

Response to Matthew Braynard Expert Report

Stephen Ansolabehere

December 4, 2020

I. Statement of Inquiry

1. I was asked to evaluate the expert report of Matthew Braynard dated November 20, 2020, and to determine whether the claims made therein and the related data collection supporting them meet scientific standards for reliability and accuracy in my fields of research, which include survey research and design, data science, and election analysis.

II. Summary

2. Matthew Braynard's report makes six Claims:

(1) 18.39 percent of registered voters of Georgia who were sent but did not return absentee ballots did not request absentee ballots;

(2) 33.29 percent of voters who were sent absentee ballots but were not recorded as having returned absentee ballots stated that they did mail their ballots back;

(3) 1.53 percent of registered voters of Georgia who changed addresses before the election and were recorded as having voted stated that they did not cast a vote;

(4) 20,312 absentee voters were not residents of the State of Georgia when they voted, and

(5) 1,043 early and absentee ballots were cast by people who were registered at post office box addresses; and

(6) 234 Georgians voted in multiple states.

3. None of these claims meets scientific standards of my fields of research, including survey research, political science, statistics and data sciences. There is no scientific basis for drawing any inferences or conclusions from the data presented. None of the estimates are presented with statistical measures that meet standards for evaluating evidence.

4. Each of the claims is couched with the phrase “to a reasonable degree of scientific certainty.” This phrase is meaningless in scientific journals and disciplines. The National Institute of Standards and Technology has warned against use of such a phrase by experts in legal proceedings and concluded that “the term ‘reasonable degree of scientific [or discipline] certainty’ has no place in the judicial process.” It has no place in the scientific research process.

5. The survey on which Claims (1) and (2) are based is riddled with errors and biases that render it invalid for purposes of drawing inferences about the quantities at issue here. There are data errors in the topline summaries of the survey data and obvious errors in the design of the survey that produced the results.¹ Specifically, individuals who may not have been the correct person were allowed to answer the survey. Further, registration-based surveys such as this rely on matching phone numbers to registration records, a process that is prone to error. The results observed by Mr. Braynard can easily be explained by mismatches of phone numbers to voter records in conducting the survey.

6. The survey used to support Claims (1) and (2) and the survey used to support Claim (3) have unacceptably low response rates, and no effort is made to correct for non-response bias. Less than one percent of people who were targeted for contact ultimately responded to these surveys. The report naively extrapolates from the data, assuming that the 99 percent of people who could not be contacted or who refused to participate are just like the 1 percent who did participate. In my professional experience, data with such low response rates are either not accepted as valid or must be proven to be representative and accurate before they are relied on to draw scientifically valid inferences and conclusions. The report provides no information about the descriptive

¹ “Topline” data generally represents a summary of the figures collected and relied upon in a survey or study.

characteristics of the sample or the population studied and provides no assessment of whether the data are in fact representative or accurate.

7. Claims (3), (4), and (6) are based on list matching. The list matching methodologies are not described adequately. The lack of a complete description of list matching methodology fails to meet scientific standards of transparency and data presentation. What little information is presented suggests that it is based on methodologies that have been debunked by statisticians and by the US Civil Rights Commission for producing large numbers of incorrect matches.

8. Claim (5) is based on analysis of addresses. This analysis does not meet scientific standards of my fields of research. The statistics that are presented reveal that there is no uniformity of coding and assessment and that the results are not reliable.

9. Claim (6) is asserted but there is no further information in Mr. Braynard's report to support it beyond the claim.

III. Qualifications

10. I am the Frank G. Thompson Professor of Government in the Department of Government at Harvard University in Cambridge, MA. Formerly, I was an Assistant Professor at the University of California, Los Angeles, and I was Professor of Political Science at the Massachusetts Institute of Technology, where I held the Elting R. Morison Chair and served as Associate Head of the Department of Political Science. I am the Principal Investigator of the Cooperative Congressional Election Study (CCES), a survey research consortium of over 250 faculty and student researchers at more than 50 universities, directed the Caltech/MIT Voting Technology Project from its inception in 2000 through 2004, and served on the Board of Overseers of the American National Election Study from 1999 to 2013. I am a consultant to CBS News'

Election Night Decision Desk. I am a member of the American Academy of Arts and Sciences (inducted in 2007). My curriculum vitae is attached to this report as Appendix B.

11. I have worked as a consultant to the Brennan Center in the case of *McConnell v. FEC*, 540 U.S. 93 (2003). I have testified before the U.S. Senate Committee on Rules, the U.S. Senate Committee on Commerce, the U.S. House Committee on Science, Space, and Technology, the U.S. House Committee on House Administration, and the Congressional Black Caucus on matters of election administration in the United States. I filed an amicus brief with Professors Nathaniel Persily and Charles Stewart on behalf of neither party to the U.S. Supreme Court in the case of *Northwest Austin Municipal Utility District Number One v. Holder*, 557 U.S. 193 (2009) and an amicus brief with Professor Nathaniel Persily and others in the case of *Evenwel v. Abbott* 138 S.Ct. 1120 (2015). I have served as a testifying expert for the Gonzales intervenors in *State of Texas v. United States* before the U.S. District Court in the District of Columbia (No. 1:11-cv-01303); the Rodriguez plaintiffs in *Perez v. Perry*, before the U. S. District Court in the Western District of Texas (No. 5:11-cv-00360); for the San Antonio Water District intervenor in *LULAC v. Edwards Aquifer Authority* in the U.S. District Court for the Western District of Texas, San Antonio Division (No. 5:12cv620-OLG); for the Department of Justice in *State of Texas v. Holder*, before the U.S. District Court in the District of Columbia (No. 1:12-cv-00128); for the Guy plaintiffs in *Guy v. Miller* in U.S. District Court for Nevada (**No. 11-OC-00042-1B**); for the Florida Democratic Party in *In re Senate Joint Resolution of Legislative Apportionment* in the Florida Supreme Court (Nos. 2012-CA-412, 2012-CA-490); for the Romo plaintiffs in *Romo v. Detzner* in the Circuit Court of the Second Judicial Circuit in Florida (No. 2012 CA 412); for the Department of Justice in *Veasey v. Perry*, before the U.S. District Court for the Southern District of Texas, Corpus Christi Division (No. 2:13cv00193); for the Harris plaintiffs in *Harris v.*

McCrory in the U. S. District Court for the Middle District of North Carolina (No. 1:2013cv00949); for the Bethune-Hill plaintiffs in *Bethune-Hill v. Virginia State Board of Elections* in the U.S. District Court for the Eastern District of Virginia (No. 3: 2014cv00852); for the Fish plaintiffs in *Fish v. Kobach* in the U.S. District Court for the District of Kansas (No. 2:16-cv-02105-JAR); and for intervenors in *Voto Latino, et al. v. Hobbs*, in the U.S. District Court for the District of Arizona (No. 2:19-cv-05685-DWL). I served as an expert witness and filed an Affidavit in the North Carolina State Board of Elections hearings regarding absentee ballot fraud in the 2018 election for Congressional District 9 in North Carolina.

12. My areas of expertise include American government, with particular expertise in electoral politics, representation, and public opinion, as well as statistical methods in social sciences and survey research methods. I have authored numerous scholarly works on voting behavior and elections, the application of statistical methods in social sciences, legislative politics and representation, and distributive politics. This scholarship includes articles in such academic journals as the Journal of the Royal Statistical Society, American Political Science Review, American Economic Review, the American Journal of Political Science, Legislative Studies Quarterly, Quarterly Journal of Political Science, Electoral Studies, and Political Analysis. I have published articles on issues of election law in the Harvard Law Review, Texas Law Review, Columbia Law Review, New York University Annual Survey of Law, and Election Law Journal, for which I am a member of the editorial board. I have coauthored three scholarly books on electoral politics in the United States, The End of Inequality: Baker v. Carr and the Transformation of American Politics, Going Negative: How Political Advertising Shrinks and Polarizes the Electorate, and The Media Game: American Politics in the Media Age. I am coauthor with Benjamin Ginsberg, and Ken Shepsle of American Government: Power and Purpose. I am being

compensated at the rate of \$550 an hour. My compensation is not dependent on my conclusions in any way.

IV. Sources

13. I have relied on the expert report of Matthew Braynard in this case.

14. I have relied on the report of Dr. William Briggs in *King v. Whitmer* in the District Court in the Eastern District of Michigan (No. 2:20-cv-13134). The Topline Tables appended to Dr. Briggs' report provide information on the response rates, design and implementation of, and responses to the surveys used in Claims (1) and (2) of Matthew Braynard's report. This information was not disclosed in Mr. Braynard's report in this case.

15. I have relied on the Election Assistance Commission, "Election Administration and Voting Survey (EAVS) for 2018: <https://www.eac.gov/research-and-data/studies-and-reports>. I present data from 2018 because it is the most recent federal election for which data on absentee and permanent absentee voting is available. The 2018 data are instructive about the magnitude of permanent absentee voters and of the magnitude of unreturned, late, rejected, and spoiled absentee ballots. The 2020 data are not yet reported.

V. Findings

16. Matthew Braynard's report makes six Claims:

(1) 18.39 percent of registered voters of Georgia who were sent absentee but did not return absentee ballots did not request absentee ballots;

(2) 33.29 percent of voters who were sent absentee ballots but were not recorded as having returned absentee ballots stated that they did mail their ballots back;

(3) 1.53 percent of registered voters of Georgia who changed addresses before the election and were recorded as having voted stated that they did not cast a vote;

(4) 20,312 absentee voters were not residents of the State of Georgia when they voted;

(5) 1,043 early and absentee ballots were cast by people who were registered at post office box addresses; and

(6) 234 Georgians voted in multiple states.

