

The Administration of Cast Vote Records in U.S. States*

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Abstract

I survey the state of election administration surrounding cast vote records in U.S. states. To study how states currently collect, preserve, and protect cast vote records, I made customized inquiries to election officers of all 50 states and D.C. The investigation shows how the administration of cast vote records is deeply related to other aspects of election administration: post-election audits, the legislative ambiguity surrounding the preservation of voted ballots and cast vote records, and legislation surrounding open records requests. I conclude with what the recently matured movement for common data formats entails for these issues surrounding cast vote records.

In an academic study of ticket splitting, Kuriwaki (2019) employed cast vote records (CVRs) from the entire state of South Carolina. The data collection involved in that study was tractable because South Carolina’s state election commission had been collecting CVRs from each of the 46 counties in the state since 2010. Most other states, however, do not appear to collect these records and instead collect tallies (sums) of votes by office. In general, the landscape of how states administer cast vote records remain unclear.

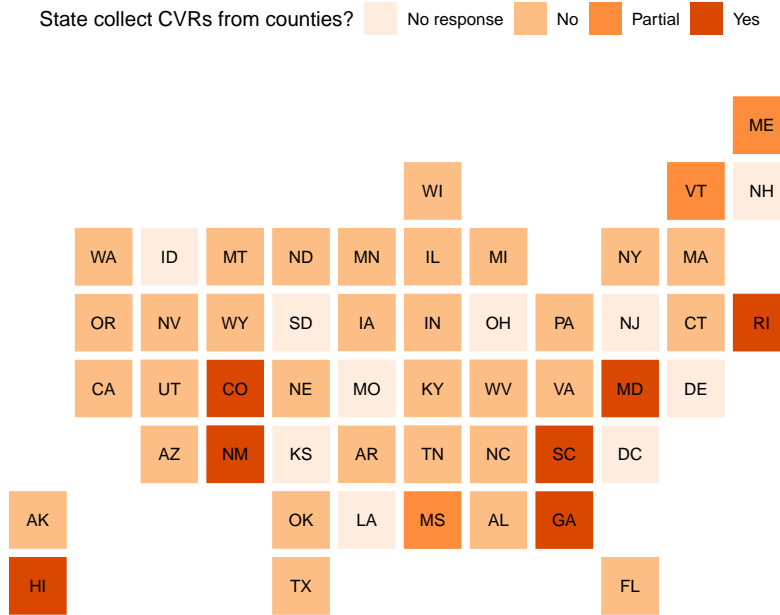
1 Collection of CVRs

As an initial investigation, I sent customized e-mail inquiries to state election directors, public information officers, and other official contacts in all 50 states and DC, inquiring whether their office received cast vote records from individual offices. Figure 1 shows a summary of results. As of July 20, I received responses from 41 states.

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Figure 1: State Administration of Cast Vote Records



Note: Coloring indicates whether cast vote records are sent to the central election center, based on responses to the author as of July 25, 2019. See main text for details.

Seven states – South Carolina, Rhode Island, Maryland, Colorado, Georgia, New Mexico, and Hawaii, appear to have collected CVRs in the 2018 election cycle. Maryland has conducted a 100% post-election audit since 2016 aided by scanning and OCR technology by the company Clear Ballot.¹ As a consequence, the Maryland Board of Elections retains CVRs from all of its counties in the 2016 and 2018 general elections (Agadjanian and Robinson 2019). Rhode Island and Colorado use different voting methods (in-person voting of paper ballots and primarily statewide vote-by-mail, respectively), but share the common factor of conducting Risk-Limiting Audits (RLA) or preparing for one. An RLA is a type of post-election audit that samples vote records for evidence that the outcome is correct.² Therefore, one condition of implementing an RLA is that jurisdictions must have access to all ballots from the state. Finally, Hawaii and New Mexico seem to be two states (among those that have

¹ Clear Ballot [Press Release](#), 2016. “The Maryland State Administrator of Elections and Clear Ballot Will Conduct the Nation’s First Ever 100 Percent Statewide Post-Election Audit.”

