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Voting Technology and Election Administration in the US

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***Key words: voting machines and ballot marking devices, remote
voting, ballot design, voter registration***

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Voting Technology and Election Administration in the US

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Introduction

Voting technologies and election administration have become a growth area for academic research. Before the 2000 U.S. presidential election, a strong body of research in election science did not exist. However, in the decades since that close and contested presidential election, researchers from multiple academic disciplines have produced many excellent studies of election procedures, laws, administration, and technologies. This chapter provides an overview of the political science and political administration research literature on voting technologies and election administration in the United States.

General Overviews

There have been a number of book-length general overviews focusing on election administration in the United States. An early study is Harris 1934, and other books that take a historical perspective on election administration include Keyssar 2000 and Bense 2004. Hale, Montjoy and Brown 2015 provide a contemporary analysis of American election administration, while Hale and Brown 2020 examine election administration innovation. Finally, Brown, Hale and King's 2019 edited volume examines current issues and future changes in the administration of elections in the United States.

Bensel, Richard F. 2004. *The American Ballot Box in the Mid-Nineteenth Century*. Cambridge: Cambridge University Press.

A history of American election administration.

Brown, Mitchell, Kathleen Hale, and Bridgett King, editors. 2019. *The Future of Election Administration: Critical Cases and Conversations*. New York: Palgrave.

An overview of critical issues in contemporary election administration.

Hale, Kathleen, Robert Montjoy, and Mitchell Brown. 2015. *Administering Elections: How American Elections Work*. New York: Palgrave-Macmillan.

An introduction to American election administration.

Hale, Kathleen, and Mitchell Brown. 2020. *How We Vote: Innovation in American Elections*. Washington, D.C.: Georgetown University Press.

An overview of American election procedures and technologies, from the perspective of public administration and public management.

Harris, Joseph. 1934. *Election Administration in the United States*. Washington, D.C.: Brookings Institution Press.

An early twentieth century overview of American election administration.

Keyssar, Alexander. 2000. *The Right to Vote: The Contested History of Democracy in the United States*. New York: Basic Books.

The right to vote has evolved considerably over the course of American history, as argued in this book.

Important Policy Reports

A great deal of election science research since 2000 has come in the form of policy reports, issued by different organizations and policy-advising groups. Some of these organizations and groups, like the Caltech/MIT Voting Technology project and the Brennan Center, have been broadly involved in the analysis of election administration and voting technologies during this period. Other organizations, like the National Academies or the Bipartisan Policy Center, have produced research and policy studies on specific topics. Finally, following many presidential elections, in particular the 2000 presidential election, specific task forces like The National Commission on Federal Election Reform convene to provide recommendations to alleviate problems seen in the previous election.

Bipartisan Policy Center. 2018. Improving the Voter Experience.

<https://bipartisanpolicy.org/download/?file=/wp-content/uploads/2019/03/Improving-The-Voter-Experience-Reducing-Polling-Place-Wait-Times-by-Measuring-Lines-and-Managing-Polling-Place-Resources.pdf>.

A study focusing on why voters sometimes wait in long lines at polling places and vote centers, accompanied by methods for estimating voter wait times and suggestions for reform.

Brennan Center for Justice. 2008. Better Ballots.

https://www.brennancenter.org/sites/default/files/2019-08/Report_Better-Ballots.pdf.

Ballot design flaws lead to voter mistakes, and in this study a number of steps are proposed to improve ballot design.

Brennan Center for Justice. 2013. *How to Fix the Voting System*.

https://www.brennancenter.org/sites/default/files/2019-08/Report_How_To_Fix_Voting_System.pdf.

A report that examines many of the problems in American election administration, and which proposes a number of modernizations and improvements to solve those common problems.

Brennan Center for Justice. 2015. *America's Voting Machines At Risk*.

https://www.brennancenter.org/sites/default/files/2019-08/Report_Americas_Voting_Machines_At_Risk.pdf.

This study examines the security and integrity of ballot marking devices and voting technologies, proposing solutions ranging from how to better secure existing voting technologies to guidance on steps to develop ways for election jurisdictions to acquire more secure voting systems.

Caltech/MIT Voting Technology Project. 2001. *Voting - What Is, What Could Be*.

<https://vote.caltech.edu/reports/1>.

A study of problems in the 2000 presidential election, with proposals for technology and election reform.

