Exhibit D

Exhibit
LEG_2

UNITED STATES DISTRICT COURT
MIDDLE DISTRICT OF LOUISIANA

PRESS ROBINSON, et al., *Plaintiffs,* v. KYLE ARDOIN, in his official capacity as Secretary of State for Louisiana, *Defendant.*	Civil Action No. 3:22-cv-00211-SDD-SDJ Chief Judge Shelly D. Dick Magistrate Judge Scott D. Johnson
EDWARD GALMON, SR., et al., *Plaintiffs,* v. R. KYLE ARDOIN, in his official capacity as Secretary of State for Louisiana, *Defendant.*	Consolidated with Civil Action No. 3:22-cv-00214-SDD-SDJ

EXPERT REPORT OF DR. JEFFREY B. LEWIS

I, Jeffrey B. Lewis, provide the following written report:

1. I am a Professor of Political Science at the University of California, Los Angeles (UCLA). I am also the past department chair of UCLA's political science department and past president of the Society for Political Methodology. I have been a member of the UCLA faculty since 2001. Prior to that, I was an Assistant Professor of Politics and Public Affairs at Princeton University from 1998 to 2001. I earned my B.A. in Political Science and Economics from Wesleyan University in 1990 and my Ph.D. in Political Science from the Massachusetts Institute of Technology (MIT) in 1998. My main area of specialization is quantitative political methodology with a focus on making inferences about preferences and behavior from the analysis of voting patterns in the mass public and in legislatures. I have published on the topic of

ecological inference – the challenge that arises when one wants to know how individuals of different types voted in an election but one can only observe electoral data aggregated to the precinct, county or other summary level. A true, accurate, and complete copy of my curriculum vitae is attached as Exhibit A.

2. I have previously been retained as an expert in relation to ten court cases: one involving allegations of voting machine failure in Florida (Jennings v. Elections Canvassing Commission of State of Florida), four involving claims of minority vote dilution in California (Avitia v. Tulare Local Healthcare District; Satorre et al. v. San Mateo County Board of Supervisors et al.; Ladonna Yumori-Kaku v. City of Santa Clara); and Pico Neighborhood Association and Maria Loya v. City of Santa Monica), one involving claims of minority vote dilution in Texas (Perez, et al. v. Abbott, et al.), two involving claims of minority vote dilution in North Carolina (Common Cause, et al. v. Lewis, NCLCV v. Hall), one involving claims of minority vote dilution in Washington (Aguilar v. Yakima County), and one involving the compactness of legislative districts in Illinois (Radogno et al v. Illinois State Board of Elections, et al.). I testified as an expert in the cases of Ladonna Yumori-Kaku v. City of Santa Clara, Pico Neighborhood Association and Maria Loya v. City of Santa Monica, and NCLCV v. Hall.

3. I am being compensated at a rate of $550/hour.

4. I was asked to calculate the fraction of voters in the November 3, 2020 Presidential General election who identified as Black in the second and fifth districts of the illustrative Louisiana Congressional district plans proposed by the plaintiffs. I was also asked to estimate the support of Black and of white (non-Black) voters for Biden/Harris in the same election among voters residing in each of those illustrative districts. Finally, I was asked to calculate the support for Biden/Harris among all voters residing in each illustrative district and the support

that Biden/Harris would have received in those same districts in the absence of any white "crossover" voting (all else equal).

5. In order conduct this analysis, I was provided with versions of a dataset originally prepared by Dr. Maxwell Palmer in conjunction with his expert report in this matter (contained in his file, *la_ei_data.csv*). These versions were provided to be me by Mr. Clark Benson of Political Data Analysis. They contain precinct-level records associated with voting and electoral participation in the 2020 Presidential General Election in Louisiana. The data include the total number of voters and the number of Black voters participating as well as the number of votes cast for the Democratic ticket of Joseph R. Biden, Jr. and Kamala D. Harris (Biden/Harris) and for the Republican ticket of Donald J. Trump and Michael R. Pence (Trump/Pence) in each Louisiana electoral precinct. To those records created by Dr. Palmer, Mr. Benson appended variables indicating the congressional district to which each precinct is assigned in each of the illustrative district plans that I was asked to consider.

