

Hand counts of votes may cause errors, says new study

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Hand counting of votes in postelection audit or recount procedures can result in error rates of up to 2 percent, according to a new study from Rice University and Clemson University.

"These procedures are intended as a safeguard against computer and human error, but until recently, no research existed to tell whether these efforts helped or hurt the accuracy of the vote," said Michael Byrne, associate professor of psychology at Rice.

"Post-Election Auditing: Effects of Election Procedure and Ballot Type on Manual Counting Accuracy, Efficiency and Auditor Satisfaction and Confidence," will appear in an upcoming issue of the *Election Law Journal*. In the study, participants simulated two types of group-counting procedures commonly found in U.S. elections.

The first procedure, the "read-and-mark" method, utilizes four [election officials](#) who count the ballots sequentially as they are taken from the top of an unsorted stack of ballots. One official speaks aloud the choice on the ballot for the race being tallied. Another official observes each ballot to ensure that the spoken vote corresponds to what was on the ballot and also collates ballots in cross-stacks of 10 ballots. The final two members of the audit team record the tally.

The second procedure, the "sort-and-stack" method, is like the read-and-mark procedure but only counts one race at a time. Unlike the read-and-mark procedure, however, the roles and labor needed for the counting

task is not divided among the team members. The team is comprised of three members who each have their own tally sheet.

Based on the processing of the ballots, the researchers found a one-half to 1 percent error rate for the "read and mark" method, and up to a 2 percent error rate for the "sort and stack" method.

Byrne noted that although these error rates may seem insignificant, the margins of error can make all the difference in close elections.

"While an error rate of 1 or 2 percent may seem small, recent elections – like the Iowa caucuses just last month – have had margins of victory small enough that a counting error could play a role," Byrne said.

The study's findings show that well-specified manual auditing procedures, as well as division of labor among group counting members, help ensure more accurate and efficient ballot counts.

"Nearly all elections require humans to count ballots by hand, but this task almost always results in [human error](#)," Byrne said. "However, our research findings show that some methods are better at preventing errors than others. And while these methods may not eliminate all errors, they can help reduce confusion and produce a more reliable audit."

Byrne hopes his research will shed light on the many factors that impact election results on the local, state and national level.

"It is probably impossible to completely eliminate errors in hand counting of ballots," Byrne said. "However, there are new auditing methods that capitalize on advanced statistical procedures that can help ensure that final election results better match what is actually on the ballots. It is important that we become aware of the limitations of current methods and develop alternative ways to improve the accuracy of

[election results.](#)"

Provided by Rice University

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