The Quantitative Empirics of Redistricting Litigation: Knowledge, Threats to Knowledge, and the Need for Less Districting

*D. James Greiner**

The Civil Rights Movement had a variety of transformative effects on the way federal courts hear and decide cases; among them was the introduction of quantitative analysis as a staple of certain types of high-profile adjudication, particularly in redistricting cases.[1] The first judicial foray into regulating the drawing of electoral districts—the "one person, one vote" line of cases—was premised on an equality norm expressed in explicitly numerical terms.[2] In these cases, the Supreme Court settled[3] on numerical guidelines requiring only simple arithmetic to implement.[4] Since then, however, the federal judiciary has

---

[*]   Assistant Professor of Law, Harvard Law School, Griswold 504, 1525 Massachusetts Avenue, Cambridge, MA 02138, jgreiner@law.harvard.edu.

1.   *See* Bernard Grofman, *Expert Witness Testimony and the Evolution of Voting Rights Case Law*, *in* CONTROVERSIES IN MINORITY VOTING: THE VOTING RIGHTS ACT IN PERSPECTIVE 197-229 (Bernard Grofman & Chandler Davidson eds., 1992) (discussing the role of expert witness testimony in redistricting cases).

2.   The equality norm requires districts to have equal (or roughly equal) populations; otherwise, according to the theory, one person's vote would count more than another's in terms of power to elect a representative. *See, e.g.*, Wesberry v. Sanders, 376 U.S. 1, 2 (1964) ("[T]his inequality of population means that [one Georgia] Congressman has to represent from two to three times as many people as do Congressmen from some of the other Georgia districts.").

3.   At least, this appears to be the case. *But see* Larios v. Cox, 300 F. Supp. 2d 1320, 1340-47 (N.D. Ga. 2004), *aff'd*, 542 U.S. 947 (2004) (striking down a districting scheme despite the fact that its departures from population equality were within what were previously thought to be acceptable limits).

4.   *See, e.g.*, Brown v. Thomson, 462 U.S. 835, 842-43 (1983) (articulating, for state and local districts, a standard that depends on a comparison of a plan's least populous and most populous districts to a district of ideal size, and imposing a burden on the state to justify a plan when differences in population exceed 10%); *Wesberry*, 376 U.S. at 8 (using the same ideal district size as a baseline for congressional districts but essentially invalidating any departure from ideal size).

engaged with increasingly complicated quantitative measurements and statistical techniques, first in the racial vote dilution cases,[5] then in the "overuse of race" cases,[6] then in the partisan gerrymandering cases.[7]

---

5.   Racial vote dilution (referred to in this Essay as simply "vote dilution") is the drawing of districts such that, despite compliance with "one person one vote" limits, members of a racial or ethnic group lack an equal opportunity to elect candidates of choice. *See* Voting Rights Act of 1965, 42 U.S.C. § 1973 (2006). For foundational vote dilution cases, see, for example, Thornburg v. Gingles, 478 U.S. 30 (1986); White v. Regester, 412 U.S. 755 (1973); and Whitcomb v. Chavis, 403 U.S. 124 (1971). In the vote dilution context, the Supreme Court's reliance on quantitative measurements of voting patterns by race has been consistent. *See, e.g.*, League of United Latin Am. Citizens (LULAC) v. Perry, 548 U.S. 399, 427 (2006); *Thornburg*, 478 U.S. at 52-53, 80-83. By "quantitative measurements of voting patterns by race," I mean comparisons of turnout and support rates of various racial groups.

6.   In this line of cases, the Supreme Court established the unconstitutionality of district lines drawn from a process in which race is the predominant factor. Throughout this Essay, I use the term "overuse of race" to reflect this idea that race cannot be a predominant factor in district-line-drawing. Evidence of predominance can come from a district's bizarre shape or from the circumstances surrounding the adoption of the districting scheme. *See, e.g.*, Miller v. Johnson, 515 U.S. 900 (1995); Shaw v. Reno , 509 U.S. 630 (1993). On the availability of useful evidence in the form of quantitative measurements of district shape in this line of jurisprudence, see Richard H. Pildes & Richard G. Niemi, *Expressive Harms, "Bizarre Districts," and Voting Rights: Evaluating Election-District Appearances After Shaw v. Reno*, 92 MICH. L. REV. 483, 565 (1993). In the "overuse of race" context, the Supreme Court has relied on studies involving quantitative measurements of district shape. *See, e.g.*, Bush v. Vera, 517 U.S. 952, 960 (1996) (plurality opinion) (citing measurements in Pildes & Niemi, *supra*, at 565, tbl.3); *see also infra* note 11 for further explanation.

7.   Partisan gerrymandering is the practice of drawing district lines so as to minimize the electoral strength of one or more political parties, often by packing as many of those parties' supporters into as few districts as possible (thus creating inefficient super-majorities in these districts). *See, e.g.*, *LULAC*, 548 U.S. 399; Vieth v. Jubelirer, 541 U.S. 267 (2004); Davis v. Bandemer, 478 U.S. 109 (1986). In the partisan gerrymandering context, Justice Stevens has endorsed a partisan symmetry measurement susceptible to quantitative estimation as useful in assessing the extent of the plan's partisanship, while other Justices have also shown some interest in the symmetry standard. *See LULAC*, 548 U.S. at 466-68 (Stevens, J., concurring in part and dissenting in part); *id.* at 420 (Kennedy, J.); *id.* at 483 (Souter, J., concurring in part and dissenting in part). For an explanation of partisan symmetry and of models available to assess it, see Andrew Gelman & Gary King, *A Unified Method of Evaluating Electoral Systems and Redistricting Plans*, 38 AM. J. POL. SCI. 514 (1994); Bernard Grofman & Gary King, *The Future of Partisan Symmetry as a Judicial Test for Partisan Gerrymandering After LULAC v. Perry*, 6 ELECTION L.J. 2 (2007).