6. I apply King's EI (1997) method to these datasets to arrive at estimates of the support for Biden/Harris among Black and white voters in each of the illustrative plans and districts. The standard version of King's EI that I employed provides estimates of support for each of two candidates among voters belonging to each of two voter groups. The two voter groups that I consider are Black voters and non-Black voters (who, for convenience, I will refer to as "white voters").[1] The two candidate choices considered are Biden/Harris and Trump/Pence. I do not consider the 1.5 to 1.7 percent of votes that were cast for candidates for president other than Biden/Harris or Trump/Pence nor do I consider voters who participated in the 2020 General

[1] Voters classified as something other than "Black" or "white" in Palmer's data comprise 2.3 to 2.8 percent of District 5 voters and 6.8 to 7.4 percent of District 2 voters in the illustrative plans considered.

Election, but did not cast a vote for any candidate for president. Thus, all of the reported shares of Biden/Harris support presented in this report are fractions of the so-called two-party vote. In order for Biden/Harris to be the plurality winner in a district, they must receive over 50 percent of the two-party vote.

7. The results of my analysis are presented in two tables below. The first table presents the results of the analysis for the second district in each of the four illustrative plans. The second table presents the results for the fifth district in each of those same plans. The first column in each table gives the name of the illustrative plan analyzed in the given row of the table. The second column shows the percent of voters in the 2020 General election who identify as Black. The third column shows the fraction of the two-party vote received by Biden/Harris in the 2020 General Election. These two quantities are directly calculated by aggregating the precinct-level data described above to the district level for each district and plan. The fourth and fifth columns present the estimated shares of the two-party vote for Biden/Harris among Black and white voters respectively. Because a majority of white voters are estimated to have preferred Trump/Pence in both the second and fifth districts under each illustrative plan, I will refer to the white voters who supported Biden/Harris as white "crossover" voters (i.e., white voters who broke with the majority of white voters to support the Black-preferred candidate). The fifth column shows that the share of the two-party vote that Biden/Harris would have received in the absence of any white crossover support (holding fixed the share of the Black vote that they are estimated to have received). This quantity is calculated by multiplying the estimated rate of support for Biden/Harris among Black voters by the fraction of voters who were Black.

8. Only in the Robinson/Fairfax and Galmon-2/Cooper-2 illustrative plans did Black voters comprise a majority of those participating in the 2020 General election in the second district. In

none of the illustrative plans did Black voters comprise a majority of those voting in the fifth district.

9. The EI estimates suggest that 96.3 to 99.1 percent of Black voters in the second and fifth districts of the illustrative plans supported Biden/Harris. White crossover voting is estimated to be have much higher in second district in each of the illustrative plans (36.4 to 40.9 percent) than in the fifth district (12.1 to 13.9 percent).

10. Despite estimated Black voter support for Biden/Harris that approaches 100 percent, because Black voters did not cast a majority the 2020 General Election votes in the fifth district of any of the illustrative plans, Biden/Harris would not have won a majority of the two-party vote in any of those proposed districts in the absence of white crossover voting.

11. For the second district, the analysis suggests that Biden/Harris would only have gained a majority of the two-party vote in the absence of white crossover voting under one of the four illustrative plans.

12. A complete analysis of the degree to which Black-preferred candidates in the plans and districts considered could prevail in the absence of white crossover voting would require consideration of additional elections and more extensive consideration of whether EI estimates of support for each candidate were reliable in this context among other things. I was unable to conduct such an analysis due to time limitations.

13. Given the estimates of the shares of Black voting-age population (BVAP) in the second and fifth districts of the illustrative plans provided by Mr. Anthony K. Fairfax and Mr. William S. Cooper in their expert reports, holding fixed the rates of participation in the 2020 General election among both Black and white adults in each district, and holding fixed the estimated rates of Black and white voter support for Biden/Harris in each district, the analysis suggests that

Biden/Harris would have received over 50 percent of the vote in each of the illustrative districts considered even if the BVAP in those districts was reduced to as low as 30 percent in the second district or as low as 48 percent in the fifth district.