² For a broad introduction, see <http://bit.ly/2MeWSAV>; for the statistical theory behind the RLA, see Stark2008.

responded) that collect cast vote records in a central counting (canvassing) facility.

Mississippi, Vermont, and Maine are three states that partially collect CVRs, and their practices are instructive. Mississippi collects audit logs from a “random sampling of precincts” for their post-election audit, and the Vermont Secretary of State audits the ballot images generated from six towns in the general elections of 2014, 2016, and 2018 (Hansen 2015). Both states, therefore, collect CVRs for audit purposes. On the other hand, the Maine Elections Board starting collecting CVRs in 2018 only for the offices elected by Ranked Choice Voting.

Most states that responded to my inquiry reported that cast vote records never leave the county. These include the states of Alabama, California, Illinois, Indiana, Florida, Kentucky, Minnesota, Montana, Nebraska, Nevada, New York, Oregon, Tennessee, Texas, Utah, Wisconsin, Wyoming. In fact, some states reported operating voting machines or vote marking machines that make it impossible to store the cast vote records all together. In Massachusetts, AutoMARK tabulators that can take an image are programmed by the state not to do so. Connecticut uses the Inspire Ballot Marking System, in which cannot store images. In most cases, counties in a single state use different vendor’s voting machines, which is a technical impediment for the county to centralize CVRs.³ In these states, collecting CVRs is a county by county process. This makes future research in these states more time intensive but by no means impossible, as demonstrated by past studies.⁴

It is still worth noting that this inquiry may still have been ambiguous to some officials because it asked about “ballot image logs and cast vote records” at the same time and state administrators may have had different definitions of these terms. An officer at the New Mexico Bureau of Elections, for example, initially responded that electronic records were not centralized by the state. However, upon further clarification, it was made clear that while scans of ballots (what some people mean by ballot images) are not taken, counties *do* upload the electronic record of each vote at the individual level to the secretary of state, and the state performs a canvas of the votes in statewide offices. This ambiguity in terminology has several consequences for administration, which I turn to next.

³ The voting machines counties use can be found in <https://www.verifiedvoting.org/verifier>. In some states, even a single county can use different voting methods. See for example the distribution in Minnesota at <http://bit.ly/32iGwfy>.

⁴ Gerber and Lewis (2004) collect and re-create CVRs from Los Angeles county in 1992, Herron and Lewis (2007) collect CVRs from 10 Florida counties in 2000, Bafumi et al. (2012) collect CVRs from 14 South Carolina counties in the 2010 Democratic primary, and in ongoing work Morse (2019) has collected CVRs from around 80 percent of Florida counties in 2018.

2 Preservation

If counties retain cast vote records in most states, how are these preserved? The answer turns out to be fairly variegated, partly because of the ambiguity of state election codes and whether CVRs qualify as “voted ballots.”

A common rule shared across multiple state legislation is that voted ballots should be preserved for up to 22 months, as styled on 52 USC §20701.⁵ New York’s statute is one of many pieces of such legislation⁶:

“Voted ballots shall be preserved for two years after such election and the packages thereof may be opened and the contents examined only upon order of a court or judge of competent jurisdiction, or by direction of such committee of the senate and assembly if the ballots relate to the election under investigation by such committee, and at the expiration of such time, such ballots may be disposed of at the discretion of the officer or board having charge of them.”

Adding “voted” in references to ballots make the first-order distinction between completed ballots and blank ballots that have been printed but not used. This distinction clears the way for states to dispose of these blank ballots. But whether *electronic* CVRs fall under voted ballots is unclear. On the one hand, CVRs are only *copies* of the original ballot. If the intent of the preservation law is to prevent the tampering of ballots, then ultimately only the original ballot is of interest. DRE machines, however, especially those before the Help America Vote Act (HAVA) with a paper trail, muddy the distinction. And on the other hand, if the intent of the preservation laws also include preserving the integrity of the ballot and finality of election results, CVRs may be effectively equivalent to voted ballots. More precisely, CVRs under this interpretation could be considered equivalent to the original to the extent that they can be used as evidence in court to dispute election results.