The National Commission on Federal Election Reform. 2001. *To Assure Pride and Confidence in the Electoral Process*. The Miller Center of Public Affairs & The Century Foundation.

http://web1.millercenter.org/commissions/comm_2001.pdf

Studying the 2000 presidential election, this report also provides detailed proposals for technology and election reform.

National Research Council. 2006. *Asking the Right Questions About Electronic Voting*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/11449>.

A discussion of the issues associated with electronic voting systems.

National Research Council. 2010. *Improving State Voter Registration Databases: Final Report*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/12788>.

A study of issues facing state voter registration databases, in particular their accuracy, reliability, and security.

National Academies of Sciences, Engineering, and Medicine. 2018. *Securing the Vote: Protecting American Democracy*. Washington, DC: The National Academies Press. <https://doi.org/10.17226/25120>.

An analysis of issues in the 2016 presidential election, with a focus on proposals to make the election process more accessible, reliable, secure, and verifiable.

Current Topics

Contemporary research in election science in the United States focuses on two (related) subjects: voting technology and the administration of elections. Studies of voting technology examine the voting machines and ballot marking devices that voters use for in-person voting, and related work examines the issues surrounding remote voting (both by mail and using different types of technologies, in particular internet voting). There is also an important line of research on different aspects of ballot design and voting system usability. Election administration research covers voter registration, the authentication of voters, how polling places and voting centers function, election auditing and forensics, the low incidence of election fraud, voter confidence and election security, election officials and pollworkers, and finally how to evaluate the performance of election administration.

Voting Machines and Ballot Marking Devices

The 2000 presidential election sparked interest in the accuracy and reliability of voting machines, for example Ansolabehere and Stewart 2005, Saltman 2006, and Herrnson et al. 2008. Academic research quickly turned to the study of voting system security, especially for electronic voting systems, like Kohno 2004, Moynihan 2004, and Alvarez and Hall 2008. In recent years, many election jurisdictions have started using ballot marking devices for in-person voting, but there have been questions raised about whether voters actually examine ballots from those devices for errors; Kortum et al. 2021 study this question and show with data from a mock election that voters can find errors in electronically marked ballots, if they are encouraged to scrutinize the ballot. Others like Jefferson et al. 2004 and Wolchok et al. 2012 have studied the use of Internet voting for American citizens abroad and have discussed security issues regarding online voting.

Alvarez, R. Michael and Thad Hall. 2008. *Electronic Elections: The Perils and Promises of Electronic Democracy*. Princeton, N.J.: Princeton University Press.

A study of the use of electronic voting systems for in-person voting, with a thorough discussion of the merits and drawbacks of electronic voting technologies.

Ansolabehere, Stephen, and Charles Stewart III. 2005. "Residual Votes Attributable to Technology." *Journal of Politics*. 67(2): 365-89.

An introduction to the use of the "residual vote" metric, and a demonstration of how this measure is used to evaluate the reliability and accuracy of voting technologies.

Herrnson, Paul S., Richard G. Niemi, Michael J. Hanmer, Benjamin B. Bederson, Frederick G. Conrad, and Michael W. Traugott. 2008. *Voting Technology: The Not-So-Simple Act of Casting a Ballot*. Washington, D.C.: Brookings Institution Press.

A study about how voters respond to new voting technologies.

Jefferson, David, Aviel D. Rubin, Barbara Simons, and David Wagner. 2004. "Analyzing Internet Voting Security." *Communications of the ACM*. 47(10): 59-64.

A team of computer scientists analyzes the security of remote Internet voting, using as an example a proposed online voting system for military and overseas voters.

Kohno, Tadayoshi, Adam Stubblefield, Aviel D. Rubin, and Dan S. Wallach. 2004. Analysis of an Electronic Voting System. *Proceedings of the 25th IEEE Symposium on Security and Privacy*, pages 27-42, DOI: 10.1109/SECPRI.2004.1301313.

An early security analysis of a voting system's source code, identifying potential security issues.

Kortum, Philip, Michael D. Byrne and Julie Whitmore. 2021. "Voter Verification of Ballot Marking Device Ballots is a Two-Part Question: Can They? Mostly, The Can. Do They? Mostly, They Don't." *Election Law Journal*. 20(3): <http://doi.org/10.1089/elj.2020.0632>.