17. There is no scientific basis for reaching any of these conclusions. Mr. Braynard prefaces each claim with the phrase “to a reasonable degree of scientific certainty,” a phrase that the National Institutes of Standards and Technology concludes has no scientific meaning and which, as a journal editor, is not acceptable in the fields of survey research, data science, or political science. Mr. Braynard presents no standard errors or confidence intervals, which are necessary to gauge how informative estimates are.

18. The estimates in Claims (1), (2), and (3) are extrapolations to a population of 138,000 registered voters from a few hundred responses to surveys that have design flaws that make the survey unrepresentative of the population that is being studied.

19. The basic information about these surveys is never disclosed by Mr. Braynard, in violation of standards of transparency set by the American Association of Public Opinion Researchers. From what information I have found in the reports of Dr. William Briggs about one of the surveys, it is riddled with questionnaire design flaws and spreadsheet errors, indicative of quality control failures in the conduct of the survey, which render unreliable the calculation of any estimates using it.

20. The surveys have unacceptably high rates of non-response. In the state of Georgia the response rate to this survey was only 0.4 percent, meaning that of the entire set of people that Mr. Braynard set out to study 99.6 percent could not be reached or would not answer the survey.

19. An error in the branching of the survey questionnaire allows people who were not the person that the survey targeted to answer Question 2 (did you request an absentee ballot?). More people were improperly asked Question 2 (255) than responded that they did not return an absentee vote (128).

20. Claims (3), (4) and (6) are based on list matching and record linkage. There is no disclosure of the methods used, especially which fields are used. Recent studies have found millions of errors in list matching methodologies using first name, last name, and date of birth.

21. The design of the survey and the resulting claims fail to account for features of absentee voting and registration in Georgia. The surveys do not account for the fact that Georgia has “rollover” absentees, which allow people to sign up to have ballots sent to them without requesting them. According to estimates of the Georgia Office of the Secretary of State that were reported in the media, there were approximately 580,000 rollover ballots in 2020. That figure far exceeds the numbers “unrequested” absentees in Mr. Braynard’s report. The surveys do not separate rollover voters from other absentee voters. Moreover, many absentee ballots arrive late or are rejected for various reasons (e.g., lack of signatures). None of the Claims made by Mr. Braynard, then, are supported by the data or analyses or meet standards of scientific inference.

A. This report is not up to scientific standards of evidence.

i. The report offers no conclusions based on scientifically accepted standards of evidence.

22. Scientific standards in survey research, statistics and data science, and political science, require that when researchers present statistics and estimates, such as Mr. Braynard does in each

of his claims, the estimates be accompanied by statistical measures of the researcher's confidence or uncertainty about the estimates. Most frequently, researchers present a standard error, confidence interval, or margin of error. Such quantities are necessary for gauging how informative estimates are, and what inferences and conclusions may be drawn. Survey research is not accepted for publication without such information.

23. Mr. Braynard's report offers no measures of statistical precision or uncertainty in association with any of the estimates presented in Claims 1, 2, 3, 4, 5, or 6. Without such quantities it is impossible to draw statistical inferences from data. And, without such measures of the amount of information in or uncertainty about estimates, the estimates are not accepted in scientific research journals and publications as scientific evidence.

ii. The report couches its conclusions as having "Reasonable Scientific Certainty," which is meaningless in scientific research.

24. The only expression of a foundation for the conclusion for each of the six factual claims made in Braynard's report is the following assertion: "it is my opinion, to a reasonable degree of scientific certainty."

25. The expression "a reasonable degree of scientific certainty" is not a standard by which scientific inferences and conclusions are made. It is not used in any of the journals in which I have published, which includes the top journals in the fields of statistics, political science, and economics, or journals on whose editorial boards I have served or have served as an editor, including the *Harvard Data Science Review* and *Public Opinion Quarterly*.

26. The standard-setting bodies that provide guidance to researchers have concluded that "a reasonable degree of scientific certainty" should not be used to characterize scientifically drawn conclusions or inferences in a judicial setting. Researchers across all fields follow the guidance on the use of terminology from their own professions and from standard setting institutions, such

as the National Institutes of Standards and Technology of the Department of Commerce. The National Commission on Forensic Science of the National Institute of Standards and Technology in its report “Testimony Using the Term ‘Reasonable Degree of Scientific Certainty’” acknowledges that “The legal community should recognize that medical professionals and other scientists do not routinely use ‘to a reasonable degree of scientific certainty’ when expressing conclusions outside of the courts. Such terms have no scientific meaning and may mislead factfinders [jurors or judges] when deciding whether guilt has been proved beyond a reasonable doubt.” The NIST report concludes, “the term ‘reasonable degree of scientific [or discipline] certainty’ has no place in the judicial process.”²

iii. There is no disclosure of the methodologies and data used in this report.

27. Mr. Braynard does not disclose sampling methodologies, sample sizes, questionnaires, or response and breakoff rates. Mr. Braynard states that he conducted “randomized” surveys, but the topline tables appended to Dr. Briggs’ report indicate, in my professional assessment, that at the outset of the studies all people in the target population could have been included in the study and that no randomization in fact occurred. Mr. Braynard does not disclose the number of correctly matched phone numbers and the number of wrong numbers, though the topline tables appended to Dr. Briggs report reveal some statistics related to wrong numbers and records for which no phone number was available.

28. Mr. Braynard does not disclose list matching methodologies used for matching the registration records to NCOA lists and voter files. It is my professional experience, based on my own research and that of other scholars in my fields of study, that many of the algorithms

² National Commission on Forensic Science of the National Institute of Standards and Technology, U.S. Department of Commerce, “Testimony on Using the Term ‘Reasonable Scientific Certainty,’” <https://www.justice.gov/archives/ncfs/file/795336/download>.

commonly used for list matching are highly susceptible to errors of omission from the lists (false negatives) and errors of inclusion of people who should not have been considered matches (false positives). It is standard for scientific research using list matching and record linkage to provide detailed information about the matching algorithms and to include measures of the accuracy of the algorithms used.³ No indicators of accuracy of matching methods, such as false positives and false negatives, are included in Mr. Braynard's report.

29. The lack of transparency in Mr. Braynard's report violates basic standards for scientific evidence. The report does not disclose the basic features of the survey, including the survey selection and contact procedures, the questionnaire design, and contact, response, and breakoff rates. This violates accepted rules of scientific evidence in academic survey research and the Code of Professional Ethics and Practices of the American Association of Public Opinion Researchers (AAPOR). Journals such as *Public Opinion Quarterly*, which is the flagship journal of AAPOR, require reporting of such information as a condition for publication of scientifically sound survey research.⁴ Mr. Braynard's description of the research conducted is not up to the scientific standards of fields in which I have published or serve in an editorial capacity.

B. Errors in record keeping can readily explain all six claims made in this study.

30. Past academic research on the accuracy of information on voter files nationwide has found small rates of errors, on the order of 1 to 4 percent, in various fields on voter files, including whether someone voted and how they voted. Specifically, past research that I have conducted has found that nationwide the record of whether an individual voted is incorrect 2 percent of the time.

³ W. E. Winkler, "Matching and Record Linkage" Statistical Research Division, U.S. Bureau of the Census (1993). <https://www.census.gov/srd/papers/pdf/r93-8.pdf>.

⁴ American Association for Public Opinion Research, Disclosure Standards, <https://www.aapor.org/Standards-Ethics/AAPOR-Code-of-Ethics/Disclosure-Standards.aspx>.

These errors are omissions (neglecting to record that someone voted) and typos.⁵ The state of Georgia has over 7.2 million registration records. An error of 2 percent would correspond to 144,000 incorrect recordings of whether an individual voted. That number far exceeds the magnitudes of the estimates that Mr. Braynard offers.

31. Clerical errors in voter files make it difficult to conduct surveys based on these files to determine whether or how an individual registrant or survey respondent voted. Research by Matthew Berent and Jon Krosnick finds that such record keeping errors create errors in surveys that are linked to voter files, such as the surveys conducted by Mr. Braynard, and make problematic any attempts to draw inferences about whether a particular individual did or did not in fact vote.⁶ These clerical errors result in discrepancies between votes counted according to the voter registration rolls and votes counted in the official certification.⁷ Record keeping errors and inconsistencies are sufficient to account for Claims (1), (2), and (3) in Mr. Braynard's report.

32. Clerical error and inconsistencies in fields such as name, address, and date of birth can create errors in attempts to link records across different lists, such as a voter file to NCOA or across different states' voter files. Specifically, typographical errors, variations in names, and omitted information can lead to incorrect matches of voter registration records to commercial phone lists, National Change of Address lists, and official government lists (including other states' registration lists). Both false positives (matches that should not have occurred) and false negatives (matches that did not occur but should have) arise. The quality of such matches is highly dependent

⁵ Stephen Ansolabehere and Eitan Hersh, "The Quality of Voter Registration Records: A State-by-State Analysis" Caltech-MIT Voting Technology Project Report Number 6 (July 14, 2010), <http://vote.caltech.edu/reports/6>.

⁶ Matthew Berent, Jon Krosnick, and Arthur Lupia, "Measuring Voter Registration and Turnout in Surveys: Do Government Records Yield More Accurate Assessments?" *Public Opinion Quarterly* 80 (2016): DOI: [10.1093/poq/nfw021](https://doi.org/10.1093/poq/nfw021).