If one treats *Baker v. Carr*[8] as the beginning of this era of judicial involvement in redistricting and of courts' growing reliance on quantitative expertise, we have just short of half a century of experience in redistricting litigation that frequently, perhaps usually, requires the use of complex quantitative thinking. With a new round of redistricting underway, it is now worth assessing the state of the empirics in this area and asking the following question: In the foreseeable future, are the empirical methods that are either currently available or likely to be developed sufficient to allow judges to adjudicate cases according to articulated doctrine, and to further the policies underlying that doctrine?

In this short Policy Essay, I argue that, despite good news in the form of increasing sophistication of quantitative thinking and the continued development of proposals for doctrine that can make use of these techniques, there is reason for pessimism. I discuss three such reasons: (i) the difficulty in making new quantitative techniques accessible to judges; (ii) the threat that demographic and election administration changes pose to the informational inputs of these quantitative techniques; and (iii) the fact that we are unlikely ever to be able to answer what I deem to be the fundamental question in redistricting: What is the role (if any) of racial animus, prejudice, or unconscious bias in voting patterns and elections? Further, I argue that the empirical challenges in this area constitute a previously unexplored reason for renewed investigation into the limited and selective[9] adoption of multi-membered districts with alternative vote aggregation schemes,[10] the hope being that such institutional designs might obviate the need for some of the controversy and litigation surrounding future redistricting.

I proceed by reviewing the good news in the empirics of redistricting before turning to the bad news. I conclude with some thoughts regarding multi-membered districts with alternative vote aggregation schemes.

---

8.   Baker v. Carr, 369 U.S. 186 (1962).

9.   By "selective," I mean that the use of multi-membered districts with alternative voting schemes be limited to circumstances: (i) in which district size can be kept manageable; and (ii) in which there is evidence of a possible violation of existing districting law (or extreme partisan gerrymandering).

10. "Multi-membered" districts are those in which more than one representative is elected from a particular district. When each voter is allowed (or even required) to cast the same number of votes as there are representatives to be elected, and when voters cannot cast more than one of their votes for a single candidate, multi-membered districts can be powerful tools of racial vote dilution. *See Thornburg*, 478 U.S. 30, at 46-51. In this Essay, I refer to such systems as "one vote per slot" schemes. "Alternative vote aggregation schemes" are those that depart from a set of rules allowing (or requiring) voters to cast the same number of votes as there are representatives to be elected and prohibiting voters from casting more than one of their votes for a single candidate. I discuss two examples of such alternative schemes, "limited voting" and "cumulative voting," at the end of this Essay. *See infra* Part III.

I.   THE GOOD NEWS

At first glance, the news from the empirical side of redistricting appears good. Perhaps because of the stakes and high profile of redistricting disputes, the quantitative community has responded to the judiciary's implicit demand for more and better information. Statisticians and quantitative analysis experts have adapted increasingly sophisticated numerical thinking to the redistricting setting by grounding their research in lessons learned from actual redistricting events and by developing proposals for legal doctrine on the basis of the detailed information that has become available.[11] At least four lessons can be drawn from these efforts.

First, statistical tools now available allow us to know more than we did before. For example, prior to the new millennium, the statistical techniques used in vote dilution law to discern whether voting was racially polarized performed well[12] only for jurisdictions with two relevant racial or ethnic groups.[13] At present, we have techniques that can perform well for multiracial/ethnic polities if we have adequate data.[14] Furthermore, in the area of district shape, technology has evolved to allow ranking of districts according to their compactness under dozens of definitions of "compact."

Second, and of underappreciated importance, tools now available do a better job of warning us when the data cannot provide useful information. For

---

11.   For example, even before the Supreme Court arguably elevated district shape to potential constitutional significance in *Shaw v. Reno*, 509 U.S. 630 (1993), political scientists were identifying dozens of measures of compactness and assessing their consequences for gerrymandering by examining past district shapes. *See, e.g.*, Richard Niemi, Bernard Grofman, Carl Carlucci & Thomas Hofeller, *Measuring Compactness and the Role of a Compactness Standard in a Test for Partisan and Racial Gerrymandering*, 52 J. POLITICS 1155 (1990). The term "compactness" can mean various things, but generally refers to the regularity of the shape of the district, as well as some comparison of the perimeter of the district to its area. Regularity of shape can also be quantified in various ways, but often involves a comparison of district boundaries to some kind of geometric figure that is pleasing to the eye, such as the smallest circle that contains the entire district, or the largest circle entirely contained in the district. *See* Pildes & Niemi, *supra* note 6, at 562-74. In another example, Gary King applied Bayesian statistical thinking and simulation-based fitting algorithms to the problem of discerning racial voting patterns. *See* GARY KING, A SOLUTION TO THE ECOLOGICAL INFERENCE PROBLEM: RECONSTRUCTING INDIVIDUAL BEHAVIOR FROM AGGREGATE DATA (1997).

12.   I use the phrase "perform well" in the sense of performing well enough given the inherent limits of the data available. For a view that "well" in this sense is not good enough, see David A. Freedman et al., *Ecological Regression and Voting Rights*, 15 EVALUATION REV. 673 (1991).