A few states have grappled with this question and reached explicit conclusions. The California elections division interprets digital ballot images to be covered under the 22 month preservation rule.⁷ The North Carolina statute on the preservation of ballots refers explicitly to “[v]oted ballots and paper and electronic records of

⁵ See <http://bit.ly/2XUyHwV>.

⁶ New York Election Law, Section 3-222. Also see, for example, Iowa Code Section 50.19

⁷ Personal communication with Assistant Chief of Election Division. Also see California Elections Code sections §17, 17301-17306, especially 17303 (b)(2) and 17304 (b)(2).

individual voted ballots”⁸. The Colorado statute clarifies that “*Ballot* includes any digital image or electronic representation of votes cast.” And, unlike the first two states, Colorado designates the cast vote records as open record. Individual counties, including Miami-Dade, Florida (from the 2004 election) and also Dane, Wisconsin (from 2016) share these records publicly.

Yet in most states, the distinction is much less clear. For example the Nevada statute refers to “the voted ballots and records printed on paper of voted ballots,” not referencing cast vote records stored digitally on memory drives.⁹ In fact, this matter of interpretation of was the subject of discussion in a recent case brought to New York state’s court of last resort (see next section on *Kosmider v. Whitney* for details). And, it appeared that some state officials in my e-mail correspondence were not immediately clear on whether CVRs were subject to preservation rules. An expert on RLAs and frequent consultant, also observes from her experience that unless a state is conducting or considering conducting a RLA, officials tend to be unfamiliar with what a CVR actually is (Jennifer Morrell, personal communication).

3 Confidentiality

The variation interpretations of CVRs ultimately affect how confidential they are for research. The main reason jurisdictions provide when insulating CVRs from public records requests often come down on the notion that CVRs can be de-anonymized. Redaction policies is a promising middle-ground that can allow transparency while guaranteeing anonymity.

On June 13, 2019, the New York Court of Appeals (the highest court in the state) in *Kosmider v. Whitney* (N.Y. 2019) ruled in a 4-3 decision that the county Essex was justified in denying a Freedom of Information Law (FOIL) request to turn over CVRs from a 2015 election. In so doing, it reversed the decisions of two lower courts which had originally ruled that the preservation statute did not preclude the FOIL of CVRs.

Although the ruling largely revolved around the interpretation of the preservation statute as discussed in the previous section, a separate consideration that animated the oral arguments was the confidentiality of voter’s identity. Essex county argued that in some rare cases, the identity of an individual CVR could be revealed in small

⁸ North Carolina General Statutes §163A - 1105(e).

⁹ See Nevada Revised Statues 293.391, subsection 5.

electoral districts, giving an example of a handful of voters voting in a primary in a small electoral district on a third party party line. Cross-referenced with voter files, the county argued, the identity of these voters could be revealed through FOIL disclosures. Moreover, if this voter turned out pivotal in a contest, disclosures may lead the public to litigate election results long after the election was certified.

Rulings in other state courts are more explicit in their concerns for confidentiality. In 2017, a superior court judge in Pima County, Arizona ruled that ballot images to be treated the same as physical ballots, a case that led the state legislatures to write in the protection of electronic images into law.¹⁰ In contrast, a district court in Jefferson County, Colorado found earlier that, unlike the New York decision, electronic records were subject to Colorado’s Open Request Laws.¹¹ In sum, confidentiality concerns affect whether states make CVRs available for researchers.

The Risk-Limiting Audit Representative Group in Colorado has addressed this question in their recent report (McCarthy et al. 2018). Unlike some litigation, the group attempted to achieve transparency of the voting tabulation without compromising confidentiality. The reports note that in Colorado there also exist small exceptions voting populations may be too small to threaten the anonymity of those voters. The group recommended redaction of the down ballot offices that are at risk of deanonymization. Because the records considered open record, the local clerk can redact portions of the CVR that would compromise voter anonymity.