⁷ Ansolabehere & Hersh, *op. cit.*, page 16.

on the algorithms used.⁸ Based on past research on the accuracy of voter files, the number of clerical errors on statewide voter files across the nation is sufficiently high as to plausibly be larger than any of the numbers presented in Mr. Braynard's report.

33. It is unclear from Mr. Braynard's report what efforts he made, if any, to verify the correctness of the information on the voter registration lists. Also, it is unclear what effort was made to make sure that the algorithms used had very low rates of false positive and false negative matches and were robust to the sorts of errors and inconsistencies encountered on registration and commercial lists. None of the algorithms for matching phone numbers to registration records or for matching registered voters to Georgia to NCOA or other states' registration lists are disclosed.

C. The survey reported in the study is not of sufficient quality to support the claims made.

34. Mr. Braynard relies on a phone survey of people linked to registration records to assert Claim (1) and Claim (2). The survey has a very high non-response rate which makes inferences suspect. Claim (3) is evidently based on a second survey. Sample design problems, such errors linking of commercial lists with phone numbers to voter registration lists, high rates of non-response, and flaws in the questionnaires used, can easily account for the observed results.

35. Some information about the survey used to support Claim (1) and Claim (2) is disclosed in the report of Dr. William Briggs. Matthew Braynard did not disclose this information in this case. Examination of that data revealed fatal flaws in the design of the survey that render it useless for reaching conclusions about Claim (1) and Claim (2).

i. The surveys used to support Claims 1, 2, and 3 have high non-response rates.

⁸ Stephen Ansolabehere and Eitan Hersh, "ADGN: An Algorithm for Record Linkage Using Address, Date of Birth, Gender, and Name," *Statistics and Public Policy* 4 (2017): 1-10.

36. The Braynard report does not present a response rate, which violates accepted rules of scientific evidence in academic survey research. The American Association of Public Opinion Researchers (AAPOR) sets standards for reporting of response rates for surveys. Journals such as *Public Opinion Quarterly* and the *American Journal of Political Science* require reporting of response rates to surveys for all published papers.⁹ Surveys with very low response rates, below 5 percent, are never accepted in scientific journals.

37. According to the information in the Briggs Report, the response rate to Mr. Braynard's Georgia survey is approximately one half of one percent—four times lower than the response rate of the survey rejected by the court in *Texas v. Holder*. That is, 99.5 percent of all people that Matthew Braynard's firm sought to contact either could not be contacted, did not respond to the survey calls, or refused to participate in the survey. The survey originally targeted the entire set of 138,029 absentee ballots that had not been returned. The appendix to William Briggs survey shows that the firm was able to obtain potentially-correct phone numbers for 34,355 people. Attempts to contact these people winnowed the set of respondents to 1,175 people (those who answered Question 1 of the survey, which ascertains who the person is.) Just 964 people were asked Question 2 of the survey, which is whether the person requested an absentee ballot. Of these people, 128 hung up or refused to answer, reducing the number of respondents to 736. That is only 736 people responded to the survey out of the original 138,029 that the firm sought to interview. Table 1 summarizes the number of people sought in the survey, the number of match phone numbers, the number of Completes, and the number of people responding to Questions 1, 2 and 5 (the final question of the survey).

⁹ American Association for Public Opinion Research, Response Rates, <https://www.aapor.org/Education-Resources/For-Researchers/Poll-Survey-FAQ/Response-Rates-An-Overview.aspx>.

38. The response rate is not reported for the second survey, used in making Claim 3. Based on figures in Mr. Braynard's report, I calculate the response rate to be 1.7 percent, which is again unacceptably low.

39. In my work as an expert witness for the Department of Justice, it is my experience that surveys similar to this one with response rates of 2 percent (higher than the surveys here) are not acceptable as evidence because of potential biases due to the unrepresentativeness of the respondents who do answer the surveys. Specifically, in *Texas v. Holder*, Professor Daron Shaw offered evidence based on phone surveys of registration lists. These surveys had very low response rates of 2 percent, and the court rejected the data because of serious questions about accuracy and reliability of surveys with very low response rates. See *Texas v. Holder*, 888 F. Supp. 2d 113, 131 (D.D.C. 2012), *vacated and remanded*, 570 U.S. 928, 133 S. Ct. 2886, 186 L. Ed. 2d 930 (2013).

40. In my experience as a researcher and journal editor, survey data with such a low response rate are generally not accepted in academic research, as the potential non-response bias errors are substantial. Researchers sometimes do use data with very low response rates, but only upon affirmatively demonstrating that the data are representative of the population being studied or upon correcting for potential non-response bias. Mr. Braynard's report does neither—it makes no attempt to show that the 736 people in Georgia who the survey ultimately asked whether they returned their absentee ballots are representative of the 138,029 that the researchers originally sought to interview, and it makes no attempt to correct for potential non-response bias.

41. Mr. Braynard presents survey data with unacceptably high rates of non-response. He offers no accounting of or explanation for this very low response rate, but instead without explanation treats the one half of one percent who did respond as if they were representative of the 99.5 percent of people who did not respond. This fails to meet standards of scientific research.

ii. Registration-Based samples typically have many incorrect matches to phone numbers, and these can explain the findings.

42. The surveys used in this report to support Claim 1, 2, and 3 are based on an attempt to match phone numbers to records on the voter files.

43. There is no information reported on the methodology for matching phone numbers to voter files. Specifically, there is no information on the specific algorithm used for matching phone numbers to voter records and its accuracy. There is no report of the rate of successful matches, erroneous matches (both false positives and false negatives), and non-matches, or of the rate of obsolete and wrong numbers on the voter file. It is standard in academic research using registration-based sampling to report such information in connection with registration-based sample surveys.¹⁰ Transparency in reporting algorithm is part of the scientific practice because some algorithms are known to be more accurate than others, and because reporting such information allows for replication of research. I have published on this list matching and voter validation in academic journals, and journals expect publication information on rates of successful matches and erroneous matches when publishing scientific research on this topic.¹¹ I served as an expert for the Department of Justice in two cases (*Texas v. Holder* and *United States v. Texas*) involving matching voter registration lists to other records, and information on correct and incorrect matches was expected as part of the disclosure in those cases.

44. Prior research has documented that there are substantial errors matching phone numbers to voter files. Professors Donald Green and Alan Gerber have documented that a third of records on voter files have no phone number; approximately 10 percent of numbers on voter

¹⁰ Donald P. Green & Alan S. Gerber, "Can Registration-Based Sampling Improve the Accuracy of Midterm Election Forecasts," *Public Opinion Quarterly* 70 (2006): 197-223.

¹¹ Stephen Ansolabehere & Eitan D. Hersh, "ADGN: An Algorithm for Record Linkage Using Address, Date of Birth, Gender, and Name," *Statistics and Public Policy* 4 (2017): 1-10.

files are incorrect.¹² Studies conducted by the Pew Research Center on Methodology have found that in conducting surveys in which phone numbers are matched to voter registration lists that 40 percent of cell phone and 70 percent of landline respondents are not the correct person.¹³

45. Table 1 provides evidence of a high level of incorrect phone numbers in the survey relied on by Mr. Braynard. First, of the 15,719 Completes, 4,902 (32.3 percent) are flagged for wrong numbers and language. That indicates a high rate of mismatches even among the phone numbers that were matched. Second, of the 1,175 responses to Question 1, 255 (21.7 percent) could not be verified to be the Target of the survey.

46. Errors of that magnitude in matching phone numbers to voter files and in existing phone numbers on voter files can easily explain the estimates provided in the report. For example, using the figures from the Pew Study cited in paragraph 43, if 40 percent of the 1,170 people who actually answered Mr. Braynard's survey were the wrong person then the study would have started with 470 wrong people interviewed. That number far exceeds the number who answered No to Question 2 or Yes to Question 3. The magnitudes of other potential errors, such as wrong phone numbers on registration lists or list matching errors, are also of sufficient magnitude to account for Claims (1), (2), and (3).

iii. The data for Claims 1 and 2 include people who should not have been interviewed.

47. Mr. Braynard states that his staff first determined that the person was the correct person, and then asked of that person whether they requested an absentee ballot. (See page 6 of

¹² Green and Gerber, *op. cit.*, page 202.

¹³ Pew Research Center, "Comparing Survey Sampling Strategies: Random-Digit Dialing vs. Voter Files," Pew Research Center: Methods at 24-25 (October 9, 2018), <https://www.pewresearch.org/methods/2018/10/09/performance-of-the-samples/>.

his report.) The topline reports in the appendix to the report of William Briggs reveal that this is not the protocol of the survey.

48. According to the topline, Question 1 asks “May I please speak to <lead on the screen>?” Lead on the screen is the name of the registered voter. 767 cases were recorded as “Reached Target [Go to Q2].” 255 cases were recorded as blank, but the instructions also state “[Go to Q2]”. Responses to the same survey conducted in other states indicate that these 255 people were of “uncertain” status. They may or may not have been the correct person. Nonetheless, they were kept in the pool. As a consequence, 25 percent of the people interviewed in the survey did not affirmatively state that they were in fact the person that the interviewer wished to speak to.

49. Question 2 asks “Did you request an absentee ballot?” 591 people said yes. 128 people said no. In his analysis, Mr. Braynard also includes as yes the 39 people are listed as “member confirmed ‘Yes’”, and the 14 respondents listed as “member confirmed ‘No’” as no. It is my understanding from the topline reports for other states appended to Dr. Briggs’ report that these are family members who were interviewed, and not the actual registrant. The 255 people who were not the “Reached Target” according to Q1 is larger than the number of people who said they did not request an absentee ballot on Q2 (128) or the number of people and their family members who indicated that they did not request a ballot (142). As a result, the entire result of this survey can be explained by improper inclusion of 255 people who were not the Target of the survey in the pool of respondents to Question 2 and Question 3.