13.   *See* D. James Greiner, *Re-Solidifying Racial Bloc Voting: Empirics and Legal Doctrine in the Melting Pot*, 86 IND. L.J. 447, 465-68 (2011).

14.   *See* Greiner, *supra* note 13, at 470-72.

example, in the vote dilution context, a critical quantity of interest is the fraction of a racial group's voters who supported a particular candidate,[15] a quantity that by definition must lie between 0.00 and 1.00. If a modern, reliable statistical technique can tell us nothing more than that this fraction for a particular racial group is 95% likely to be between 0.01 and 0.99, we can conclude that the available data are unlikely to provide useful information.[16] Techniques used early in vote dilution jurisprudence did a less effective job of providing warning signs of this nature.[17] Similarly, in the area of measuring the partisan bias of redistricting plans, we can test potential models and specifications (including which variables to use as predictors in modeling equations) that forecast the partisan effects of different redistricting plans against known results. We can learn from instances in which particular model specifications are found wanting.[18] For example, if for a particular jurisdiction we observe a pattern of repeated failure to predict observed results, we can be cautious in drawing conclusions.

Third, quantitative tools now available continue to form the foundation for theoretical proposals that provide courts with previously unavailable (or at least unarticulated) doctrinal options. Decades ago, quantitatively minded political scientists and politically minded legal academics provided the theoretical scaffolding for the construction of what would become modern vote dilution law.[19] One can hope that this kind of dialogue will continue in the area of partisan gerrymandering.[20]

Finally, the increasing availability of districting software and election information may allow watchdogs in academia[21] and elsewhere both to draw

---

15. *See, e.g.,* Barnett v. City of Chicago, 141 F.3d 699, 703-06 (7th Cir. 1998).

16. These figures come from a real-world example, specifically, the fraction of Asian-American voters in Boston that supported Deval Patrick in the 2006 Democratic primary in Boston. The name of the modern technique used was the "GQ Model." *See* Greiner, *supra* note 13, at 475.

17. Or perhaps the warning signs they did provide were not adequately heeded. *See* D. James Greiner, *Ecological Inference in Voting Rights Act Disputes: Where Are We Now, and Where Do We Want to Be?,* 47 JURIMETRICS 117, 132-33 (2007).

18. *See, e.g.,* Andrew C. Thomas, Avoiding an Electoral Lost Decade: What Lessons Will We Learn in the 2011 Redistricting Cycle?, at 4 fig.1 (Feb. 7, 2011) (unpublished manuscript), *available at* http://ssrn.com/abstract=1757313.

19. *See* Thornburg v. Gingles, 478 U.S. 30, 51-60 (1986) (citing numerous publications and data analyses by political scientists and legal academics using concepts developed with quantitative political science techniques).

20. *See* Brief of Amici Curiae Professor Gary King et al. in Support of Neither Party, LULAC v. Perry, 548 U.S. 399 (2006) (Nos. 05-204, 05-254, 05-276, 05-439), *available at* http://www.jenner.com/files/tbl_s69NewsDocumentOrder/FileUpload500/557/Brief_Amici_Curiae_Professors_King_Grofman_Gelman_Katz.pdf.

21. *See, e.g.,* Rick Hasen, *DrawCongress.org,* ELECTION LAW BLOG (Mar. 1, 2011, 9:43 AM), http://electionlawblog.org/archives/018868.html (describing classes at Har-

their own proposed districts and to examine with greater sophistication the results of official processes.

II. THE BAD NEWS

Despite all of the positive developments in statistical techniques described above, the bad news may already, or may soon, outweigh the good in this area. Some sources of bad news, such as the fact that better technology has made it easier for official line-drawers to engage in self-serving or illegal line drawing,[22] are obvious. More subtle sources of bad news, however, are more serious in terms of their threat to adjudication. I focus on three such sources here: (i) difficulties in making the more complex modern quantitative techniques accessible to judges; (ii) threats to these techniques' informational inputs; and (iii) the realization that it is unlikely that through the use of sophisticated statistical techniques we will ever be able to answer a critical question underlying much of redistricting litigation: What is the role (if any) of racial animus, prejudice, or unconscious bias in determining voting patterns and elections?

A. Complexity of Modern Quantitative Techniques

Many of the advances described above consist of, or are based on, numerical thinking that is quantum steps more complicated than that used before, and the federal judiciary has struggled to respond. Sometimes it has gotten things flatly wrong.[23] At other times, courts (and indeed some experts) have been willing to consider the results of recently constructed but more informative methods only if the conclusions from the modern techniques corroborate the results of the less informative methods with which courts are familiar—a

---

vard, Columbia, and Yale law schools in which students are drawing "good government" districts for the House of Representatives in every state).

22. *See, e.g.,* Vieth v. Jubelirer, 541 U.S. 267, 355 (2004) (Breyer, J., dissenting).

23. For example, in *Vieth,* Justice Scalia characterized a proposed symmetry standard for partisan bias as "rest[ing] upon the principle that groups (or at least political-action groups) have a right to proportional representation." 541 U.S. at 288. In other words, Justice Scalia thought that the symmetry standard required that if Democrats received 55% of the votes cast, they must receive 55% of the legislative seats. But the symmetry standard requires no such thing. Instead, the symmetry standard is consistent with allocating Democrats 75% of the legislative seats for winning 55% of the votes cast, so long as Republicans would also receive 75% of the legislative seats if *they* won 55% of the votes cast. All of this is explained in the Brief of Amici Curiae, *supra* note 20, at 7-8. The Court's struggles to understand empirical findings and/or methods are not limited to redistricting. *See, e.g.,* Theodore Eisenberg, Michael Heise & Martin T. Wells, *Variability in Punitive Damages: Empirically Assessing* Exxon Shipping Co. v. Baker, 166 J. INST'L & THEORETICAL ECON. 5 (2010) (discussing how the Supreme Court misused the authors' prior punitive damages research).

posture that renders the more informative methods pointless.[24] These difficul-
ties suggest that while increased sophistication may provide more accurate
information, it may also worsen the already strained process of communicating
statistical methodologies to judges.