Using a mock election, the authors study whether subjects verify their choices as produced by electronic ballot marking devices, which has been the subject of some study. They find that when voters do examine the marked ballots, they can detect errors, if they are encouraged to check the marked ballots.

Moynihan, Donald P. 2004. "Building Secure Elections: E-Voting, Security, and Systems Theory." *Public Administration Review*. 64: 515-528.

An examination of the adoption of electronic voting systems using systems theory.

Saltman, Roy. *The history and politics of voting technology: In quest of integrity and public confidence*. New York: Palgrave Macmillan, 2006.

A study of the history of voting technology in the United States.

Wolchok, Scott, Eric Wustrow, Dawn Isabel and J. Alex Halderman. 2012. "Attacking the Washington, D.C. Internet Voting System." In: Keromytis, A.D. (eds) *Financial Cryptography and Data Security*. FC 2012. *Lecture Notes in Computer Science*, vol 7397, 114-128. Springer: Berlin, Heidelberg.

Internet voting has been proposed as a potential solution for sending and receiving balloting materials from Americans abroad. The authors participated in a mock election conducted by Washington D.C. and demonstrated how the Internet voting system used could be attacked by outsiders.

Remote Voting

American voters have long had the ability in some states to cast their ballots from home or abroad, using absentee or vote-by-mail ballots. Oregon was an early adopter of universal voting by mail, where all eligible voters get their ballot by mail, and the primary question that has fueled academic research has been whether universal voting by mail increases voter turnout, for example Southwell and Burchett 1997, Karp and Banducci 200, and Gronke and Miller 2012. Scholars like Kousser and Mullin 2007 have also studied this same question in other states, like California. Another important topic of research has been on Internet voting, with studies from Gibson 2001 and Solop 2001 on the early use of Internet voting in the 2000 Arizona Democratic primary and broader studies of the utility of Internet voting in American elections by Alvarez and Hall 2003. Bryant 2020 provides experimental evidence that supports observational studies that have shown that those who vote by mail are less confident that their ballots are counted as intended than those who vote in person.

Alvarez, R. Michael, and Thad E. Hall. 2003. *Point, Click, and Vote: The Future of Internet Voting*. Washington, D.C.: Brookings Institution Press.

An early presentation of the pros and cons of voting online, with continued relevance regarding the impediments to widespread use of Internet voting in the United States.

Bryant, Lisa A. 2020. "Seeing is Believing: An Experiment on Absentee Ballots and Voter Confidence." *American Politics Research*. 48(6): 700-704.

The author uses an experimental design that provides additional evidence showing that absentee voters tend to be less confident that their votes will be counted as cast, relative to in-person voters.

Gibson, Rachel. 2001. Elections online: Assessing Internet voting in light of the Arizona Democratic primary. *Political Science Quarterly*. 116(4): 561-583.

An examination of the arguments in favor of, and in opposition to, online voting using the 2000 Arizona Democratic primary as an example

Gronke, Paul, and Peter Miller. 2012. "Voting by Mail and Turnout in Oregon: Revisiting Southwell and Burchett." *American Politics Research*. 40(6): 976-97.

Efforts to replicate and extend Southwell and Burchett 1997 are largely unsuccessful, and voting-by-mail is argued to only have a consistent effect on voter turnout in special elections.

Karp, Jeffery A., and Susan A. Banducci. 2000. "Going Postal: How All-Mail Elections Influence Turnout." *Political Behavior*. 22: 223-239.

Using data from Oregon, the authors argue that by-mail elections may increase voter participation, especially in low-stimulus elections, but generally among high-propensity voters.

Kousser, Thad, and Megan Mullin. 2007. "Does voting by mail increase participation? Using matching to analyze a natural experiment." *Political Analysis*. 15(4): 428-445.

Using data from California counties in two general elections, the paper argues that voting by mail does not increase voter turnout.

Solop, Frederic I. 2001. "Digital democracy comes of age: Internet voting and the 2000 Arizona Democratic primary election." *PS: Political Science & Politics*. 34(2): 289-293.

Internet voting was used in the 2000 Arizona Democratic primary, and this study documents issues that arose in the deployment of online voting and how online voting may have altered voter turnout in the primary.

Southwell, Priscilla L., and Justin Burchett. 1997. "Survey of vote-by-mail Senate elections in the state of Oregon." *PS: Political Science & Politics*. 30(1): 53-57.