50. Responses to Question 2 indicate that family members are interviewed and treated as valid and reliable responses for a given voter. That contradicts the description of the survey as interviews of the specific people on the voter files who requested absentee ballots.

51. In addition to the branching error from Question 1 to Question 2, there is also a branching error from Question 2 to Question 3. Question 3 includes people who said that they were Uncertain as to whether they requested an absentee ballot.

52. This branching error is a fatal error in the design of the survey. It means that the pool of respondents has people in it who were not in fact part of the target population. The survey allowed people who were not supposed to be asked Question 2 to nonetheless be asked Question 2. These are critical errors in survey design. They mean that the set of people who responded to the survey and were asked Questions 2 and 3 included people should not have been asked Questions 2 and 3. On its face, the respondents who answered Questions 2 and 3 are not an accurate representation of those people in the small set of people who responded to the survey who should have been interviewed.

iv. There are inconsistencies in the accounting of the number of cases across Questions in the survey used for Claims 1 and 2.

53. There are unexplained missing cases running throughout the topline tables for this survey. Table 2 presents the Toplines for the questions as reported in Dr. Briggs' report. From Table 1 we can calculate the number of people eligible for Question 1, these are "Complete" cases that are coded as Q5=1 or 2 or Early Hangup/Refused. There are 1,700 cases. Table 2 shows that 1,175 respondents made it to Question 1 in the survey. Hence, 525 respondents are not included in the total number of responses to Question 1.

54. The total number of responses to Question 1 that are assigned to Question 2 is 1,022. That is the number of people listed as "1 Reached Target [Go to Q2]" or as "[Go to Q2]." Of the original, 58 (5.7% of those assigned to Q2) are unaccounted for.

54. The total number of responses to Question 2 that are assigned to Question 3 is 670. That is the number of people listed as "Yes [Go to Q3]" or as "Member confirmed "Yes" [Go to

Q3]” or as “5. Unsure [Go to 3].” Of the 670 respondents assigned to Q3, only 623 are accounted for, a slippage of 47 cases (or 7%).

55. In my professional judgment as a survey researcher, such discrepancies in the accounting of cases are flags for failures in quality control. A total of 105 cases are not accounted for in the jumps from Question 1 to Question 2 and from Question 2 to Question 3. Another 525 are not accounted for in the launching of Question 1. Combined, 630 cases are lost in the topline. These unaccounted-for cases are on top of the people who refused or hung up. That is a considerable number of unaccounted cases, given that Claims 1 and Claims 2 are based on only 142 and 257 survey respondents.

56. I checked the topline tables for the survey data that Dr. Briggs appended to his report and that Dr. Briggs attributes to Mr. Braynard. Other states show inconsistencies and data errors. For example, for the state of Wisconsin, the Sum of Respondents for Question 1 is less than the sum of cases. There are more cases assigned to Question 2 than answer Question 2 in some states. In other states there are fewer cases assigned to Question 2 than answer Question 2. The integrity checks in these other states lead me to believe that the inconsistencies in the Georgia data are systematic and widespread in these data.

57. In my experience, when such discrepancies arise during routine integrity checks, they are either spreadsheet errors or programming logic errors in the survey system (i.e., the logic that assigns individuals to questions). That these errors appear in the topline indicates that there was not a high level of scrutiny into the quality or integrity of the survey data produced in this study.

58. Based on this assessment, I have no confidence that the data in the survey used to study Claims 1 and 2 are correct. Basic integrity checks for the data evidently were not performed or reported. This creates doubt about the survey data for Claim 3, as well.

v. The survey does not ascertain Rollover Absentee Voters or disambiguate Rollover Absentee Voters from Other Absentee Voters.

59. Question 2 is not sufficiently clear and specific regarding the meaning of “request an absentee ballot.” The survey does not ascertain whether respondents are rollover absentee voters or have a designated person who may request a ballot on their behalf. Georgia allows voters who are over 65 or incapacitated to receive an absentee ballot automatically without requesting one, so long as they sign up for that service each year. These are called rollover absentee voters because their absentee status rolls over from one election to the next in a given year, such as from the primary to the general election. They do not have to make a request for an absentee to be sent to them for a specific election.

60. There were approximately 582,000 “rollover” ballots in Georgia in the November 3, 2020, general election.¹⁴

61. The substantial number of rollover absentee voters in Georgia creates ambiguity in the interpretation of the Question 2 of the survey and the meaning of Claim 1. Some permanent absentee voters may answer “yes” because they registered for permanent absentee status, while others may say no because they do not need to request a ballot before each election to receive one. The ambiguity of Question 2, and the failure to disambiguate permanent absentee voters from other absentee voters in the responses, introduces measurement error in the survey. Additional survey questions would be required to distinguish different types of absentee voters. Without disambiguating the voters, the survey data cannot be used to draw the conclusion that some survey respondents received an absentee ballot in error, or that they received an absentee ballot without requesting one because that is their absentee status.

¹⁴ Stephen Fowler, “Nearly 800,000 Georgians Have Already Requested Absentee Ballots for November,” Ga. Today, (September 2, 2020) <https://www.gpb.org/news/2020/09/02/nearly-800000-georgians-have-already-requested-absentee-ballots-for-november>.

vi. The survey cannot determine whether the respondent properly mailed a ballot to the election office.

62. Claim 2 holds that 33.29 percent of the 138,029 people who requested an absentee ballot mailed one to the election office.

63. This is based on an extrapolation from 257 responses to Question 3. As already described, the survey has an unacceptably low response rate, a flawed questionnaire design, and accounting inconsistencies. Moreover, Question 3 is inadequate to measure whether the election office should have recorded a mailed ballot as received.

64. It is my experience working with election administrators and researching election administration as part of the Caltech/MIT Voting Technology Project that many absentee ballots are not recorded or counted because they are not received on time or are not properly prepared and submitted. Late absentees are not accepted, and they are usually not recorded in the tally of ballots received. Ballots that are spoiled, unsigned or in the incorrect envelopes or rejected for some other reason are not counted. The fact that there is no record of a vote or of a received absentee ballot is not necessarily evidence of an error in the handling of the ballot. Instead it may be evidence of correct treatment of ballots by the election officials in accordance with state laws.

65. According to figures reported by the county election offices in the State of Georgia to the Election Assistance Commission, there were 3,525 late absentee ballots and 36,255 unaccounted absentee ballots in Georgia in 2018.¹⁵ In addition, there were 7,512 rejected absentees and 2,322 undeliverable absentees in the State in 2018. These figures far exceed the total number of survey responses.

¹⁵ I compiled these figures from the spreadsheets published by the Election Assistance Commission for the 2018 Election Administration and Voting Comprehensive Survey (EAVS), last accessed December 2, 2020, <https://www.eac.gov/research-and-data/studies-and-reports>.

66. Question 3 does not ascertain when the ballot was sent, whether it was signed, and other factors that would affect whether it was received on time (and thus recorded) or was in fact a valid ballot. Without accounting for those variables, the conclusion based on the data from Question 3 is unreliable.

vii. Question 3, which asks whether the respondent mailed the ballot, is subject to social desirability bias and memory errors.

67. Question 3 asks people whether they voted. Specifically, it asks people who said that they requested an absentee ballot whether they returned an absentee ballot, that is, whether they voted that ballot.

68. It has long been understood in political science that respondents to surveys overreport voting in elections. The most commonly identified sorts of biases are memory errors and social desirability bias in questions asking people whether they voted.¹⁶ In the context of this survey such biases would lead to overstatement of Yes responses to Question 3. Mr. Braynard's report gives no indication that he attempted to account or correct for these biases.

D. The list matching methodology that links registration records to NCOA and to other states' voter databases likely has sufficient errors to account for Claims 3, 4, and 6.

69. Claims 3, 4, and 6 rely on data derived from matching voter registration records to NCOA files or to other states voter files.

70. The exact methods used for matching the state's voter files to the NCOA list and to other states' voter files are not described. The lack of transparency in reporting the specific fields for matching and the algorithms used violates academic standards in this field. Exhibit 2 of

¹⁶ See, e.g., Allyson L. Holbrook and Jon A. Krosnick, "Social Desirability Bias in Voter Turnout Reports: Test Using the Item Count Technique," *Public Opinion Quarterly* 74 (2010): 37-67. See also Stephen Ansolabehere and Eitan Hersh, "Validation: What Big Data Reveal About Survey Misreporting and the Real Electorate," *Political Analysis* 20 (2012): 437-459

Matthew Braynard's report does mention use of complete date of birth, but no other fields are mentioned for list matching. It is standard scientific practice to report algorithms used, match rates, non-match rates, rates of false positives and false negatives, and sensitivity analyses in scientific reports and articles using matching and record linkage.¹⁷ Without such information it is impossible to evaluate the reliability of methods used. No such information is reported here.

71. Recent academic research on attempts to match voter registration records to other state's voter files or to national lists, such as NCOA has shown that this task can be prone to high rates of error. Crosscheck, a collaboration of 28 states, matches people across states based on first name, last name, and date of birth. This approach has been determined to be unreliable because it yields a very high number of incorrect matches. One study found that Crosscheck's methodology identified almost 3 million "matching individuals who voted twice nationwide." All but 600 of these records were deemed to be false positives, in which the method says two people are the same but in fact they are not. For those 600 other cases, it could not be determined whether they were or were not the same individual.¹⁸ The Crosscheck experience suggests that it is quite easy to link records incorrectly when matching voter files to national lists (such as NCOA) or other states' registration databases. This example underscores the need to disclose algorithms and provide evidence that there are no large numbers of false positives and false negatives. Matching on name and date of birth, as was done using Crosscheck, will likely produce huge numbers of false positives.