B. Informational Inputs

Another threat to adjudicating cases accurately and to furthering the
policies underlying redistricting doctrine comes from an increased difficulty in
obtaining the data that are the lifeblood of the quantitative techniques in use.
This threat is perhaps clearest in the area of vote dilution litigation, which by
definition depends on information about voting patterns by race. As I have
discussed elsewhere, the increasingly multiracial nature of U.S. polities, as well
as allegations of decreasing ferocity of white bloc voting, have threatened the
continuing viability of quantitative techniques measuring voting behavior by
race that depend on the combination of precinct-level Census data and
election results.[25] At some cost, where "cost" refers to time, effort, money, and
delay in obtaining information, polling of various forms provides critical
information on voting patterns. In regions[26] and contests where polling can be
informative, polling should and must take on a greater role in redistricting
litigation. But a variety of factors threaten the ability to evaluate voter behavior.
For example, the convenience voting movement[27] threatens exit polling by
removing voting activity from traditional polling places. Furthermore, both
the growing use of cell phones and their portability complicate telephone
polls by making it harder to match poll respondents to geographic locations.[28]

---

24.   *See, e.g.*, United States v. City of Euclid, 580 F. Supp. 2d 584, 598 (N.D. Ohio 2008)
       (agreeing with an expert who testified that one should rely on the results of a
       more advanced statistical method only if the results agree with those of an older,
       less informative method). For an explanation of the specific methods involved in
       City of Euclid, see Greiner, *supra* note 17, at 126-42.

25.   *See* Greiner, *supra* note 13. The threat is that these techniques give wrong answers
       or no useful answers.

26.   For example, exit polling in Oregon might not be a fruitful endeavor. *See Official
       Results: November 3, 1998 General Election, State Measure 60*, OR. SEC'Y STATE,
       http://www.sos.state.or.us/elections/pages/history/archive/nov31998/other.info/
       m60.htm (last visited Apr. 30, 2011) (discussing the fact that most voting in Ore-
       gon is done by mail).

27.   *See* Paul Gronke, Eva Galanes-Rosenbaum, Peter A. Miller & Daniel Toffey,
       Convenience Voting, 11 ANN. REV. OF POL. SCI. 437 (2008).

28.   *See, e.g.*, Scott Keeter, *Cell Phones and the 2008 Vote: An Update*, PEW RESEARCH
       CENTER (Jul. 17, 2008), http://pewresearch.org/pubs/901/cell-phones-polling-
       election-2008; *see also* Fako & Assocs., Inc., *Cell Phones & Political Polling*, NEW
       FROM POL. POLLING BLOG - F&A, INC. (Jul. 18, 2007, 12:48 PM), http://
       politicalpolling.blogspot.com/2007/07/cell-phones-political-polling.html ("Cellu-

Additionally, the inequality in internet access across demographic groups threatens to induce bias in online polling.[29] These factors suggest that polling may now provide only a partial response to the threat to informational inputs articulated above.

There are other threats to the information upon which vote dilution litigation rests. At least at smaller levels of aggregation, obtaining information on citizenship rates by race has become problematic because the U.S. Census Bureau no longer collects citizenship as part of the Decennial Census. Despite this fact, courts have already required, or seem poised to require, vote dilution analysis to proceed on the basis of statistics regarding only the population of voting-age citizens.[30] Meanwhile, problems associated with an increasing number of persons who self-identify as belonging to more than one racial group, an issue which academics identified in the 2000 redistricting round but which did not end up posing serious issues then, are likely to increase.[31]

Outside of the vote dilution area, information challenges are even more subtle. For instance, one might think that in the "overuse of race" line of cases, the most important quantities of interest are measurements of district compactness, which depend on now-established Geographic Information System techniques and thus pose no informational challenges. But if the decade-long litigation over North Carolina's post-1990 congressional districts taught us nothing else, it taught us that in districting, everything depends on everything else.[32] Litigation concerning the "overuse of race" hinges on the reasons *why* line-drawers drew the lines they did. Line-drawers may justify their choices by articulating permissible (perhaps) motivations, such as the desire to elect representatives of a favored party or a desire to protect incumbents. But it may be difficult to separate these partisan considerations from impermissible racial motivations in a reliable way—race and partisan preferences are often highly correlated, so a desire to produce the hoped-for partisan consequences can cause line-drawers to consider race. But the consideration of race can trigger vote dilution concerns. In this sense, partisan district drawing may critically depend on assumptions about correlations between race and vote preferences that might feel like racial stereotyping. Thus, litigation that begins as a "simple"

---

lar phones are also not tied to a geographic location and create difficulties in screening eligible participants.").

29.   *See, e.g.*, Matthias Schonlau et al., *Selection Bias in Web Surveys and the Use of Propensity Scores*, 37 Soc. METHODS & RES. 291 (2009).

30.   Nathaniel Persily, *The Law of the Census: How To Count, What To Count, Whom To Count, and Where To Count Them*, 32 CARDOZO L. REV. 755, 757, 780 (2011).

