precinct-level data* would show that the discrepancy could be explained by the “rBr” hypothesis that Bush voters completed fewer exit polls.<sup>11</sup> Some charts and graphs purporting to support this claim were publicly presented.<sup>12</sup> However Mitofsky’s charts did not provide any evidence for the “exit poll response bias” claim.<sup>13</sup>

Edison/Mitofsky has not publicly released a rigorous statistical analysis of exit polls beyond the simple tabulations in its January 2005 report.<sup>14</sup> In June, 2005 the Election Science Institute (ESI) and Mitofsky released some Ohio detailed precinct-level exit poll data and reported precinct election results.<sup>15</sup> (Mitofsky said that he had released all of the “raw data” that he could without compromising respondent confidentiality.<sup>16</sup>) A press release for ESI’s June report claimed that the exit polls were not a “smoking gun” for fraud.<sup>17</sup> ESI’s analysis is based on a novel premise that: “If there was vote fraud, then there would be a positive correlation between WPD and Bush vote share increases from the prior 2000 election.” ESI claims that the lack of a positive correlation shows that there is no exit-poll evidence for

<sup>10</sup> Op. cit., NEDA/USCV April 2005 report, Table 1 p. 9. shows that, based on national exit poll data, in precincts with official reported Kerry vote counts of over 80%, 12% percent of the (nth voter) sample was “missed” and 35% of those approached “refused” to complete the exit poll survey, leading to an overall sample exit poll “response” rate of 53%. In comparison, in precincts with over 80% reported Bush votes, both the “miss” rate and the “refusal” rate were lower at 11%, and 33%, respectively, so that the overall response rate of 56% was higher.

<sup>11</sup> More precisely, they claimed that the level of rBr “bias” was not affected in any systematic and statistically significant way by the overall partisanship of the voters in the precinct.

<sup>12</sup> See NEDA/USCV October 2005 review paper “History of the Debate Surrounding the 2004 Presidential Election” at: <http://electionarchive.org/ucvAnalysis/US/Presidential-Election-2004.pdf> for more details.

<sup>13</sup> NEDA/USCV Sept. 2005, “The 2004 Presidential Election: Exit Poll Error or Vote Miscount?” available at: [http://www.uscountvotes.org/ucvAnalysis/US/exit-polls/USCV\\_exit\\_poll\\_analysis.pdf](http://www.uscountvotes.org/ucvAnalysis/US/exit-polls/USCV_exit_poll_analysis.pdf).

<sup>14</sup> When Warren Mitofsky was asked at the 2005 AAPOR conference why E/M had not done a serious statistical analysis to support their “rBr” hypothesis, he responded that the analysis had been done but not publicly released. He did not respond to the question of why it had not been publicly released – see Sept. 2005 NEDA/USCV report, op. cit.

<sup>15</sup> “Ohio 2004 Exit Polls: Explaining the Discrepancy,” ESI, June 2005, available at: [http://www.votewatch.us/Members/stevenhertzberg/report.2005-07-19.7420722886/report\\_contents\\_file/](http://www.votewatch.us/Members/stevenhertzberg/report.2005-07-19.7420722886/report_contents_file/).

<sup>16</sup> A partial data set of individual exit poll responses has been deposited at Roper and University of Michigan ICPSR data sites. The UMich. ICPSR data can be found at: <http://webapp.icpsr.umich.edu/COCOON/ICPSR-STUDY/04181.xml> This data has anonymous precinct identifiers that cannot be linked to precinct-level election results, and “adjusted” weights that cause the vote shares to match the election results by state. Though the number of individual responses for Ohio in this data set (2042) matches the “Total # interviews” and “# of Election Day interviews” (both 2042) stated in the E/M (11/2/04) Methods Statement at <http://www.exit-poll.net/election-night/MethodsStatementStateGeneric.pdf> These data are apparently only a random sample of about half of the complete set of individual exit poll respondents. This information is in the E/M January 2005 report and was conveyed to NEDA/USCV in a personal communication with Warren Mitofsky. However, the ESI exit poll figures, which Mitofsky indicated were from the complete set of respondents, have large deviations from exit poll shares generated by this “raw data” for two precincts. See below and January 2006 NEDA/USCV report for further discussion.