4 The Future of Cast Vote Records

The survey of election administration and controversies surrounding open records laws are indicative of how jurisdictions are only beginning to reach resolutions on how to deal with cast vote records. In addition to their contribution to academic research, CVRs hold large potential to improve the transparency of elections and are integral to the discussion about post-election audits. That said, the within- and across-state variation in equipment and administration complicate a systematic

¹⁰ See “Pima County Judge Rules In Favor Of Voter Privacy, Ballot Images Same As Ballots”, *Arizona Daily Independent*, May 31, 2017. <http://bit.ly/32gUnmv>. Senate Bill 1094 in the 2017 session was passed to add a section, 16-625, titled “Relating to Tally and Returns” to read: “The officer in charge of elections shall ensure that electronic data from and electronic or digital images of ballots are protected from physical and electronic access, including unauthorized copying or transfer, and that all security measures are at least as protective as those prescribed for paper ballots.”

¹¹ Case brought by Marilyn Marks, Case No. 2011-CV-3576, (Jefferson Cnty. Dist. Ct.).

assessment of the situation.

Amidst such confusion, the ongoing movement to provide a common data format for election data becomes especially important. Since the early 2000s, the National Institute for Standards and Technology (NIST) has devised a set of unifying formats and languages to refer to and organize all election data that goes in and out of the election management system. This group has recently published a report on these standards, and will start to advocate for states and vendors to make their systems compatible to this language (Dana et al. 2019). A common data format allows, for example, voting tabulators from different vendors to contribute cast vote records to the same statewide database after translating their proprietary dataset formats to the common, publicly available standard. This would greatly reduce the transaction costs for states who want to conduct more auditing but whose counties currently use multiple machines. I would argue that the responsible collection and scalable organization of available cast vote records (through these common data formats, for example) are important considerations for researchers using cast vote records.

References

- Agadjanian, Alexander and Jonathan Robinson (2019). “Ground Truth Validation of Survey Estimates of Split-Ticket Voting with Cast Vote Records”. URL: <http://bit.ly/2XBKSKZ>.
- Bafumi, Joseph, Michael C. Herron, Seth J. Hill, and Jeffrey B. Lewis (2012). “Alvin Greene? Who? How Did He Win the United States Senate Nomination in South Carolina?” *Election Law Journal* 11 (4), pp. 358–379. DOI: [10.1089/elj.2011.0137](https://doi.org/10.1089/elj.2011.0137).
- Dana, Sam, Herb Deutsch, John Dziurlaj, Ian Piper, and John Wack (2019). *Cast Vote Records Common Data Format Specification*. Tech. rep. National Institute of Standards and Technology. URL: <http://bit.ly/2XVBExl>.
- Gerber, Elisabeth R. and Jeffrey B. Lewis (2004). “Beyond the Median: Voter Preferences, District Heterogeneity, and Political Representation”. *Journal of Political Economy* 112 (6), pp. 1364–1383. DOI: [10.1086/424737](https://doi.org/10.1086/424737).
- Hansen, Jeremy A (2015). “Ballot-Level Observations about Vermont’s 2014 General Election”. *New England Journal of Political Science* 8 (2), pp. 186–217.
- Herron, Michael C. and Jeffrey B. Lewis (2007). “Did Ralph Nader Spoil a Gore presidency? A Ballot-level Study of Green and Reform Party Voters in the 2000 Presidential Election”. *Quarterly Journal of Political Science* 2 (3), pp. 205–226. DOI: [10.1561/100.00005039](https://doi.org/10.1561/100.00005039).
- Kuriwaki, Shiro (2019). “Party Loyalty on the Long Ballot: Is Ticket Splitting More Prevalent in State and Local Elections?” URL: <http://doi.org/10.31235/osf.io/bvgz3>.
- McCarthy, John, Neal McBurnett, Harvie Branscomb, Ron Rivest, and Philip Stark (2018). *Preserving Anonymity of Cast Vote Record*. Tech. rep., pp. 1–11. URL: <http://bit.ly/2LcuC0Q>.
- Morse, Michael (2019). *Opinion: Amendment 4 Requires Addressing the Criminalization of Poverty*. URL: <http://bit.ly/2LJHNq3>.
- Stark, Philip B. (2008). “Conservative Statistical Post-Election Audits”. *Annals of Applied Statistics* 2 (2), pp. 550–581. DOI: [10.1214/08-A0AS161](https://doi.org/10.1214/08-A0AS161).