31.   *See id.* at 772-73.

32.   North Carolina's 12th Congressional District was redrawn several times in response to litigation. *See North Carolina Redistricting Cases: The 1990s*, REDISTRICTING TASK FORCE NAT'L CONF. ST. LEGISLATURES, http://www.senate.leg.state.mn.us/departments/scr/redist/redsum/ncsum.htm (last updated Jul. 8, 2003).

exercise of considering district shape can implicate a host of extraordinarily complicated issues that depend on quantitative analysis.

Thus, in *Easley v. Cromartie*, the Supreme Court held that the allegedly irregular shape of North Carolina's redrawn 12th congressional district was primarily motivated by partisan, not racial, concerns.[33] Litigation over the 12th district had begun with a successful "overuse of race" claim.[34] The lines redrawn in response to the successful "overuse of race" claim were again challenged.[35] The defense argued that the district's shape reflected a desire to produce certain partisan—not racial—outcomes.[36] Producing partisan outcomes, the defense's argument ran, required line-drawers to locate the most loyally Democratic voters in particular districts. But, according to the defense, because the most predictably loyal Democratic voters were black, the line-drawers could take race (among other factors) into account when trying to predict future partisan behavior.[37] For the plaintiffs, however, the fact that blacks were placed in certain districts was not an accidental byproduct of the scheme; rather, they argued that the whole districting effort had been dominated by the desire to concentrate blacks in certain districts.[38] Accordingly, to adjudicate the case, the Court had to make judgments regarding not just the existence of a correlation between race and voting preferences, and not just the strength of that association, but also the reliability of that association over time. That is, the Court had to decide how likely members of a certain racial group were to defect from previously expressed partisan indicators (for example, a black or white registered Democrat voting for a Republican). Doing so compelled the Court to make finer judgments about race and voting behavior than are required in the typical vote dilution lawsuit,[39] despite the fact that the "overuse of race" cause of action purportedly does not turn on the presence of racial bloc voting.[40] Such judgments implicate all of the informational challenges associated with drawing inferences about voting patterns by race discussed previously and below.

---

33.   Easley v. Cromartie, 532 U.S. 234 (2001).

34.   Shaw v. Hunt, 517 U.S. 899 (1996).

35.   *Easley*, 532 U.S. 234.

36.   *Id.* at 243-54.

37.   *Id.*

38.   *Id.* at 238-39, 254-56.

39.   *Id.* at 245 ("[W]hite voters registered as Democrats 'cross-over' to vote for a Republican candidate more often than do African-Americans, who register and vote Democratic between 95% and 97% of the time.").

40.   *See* Miller v. Johnson, 515 U.S. 900 (1995); Shaw v. Reno, 509 U.S. 630 (1993). In both of these cases, the Supreme Court articulated the "overuse of race" doctrine without addressing racial bloc voting.

C.   The Fundamentally Unanswerable Question

Perhaps the most important thing that the past five decades have taught us, or should have taught us, is that quantitative techniques and technological advances have limits.[41] As a result of these limits, there are questions that we are unlikely ever to be able to answer. One of these issues, which appears in a variety of forms, is so fundamental that the others pale in comparison: the extent to which animus, stereotyping, or subconscious bias underlies voting patterns. *Why* are voting choices and race correlated (if and where they are)? Is it "race, not politics"?[42] What are the "explanations of the reasons why white voters rejected minority candidates"?[43] When is observed voting behavior the result of "interest-group politics rather than . . . racial discrimination"?[44] Is a sustained pattern of failure of minority-preferred candidates due evidence of hardened white voter preferences or "a mere euphemism for defeat at the polls"?[45] These are all different ways of asking the same question,[46] and in an uncomfortable way, this question may be built into both existing redistricting doctrine, as well as what that doctrine should be. The clearest example of this point is a series of lower court rulings holding that the "reasons for" racial voting patterns are relevant in a vote dilution case, although these lower courts disagree on exactly what role these "reasons" should play in adjudication, as well as where doctrinally these "reasons" fit.[47] Despite early[48] and continuing[49] optimism that

41.   For example, by now we should understand that we will never be able to computerize our way out of redistricting difficulties, despite early optimism in that direction. *Compare* William Vickrey, *On the Prevention of Gerrymandering*, 76 POL. SCI. Q. 105, 110 (1961) (proposing that algorithms and computers be used as an antidote to "maneuver[ing] in terms of back-room bargaining"), *with* Micah Altman, Karin MacDonald & Michael McDonald, *From Crayons to Computers: The Evolution of Computer Use in Redistricting*, 23 SOC. SCI. COMPUTER REV. 334, 342 (2005) ("[R]edistricting remains an extremely difficult computational problem. No algorithm is known to exist that produces optimal plans for any redistricting problem of realistic size, and because of the sheer mathematical complexity of redistricting, it is unlikely that the computational problem of redistricting will be solved, at least for tasks such as redistricting large states at the block level.").

42.   *Easley*, 532 U.S. at 244.

43.   Thornburg v. Gingles, 478 U.S. 30, 100 (1986) (O'Connor, J., concurring, joined by Burger, C.J., Powell & Rehnquist, JJ.).

44.   *Id.* at 82 (White, J., concurring).

45.   Whitcomb v. Chavis, 403 U.S. 124, 153 (1971).

46.   Note that by addressing how to draw inferences in this area, I do not concede that the question is coherent or in any way well-posed.

47.   *See* Greiner, *supra* note 13, at 459-60.