<sup>17</sup> See [http://electionscience.org/media/press\\_releases/aapor\\_2005](http://electionscience.org/media/press_releases/aapor_2005).



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vote fraud in Ohio.<sup>18</sup> However, in October, 2005 a mathematical proof was released by the National Election Data Archive (NEDA) showing counterexamples to ESI's underlying premise. Because it is based on an invalid premise ESI's analysis is meaningless for determining anything regarding the presence or absence of vote fraud, and its conclusion are unjustified.<sup>19</sup>

In January 2006, Ohio precinct-level analysis by NEDA shows Ohio's precinct-level discrepancy is consistent with outcome-altering vote miscounts, and cannot be explained by the rBr hypothetical.<sup>20</sup> Kathy Dopp algebraically derived a new mathematical function for discrepancy (WPD); and Ron Baiman used standard statistical techniques for analyzing Ohio's data and devised a new method of testing Ohio's data for consistency with the reluctant Bush voter response exit polls (rBr) hypothetical.

Is it possible that ESI's and NEDA's explanations are both "true" in the sense that both institutions do their math right? The answer is "No". The Election Science Institute and National Election Data Archive analyses can *not* both be correct. News reporters may lack the mathematical expertise to judge which side is right. However, any university mathematics department is capable of resolving which analysis of the Ohio exit polls is correct by studying the papers released by both the Election Science Institute and the National Election Data Archive.

### **Did Bush Voters Complete Fewer Exit Polls than Kerry Voters?**

To leap from the data to a plausible explanation of exit poll discrepancy involves math and statistics.

For Ohio's exit poll discrepancy to be explained by Bush voters completing fewer exit polls, the following would have to be true:

- Exit pollsters would have to have a remarkable ability to over-select Kerry voters in precincts with high reported Bush vote share, but *not* in precincts with high Kerry reported votes!
- Bush voters would have to have a *consistently* lower exit poll completion rates only in precincts where Bush vote share was highest!<sup>21</sup>

<sup>18</sup> The fact that the ESI report was based on precinct-level data showed that the E/M claims b) - d) above were not true.

<sup>19</sup> See "Mathematical Proof that Election Sciences' Test to Rule Out Vote Fraud is Logically Incorrect", October 2005, NEDA/USCV, at <http://electionarchive.org/ucvAnalysis/US/exit-polls/ESI/ESI-hypothesis-illogical.pdf> and "The Gun is Smoking: Ohio Precinct-Level Exit Poll Data Show Virtually Irrefutable Evidence of Vote Miscount", January 17 (revised January 23), 2006, NEDA/USCV, Appendix D, available at <http://electionarchive.org/ucvAnalysis/OH/Ohio-Exit-Polls-2004.pdf>.

<sup>20</sup> *Estimation* is required as ESI has not released precinct sample sizes (the number of exit poll respondents in each precinct) or precinct-level discrepancy odds. It is not clear why these odds or the data necessary to calculate them have not been released because *exit-poll* sample sizes do not identify the precincts. However, using a conservative estimation method for sample sizes, the January 2006 NEDA/USCV report shows that the statistical odds for at least three of the negative discrepancies (in 6% of the precincts) are so large that they would remain highly significant for any plausible precinct sample size. NEDA's estimation assumes that, as the UMich/Roper data is supposed to be a roughly 50% random sample of the ESI data, exit polls calculated from the UMich/Roper data should closely match the ESI "original exit poll" data. There are *unexplained inconsistencies* between these two exit poll data sets – see discussion below.

<sup>21</sup> The data shown on p. 24 of the January 2006 NEDA/USCV report show that there are only 6 precincts out of the 38 precincts with an official Kerry vote share of less than 57%, that have positive WPD. These have WPD's of 14%, 12%, 8%, 8%, 4% and 4%, respectively. They disappear or are reduced in the graph as they are averaged with precincts with higher levels of mostly negative discrepancy. In contrast, there are 4 precincts with positive discrepancy among the 11 precincts having a Kerry reported vote share that is greater or equal to 57%. These have WPD's of 32%, 26%, 18%, and 4%, respectively. For plausibly estimated sample sizes the only statistically significant positive discrepancies are where Kerry vote is over 57% (with 32% and 26% WPD). All of the much smaller positive discrepancies where Bush vote is higher (on the left side of the graph) are *statistically insignificant*, meaning that they could be simply a result of *random* sampling error.