TABLES

District 2

Plan	Percent Black voters	Percent support for Biden/Harris: All voters	Black voters (EI Estimate)	White voters (EI Estimate)	Without white cross-over votes
C130: Robinson/Fairfax	51.18	69.15	99.13	36.35	50.73
C131: Galmon-1/Cooper-1	49.94	68.96	98.57	39.01	49.23
C132: Galmon-2/Cooper-2	50.33	69.11	97.69	40.89	49.16
C133: Galmon-3/Cooper-3	49.79	68.76	98.52	38.85	49.06

District 5

Plan	Percent Black voters	Percent support for Biden/Harris: All voters	Black voters (EI Estimate)	White voters (EI Estimate)	Without white cross-over votes
C130: Robinson/Fairfax	49.66	55.34	96.91	12.10	48.13
C131: Galmon-1/Cooper-1	47.53	54.37	96.58	13.16	45.90
C132: Galmon-2/Cooper-2	46.88	53.24	96.28	13.18	45.14
C133: Galmon-3/Cooper-3	49.00	55.94	96.75	13.93	47.41

CERTIFICATION

I certify that the statements and opinions provided in this report are true and accurate to the best of my knowledge, information, and belief.

Jeffrey B. Lewis, Ph.D.

April 29, 2022
Date

Exhibit A

Jeffrey B. Lewis

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Education

Massachusetts Institute of Technology — Cambridge, MA
Ph.D., Department of Political Science, February 1998.

Wesleyan University — Middletown, CT
B.A., Political Science and Economics with Honors in General Scholarship. June 1990.

Academic Experience

University of California Los Angeles — Los Angeles, CA
Professor of Political Science. July 2012–present.

University of California Los Angeles — Los Angeles, CA
Director, Center for American Politics and Public Policy. July 2017–July 2018.

University of California Los Angeles — Los Angeles, CA
Chair, Department of Political Science. July 2011–June 2017.

University of California Los Angeles — Los Angeles, CA
Associate Professor of Political Science. July 2007–June 2012.

University of California Los Angeles — Los Angeles, CA
Assistant Professor of Political Science. July 2001–June 2007.

Dartmouth College,
Rockefeller Center for the Social Sciences — Hanover, NH
Research Fellow. July 2000–June 2001.

Princeton University — Princeton, NJ
Assistant Professor of Politics and Public Affairs. July 1997–July 2001.

Teaching Interests

Quantitative methods
Elections & Direct democracy
California politics

Grants & Awards

Fellow, Society for Political Methodology, Elected 2019.

Research grant, "For Modernizing the VoteView Website And Software." Madison Initiative. William and Flora Hewlett Foundation (Grant #2016-3870). January 2016. $200k.

Conference/training grant, "Support for Conferences and Mentoring of Women and Underrepresented Groups in Political Methodology," National Science Foundation (NSF-SBE-1628102 with Kosuke Imai), $308k.

Research grant. "Collaborative Research on Dynamic Models of Roll Call Voting." National Science Foundation (NSF-SBS-0611974, with Keith Poole and Howard Rosenthal). July 2006. $394k total ($182k UCLA).

Brian P. Copenhaver Award for Innovation in Teaching with Technology, College of Letters and Sciences, University of California Los Angeles. 2007.

Warren Miller Prize for best article in volume 11 of *Political Analysis*. 2003 (article co-authored with Ken Schultz).

Research grant. "Empirical Testing of Crisis Bargaining Models." National Science Foundation (NSF-SBS-0241647, with Ken Schultz). February 2003. $200k.

Research grant, "Term limits in California." John Randolf and Dora Haynes Foundation, May 2000. $27k.

Research grant, Princeton University Committee on Research in the Humanities and Social Sciences, May 1998.

Harvard/MIT Research Training Group for Positive Political Economy Dissertation Fellowship, 1995-1996.

Sigma Xi Honorary Society, Wesleyan University, 1990.

White Prize for excellence in economics, Wesleyan University, 1990.

Ford Foundation Summer Research Fellowship, Wesleyan University, 1988.

Publications

"The new Voteview.com: preserving and continuing Keith Poole?s infrastructure for scholars, students and observers of Congress," *Public Choice*. 2018, 176:17–32 (with Adam Boche, Aaron Rudkin, and Luke Sonnet).

"Recovering a Basic Space from Issue Scales in R." *Journal of Statistical Software*. 2016, 69(7) (Keith T. Poole, Howard Rosenthal, James Lo, Royce Carroll).