48.   *See, e.g.*, Jones v. City of Lubbock, 730 F.2d 233, 234-36 (5th Cir. 1984) (Higginbotham, J., concurring).

quantitative methods would be able to answer this question, we are at present no closer to knowing how to answer it in an individual piece of litigation than we were when it was first posed at least four decades ago.[50] There are three basic reasons for this result.

First, we do not observe how individuals vote; indeed, except in overwhelmingly segregated areas, we do not even observe how racial and ethnic *groups* vote. The secret ballot, by design, prevents that.[51]

Second, we do not have a clear definition of the inferential target: What does it mean to say that race played a role in a voter's decision? Does it mean that if the public's perception of a candidate's race had been different, a voter's choice would have been different? Does it mean that if the voter's race had been different, her choice would have been different? For a causal inference based on data, we need a reasonably well-defined counterfactual that we can relate to available data, and in this area, we do not have one.[52]

Third, to isolate the effect of race in voting (assuming that we could define what we mean), we would need to know what other factors cause people to vote the way they do. But we do not have good information on this score, either.[53]

In light of these problems, we are left to ask: What useful information will we have available to address these questions of racial bias or animus in the context of an individual case? Occasionally (even in the current era), we have what seem like non-quantitative smoking guns demonstrating the presence of racial animus: campaign messages to voters that clearly implicate race.[54] But while such appeals may seem to speak loudly when they are present, it is hard to tell whether their absence suggests a lack of racial bias or simply a desire not to

---

49.   *See, e.g.*, Rodriguez v. Pataki, 308 F. Supp. 2d 346, 433-34 (S.D.N.Y. 2004).

50.   *See Whitcomb*, 403 U.S. 124.

51.   *See* Stephen P. Klein et al., *Ecological Regression Versus the Secret Ballot*, 31 JURIME-TRICS 393 (1991).

52.   *See* D. James Greiner, *Causal Inference in Civil Rights Litigation*, 122 HARV. L. REV. 533, 592-93 (2008). Note that the problems of not knowing how individuals vote, and of not knowing what it means to say that racial animus causes something in a way reasonably testable with quantitative methods, are built into the structure of the way we currently administer voting in the United States. Thus, these problems are unlikely to be solved by the kind of accumulation of personal data on voters underway among information vendors.

53.   Note that being able to predict how an individual will likely vote is different from knowing why an individual votes as she does. The fact that a person voted for Al Gore in 2000, John Kerry in 2004, and Barack Obama in 2008 might be a powerful predictor of how she will vote in 2012, but one would not say that these past votes "caused" the future one.

54.   *See, e.g.*, United States v. Vill. of Port Chester, 704 F. Supp. 2d 411, 436-37 (S.D.N.Y. 2010) (reporting a campaign flyer distributed by a candidate for Trustee in a city that had experienced recent growth in its Hispanic community claiming that "[t]he Hispanics are running the show already").

appear too racist. In some contexts, we can compare the party vote share in an electorate when a candidate of color runs to the share earned by a white candidate of the same party in the same electorate (but in a different time and electoral contest). But these comparisons are rarely available for the particular office that is the subject of a lawsuit, and as just noted, they often involve comparing different candidates' performances at different points in time.[55] It is dangerous to draw strong conclusions based on comparisons across time and office.[56]

One might argue in response that the question of the presence and causal role of racial animus in an electorate affects only vote dilution cases, where such animus can induce a racial bloc to minimize the electoral strength of other groups, and that this question is not as fundamental in other areas of redistricting law. But again, in redistricting, everything depends on everything else. As suggested above, concerns over partisanship affect even "one person, one vote" adjudication, which is supposedly straightforward.[57] Moreover, partisanship is a defense in the "overuse of race" line of cases, and proving partisanship can mean proving racial bloc voting.[58] To understand whether a districting scheme is allegedly too partisan, one must understand line-drawers' consideration of race, given that in some jurisdictions a feigned or real desire to comply with the Voting Rights Act may lead to packing of Democratic-leaning voters.[59] In sum, if we cannot successfully address racial concerns through redistricting, we may not be able to address much else.

III. HOPE FOR THE FUTURE?

In this Essay, I have argued that some important problems related to the empirics of districting have always been difficult, and are getting harder to answer. I conclude by suggesting that the observed limitations of quantitative empirical techniques should be a factor in determining legal doctrine. It is a fruitless endeavor for courts to adopt a doctrine that requires information that

---

55.   In other words, we may have precinct-level data across the nation on vote counts for John Kerry's and Barack Obama's presidential runs, but are these contests sufficiently similar to each other to isolate a race effect, and even if they are, why should we believe that information about a presidential contest signals anything about voter behavior in a city council election?

56.   For a study at high levels of aggregation, see Stephen Ansolabehere, Nathaniel Persily & Charles Stewart III, *Race, Region, and Vote Choice in the 2008 Election: Implications for the Future of the Voting Rights Act*, 123 HARV. L. REV. 1385 (2010).

57.   *See* Larios v. Cox, 300 F. Supp. 2d 1320 (N.D. Ga. 2004).

58.   *See supra* notes 33-42 and accompanying text.