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- Mathematical analysis beyond the level of this report shows that the data bars in the figure above would form a U shape if Kerry voters on average always completed more exit polls than Bush voters. In other words, more negative discrepancy, where Kerry's reported vote was lower than Kerry's exit poll share, would occur near where Kerry/Bush vote is close to 50/50.<sup>22</sup>
- Positive discrepancies where Bush did better in exit polls than in reported vote would be reduced or eliminated equally along the graph, rather than exclusively on the left side of the graph among precincts where reported Bush vote share is highest.

Exit poll completion behavior that would be required to produce the actual data is implausible *and* inconsistent with national average exit poll completion and overall response rate data.<sup>23</sup>

The discrepancy (WPD) pattern is not “U” shape as required by the reluctant Bush voter response hypothesis. NEDA tested the data for consistency with the pollster's exit poll completion rate theory and found that even if WPD that would be produced by fewer Bush voters responding to exit polls, were subtracted entirely from the data, the remaining WPD still has a large number of significant discrepancies and could not be due to random chance.

*It is not possible to explain Ohio's exit poll pattern by fewer Bush voters completing exit polls.*

### Were Ohio's Votes Miscalculated?

Exit poll analysis is done with simple arithmetic, algebra, and statistics. The Ohio exit poll analysis of the National Election Data Archive can be verified by any college mathematics department.

There are at least two *vote miscount* hypotheses consistent with Ohio's exit poll discrepancy:

a) A strict interpretation of statistical odds suggests that most of the significant discrepancies, possibly after adjustment for some level of Bush voters completing fewer exit polls (pervasive rBr), are caused by vote miscount.<sup>24</sup> Based on this hypothesis, Kerry *exit poll shares* provide a better indication of *true* candidate precinct vote share than do reported official vote counts, so that a good indication of the effect of vote miscount on the election is to plot exit poll discrepancy (WPD) with exit poll share. This

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Whereas the 14-16 (depending on the method of estimation) precincts with negative discrepancies where Kerry vote is less than 57% and four over 57% are significant – see p. 8 of the January 2006 NEDA/USCV report.

<sup>22</sup> See Appendix B of April (and September) NEDA/USCV reports, and Column 13 on p. 24 of NEDA/USCV January 2006 “Smoking Gun” paper, op. cit. Note that these are average, or “expected value” estimates of WPD caused by a fixed exit poll response “bias”. This approximately “U” shaped pattern for WPD that would be caused by an on average constant rBr bias has been acknowledged, and used, by all participants in the exit poll debate, see NEDA/USCV October 2005 “History of the Academic Debate” report, op. cit.

<sup>23</sup> This shows that the other claims, a) and e) above, by E/M and their supporters simply cannot be true. Moreover, NEDA/USCV found that that Kerry shares in the “ESI Exit Poll” data are inconsistent with Kerry exit poll shares calculated from the UMich/Roper raw data (in one precinct the ESI exit poll figure is 9% less than the UMich/Roper, in another precinct it is 6% less). Though asked about these *highly significant* inconsistencies over a month ago, Warren Mitofsky has not yet provided an explanation for them. He did however inform NEDA/USCV that the ESI exit poll figures are based on roughly twice the number of responses that are deposited in the UMich/Roper data archives. At a minimum, this suggests that c) above is not true. The “smoking gun” graph above is based on ESI data, as provided, without any adjustments for these inconsistencies that would greatly enlarge the negative discrepancy in these precincts.

<sup>24</sup> A “statistically significant” discrepancy is one that has less than a 1 in 20 chance of occurring purely because of random sampling error. NEDA's Ohio report conservatively adjusts for an rBr “response bias” of 1.18 (this would occur, for example, if Kerry voters have a 59% exit poll response rate and Bush voters a 50% rate) because this level of bias explains more of the significant exit polled discrepancies than any other level of bias. However this still leaves 30% of Ohio exit polled precincts with significant discrepancies (11 negative, and 4 positive). See January 2006 NEDA “smoking gun” report, op.cit.