E. Claim 5 argues that 1,034 individuals disguised their addresses.

¹⁷ W. E. Winkler, "Matching and Record Linkage" Statistical Research Division, U.S. Bureau of the Census, 1993. <https://www.census.gov/srd/papers/pdf/r93-8.pdf>.

¹⁸ United States Commission on Civil Rights, An Assessment of Minority Voting Rights Access in the United States: 2018 Statutory Enforcement Report. Transmitted to the President September 12, 2018. https://www.usccr.gov/pubs/2018/Minority_Voting_Access_2018.pdf, at pages 112-113.

72. Voter registration forms for the State of Georgia allow for separate residential and mailing addresses. The form provides a space for apartment numbers but not PO Boxes in mailing addresses. In my experience working with state databases and performing record linkage, it is entirely plausible that individuals put PO Box numbers in this blank because the form does not provide a specific space for that information in mailing addresses.

73. The list of records appended to Mr. Braynard's report in Exhibit 3 does not specify whether the address listed is the residential address or the mailing address of the individual.

74. It is unclear who these individuals are and why they might use a PO Box address. These may, for example, be homeless sex offenders or domestic abuse victims. In my experience working with election administrators through the Caltech/MIT Voting Technology Project I have learned that many jurisdictions across the United States are not allowed to enforce address rules for voter registration in special circumstances. I do not know the degree to which Georgia election administration procedures are flexible about address fields, but certainly the information provided in Mr. Braynard's report does not determine whether these might be such circumstances.

75. There is no description of the procedures used in making this list, especially what fields are used. No program or code was appended to the report or included, so it is impossible to verify if the analysis was done correctly.

F. Summary

76. None of the six claims made in Matthew Braynard's report reach acceptable standards of scientific research. There is a lack of transparency in reporting the survey, matching, and coding methods, and errors in matching could completely account for any reported numbers or claims. There are demonstrable and fatal flaws in the survey research, especially unacceptable response rates, branching errors and data inconsistencies.

77. The design of the studies does not test for the obvious explanations of any findings. The ballots that were received and not requested could be the result of nothing more than the 500,000 rollover absentee voters in the state, who receive ballots without requesting them. The surveys did not explore this very likely explanation. Many or all of the “unreturned” ballots are likely late ballots or respondents saying they voted when in fact they had not.

78. None of the estimates offered as support of the five claims are presented with appropriate measures of statistical certainty or inferences. Instead, Mr. Braynard prefaces each claim with the phrase “to a reasonable degree of scientific certainty,” a phrase that has no scientific meaning and that the National Institutes of Standards and Technology and the Attorney General of the United States has warned experts not to use.¹⁹ There is no scientific basis offered for the conclusions reached.

¹⁹ Office of the Attorney General, *Recommendations of the National Commission on Forensic Science; Announcement for NCFSS Meeting Eleven*, <https://www.justice.gov/opa/file/891366/download>.

APPENDIX A

TABLES

Table 1. Phone Survey Targets, Attempts and Completes		
	Number of Cases	Percent of Targets for Survey Remaining in the Survey Process
People the Survey Sought to Reach (all Unreturned Ballots) [Targets for Survey]	138,029	100%
List Penetration	No number reported	58.45%
Data Loads (Phone Numbers Loaded into the Survey System)	34,355	24.89%
“Completes”		
Wrong Numbers/Language	4,902	
Answering Machines	13,479	
Early Hang Up/Refused	1,516	
Q5= 01 or 02	184	
Subtotal: “Completes”	15179	11.00%
Completes Eligible for Survey (Q5 or Early Hang Up/Refused)	1,700	1.23%

Asked Q1	1,175	0.85%
Completed Q1 (not Refused or Hangup to Q1)	1,022	0.74%
Offered a Response to Q2 (without hanging up or refusing)	736	0.53%
Completed Entire Survey (Q5)	185	0.13%
Source: William Briggs Report; Briggs states that Matthew Braynard provided him these data.		

Table 2. Toplines for the Georgia Survey conducted by Mr. Matthew Braynard as reported in the report of Dr. William Briggs

Q1 – May I Please Speak to <lead on screen>?	
1. Reached Target [Go to Q2]	767
[Go to Q2]*	255
X = Refused <Go to CLOSE A>	153
Q= Hangup <Go to CLOSE A>	385
Sum of All Responses	1,175
* Note: Toplines for other states in Briggs’ report list the second response category as “Uncertain.”	

Q2 – Did you request an absentee ballot?

1. Yes [Go to Q3]	591
2. No [Go to Q4]	128
Member confirmed "Yes" [Go to*]	39
Member confirmed "No" [Go to 4*]	14
5. .Unsure [Go to 3]	40
Moment. [Go to Close A]	82
X = Refused <Go to CLOSE A>	70
Q= Hangup <Go to CLOSE A>	58
Sum of All Responses	964
*Note: Toplines for Wisconsin in Briggs' report describe these as "per Spouse/family Member."	

Q3 – Did you mail back that ballot?	
1. Yes [Go to Q4]	240
2. No [Go to Close A]	317
Member confirmed "Yes" [Go to*]	17
Member confirmed "No" [Go to Close A]*	9
5. .Unsure [Go to Close A]	24
Moment. [Go to Close A]	11

X = Refused <Go to CLOSE A>	5
Q= Hangup <Go to CLOSE A>	7
Sum of All Responses	623
*Note: Toplines for Wisconsin in Briggs' report describe these as "per Spouse/family Member."	

Signed at Boston, Massachusetts, on the date below.
Date: December 4, 2020

A handwritten signature in black ink, appearing to read "Stephen Ansolabehere", written in a cursive style.

Stephen Ansolabehere

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EDUCATION

Harvard University	Ph.D., Political Science	1989
University of Minnesota	B.A., Political Science	1984
	B.S., Economics	

PROFESSIONAL EXPERIENCE

ACADEMIC POSITIONS

2016-present	Frank G. Thompson Professor of Government, Harvard University
2008-present	Professor, Department of Government, Harvard University
2015-present	Director, Center for American Politics, Harvard University
1998-2009	Elting Morison Professor, Department of Political Science, MIT (Associate Head, 2001-2005)
1995-1998	Associate Professor, Department of Political Science, MIT
1993-1994	National Fellow, The Hoover Institution
1989-1993	Assistant Professor, Department of Political Science, University of California, Los Angeles

FELLOWSHIPS AND HONORS

American Academy of Arts and Sciences	2007
Carnegie Scholar	2000-02
National Fellow, The Hoover Institution	1993-94
Harry S. Truman Fellowship	1982-86

PUBLICATIONS

Books

- 2019 *American Government*, 15th edition. With Ted Lowi, Benjamin Ginsberg and Kenneth Shepsle. W.W. Norton.
- 2014 *Cheap and Clean: How Americans Think About Energy in the Age of Global Warming*. With David Konisky. MIT Press. Recipient of the Donald K. Price book award.
- 2008 *The End of Inequality: One Person, One Vote and the Transformation of American Politics*. With James M. Snyder, Jr., W. W. Norton.
- 1996 *Going Negative: How Political Advertising Divides and Shrinks the American Electorate*. With Shanto Iyengar. The Free Press. Recipient of the Goldsmith book award.
- 1993 *Media Game: American Politics in the Television Age*. With Roy Behr and Shanto Iyengar. Macmillan.

Journal Articles

- 2021 "The CPS Voting and Registration Supplement Overstates Turnout" *Journal of Politics* Forthcoming (with Bernard Fraga and Brian Schaffner)
- 2021 "Congressional Representation: Accountability from the Constituent's Perspective," *American Journal of Political Science* forthcoming (with Shiro Kuriwaki)
- 2020 "Proximity, NIMBYism, and Public Support for Energy Infrastructure" *Public Opinion Quarterly* (with David Konisky and Sanya Carley)
<https://doi.org/10.1093/poq/nfaa025>
- 2020 "Understanding Exponential Growth Amid a Pandemic: An Internal Perspective," *Harvard Data Science Review* 2 (October) (with Ray Duch, Kevin DeLuca, Alexander Podkul, Liberty Vittert)
- 2020 "Unilateral Action and Presidential Accountability," *Presidential Studies Quarterly* 50 (March): 129-145. (with Jon Rogowski)

- 2019 “Backyard Voices: How Sense of Place Shapes Views of Large-Scale Energy Transmission Infrastructure” *Energy Research & Social Science* forthcoming (with Parrish Bergquist, Carley Sanya, and David Konisky)
- 2019 “Are All Electrons the Same? Evaluating support for local transmission lines through an experiment” *PLOS ONE* 14 (7): e0219066 (with Carley Sanya and David Konisky)
<https://doi.org/10.1371/journal.pone.0219066>
- 2018 “Learning from Recounts” *Election Law Journal* 17: 100-116 (with Barry C. Burden, Kenneth R. Mayer, and Charles Stewart III)
<https://doi.org/10.1089/elj.2017.0440>
- 2018 “Policy, Politics, and Public Attitudes Toward the Supreme Court” *American Politics Research* (with Ariel White and Nathaniel Persily).
<https://doi.org/10.1177/1532673X18765189>
- 2018 “Measuring Issue-Salience in Voters’ Preferences” *Electoral Studies* (with Maria Socorro Puy) 51 (February): 103-114.
- 2018 “Divided Government and Significant Legislation: A History of Congress,” *Social Science History* (with Maxwell Palmer and Benjamin Schneer). 42 (1).
- 2017 “ADGN: An Algorithm for Record Linkage Using Address, Date of Birth Gender and Name,” *Statistics and Public Policy* (with Eitan Hersh)
- 2017 “Identity Politics” (with Socorro Puy) *Public Choice*. 168: 1-19.
DOI 10.1007/s11127-016-0371-2
- 2016 “A 200-Year Statistical History of the Gerrymander” (with Maxwell Palmer) *The Ohio State University Law Journal*
- 2016 “Do Americans Prefer Co-Ethnic Representation? The Impact of Race on House Incumbent Evaluations” (with Bernard Fraga) *Stanford University Law Review* 68: 1553-1594
- 2016 Revisiting Public Opinion on Voter Identification and Voter Fraud in an Era of Increasing Partisan Polarization” (with Nathaniel Persily) *Stanford Law Review* 68: 1455-1489
- 2015 “The Perils of Cherry Picking Low Frequency Events in Large Sample Surveys” (with Brian Schaffner and Samantha Luks) *Electoral Studies* 40 (December): 409-410.