59.   For a discussion of how this concern can be either real or illusory, see Bernard Grofman, *Would Vince Lombardi Have Been Right if He Had Said: "When It Comes to Redistricting, Race Isn't Everything, It's the Only Thing"?*, 14 CARDOZO L. REV. 1237, 1249-56 (1993).

cannot be provided even by the most sophisticated statistical methods.[60] Thus, I suggest that the empirical challenges in this area provide an additional argument to explore at least a selective and limited use[61] of alternatives to our current system of single-membered districts or multi-membered districts with "one vote per slot"[62]: multi-membered districts with vote aggregation schemes such as limited voting[63] and cumulative voting.[64]

In the past, arguments in favor of vote aggregation schemes other than "one vote per slot" have come from experts in race, politics and law;[65] from election law scholars and doctrinalists;[66] and from political scientists with decades of experience in redistricting,[67] among others. The broad lesson from these sources is that alternative voting schemes offer greater flexibility and lesser need for constant judicial monitoring. For example, in a cumulative voting system, if racial bloc voting exists, then a member of a particular racial group can cast all of her votes for one (or a limited number of) racially defined candi-

---

60. Greiner, *supra* note 13, at 470-72.

61. By "selected and limited use," I mean the use of these methods in locations in which there is evidence of illegal line-drawing, particularly in smaller jurisdictions, such as cities, towns, and counties. *See* Florence P. Adams, *Minorities and Representation in the New Millennium, in* REDISTRICTING IN THE NEW MILLENNIUM 155, 155 (Peter F. Galderisi ed., 2005) (arguing that "much of the controversy" in Voting Rights Act jurisprudence in this century "will be found at the local level of government"). With respect to redistricting plans that must be drawn statewide (such as state legislative districts or congressional districts), other concerns, such as ballot complication and geographical proximity of a voter to her representative, become relevant. In these systems, we should explore the use of a combination of multi-membered and single-membered districts, with the multi-membered districts in areas in which illegal line-drawing is a serious concern.

62. For my definition of "one vote per slot," see *supra* note 10.

63. Limited voting allows each voter to cast a number of votes smaller than the number of seats to be elected from the geographic location in which the voter votes. *See* United States v. Euclid City Sch. Bd., 632 F. Supp. 2d 740, 755 (N.D. Ohio 2009).

64. Cumulative voting provides a voter with more than one vote in a multi-seat contest but permits the voter to allocate more than one vote to a particular candidate. *See* Richard L. Engstrom, Delbert A. Taebel & Richard L. Cole, *Cumulative Voting as a Remedy for Minority Vote Dilution: The Case of Alamogordo, New Mexico*, 5 J.L. & POL. 469, 476-77 (1989).

65. *See, e.g.*, LANI GUINIER, THE TYRANNY OF THE MAJORITY: FUNDAMENTAL FAIRNESS IN REPRESENTATIVE DEMOCRACY (1994).

66. *See, e.g.*, Ellen D. Katz, *Engineering the Endgame*, 109 MICH. L. REV. 349, 382 & n.180, 383-85 (2010).

67. *See, e.g.*, Richard L. Engstrom, *Missing the Target: The Supreme Court, "One Person, One Vote," and Partisan Gerrymandering, in* REDISTRICTING IN THE NEW MILLENNIUM, *supra* note 61, at 313.

dates of choice. If, however, racial bloc voting in this jurisdiction decreases, then this same voter can begin to spread her votes among different candidates. No change in electoral structure is needed to allow this transition. In contrast, with single-membered districts drawn to remedy an allegation of vote dilution, the line drawing has been implemented to reflect racial voting patterns of a particular point in time. If the racial nature of voting patterns decreases, and the desire is to have lines that reflect some other political cleavage,[68] the lines will almost certainly have to be redrawn. Recently, and particularly in smaller, municipal jurisdictions, defendants have proposed, and courts have accepted, one or more of these methods as remedies for violations of section 2 of the Voting Rights Act.[69]

Putting aside empirical considerations, these arguments have serious force. The supposed choice between single-membered districts and "one vote per slot" multi-membered districts has always ignored the availability of alternative methods of aggregating votes. The federal court preference for single-membered districts as a remedy appears to have been the result of unsupported assumptions[70] about the defects of multi-membered districts dating back to decisions in the "one person, one vote" line of cases.[71] Furthermore, the preference for single-membered districting has never been one of constitutional magnitude.[72] And at the time of this preference's incorporation into vote dilution jurisprudence, the academic literature upon which the Supreme Court relied appeared to justify it primarily as a clear and manageable way of limiting

---

68. Alternative cleavages might include party, economic class, or religion.

69. *See, e.g.*, United States v. Vill. of Port Chester, 704 F. Supp. 2d 411 (S.D.N.Y. 2010) (cumulative voting); United States v. Euclid City Sch. Bd., 632 F. Supp. 2d 740 (N.D. Ohio 2009) (limited voting); Engstrom, *supra* note 67, at 333-34.

70. Both the articulation of these concerns and their lack of firm empirical support were later repeated in articles on which the Supreme Court relied for the extension of this preference. *See, e.g.*, Malcolm E. Jewell, *The Consequences of Single- and Multi-member Districting, in* REPRESENTATION AND REDISTRICTING ISSUES 129, 130 (Bernard Grofman et al. eds., 1982) (cited in Thornburg v. Gingles, 478 U.S. 30, 47 (1986)).

71. *See* Chapman v. Meier, 420 U.S. 1, 15-17 (1975); *see also* East Carroll Parish Sch. Bd. v. Marshall, 424 U.S. 636, 639 (1976) (collecting cases). Thornburg defined a section 2 violation in a case involving an attack on a multi-membered districting scheme in terms of whether a single-membered districting remedy was available. *Thornburg*, 478 U.S. at 51. Without serious reasoning, and certainly without consideration of alternative vote aggregation frameworks, the Court extended this framework to challenges to single-membered schemes in *Growe v. Emison*, 507 U.S. 25 (1993).