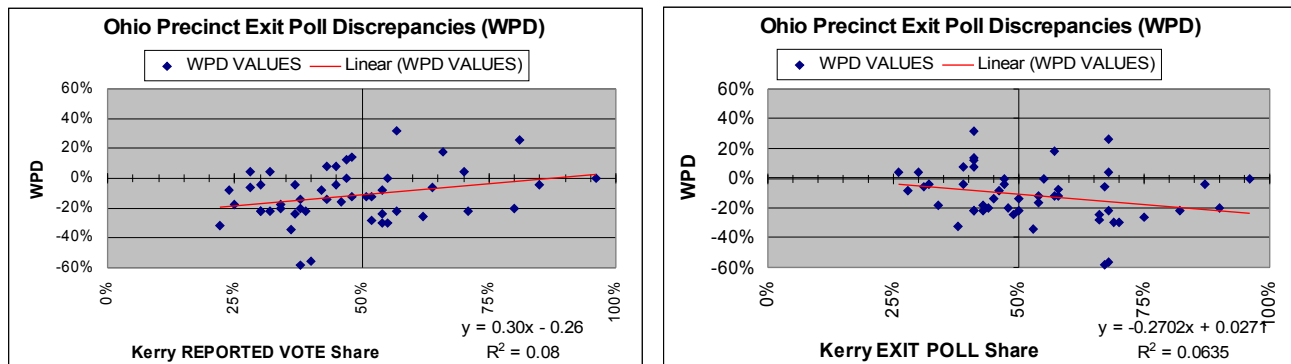
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hypothesis assumes vote miscount (both favoring Bush and favoring Kerry) in some precincts with more miscount favoring Bush resulting in net overall negative WPD. In this view, in the absence of a statistically rigorous, or precinct specific exit polling error explanation, there is simply no plausible explanation, other than vote miscount, for the massive statistically significant discrepancies (including the two large and statistically significant positive discrepancies where Bush vote was lower than his exit poll share) revealed by the Ohio precinct level data.

The charts below show WPD plotted in another format - scatter plot. The left chart below plots WPD by its reported vote share and is essentially the same as the chart shown above (but all precincts are shown because none are averaged together). The right chart below plots WPD by its exit poll share. Notice that on the left, precincts with the highest negative discrepancy appear where Bush reported vote share is over 50% when plotted by reported vote. However, on the right, when WPD is plotted by exit poll share, those same precincts with highest negative discrepancy appear where Kerry share is over 50%.

The shift of precincts with high discrepancy from Kerry over 50% (exit poll shares) to Kerry over 50% (reported vote counts) suggests that vote miscounts may have altered the outcome of Ohio's presidential election.

Mathematics beyond the level of this report, show that a downward slope (from left to right) of the best fit (red) trend line when WPD is plotted by exit poll share (right graph) is consistent with most types of vote miscounts. Ohio's pattern of exit poll discrepancy is consistent with vote miscounts, primarily, but not all, favoring Bush.



b) On the other hand, a generous interpretation of the statistics suggests that some of the even quite large significant discrepancy *may* be a result of exit poll error.

In this view, it is possible that some pollsters were not strictly following guidelines and may have missed a lot of nth people and polled some "clumps" to make it up, or maybe even made up some numbers, or made other mistakes. This would imply that some of the significant discrepancy is due to exit poll error rather than vote miscount. However, this kind of (non-sampling) exit poll error would be more or less random and go both ways, so that on-average it should give a WPD that is close to zero.

This interpretation focuses on the implausible *pattern* of the discrepancies overall. In precincts with over 57% Kerry vote share the pattern is consistent with random sampling error having both negative and positive discrepancies and a nearly zero average discrepancy (See the right side of graph on p. 6 or of the left graph above); but in precincts with less than 57% Kerry vote share, the pattern is obviously



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nonrandom and is consistent with vote miscounts that favor Bush as the cause of the exit poll discrepancy.<sup>25</sup>

In this view these densely packed and *overwhelmingly one-sided negative discrepancies* (where Kerry vote share is less than predicted by his exit poll share) *which occur where Kerry reported vote is less than 57%, could not have resulted from random exit poll error.*

Shifting votes from Kerry to Bush in some precincts would

- reduce the number of precincts where Kerry reported vote is high (on the right side of our chart) and not affect average discrepancy (WPD) in precincts that remain where Kerry vote is high,<sup>26</sup> and
- increase the number of precincts with large negative discrepancies (because Kerry's exit poll share would exceed his vote share) where Bush reported vote is higher (on the left side of our chart), and
- convert precincts with significant positive discrepancy caused by exit poll error (where Bush's exit poll share exceeds Bush vote share) to precincts with less positive discrepancy or slight negative discrepancy.