"The Structure of Utility in Spatial Models of Voting," *American Journal of Political Science*. 2013, 56(4):1008–1028 (with Royce Carroll, James Lo, Keith T. Poole, and Howard Rosenthal).

"Economic Crisis, Iraq, and Race: A Study of the 2008 Presidential Election." (*Election Law Journal*. 2010, 9(1): 41–62 (with Michael Herron and Seth Hill).

"Comparing NOMINATE and IDEAL: Points of difference and Monte Carlo tests." *Legislative Studies Quarterly*. 2009, 34:555–592 (with Royce Carroll, James Lo, Keith T. Poole, and Howard Rosenthal).

"Measuring Bias and Uncertainty in DW-NOMINATE Ideal Point Estimates via the Parametric Bootstrap", *Political Analysis*. 2009, 17(3):261–275 (with Royce Carrol, James Lo, Keith T. Poole, and Howard Rosenthal).

"poLCA: An R Package for Polytomous Variable Latent Class Analysis." *Journal of Statistical Software*. 2011, 42(10) (with Drew A. Linzer).

"Scaling Roll Call Votes with Wnominate in R." *Journal of Statistical Software*. 2011, 42(14) (with Keith Poole, James Lo, and Royce Carroll).

"Ballot Formats, Touchscreens, and Undervotes: A Study of the 2006 Midterm Elections in Florida." *Election Law Journal*. 2008. 7(1):25–47 (with Laurin Frisana, Michael C. Herron, and James Honaker).

"An Estimate of Risk Aversion in the U.S. Electorate." *Quarterly Journal of Political Science*. 2007, 2(2):139–154. (with Adam J. Berinsky).

"Ideological Adaptation? The Survival Instinct of Threatened Legislators." *Journal of Politics*. 2007, 69(3):823–843 (with Thad Kousser and Seth Masket).

"Did Ralph Nader Spoil a Gore Presidency? A Ballot-Level Study of Green and Reform Party Voters in the 2000 Presidential Election." *Quarterly Journal of Political Science*. 2007, 2(3):205–226 (with Michael Herron).

"A Return to Normalcy? Revisiting the Effects of Term Limits on Competitiveness and Spending in California Assembly Elections" *State Politics and Policy Quarterly*. 2007, 7(1):20–38 (with Seth Masket).

"Learning about Learning: A Response to Wand." *Political Analysis*. 2006, 14: 121-129 (with Kenneth Schultz).

"Estimating Regression Models in Which the Dependent Variable Is Based on Estimates" *Political Analysis*. 2005, 13(4) (with Drew A. Linzer)

"Beyond the Median: Voter Preferences, District Heterogeneity, and Representation." *Journal of Political Economy*. 2004, 106(6):1364–1383 (with Liz Gerber).

"Measuring Bias and Uncertainty in Ideal Point Estimates via the Parametric Bootstrap." *Political Analysis*. Spring 2004. 12:105–127 (with Keith Poole)

"Extending King's Ecological Inference Model to Multiple Elections using Markov Chain Monte Carlo," Chapter in Gary King, Ori Rosen, and Martin Tanner, Eds. *Ecological Inference: New Methodological Strategies*. Cambridge: Cambridge University Press. 2004.

"Revealing Preferences: Empirical Estimation of a Crisis Bargaining Game with Incomplete Information." *Political Analysis*. 2003, 11(4):345–365 (with Kenneth A. Schultz).

"Understanding King's Ecological Inference Model: A Method-of-moments Approach," *Historical Methods*. 2001, 34(4):170–188.

"Estimating Voter Preference Distributions from Individual-Level Voting Data," *Political Analysis*. 2001, 9(3):275-297.

"No Evidence on Directional vs. Proximity Voting," *Political Analysis*. 1999, 8(1):21-33 (with Gary King).

"Reevaluating the Effect of N-Ach (Need for Achievement) on Economic Growth," *World Development*. 1991, 19(9):1269–1274.

Other Publications

Comment on "McCue, K. F. (2001), 'The Statistical Foundations of the EI method, *The American Statistician*. 2002, 55(3):250.

"Veteran's Adjustment." Chapter in *After the Cold War: Living with Lower Defense Spending*, Congress of the United States, Office of Technology Assessment, OTA-ITE-524. 1992.