- 2015 “Testing *Shaw v. Reno*: Do Majority-Minority Districts Cause Expressive Harms?” (with Nathaniel Persily) *New York University Law Review* 90
- 2015 “A Brief Yet Practical Guide to Reforming U.S. Voter Registration, *Election Law Journal*, (with Daron Shaw and Charles Stewart) 14: 26-31.
- 2015 “Waiting to Vote,” *Election Law Journal*, (with Charles Stewart) 14: 47-53.
- 2014 “Macro-economic Voting: Local Information and Micro-Perceptions of the Macro-Economy” (With Marc Meredith and Erik Snowberg), *Economics and Politics* 26 (November): 380-410.
- 2014 “Does Survey Mode Still Matter?” *Political Analysis* (with Brian Schaffner) 22: 285-303
- 2013 “Race, Gender, Age, and Voting” *Politics and Governance*, vol. 1, issue 2. (with Eitan Hersh)
<http://www.librelloph.com/politicsandgovernance/article/view/PaG-1.2.132>
- 2013 “Regional Differences in Racially Polarized Voting: Implications for the Constitutionality of Section 5 of the Voting Rights Act” (with Nathaniel Persily and Charles Stewart) 126 *Harvard Law Review* F 205 (2013)
http://www.harvardlawreview.org/issues/126/april13/forum_1005.php
- 2013 “Cooperative Survey Research” *Annual Review of Political Science* (with Douglas Rivers)
- 2013 “Social Sciences and the Alternative Energy Future” *Daedalus* (with Bob Fri)
- 2013 “The Effects of Redistricting on Incumbents,” *Election Law Journal* (with James Snyder)
- 2012 “Asking About Numbers: How and Why” *Political Analysis* (with Erik Snowberg and Marc Meredith). doi:10.1093/pan/mps031
- 2012 “Movers, Stayers, and Registration” *Quarterly Journal of Political Science* (with Eitan Hersh and Ken Shepsle)
- 2012 “Validation: What Big Data Reveals About Survey Misreporting and the Real Electorate” *Political Analysis* (with Eitan Hersh)
- 2012 “Arizona Free Enterprise v. Bennett and the Problem of Campaign Finance” *Supreme Court Review* 2011(1):39-79

- 2012 “The American Public’s Energy Choice” *Daedalus* (with David Konisky)
- 2012 “Challenges for Technology Change” *Daedalus* (with Robert Fri)
- 2011 “When Parties Are Not Teams: Party positions in single-member district and proportional representation systems” *Economic Theory* 49 (March)
DOI: 10.1007/s00199-011-0610-1 (with James M. Snyder Jr. and William Leblanc)
- 2011 “Profiling Originalism” *Columbia Law Review* (with Jamal Greene and Nathaniel Persily).
- 2010 “Partisanship, Public Opinion, and Redistricting” *Election Law Journal* (with Joshua Fougere and Nathaniel Persily).
- 2010 “Primary Elections and Party Polarization” *Quarterly Journal of Political Science* (with Shigeo Hirano, James Snyder, and Mark Hansen)
- 2010 “Constituents’ Responses to Congressional Roll Call Voting,” *American Journal of Political Science* (with Phil Jones)
- 2010 “Race, Region, and Vote Choice in the 2008 Election: Implications for the Future of the Voting Rights Act” *Harvard Law Review* April, 2010. (with Nathaniel Persily, and Charles H. Stewart III)
- 2010 “Residential Mobility and the Cell Only Population,” *Public Opinion Quarterly* (with Brian Schaffner)
- 2009 “Explaining Attitudes Toward Power Plant Location,” *Public Opinion Quarterly* (with David Konisky)
- 2009 “Public risk perspectives on the geologic storage of carbon dioxide,” *International Journal of Greenhouse Gas Control* (with Gregory Singleton and Howard Herzog) 3(1): 100-107.
- 2008 “A Spatial Model of the Relationship Between Seats and Votes” (with William Leblanc) *Mathematical and Computer Modeling* (November).
- 2008 “The Strength of Issues: Using Multiple Measures to Gauge Preference Stability, Ideological Constraint, and Issue Voting” (with Jonathan Rodden and James M. Snyder, Jr.) *American Political Science Review* (May).
- 2008 “Access versus Integrity in Voter Identification Requirements.” *New York*

University Annual Survey of American Law, vol 63.

- 2008 “Voter Fraud in the Eye of the Beholder” (with Nathaniel Persily) *Harvard Law Review* (May)
- 2007 “Incumbency Advantages in U. S. Primary Elections,” (with John Mark Hansen, Shigeo Hirano, and James M. Snyder, Jr.) *Electoral Studies* (September)
- 2007 “Television and the Incumbency Advantage” (with Erik C. Snowberg and James M. Snyder, Jr.) *Legislative Studies Quarterly*.
- 2006 “The Political Orientation of Newspaper Endorsements” (with Rebecca Lessem and James M. Snyder, Jr.). *Quarterly Journal of Political Science* vol. 1, issue 3.
- 2006 “Voting Cues and the Incumbency Advantage: A Critical Test” (with Shigeo Hirano, James M. Snyder, Jr., and Michiko Ueda) *Quarterly Journal of Political Science* vol. 1, issue 2.
- 2006 “American Exceptionalism? Similarities and Differences in National Attitudes Toward Energy Policies and Global Warming” (with David Reiner, Howard Herzog, K. Itaoka, M. Odenberger, and Phillip Johanssen) *Environmental Science and Technology* (February 22, 2006), http://pubs3.acs.org/acs/journals/doi/lookup?in_doi=10.1021/es052010b
- 2006 “Purple America” (with Jonathan Rodden and James M. Snyder, Jr.) *Journal of Economic Perspectives* (Winter).
- 2005 “Did the Introduction of Voter Registration Decrease Turnout?” (with David Konisky). *Political Analysis*.
- 2005 “Statistical Bias in Newspaper Reporting: The Case of Campaign Finance” *Public Opinion Quarterly* (with James M. Snyder, Jr., and Erik Snowberg).
- 2005 “Studying Elections” *Policy Studies Journal* (with Charles H. Stewart III and R. Michael Alvarez).
- 2005 “Legislative Bargaining under Weighted Voting” *American Economic Review* (with James M. Snyder, Jr., and Michael Ting)
- 2005 “Voting Weights and Formateur Advantages in Coalition Formation: Evidence from Parliamentary Coalitions, 1946 to 2002” (with James M. Snyder, Jr., Aaron B. Strauss, and Michael M. Ting) *American Journal of Political Science*.

- 2005 “Reapportionment and Party Realignment in the American States” *Pennsylvania Law Review* (with James M. Snyder, Jr.)
- 2004 “Residual Votes Attributable to Voting Technologies” (with Charles Stewart) *Journal of Politics*
- 2004 “Using Term Limits to Estimate Incumbency Advantages When Office Holders Retire Strategically” (with James M. Snyder, Jr.). *Legislative Studies Quarterly* vol. 29, November 2004, pages 487-516.
- 2004 “Did Firms Profit From Soft Money?” (with James M. Snyder, Jr., and Michiko Ueda) *Election Law Journal* vol. 3, April 2004.
- 2003 “Bargaining in Bicameral Legislatures” (with James M. Snyder, Jr. and Mike Ting) *American Political Science Review*, August, 2003.
- 2003 “Why Is There So Little Money in U.S. Politics?” (with James M. Snyder, Jr.) *Journal of Economic Perspectives*, Winter, 2003.
- 2002 “Equal Votes, Equal Money: Court-Ordered Redistricting and the Public Spending in the American States” (with Alan Gerber and James M. Snyder, Jr.) *American Political Science Review*, December, 2002.
Paper awarded the Heinz Eulau award for the best paper in the American Political Science Review.
- 2002 “Are PAC Contributions and Lobbying Linked?” (with James M. Snyder, Jr. and Micky Tripathi) *Business and Politics* 4, no. 2.
- 2002 “The Incumbency Advantage in U.S. Elections: An Analysis of State and Federal Offices, 1942-2000” (with James Snyder) *Election Law Journal*, 1, no. 3.
- 2001 “Voting Machines, Race, and Equal Protection.” *Election Law Journal*, vol. 1, no. 1
- 2001 “Models, assumptions, and model checking in ecological regressions” (with Andrew Gelman, David Park, Phillip Price, and Lorraine Minnite) *Journal of the Royal Statistical Society*, series A, 164: 101-118.
- 2001 “The Effects of Party and Preferences on Congressional Roll Call Voting.” (with James Snyder and Charles Stewart) *Legislative Studies Quarterly* (forthcoming).
Paper awarded the *Jewell-Lowenberg Award* for the best paper published on legislative politics in 2001. Paper awarded the *Jack Walker Award* for the best paper published on party politics in 2001.