Oregon's then-new universal voting-by-mail system was argued to increase voter turnout in 1996.

Stewart III, Charles. 2010. "Losing Votes By Mail." *New York University Journal of Legislation and Public Policy*. 13: 573-602.

An examination of the so-called "leaky pipeline" of voting-by-mail, discussing the places in the process where ballots can be lost or delayed.

Ballot Design

How American ballots are designed has seen significant research. Early research by Miller and Krosnick 1998 argued that the ordering of candidates on the ballot can have subtle influences on how many votes they receive, though the precise degree to which ballot order effects exist has been debated by subsequent research, for example by Koppell and Steen 2004 and Ho and Imai 2008. Other aspects of ballot design, like the infamous “butterfly ballot”, were studied by Wand et al. 2001, who argued that problematic ballot design might have influenced the outcome of the 2000 presidential election. Other studies of ballot design have noted the importance of this issue, like work by Kimball and Kropf 2005, Niemi and Herrnson 2003, and Lausen 2008. Hopkins 2011 studied how the use of multilingual ballots might influence voter participation and election outcomes.

Ho, Daniel E., and Kosuke Imai. 2008. "Estimating causal effects of ballot order from a randomized natural experiment: The California alphabet lottery, 1978–2002." *Public Opinion Quarterly*, 72(2): 216-240.

Using data from California and causal inference methods, the authors find that in general elections ballot order does not impact major party candidates, but only impacts minor party candidates.

Hopkins, Daniel J. 2011. "Translating into votes: the electoral impacts of Spanish - language ballots." *American Journal of Political Science* 55(4): 814-830.

An examination of how Spanish-language ballots affect voter turnout and election outcomes.

Kimball, David C., and Martha Kropf. 2005. "Ballot design and unrecorded votes on paper-based ballots." *Public Opinion Quarterly*, 69(4): 508-529.

The authors study paper-based ballots and argue that ballot design can reduce voter errors (both undervotes and overvotes).

Koppell, Jonathan GS, and Jennifer A. Steen. "The effects of ballot position on election outcomes." 2004. *Journal of Politics*, 66(1): 267-281.

A study of the 1998 Democratic primary in New York City, where candidate names were rotated by precinct. The authors argue that candidates listed first on the ballot generally received a greater proportion of votes than when listed lower on the ballot.

Lausen, Marcia. 2008. *Design for Democracy*. Chicago: University of Chicago Press.

An analysis of ballot and election design issues and solutions.

Miller, Joanne M., and Jon A. Krosnick. 1998. "The impact of candidate name order on election outcomes." *Public Opinion Quarterly*, 62(3): 291-330.

With data from 1992 elections in Ohio, the authors argue that when candidates are listed first on the ballot they receive a higher proportion of the vote, especially in low-information contexts.

Niemi, Richard G., and Paul S. Herrnson. 2003. "Beyond the butterfly: The complexity of US ballots." *Perspectives on Politics*, 1(3): 317-326.

The authors review ballot designs across the United States and note that there is a great deal of variation across the states in how ballots are designed.

Wand, Jonathan N., Kenneth W. Shotts, Jasjeet S. Sekhon, Walter R. Mebane, Michael C. Herron, and Henry E. Brady. 2001. "The butterfly did it: The aberrant vote for Buchanan in Palm Beach County, Florida." *American Political Science Review*, 95(4): 793-810.

The authors show that ballot design issues, namely the use of the butterfly ballot in Palm Beach County in the 2000 presidential election, led many Democratic voters to mistakenly vote for a Reform Party candidate.

Voter Registration

The primary research question with respect to voter registration laws in the United States is determining the extent to which the less restrictive registration practices affect voter participation. The early research of Wolfinger and Rosenstone 1978 found that various registration laws, especially registration deadlines well before an election, were associated with reduced voter turnout. Subsequent studies have typically confirmed this, like work by Brians and Grofman 2001, though scholars like Knack 1995 and Highton 2004 have written about the extent to which further registration reforms will continue to improve voter participation. Ansolabehere and Konisky 2006 provide an interesting contribution to this literature, by examining the introduction of voter registration in New York and Ohio. Bryant et al. 2020 and Mann and Bryant 2020 show that simple mechanisms like postcards can increase voter registration among eligible citizens.