Working Papers

Has Joint Scaling Solved the Achen Objection to Miller and Stokes? (with Christopher Tausanovitch, under revision).

Residual Votes in the 2008 Minnesota Senate Race (with Jonathan W. Chipman and Michael C. Herron)

From Punchcards to Touchscreens: Some Evidence from Pasco County, Florida on the Effects of Changing Voting Technology (with Michael C. Herron)

Voting in Low Information Elections: Bundling and Non-Independence of Voter Choice (with Liz Gerber, April 2002)

Dangers of Measurement Error in Non-linear Models: The Case of Directional versus Proximity Voting (April 2002)

A Reply to McCue's Reply to My Comment on "The Statistical Foundations of the EI method"

PhD Students

Committees Chaired or Co-chaired: Ryan Enos (Harvard), Seth Hill (UCSD), James Lo (USC), stonegarden grindlife.
Currently charing or co-chairing five committees.
Committee member on over 35 PhD students (including as an outsider member in Economics and Statistics).

Conference Presentations

American Political Science Association, Philadelphia, September 2016.
Annual Meetings of the Midwest Political Science Association, Chicago, April 2014.
Annual Meetings of the Midwest Political Science Association, Chicago, April 2011.
Summer Meetings of the Political Methodology Society, New Haven, 2009

Annual Meetings of the Midwest Political Science Association, Chicago, April 2006.
American Political Science Association, Chicago, September 2004.
American Political Science Association, Philadelphia, September 2003.
Annual Meetings of the Midwest Political Science Association, Chicago, April 2003.
Summer Meeting of the Political Methodology Society, Seattle, 2002
Annual Meetings of the Public Choice Society, Houston, San Diego, 2002.
Annual Meetings of the Midwest Political Science Association, Chicago, April 2002.
Annual Meetings of the Midwest Political Science Association, Chicago, April 2001.
Annual Meetings of the Midwest Political Science Association, Chicago, April 2000.
Summer Meeting of the Political Methodology Society, College Station Texas, 1999.
Annual Meetings of the Social Science History Association, Chicago, November 1998.
American Political Science Association, Boston, September 1998.
Annual Meetings of the Midwest Political Science Association, Chicago, April 1997.
Annual Meetings of the American Political Science Association, San Francisco,August 1996.
Annual Meetings of the Public Choice Society, Houston, April 1996.
American Political Science Association, Atlanta, August 1989.

Software

Voteview: US Roll call votes and legislator ideologies, 1789–2021: Provides interactive search and visualization of every roll call vote ever taken in the United States Congress. See `https://voteview.com`.

WNominate (v1.2): R package implementing Poole and Rosenthal's W-Nominate estimator co-authored with Keith Poole and James Lo. (`http://cran.r-project.org/web/packages/wnominate/index.html`)

PoLCA (v1.4.1): R package for Polytomous Variable Latent Class Analysis. Co-authored with Drew Linzer. (`http://dlinzer.github.io/poLCA/`)

Data collections

US Congressional roll call voting and related data, 1789–2021: Provides data on every roll call vote ever taken in the United States Congress. See `https://voteview.com`.

US Congressional District Boundaries, 1789–2017. Detailed GIS descriptions of every district in US history (with Brandon DeVine (UCLA), Lincoln Pritcher (UCLA), and Ken Martis (UWV)). See `http://cdmaps.polisci.ucla.edu/`.

109th – 114th Congress Data Project. UCLA. Webpage allows download of up to the hour roll call voting matrices for the current US Congress [Now included in the Voteview project].

California Roll Call Project. UCLA. Collection of roll call voting data from the California Assembly from 1850 to the present. Ongoing (with Seth Masket).

Crisis Bargaining Data Base. UCLA. Codings of post-World War I international crises outcomes in terms of a simple game theoretic model of coercive diplomacy (supported by NSF-SBS-0241647) (with Ken Schultz).

Record of American Democracy Project Harvard University. One of several project leaders. Summer 1995.

University Service

Chair: Executive Committee, Faculty of Letters and Science, UCLA (September 2019–Present)

Vice Chair: Executive Committee, Faculty of Letters and Science, UCLA (2018–2019)

Member: Executive Committee, Faculty of Letters and Science, UCLA (2017–2018); Council on Academic Planning and Budget, UCLA (2019–Present); Classroom Advisory Committee, UCLA (2018–2020); Pathways to Commencement Task Force, UCLA (2013–2014).