- 2001 “Candidate Positions in Congressional Elections,” (with James Snyder and Charles Stewart). *American Journal of Political Science* 45 (November).
- 2000 “Old Voters, New Voters, and the Personal Vote,” (with James Snyder and Charles Stewart) *American Journal of Political Science* 44 (February).
- 2000 “Soft Money, Hard Money, Strong Parties,” (with James Snyder) *Columbia Law Review* 100 (April):598 - 619.
- 2000 “Campaign War Chests and Congressional Elections,” (with James Snyder) *Business and Politics*. 2 (April): 9-34.
- 1999 “Replicating Experiments Using Surveys and Aggregate Data: The Case of Negative Advertising.” (with Shanto Iyengar and Adam Simon) *American Political Science Review* 93 (December).
- 1999 “Valence Politics and Equilibrium in Spatial Models,” (with James Snyder), *Public Choice*.
- 1999 “Money and Institutional Power,” (with James Snyder), *Texas Law Review* 77 (June, 1999): 1673-1704.
- 1997 “Incumbency Advantage and the Persistence of Legislative Majorities,” (with Alan Gerber), *Legislative Studies Quarterly* 22 (May 1997).
- 1996 “The Effects of Ballot Access Rules on U.S. House Elections,” (with Alan Gerber), *Legislative Studies Quarterly* 21 (May 1996).
- 1994 “Riding the Wave and Issue Ownership: The Importance of Issues in Political Advertising and News,” (with Shanto Iyengar) *Public Opinion Quarterly* 58: 335-357.
- 1994 “Horseshoes and Horseraces: Experimental Evidence of the Effects of Polls on Campaigns,” (with Shanto Iyengar) *Political Communications* 11/4 (October-December): 413-429.
- 1994 “Does Attack Advertising Demobilize the Electorate?” (with Shanto Iyengar), *American Political Science Review* 89 (December).
- 1994 “The Mismeasure of Campaign Spending: Evidence from the 1990 U.S. House Elections,” (with Alan Gerber) *Journal of Politics* 56 (September).
- 1993 “Poll Faulting,” (with Thomas R. Belin) *Chance* 6 (Winter): 22-28.

- 1991 “The Vanishing Marginals and Electoral Responsiveness,” (with David Brady and Morris Fiorina) *British Journal of Political Science* 22 (November): 21-38.
- 1991 “Mass Media and Elections: An Overview,” (with Roy Behr and Shanto Iyengar) *American Politics Quarterly* 19/1 (January): 109-139.
- 1990 “The Limits of Unraveling in Interest Groups,” *Rationality and Society* 2: 394-400.
- 1990 “Measuring the Consequences of Delegate Selection Rules in Presidential Nominations,” (with Gary King) *Journal of Politics* 52: 609-621.
- 1989 “The Nature of Utility Functions in Mass Publics,” (with Henry Brady) *American Political Science Review* 83: 143-164.

Special Reports and Policy Studies

- 2010 *The Future of Nuclear Power*, Revised.
- 2006 *The Future of Coal*. MIT Press. Continued reliance on coal as a primary power source will lead to very high concentrations of carbon dioxide in the atmosphere, resulting in global warming. This cross-disciplinary study – drawing on faculty from Physics, Economics, Chemistry, Nuclear Engineering, and Political Science – develop a road map for technology research and development policy in order to address the challenges of carbon emissions from expanding use of coal for electricity and heating throughout the world.
- 2003 *The Future of Nuclear Power*. MIT Press. This cross-disciplinary study – drawing on faculty from Physics, Economics, Chemistry, Nuclear Engineering, and Political Science – examines the what contribution nuclear power can make to meet growing electricity demand, especially in a world with increasing carbon dioxide emissions from fossil fuel power plants.
- 2002 “Election Day Registration.” A report prepared for DEMOS. This report analyzes the possible effects of Proposition 52 in California based on the experiences of 6 states with election day registration.
- 2001 *Voting: What Is, What Could Be*. A report of the Caltech/MIT Voting Technology Project. This report examines the voting system, especially technologies for casting and counting votes, registration systems, and polling place operations, in the United States. It was widely used by state and national governments in formulating election reforms following the 2000 election.

- 2001 “An Assessment of the Reliability of Voting Technologies.” A report of the Caltech/MIT Voting Technology Project. This report provided the first nationwide assessment of voting equipment performance in the United States. It was prepared for the Governor’s Select Task Force on Election Reform in Florida.

Chapters in Edited Volumes

- 2016 “Taking the Study of Public Opinion Online” (with Brian Schaffner) *Oxford Handbook of Public Opinion*, R. Michael Alvarez, ed. Oxford University Press: New York, NY.
- 2014 “Voter Registration: The Process and Quality of Lists” *The Measure of American Elections*, Barry Burden, ed..
- 2012 “Using Recounts to Measure the Accuracy of Vote Tabulations: Evidence from New Hampshire Elections, 1946-2002” in *Confirming Elections*, R. Michael Alvarez, Lonna Atkeson, and Thad Hall, eds. New York: Palgrave, Macmillan.
- 2010 “Dyadic Representation” in *Oxford Handbook on Congress*, Eric Schickler, ed., Oxford University Press.
- 2008 “Voting Technology and Election Law” in *America Votes!*, Benjamin Griffith, editor, Washington, DC: American Bar Association.
- 2007 “What Did the Direct Primary Do to Party Loyalty in Congress” (with Shigeo Hirano and James M. Snyder Jr.) in *Process, Party and Policy Making: Further New Perspectives on the History of Congress*, David Brady and Matthew D. McCubbins (eds.), Stanford University Press, 2007.
- 2007 “Election Administration and Voting Rights” in *Renewal of the Voting Rights Act*, David Epstein and Sharyn O’Hallaran, eds. Russell Sage Foundation.
- 2006 “The Decline of Competition in Primary Elections,” (with John Mark Hansen, Shigeo Hirano, and James M. Snyder, Jr.) *The Marketplace of Democracy*, Michael P. McDonald and John Samples, eds. Washington, DC: Brookings.
- 2005 “Voters, Candidates and Parties” in *Handbook of Political Economy*, Barry Weingast and Donald Wittman, eds. New York: Oxford University Press.
- 2003 “Baker v. Carr in Context, 1946 – 1964” (with Samuel Isaacharoff) in *Constitutional Cases in Context*, Michael Dorf, editor. New York: Foundation Press.

- 2002 “Corruption and the Growth of Campaign Spending”(with Alan Gerber and James Snyder). *A User’s Guide to Campaign Finance*, Jerry Lubenow, editor. Rowman and Littlefield.
- 2001 “The Paradox of Minimal Effects,” in Henry Brady and Richard Johnston, eds., *Do Campaigns Matter?* University of Michigan Press.
- 2001 “Campaigns as Experiments,” in Henry Brady and Richard Johnson, eds., *Do Campaigns Matter?* University of Michigan Press.
- 2000 “Money and Office,” (with James Snyder) in David Brady and John Cogan, eds., *Congressional Elections: Continuity and Change*. Stanford University Press.
- 1996 “The Science of Political Advertising,” (with Shanto Iyengar) in *Political Persuasion and Attitude Change*, Richard Brody, Diana Mutz, and Paul Sniderman, eds. Ann Arbor, MI: University of Michigan Press.
- 1995 “Evolving Perspectives on the Effects of Campaign Communication,” in Philo Warburn, ed., *Research in Political Sociology*, vol. 7, JAI.
- 1995 “The Effectiveness of Campaign Advertising: It’s All in the Context,” (with Shanto Iyengar) in *Campaigns and Elections American Style*, Candice Nelson and James A. Thurber, eds. Westview Press.
- 1993 “Information and Electoral Attitudes: A Case of Judgment Under Uncertainty,” (with Shanto Iyengar), in *Explorations in Political Psychology*, Shanto Iyengar and William McGuire, eds. Durham: Duke University Press.

Working Papers

- 2009 “Sociotropic Voting and the Media” (with Marc Meredith and Erik Snowberg), American National Election Study Pilot Study Reports, John Aldrich editor.
- 2007 “Public Attitudes Toward America’s Energy Options: Report of the 2007 MIT Energy Survey” CEEPR Working Paper 07-002 and CANES working paper.
- 2006 ["Constituents' Policy Perceptions and Approval of Members' of Congress" CCES Working Paper 06-01](#) (with Phil Jones).
- 2004 “Using Recounts to Measure the Accuracy of Vote Tabulations: Evidence from New Hampshire Elections, 1946 to 2002” (with Andrew Reeves).
- 2002 “Evidence of Virtual Representation: Reapportionment in California,” (with

Ruimin He and James M. Snyder).