Ansolabehere, Stephen, and David M. Konisky. 2006. "The introduction of voter registration and its effect on turnout." *Political Analysis*, 14(1): 83-100.

The authors examine how the introduction of voter registration in New York and Ohio affected voter turnout in each state, showing that requiring registration led to a decrease in voter participation.

Brians, Craig Leonard, and Bernard Grofman. 2001. "Election Day Registration's Effect on US Voter Turnout." *Social Science Quarterly*. 82(1): 170-83.

Same-day voter registration is argued to raise voter turnout, by reducing the cost of registration.

Bryant, Lisa A., Michael J. Hanmer, Alauna C. Safarpour and Jared McDonald. 2020. "The Power of the State: How Postcards from the State Increased Registration and Turnout in Pennsylvania." *Political Behavior*, <https://doi.org/10.1007/s11109-020-09625-2>.

Using a field experiment, the authors show that a single postcard from a state agency can boost voter registration and turnout.

Highton, Benjamin. 2004. "Voter registration and turnout in the United States." *Perspectives on Politics*, 2(3): 507-515.

The author argues that there are limitations on whether further efforts to make voter registration easier can lead to increased voter turnout, and that existing efforts to ease the burden of voter registration have few partisan consequences.

Knack, Stephen. "Does "motor voter" work? Evidence from state-level data." 1995. *Journal of Politics*, 57(3): 796-811.

The author argues that so-called "motor voter" policies enacted after passage of the National Voter Registration Act in 1993 produced significant increases in voter turnout.

Mann, Christopher B. and Lisa A. Bryant. 2020. "If You Ask, They Will Come (To Register And Vote): Field Experiments With State Election Agencies on Encouraging Voter Registration." *Electoral Studies*, 63: 102021.

In field experiments in two different states, simple and low-cost postcards sent to eligible but unregistered voters increase their registration rates.

Rosenstone, Steven J., and Raymond E. Wolfinger. 1978. "The effect of registration laws on voter turnout." *American Political Science Review*. 72(1): 22-45.

The seminal article using Current Population Survey data to examine how state voter registration laws and procedures affect voter turnout.

Authentication of Voters

American states vary in their requirements for what forms of identification an eligible citizen may need to provide in order to vote. Researchers have studied what factors may lead states to adopt stricter voter identification policies, including Hale and McNeal 2010, Hicks et al. 2015 and Biggers and Hanmer 2017. Others have studied how voter identification policies are implemented by local election officials, like White et al. 2015. Bowler and Donovan 2016 examined if voter identification policies affect voter confidence, while Cobbs et al. 2010 studied if the effects of voter identification policies vary by voter race and ethnicity.

Biggers, Daniel R., and Michael J. Hanmer. 2017. "Understanding the adoption of voter identification laws in the American states." *American Politics Research*, 45(4): 560-588.

The authors argue that states are more likely to adopt voter identification laws when partisan control of a state's government switches to Republican, and when the states have larger nonwhite populations.

Bowler, Shaun, and Todd Donovan. 2016. "A Partisan Model of Electoral Reform: Voter Identification Laws and Confidence in State Elections." *State Politics & Policy Quarterly*. 16(3): 340-361.

A study of the association between state voter identification policies and voter confidence, showing the correlation was polarized by partisanship in 2014.

Cobb, Rachael V., D. James Greiner, and Kevin M. Quinn. 2010. "Can voter ID laws be administered in a race-neutral manner? Evidence from the city of Boston in 2008." *Quarterly Journal of Political Science*, 7(1): 1-33.

The authors argue, using data from Boston, that nonwhite voters are asked for identification more frequently than white voters.

Hale, Kathleen, and Ramona McNeal. 2010. "Election Administration Reform and State Choice: Voter Identification Requirements and HAVA." *Policy Studies Journal*. 38(2): 281-302,

State voter identification requirements are shown to be driven by which political party controls the state's government, the state's political culture, and other state-level factors.

Hicks, William D., Seth C. McKee, Mitchell D. Sellers, and Daniel A. Smith. 2015. "A principle or a strategy? Voter identification laws and partisan competition in the American states." *Political Research Quarterly*, 68(1): 18-33.

The authors study the evolution of state voter identification policies, and argue that whether a state adopts a strict form of voter identification depends on electoral context and partisan control of the state's legislature.