If we assume that the random pattern in precincts where Kerry has highest reported vote (on the right of our chart on page 6) is explained by exit poll error and continues where Bush has the highest reported vote (on the left), then there are about 10 precincts with large negative discrepancies that could only be attributed to vote miscount favoring Bush. If these precincts' exit poll results are a more accurate reflection of their "true" Kerry vote shares, then most of these precincts would have a true Kerry vote share of more than 50%.<sup>27</sup>

*Thus, even a generous interpretation of the possible sources of Ohio's exit poll discrepancies, suggests vote miscount favoring Bush in 20% of Ohio's precincts, more than adequate to change the election outcome.*<sup>28</sup>

Massive evidence of voting irregularities and illegal activity in Ohio's 2004 presidential election is consistent with vote miscounts.<sup>29</sup> Given the absence of a verifiable exit-poll error explanation for Ohio's 2004 exit poll discrepancy and the consistency of the data with a vote miscount explanation, it is frankly an outrage that the detailed data such as voting machine type, precinct identifiers, exact sample sizes, and the like, that are needed for further analysis and investigation, has not been publicly released.

<sup>25</sup> 57% looks like the dividing line, but it could be further to the left. What is clear is that there is a change in the WPD pattern from right to left. WPD/2 (=Kerry official vote share minus Kerry exit poll share) for the 11 precincts with a 57% or greater Kerry official vote share on the right portion of the graph is -0.9%. The more or less random pattern of discrepancies in these precincts average to a small negative WPD that may be the result of non-sampling exit poll error, with perhaps Kerry voters completing exit polls slightly more than Bush voters to explain the slightly negative average. Average WPD/2 for the 38 precincts with a less than 57% official Kerry vote share on the left side of the graph is -7.3%.

<sup>26</sup> if we assume a more or less random targeting of precincts on the right for vote miscount

<sup>27</sup> If negative WPD in precincts with high reported Kerry votes on the right side of the graph is a result of vote miscount, it would have had to be caused by "left shifts" from precincts with even higher "true" Kerry vote shares of 87%, 90%, 82%, 67%, 75%, 68% (applying left shifts equaling WPD/2 for each of the for each of the 6 precincts with the highest Kerry vote shares – see table on p. 21 of study). Similarly the 4 precincts on the right with positive discrepancies would have had to have been "right shifted" from precincts with lower "true" Kerry vote shares of 57%, 68%, 68%, and 25% (for the first 4 from the right). These are all precincts with 57% or more official Kerry vote.

<sup>28</sup> Ten precincts represent about 20% (10 out of 49) of Ohio's precincts.

<sup>29</sup> See Mark Crispin Miller *Foiled Again* (2005, NY: Basic Books) for a review of on-the-ground evidence for vote miscount in 2004 (and in prior elections) all over the country; and see NEDA's "History of the Debate Surrounding the 2004 Presidential Election" <http://electionarchive.org/ucvAnalysis/US/Presidential-Election-2004.pdf>



## Summary and Conclusions

All parties agree that the 2004 exit poll discrepancy nationwide and in Ohio cannot be explained by random *sampling error*.

If there is an *exit poll error* explanation for the exit poll discrepancy, then the effects of particular exit polling factors could be linked to the amount of “within precinct discrepancy” (WPD) by a statistical analysis that could be replicated by independent analysts. None has been offered by pollsters. A tendency for Bush voters to complete fewer exit polls cannot by itself explain the Ohio discrepancies.<sup>30</sup>

If an exit poll error explanation that is supported by data and scientific analysis is not forthcoming from the exit pollsters, there is no other alternative but to accept a *vote miscount* explanation for the 2004 presidential exit poll discrepancy.