72. *See East Carroll Parish Sch. Bd.*, 424 U.S. at 639 (distinguishing the "rule" articulated in *Connor v. Johnson*, 402 U.S. 690 (1971), from "constitutional grounds").

the number of cases in which the federal courts would intervene[73]—an approach that, while practical on its face, is as difficult to justify on fairness grounds as one that only allows lawsuits to proceed if the relevant jurisdiction's name begins with the first ten letters of the alphabet. The comparatively race-neutral[74] nature of multi-membered districts with vote aggregation schemes other than "one vote per slot" would seem to be a serious asset, given the federal judiciary's increasing chariness toward race-conscious remedies in any setting.[75] Furthermore, it has never been clear why a racial minority group otherwise sufficiently numerous to affect election results but whose votes are submerged by ferocious bloc voting deserve a remedy only if the group lives in segregated housing patterns.[76]

A lesson of this Essay, however, is that the limitations of empirical tools should play a role in this debate. At least on the quantitative end, the empirical difficulties in the redistricting area are getting worse, not better. We should respond by looking for ways to depend less on the empirics. As explained above, multi-membered districts with vote aggregation schemes other than "one vote per slot" can allow for more fluid combinations of voters and vote preferences, decreasing the need for fine judgments on difficult empirical questions such as the strength and likely longevity of racial bloc voting,[77] the likelihood and

---

73. *See Thornburg*, 478 U.S. at 50-51 (citing James U. Blacksher & Larry T. Menefee, *From* Reynolds v. Sims *to* City of Mobile v. Bolden, *Have the White Suburbs Commandeered the Fifteenth Amendment?*, 34 HASTINGS L.J. 1, 55-57 (1982)); Walter L. Carpeneti, *Legislative Apportionment: Multimember Districts and Fair Representation*, 120 U. PA. L. REV. 666, 696 & n.135 (1972)).

74. *Cf.* Pamela S. Karlan, *Still Hazy After All These Years: Voting Rights in the Post-Shaw Era*, 26 CUMB. L. REV. 287, 308 (1996) (stating that under current law, "[t]he remedy for a section 2 violation is race-conscious districting"). Multi-membered districts can be race-neutral because they require the drawing of fewer race-conscious lines. For example, if a municipality elects five aldermen at large but uses limited or cumulative voting, it need not draw any district lines.

75. *See, e.g.*, Walker v. City of Mesquite, 169 F.3d 973, 988 (5th Cir. 1999) ("[T]he district court erred in employing a race-conscious remedy before utilizing race-neutral alternatives.").

76. *See* Bartlett v. Strickland, 129 S. Ct. 1231 (2009) (holding that in a section 2 case a plaintiff must demonstrate that a minority group is large and compact enough to constitute a majority of a single-membered district). By way of explanation: In *Thornburg v. Gingles*, the Supreme Court held that a plaintiff challenging a multi-membered districting scheme on the grounds of vote dilution could not succeed unless she showed that her minority group was sufficiently numerous and geographically compact to constitute a majority of a single-membered district. Thus, if a minority group's housing patterns are geographically dispersed, the law provides no remedy against vote dilution even if voting patterns are racially polarized such that the minority group lacks all ability to elect candidates of choice. *Thornburg*, 478 U.S. at 46-51.

77. *See* Greiner, *supra* note 13, at 482-83.

uniformity of partisan swing,[78] and the effect of the message of racial essentialism that bizarrely shaped districts send to voters.[79] As also explained above, if limited or cumulative voting methods are adopted, voter coalitions will be able to adapt more flexibly to changes in racial or partisan preferences.

Alternative vote aggregation schemes have drawbacks. Sometimes they are unpopular after they are initially implemented, and they do not always lead to the election of a candidate of minority race.[80] Perhaps most intriguingly, the use of alternative aggregation schemes can in certain situations induce political parties to adopt game-theoretic strategic behavior that leads to what is essentially a bipartisan lockup.[81] Nevertheless, perhaps we judge and redistrict best when we judge and redistrict least. The increasingly apparent empirical challenges in the redistricting process provide an additional reason to explore systems that would allow us to do less of both.

---

78.   *See* Easley v. Cromartie, 532 U.S. 234, 245 (2001).

79.   *See* Shaw v. Reno, 509 U.S. 630 (1993).

80.   *See* United States v. Euclid City Sch. Bd., 632 F. Supp. 2d 740 (N.D. Ohio 2009) (approving a city's proposal to remedy a section 2 violation by adopting a limited voting scheme); Patrick O'Donnell, *Euclid Schools Have First Election Since Court Settlement, But Remains All White*, CLEVELAND.COM (Nov. 4, 2009, 4:17 PM), http://www.cleveland.com/politics/index.ssf/2009/11/post_4.html (reporting that all three white incumbents were reelected). Perhaps the fact that these schemes do not always result in the election of candidates of minority race is a good thing; schemes that work too well might be constitutionally suspect.

81.   *See, e.g.*, Jack Sawyer & Duncan MacRae, Jr., *Game Theory and Cumulative Voting in Illinois: 1902-1954*, 56 AM. POL. SCI. REV. 936 (1962). "Bipartisan lockup" is the division of seats on an elected body among two political parties in a way resistant to changes in voter preferences. On the lockup phenomenon in general, see Richard H. Pildes & Samuel Issacharoff, *Politics as Markets: Partisan Lockups of the Democratic Process*, 50 STAN. L. REV. 643 (1998).