White, Ariel R., Noah L. Nathan, and Julie K. Faller. 2015. "What do I need to vote? Bureaucratic discretion and discrimination by local election officials." *American Political Science Review*, 109(1): 129-142.

The authors study the type of information that election officials provide about voter identification policies and find that different types of information are provided to potential voters of different races and ethnicities.

Polling Places and Voting Centers

While some states have shifted mainly to voting by mail, in most states voting in person is common. In person voting occurs in either a neighborhood polling place or at a vote center. Stein and Vonnahme 2008 have studied whether the use of convenient vote centers is associated with increased voter turnout. Other research has examined how issues with polling places and vote centers might lead to issues for voters. Brady and McNulty 2011 examined how polling place consolidation and closures might make it more difficult for some voters to participate, while Schur and Adya 2017 examine polling place accessibility issues for disabled voters. Recent research has turned to the study of the measurement of and steps to alleviate long lines in polling places, for example Stewart and Ansolabehere 2015 and Stein et al. 2020.

Brady, Henry E., and John E. McNulty. 2011. "Turning out to vote: The costs of finding and getting to the polling place." *American Political Science Review*, 105(1): 115-134.

Using an innovative natural experiment in the 2003 California gubernatorial recall election, the authors show that reductions in the number of polling places led to lower polling place turnout in the election, but also to an increase in absentee voting.

Stein, Robert M., and Greg Vonnahme. 2008. "Engaging the Unengaged Voter: Vote Centers and Voter Turnout." *Journal of Politics*. 70(2): 487-497.

An examination of the use of Election Day vote centers in Colorado, arguing that their use increases voter turnout.

Schur, Lisa, Mason Ameri, and Meera Adya. 2017. "Disability, voter turnout, and polling place accessibility." *Social Science Quarterly*, 98(5): 374-1390.

Using 2012 data, the authors find that about a third of voters with disabilities indicate that they had difficulty voting in their polling place.

Stein, Robert M., Christopher Mann, Charles Stewart III, Zachary Birenbaum, Anson Fung, Jed Greenberg, Farhan Kawsar et al. 2020. "Waiting to vote in the 2016 presidential election: Evidence from a multi-county study." *Political Research Quarterly*, 73(2): 439-453.

A nationwide study from the 2016 election of wait times from twenty-eight jurisdictions, showing that strict voter identification requirements lead to longer voter-check in times in majority nonwhite polling places.

Stewart III, Charles, and Stephen Ansolabehere. 2015. "Waiting to Vote." *Election Law Journal*. 14(1): 47-53.

A study documenting disparities across the United States in voting wait times, showing in particular that voting wait times are longer in urban areas and for minority voters.

Election Auditing, Forensics, and Fraud

Demonstrating that an election has been conducted freely and fairly has become an important area of research in recent years. One area of research (mostly in the computer science field) has focused on developing statistical methodologies that can be used during a post-election canvass to confirm the accuracy of the reported results, examples being Lindeman and Stark 2012 and Stark and Wagner 2012. Political scientists like Hall et al. 2012 have studied procedures for conducting post-election ballot audits. Beauileu 2014 provides an example of research that studies how the public perceives election fraud, while Campbell 2006 examines the history of election fraud in the United States. There is a healthy and growing literature developing and deploying statistical methods to detect potential claims of election fraud, with much of this literature applied to elections data outside of the U.S. Researchers like Mebane 2008 use “digit tests” to look for evidence of potential election returns manipulation, while Goel et al. 2020 develop a statistical method to detect evidence of potential double voting. Eggers et al. 2021 take a different approach and use various types of statistical analysis and inference to test claims of election fraud in the 2020 U.S. presidential election.

Beaulieu, Emily. 2014. "From voter ID to party ID: How political parties affect perceptions of election fraud in the US." *Electoral Studies*, 35: 24-32.

Using survey experiments, the author argues that whether people are concerned about election fraud is conditioned by whether it affects their party's chances of winning.

Campbell, Tracy. 2006. *Deliver the vote: A history of election fraud, an American political tradition, 1742-2004*. Basic Books.

A study of the history of election fraud in the United States.

Eggers, Andrew C., Haritz Garro and Justin Grimmer. 2021. "No Evidence For Systematic Fraud: A Guide to Statistical Claims About The 2020 Election." *Proceedings of the National Academy of Sciences*, 118(45), e2103619118.