- 1999 “Why did a majority of Californians vote to lower their own power?” (with James Snyder and Jonathan Woon). Paper presented at the annual meeting of the American Political Science Association, Atlanta, GA, September, 1999. Paper received the award for the best paper on Representation at the 1999 Annual Meeting of the APSA.
- 1999 “Has Television Increased the Cost of Campaigns?” (with Alan Gerber and James Snyder).
- 1996 “Money, Elections, and Candidate Quality,” (with James Snyder).
- 1996 “Party Platform Choice - Single- Member District and Party-List Systems,”(with James Snyder).
- 1995 “Messages Forgotten” (with Shanto Iyengar).
- 1994 “Consumer Contributors and the Returns to Fundraising: A Microeconomic Analysis,” (with Alan Gerber), presented at the Annual Meeting of the American Political Science Association, September.
- 1992 “Biases in Ecological Regression,” (with R. Douglas Rivers) August, (revised February 1994). Presented at the Midwest Political Science Association Meetings, April 1994, Chicago, IL.
- 1992 “Using Aggregate Data to Correct Nonresponse and Misreporting in Surveys” (with R. Douglas Rivers). Presented at the annual meeting of the Political Methodology Group, Cambridge, Massachusetts, July.
- 1991 “The Electoral Effects of Issues and Attacks in Campaign Advertising” (with Shanto Iyengar). Presented at the Annual Meeting of the American Political Science Association, Washington, DC.
- 1991 “Television Advertising as Campaign Strategy: Some Experimental Evidence” (with Shanto Iyengar). Presented at the Annual Meeting of the American Association for Public Opinion Research, Phoenix.
- 1991 “Why Candidates Attack: Effects of Televised Advertising in the 1990 California Gubernatorial Campaign,” (with Shanto Iyengar). Presented at the Annual Meeting of the Western Political Science Association, Seattle, March.
- 1990 “Winning is Easy, But It Sure Ain’t Cheap.” Working Paper #90-4, Center for the American Politics and Public Policy, UCLA. Presented at the Political Science Departments at Rochester University and the University of Chicago.

Research Grants

- 1989-1990 Markle Foundation. "A Study of the Effects of Advertising in the 1990 California Gubernatorial Campaign." Amount: \$50,000
- 1991-1993 Markle Foundation. "An Experimental Study of the Effects of Campaign Advertising." Amount: \$150,000
- 1991-1993 NSF. "An Experimental Study of the Effects of Advertising in the 1992 California Senate Electoral." Amount: \$100,000
- 1994-1995 MIT Provost Fund. "Money in Elections: A Study of the Effects of Money on Electoral Competition." Amount: \$40,000
- 1996-1997 National Science Foundation. "Campaign Finance and Political Representation." Amount: \$50,000
- 1997 National Science Foundation. "Party Platforms: A Theoretical Investigation of Party Competition Through Platform Choice." Amount: \$40,000
- 1997-1998 National Science Foundation. "The Legislative Connection in Congressional Campaign Finance. Amount: \$150,000
- 1999-2000 MIT Provost Fund. "Districting and Representation." Amount: \$20,000.
- 1999-2002 Sloan Foundation. "Congressional Staff Seminar." Amount: \$156,000.
- 2000-2001 Carnegie Corporation. "The Caltech/MIT Voting Technology Project." Amount: \$253,000.
- 2001-2002 Carnegie Corporation. "Dissemination of Voting Technology Information." Amount: \$200,000.
- 2003-2005 National Science Foundation. "State Elections Data Project." Amount: \$256,000.
- 2003-2004 Carnegie Corporation. "Internet Voting." Amount: \$279,000.
- 2003-2005 Knight Foundation. "Accessibility and Security of Voting Systems." Amount: \$450,000.
- 2006-2008 National Science Foundation, "Primary Election Data Project," \$186,000

- 2008-2009 Pew/JEHT. “Measuring Voting Problems in Primary Elections, A National Survey.” Amount: \$300,000
- 2008-2009 Pew/JEHT. “Comprehensive Assessment of the Quality of Voter Registration Lists in the United States: A pilot study proposal” (with Alan Gerber). Amount: \$100,000.
- 2010-2011 National Science Foundation, “Cooperative Congressional Election Study,” \$360,000
- 2010-2012 Sloan Foundation, “Precinct-Level U. S. Election Data,” \$240,000.
- 2012-2014 National Science Foundation, “Cooperative Congressional Election Study, 2010-2012 Panel Study” \$425,000
- 2012-2014 National Science Foundation, “2012 Cooperative Congressional Election Study,” \$475,000
- 2014-2016 National Science Foundation, “Cooperative Congressional Election Study, 2010-2014 Panel Study” \$510,000
- 2014-2016 National Science Foundation, “2014 Cooperative Congressional Election Study,” \$400,000
- 2016-2018 National Science Foundation, “2016 Cooperative Congressional Election Study,” \$485,000
- 2018-2020 National Science Foundation, “2018 Cooperative Congressional Election Study,” \$844,784.
- 2019-2022 National Science Foundation, RIDIR: “Collaborative Research: Analytic Tool for Poststratification and small-area estimation for survey data.” \$942,607

Professional Boards

Editor, Cambridge University Press Book Series, Political Economy of Institutions and Decisions, 2006-2016

Member, Board of the Reuters International School of Journalism, Oxford University, 2007 to present.

Member, Academic Advisory Board, Electoral Integrity Project, 2012 to present.

Contributing Editor, *Boston Review*, The State of the Nation.

Member, Board of Overseers, American National Election Studies, 1999 - 2013.

Associate Editor, Public Opinion Quarterly, 2012 to 2013.

Editorial Board of Harvard Data Science Review, 2018 to present.

Editorial Board of American Journal of Political Science, 2005 to 2009.

Editorial Board of Legislative Studies Quarterly, 2005 to 2010.

Editorial Board of Public Opinion Quarterly, 2006 to present.

Editorial Board of the Election Law Journal, 2002 to present.

Editorial Board of the Harvard International Journal of Press/Politics, 1996 to 2008.

Editorial Board of Business and Politics, 2002 to 2008.

Scientific Advisory Board, Polimetrix, 2004 to 2006.

Special Projects and Task Forces

Principal Investigator, Cooperative Congressional Election Study, 2005 – present.

CBS News Election Decision Desk, 2006-present

Co-Director, Caltech/MIT Voting Technology Project, 2000-2004.

Co-Organizer, MIT Seminar for Senior Congressional and Executive Staff, 1996-2007.

MIT Energy Innovation Study, 2009-2010.

MIT Energy Initiative, Steering Council, 2007-2008

MIT Coal Study, 2004-2006.

MIT Energy Research Council, 2005-2006.

MIT Nuclear Study, 2002-2004.

Harvard University Center on the Environment, Council, 2009-present

Expert Witness, Consultation, and Testimony

2001 Testimony on Election Administration, U. S. Senate Committee on Commerce.

2001 Testimony on Voting Equipment, U.S. House Committee on Science, Space, and Technology

2001 Testimony on Voting Equipment, U.S. House Committee on House Administration

2001 Testimony on Voting Equipment, Congressional Black Caucus

2002-2003 *McConnell v. FEC*, 540 U.S. 93 (2003), consultant to the Brennan Center.

2009 Amicus curiae brief with Professors Nathaniel Persily and Charles Stewart on behalf of neither party to the U.S. Supreme Court in the case of *Northwest*

- 2009 *Austin Municipal Utility District Number One v. Holder*, 557 U.S. 193 (2009).
 Testimony on Voter Registration, U. S. Senate Committee on Rules.
- 2011-2015 *Perez v. Perry*, U. S. District Court in the Western District of Texas (No. 5:11-cv-00360). Exert witness on behalf of Rodriguez intervenors.
- 2011-2013 *State of Texas v. United States*, the U.S. District Court in the District of Columbia (No. 1:11-cv-01303), expert witness on behalf of the Gonzales intervenors.
- 2012-2013 *State of Texas v. Holder*, U.S. District Court in the District of Columbia (No. 1:12-cv-00128), expert witness on behalf of the United States.
- 2011-2012 *Guy v. Miller* in U.S. District Court for Nevada (No. 11-OC-00042-1B), expert witness on behalf of the Guy plaintiffs.
- 2012 *In re Senate Joint Resolution of Legislative Apportionment*, Florida Supreme Court (Nos. 2012-CA-412, 2012-CA-490), consultant for the Florida Democratic Party.
- 2012-2014 *Romo v. Detzner*, Circuit Court of the Second Judicial Circuit in Florida (No. 2012 CA 412), expert witness on behalf of Romo plaintiffs.
- 2013-2014 *LULAC v. Edwards Aquifer Authority*, U.S. District Court for the Western District of Texas, San Antonio Division (No. 5:12cv620-OLG.), consultant and expert witness on behalf of the City of San Antonio and San Antonio Water District
- 2013-2014 *Veasey v. Perry*, U. S. District Court for the Southern District of Texas, Corpus Christi Division (No. 2:13-cv-00193), consultant and expert witness on behalf of the United States Department of Justice.
- 2013-2015 *Harris v. McCrory*, U. S. District Court for the Middle District of North Carolina (No. 1:2013cv00949), consultant and expert witness on behalf of the Harris plaintiffs. (later named *Cooper v. Harris*)
- 2014 Amicus curiae brief, on behalf of neither party, Supreme Court of the United States, *Alabama Democratic Conference v. State of Alabama*.
- 2014- 2016 *Bethune-Hill v. Virginia State Board of Elections*, U. S. District Court for the Eastern District of Virginia (No. 3:2014cv00852), consultant and expert on behalf of the Bethune-Hill plaintiffs.
- 2015 Amicus curiae brief in support of Appellees, Supreme Court of the United States, *Evenwell v. Abbott*
- 2016-2017 *Perez v. Abbott*, U. S. District Court in the Western District of Texas (No. 5:11-cv-00360). Exert witness on behalf of Rodriguez intervenors.
- 2017-2018 *Fish v. Kobach*, U. S. District Court in the District of Kansas (No. 2:16-cv-02105-JAR). Expert witness of behalf of the Fish plaintiffs.