*Ohio's precinct-level exit poll and vote count data are consistent with outcome-altering vote miscounts.*

## What Shall We Do About the Upcoming 2006 and 2008 Elections?

### Independent Audits

Routine independent audits of as few as 1% to 5% of the vote counts, if randomly selected, can assure voters with over 95% probability, that if there are any errors in as few as 10% of vote counts, the errors will be detected. Independent audits require comparing a hand-count of voter verified paper records of votes cast with the machine counts. US Count Votes has proposed vote count audit procedures for adoption that are available on ElectionArchive.org.

### Conceding Elections Only After Analyzing Election Data

Every state's open records laws give the public the right to obtain the detailed vote count data that often reveals suspicious patterns indicating vote miscount. If candidates continue to concede elections without first making sure that votes are counted accurately, it will not be possible to ensure that the right candidates are sworn into office. Candidates could demand, at a minimum, to see their own detailed vote counts broken out by precinct and by type of vote (absentee, early, provisional – early, provisional – Election Day, mail-in, military, overseas, and Election Day).

### Public Election Data Monitoring

The bad news is that not one state in the U.S. today monitors its own detailed vote count data for accuracy, and every county election office in the U.S. currently reports its election results in a way that hides the evidence of election tampering.

The November 2004 New Mexico election serves as an apt example: There were 10,000 more absentee ballots counted than were actually cast; and in New Mexico counties using paperless electronic voting machines, there was up to a 20% rate of under-votes (no vote recorded for president) in some precincts where allegedly many voters cast straight-party votes, but then decided not to cast any vote for the U.S. presidential race. These two highly suspicious patterns were hidden because Election Day missing votes are added together with the extra absentee votes before public reporting, canceling the evidence.

<sup>30</sup> NEDA/USCV estimates (p. 23 of January 2006 report) indicate that a pervasive bias of 1.18 (Kerry voter exit poll response of 59% to Bush voter response of 50%) would explain more significant precinct level discrepancies than any other level of pervasive bias. But this would still leave 15 precincts (31% of the 49) with significant, and overwhelmingly negative (11 out of the 15), exit poll discrepancies. Moreover, as is noted in the text above, rBr, of *any* magnitude, is *not* consistent with aggregate exit poll response rate averages from the national data reported by E/M.



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The good news is that the public has a legal right to obtain the detailed vote count data that reveals such problems. The National Election Data Archive is seeking funding to build and maintain a public election data archive on the Internet so that volunteers and election officials in every state can upload detailed vote count data, to make it publicly available to independent analysts.

### **Public Exit Polls**

Public exit polling data could be used to help pinpoint precincts, counties, and voting systems with suspicious vote counts for further investigation and analysis. Currently Edison/Mitofsky, a private polling company, conducts U.S. exit polls for the National Election Pool comprised of major media clients, and the data is kept secret. The justification is that voter anonymity would be at risk in smaller precincts if exit poll and vote count data were released, allowing the precincts to be identified. This concern about revealing particular voters' votes seems overblown and could be overcome by adding smaller precincts together when publicly reporting data. Mitofsky has used exit polls overseas to judge when elections are suspect. Public U.S. exit polls could likewise be used to gauge the accuracy of U.S. vote counts.

The following data is needed for each precinct, to perform basic exit poll discrepancy analysis:

1. Exit poll shares
2. Official reported vote shares
3. Exact exit poll sample sizes

When analysis of the above data shows significant unexplained discrepancy patterns consistent with outcome-altering vote miscounts, additional precinct-level data is needed including:

1. information on pollsters and polling conditions
2. voting equipment vendor, type and methods used for each vote count
3. county labels
4. detailed vote count data broken out by vote type (absentee, overseas, election day, provisional, early) for all precincts

If exit poll analysis still shows significant unexplained discrepancy or discrepancy correlated with voting equipment or county, then additional data and measures are needed including

1. precinct identifiers,
2. detailed on-the-ground investigation of significant exit polled precincts, and
3. independent audits or hand-counts of voter-verified paper ballots in suspect precincts

### **Summary of Recommendations for Election Integrity**

The accuracy of any system depends on a routine process for detecting and correcting errors. Independent vote count audits and public release and monitoring of detailed election data are needed to detect and correct vote count errors. Candidates could help to achieve basic safeguards for democracy by refusing to concede elections until after obtaining and analyzing their own detailed vote count and exit poll data in future elections.

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