The authors examine the available statistical evidence for the primary claims about election fraud in the 2020 presidential election and find that the data do not support the allegations of election fraud in that election.

Goel, Sharad, Marc Meredith, Michael Morse, David Rothschild and Houshmand Shirani-Mehr, 2020. "One Person, One Vote: Estimating the Prevalence of Double Voting in U.S. Presidential Elections." *American Political Science Review*, 114(2): 456-469.

Using voter history data, the authors develop a statistical method (which they validate) that estimates that perhaps 1 in every 4,000 votes cast in the 2012 U.S. election were double votes.

Hall, Thad E., Lonna Atkeson, and R. Michael Alvarez. 2012. *Confirming Elections: Creating Confidence and Integrity Through Election Auditing*. New York: Palgrave.

A collection of essays regarding post-election ballot auditing procedures and their performance.

Imai, Kosuke, and Gary King. "Did illegal overseas absentee ballots decide the 2000 US presidential election?" 2004. *Perspectives on Politics*, 2(3) 537-549.

The authors conduct a detailed examination of overseas absentee ballots returned in the 2000 presidential election in Florida, and conclude that dropping potentially illegally counted overseas absentee ballots might have altered the outcome of the presidential election.

Lindeman, Mark and Philip B. Stark. 2012. "A Gentle Introduction to Risk-Limiting Audits." *IEEE Security & Privacy*, 10(5): 42-49.

The authors give an introduction to the concept of risk-limiting audits, focusing on ballot-polling and comparison audits.

Mebane, Walter J. 2008. "Election Forensics: The Second-Digit Benford's Law Test and Recent American Presidential Elections." R. Michael Alvarez, Thad E. Hall, and Susan D. Hyde, editors, *Election Fraud: Detecting and Deterring Electoral Manipulation*. Washington, D.C.: Brookings Institution Press.

A discussion of the use of Benford's Law to detect anomalies in election returns data from the United States.

Stark, Philip B. and David Wagner. 2012. "Evidence-Based Elections." *IEEE Security & Privacy*, 10(5): 33-41.

Rather than rely upon pre-election voting machine certification and testing, the authors argue for an evidence-based framework relying largely on software-independent voting systems and risk-limiting audits.

Confidence, Perceptions of Fraud and Integrity

The confidence that voters have that their ballots, and the ballots of voters in other states and counties, are counted correctly is an important research issue. Early work by Atkeson and Saunders demonstrated that voter confidence is correlated with election administration policies and practices, as have Bowler et al. 2015 and Ansolabehere and Persily 2007. Sances and Stewart 2015 and Sinclair et al. 2018 have found that voters who affiliate with election winners are more likely to be confident in the election's outcome.

Ansolabehere, Stephen, and Nathaniel Persily. 2007. "Vote fraud in the eye of the beholder: The role of public opinion in the challenge to voter identification requirements." *Harvard Law Review*, 121: 1737-1775.

The authors study public opinion about various forms of voting and election fraud, in the context of the debate about the use of government-issued photo identification voting requirements.

Atkeson, Lonna Rae, and Kyle L. Saunders. 2007. "The Effect of Election Administration on Voter Confidence: A Local Matter?" *PS: Political Science and Politics*. 40(4): 655-660.

An introduction to the use of survey data on voter confidence, and a demonstration to how voter confidence is correlated with election administration practices and procedures.

Bowler, Shaun, Brunell, Thomas, Donovan, Todd and Gronke, Paul. 2015. Election administration and perceptions of fair elections. *Electoral Studies*, 38, pp.1-9.

Voters in locations with higher quality election administration are more likely to believe that elections are conducted fairly.

Sances, Michael W., and Charles Stewart III. 2015. "Partisanship and confidence in the vote count: Evidence from US national elections since 2000." *Electoral Studies* 40: 176-188.

Voters whose partisan identity matches that of a winning candidate are more confident in the vote count, and this effect is found to be larger in national rather than local elections.

Sinclair, Betsy, Steven S. Smith, and Patrick D. Tucker. 2018. "'It's largely a rigged system': voter confidence and the winner effect in 2016." *Political Research Quarterly*. 71(4): 854-868.

Voters who cast ballots for winning candidates tend to be more likely to report confidence in the election system.