Professional Experience

President: Society for Political Methodology (2015–2017).

Vice President/President elect: Society for Political Methodology (2013–2015).

Co-editor: *The American Political Science Review* July 2008–July 2011; *The Political Methodologist*, the APSA Methodology section newsletter. 2004–2007 (with Adam Berinsky and Michael Herron).

Editorial Board Member: *Journal of Politics*, 2005–2008; *Political Analysis* 2005–present.

Panelist: National Science Foundation ad hoc peer review panels (June 2004, February 2008, October 2010); National Science Foundation Political Science Panel (2009–2010).

Departmental review visiting committee member: University of Colorado, 2013; London School of Economics, 2015; University of Michigan, 2015.

Nominations committee member: American Political Science Association, 2011–12, 2012–13.

Program committee member: American Political Science Association Annual Meetings 2003, Political Methodology division head.

Anonymous Referee: *American Political Science Review*, *American Journal of Political Science*, *Journal of Law and Economics*, *World Politics*, *Political Analysis*, *Legislative Studies Quarterly*, *Sociological Methods Review*,

Journal of Politics, *Journal of Theoretical Politics*, and *Political Behavior*, *Perspectives on Politics*, *Public Opinion Quarterly*, *Journal of Political Economy*.

Discussant/Panel Chair Political Methodology Conference (1997, 2004, 2005, 2015), Midwest Political Science Association meetings (1998, 2005, 2006). American Political Science Association meetings (1998, 2002, 2003, 2006, 2010, 2016). Public Choice Society (1996, 2002)

Work Experience

Polimetrix Palo Alto, CA
Director of Statistics, 2003–2007.

Office of Technology Assessment, U.S. Congress Washington, DC
Research Analyst, Industry Technology and Employment program. October 1990 – August 1992.

Selected Invited Lectures

American Politics Seminar, Political Science Department, Columbia University, 1998

Political Economy Seminar, Political Science Department, Michigan University, 1999

Political Economy Seminar, Graduate School of Business, Stanford University, 1999

Political Economy Seminar, Politics & Economics Departments, Princeton University, 1998

Southern California Methods Program, UC Riverside, November 2001.

Ideal-Point Estimation Conference, Washington University St. Louis, September 2002.

American Politics Seminar, Political Science Department, Yale University, 2003.

Political Economy Seminar, Politics & Economics Departments, Princeton University, Spring 2004.

Political Economy Seminar, Politics Department, Massachusetts Institute of Technology, Spring 2004.

Empirical Implications of Theoretical Models Program, Washington University, St. Louis, June 2004.

Multilevel Methods Conference, Center for the Study of Democratic Politics, Woodrow Wilson School of Public and International Affairs, Princeton University, October 2004.

Empirical Implications of Theoretical Models Program, University of California Berkeley (one week module co-taught with Kenneth A. Schultz). June 2005.

Roll Call Voting Conference, Department of Political Science, University of California, San Diego. May 2006.

Measures of Legislators' Policy Preferences and the Dimensionality of Policy Spaces Conference Department of Political Science, Washington University, St. Louis. November 2007.

Causal Inference. Business School. University of Southern California. June 2010.

How to Scrape Web Pages. Summer Methods Program. Department of Sociology. Stanford University, July 2010, 2011, 2012, 2013, 2014, 2015.

Lectures on Ecological Inference. Summer Methods Training Program, Academia Senica, Taipei, Taiwan. July 2010.

Applied Statistics Workshop. Department of Government. Harvard University, April 2011.

Methods Workshop. Department of Political Science, Stanford University. June 2011.

Conference on "Political Representation: Fifty Years After Miller & Stokes." Vanderbilt University, March 2013

Center for the Study of Democratic Politics (CSDP) Workshop, Princeton University, April 2015.

Ideal Point Models in Political Science Workshop, MIT, April 2015.

Interdisciplinary Seminar in Quantitative Methods (ISQM) Workshop, University of Michigan, September 2015.

Political Economy Seminar, Graduate School of Business, Stanford University, April 2019,

March 25, 2021