Election Officials and Poll Workers

Elections in the United States are administered by state, county, and in some places, municipal election officials. Authors like Kimball and Kropf 2006, Moynihan and Silvia 2008 and Burden et al. 2013 have studied how election officials are selected. Others like Hall et al. 2009 and Claassen et al 2013 have studied how election administration, in particular voter experiences with poll workers, affects voter confidence. In a new and exciting area of research, scholars like Merivaki 2021 are studying one of the important jobs of election officials, voter list maintenance. Suttman-Lea 2020 examines how poll workers subjectively make decisions about how to determine voter eligibility.

Burden, Barry C., David T. Canon, Stephanie Lavertu, Kenneth R. Mayer, and Donald P. Moynihan. 2013. "Election Laws, Mobilization, and Turnout: The Unanticipated Consequences of Election Reform." *Political Research Quarterly*. 41(6): 903-936.

Election officials are either appointed or elected, and this paper uses data from Wisconsin to argue that appointed election officials are more supportive of voter accessibility, while also being less concerned regarding costs and ballot security.

Claassen, Ryan L., et al. 2013. "Voter confidence and the election-day voting experience." *Political Behavior*. 35(2): 215-235.

The type of voting system used by a voter is associated with their confidence in the election process.

Hall, Thad E., J. Quin Monson, and Kelly D. Patterson. 2009. "The human dimension of elections: How poll workers shape public confidence in elections." *Political Research Quarterly*. 62(3): 507-522.

Voter perception of the quality of the job done by poll workers is associated with voter confidence in the election process.

Kimball, David C., and Martha Kropf. 2006. "The Street - Level Bureaucrats of Elections: Selection Methods for Local Election Officials." *Review of Policy Research*. 23(6): 1257-1268.

An analysis of the variation across states and counties in the selection methods for election officials.

Merivaki, Thessalia. 2020. "Our Voter Rolls Are Cleaner Than Yours": Balancing Access and Integrity in Voter List Maintenance. *American Politics Research*. 48(5): 560-570.

Voter registration list accuracy is a critical aspect of election integrity. This paper analyzes variations across county voter list accuracy using data from Mississippi, documenting that there is considerable variance across counties within the state.

Moynihan, Donald P., and Carol L. Silvia. 2008. "The Administrators of Democracy: A Research Note on Local Election Officials." *Public Administration Review*. 68: 816-827.

Early surveys (2004 and 2006) of the views of election officials about election reform and election administration.

Suttman-Lea, Mara. 2020. "Poll Worker Decision Making at the American Ballot Box." *American Politics Research*, 48(6): 714-718.

An illuminating study into how poll workers subjectively interpret and apply complex election laws and procedures, focusing on how Chicago poll workers decide how to apply the signature matching law in Illinois.

Election Performance

Researchers have been interested in trying to quantify the performance of election administration and connect performance to election administration practices and theory. The measurement of election performance has been examined by Gerken 2009 and by Alvarez et al. 2013. Scholars like Hill 2012 have studied the cost of election administration, while Kimball and Baybeck 2013 have examined whether “size matters”. Finally, Montjoy 2008 argued that election administration is a complex area of government operation, and discussed how public administration theory can help scholars unravel that complexity.

Alvarez, R. Michael, Lonna Rae Atkeson, and Thad Hall. 2013. *Evaluating Elections: A Handbook of Standards and Methods*. New York: Cambridge University Press.

The development and application of a holistic, ecological approach to evaluate the performance of election administration in a particular jurisdiction.

Gerken, Heather. 2009. *The Democracy Index*. Princeton, New Jersey: Princeton University Press.

A methodology to rank and evaluate election performance across the American states.

Hill, Sarah A. 2012. “Election Administration Finance in California Counties.” *The American Review of Public Administration*, 42(5): 606-628.

An analysis of county election expenses using a public sector cost model, showing that voting technologies and economies of scale are associated with the cost of elections.

Kimball, David C., and Brady Baybeck. 2013. "Are All Jurisdictions Equal? Size Disparity in Election Administration." *Election Law Journal*. 12(2): 130-145.

Size matters in election administration, and this article argues that larger election jurisdictions have the most difficulties conducting elections and need innovation most acutely.

Montjoy, Robert S. 2008. “The Public Administration of Elections.” *Public Administration Review*. 68(5): 788-799.

An overview of the complexity of election administration, and how public administration theory helps structure the study of elections.