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Jury Selection in the Weeds: Whither the Democratic Shore?

Jeffrey Abramson

University of Texas at Austin

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JURY SELECTION IN THE WEEDS: WHITHER THE DEMOCRATIC SHORE?

Jeffrey Abramson*

ABSTRACT

This Article reports on four federal jury challenges in which the trial judge or defendants retained the author to provide research on jury selection plans. The research shows a persistent and substantial loss of representation for African Americans and Hispanics on federal juries, even though no intentional discrimination took place. Problems with undeliverable jury summonses, as well as failure to respond to summonses, were the main causes of departures from the ideal of cross-sectional jury selection. However, a cramped understanding of what it takes for a defendant to prove that minority jurors were systematically excluded, as required by Duren v. Missouri, kept three of the four judges in our challenges from responding to the problems. This Article argues for a legal change in the Duren test so as to enable federal courts to construct representative jury wheels.

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* Professor of Law and Fellow of the Frank C. Erwin, Jr. Centennial Chair in Government, University of Texas at Austin. The author wishes to thank Kyle Chen, Haley Farrell, Emily Baxter, B. Graves Lee, Ross MacPherson, and students in my jury seminar at the University of Texas School of Law. Special thanks to Mary R. Rose, my frequent collaborator on jury challenges.

INTRODUCTION

Like Narcissus gazing at his own reflection,¹ members of a local community draw comfort from seeing people like themselves in the jury pool. However, like Sisyphus,² judges' best efforts to empanel representative juries seem bound to fail.³ Practical difficulties abound: Some jurisdictions exclude residents who are not registered to vote;⁴ people move and do not receive their jury summons;⁵ prospective candidates frequently either ignore the summons when they do receive them⁶ or fail to appear on their assigned date;⁷ fines or other threats of punishment are too infrequent to have an effect;⁸ hardship excuses must be granted;⁹ lack of English proficiency disqualifies some potential jurors;¹⁰ the pay

1. ROBERT GRAVES, *THE GREEK MYTHS* 275 (2012).

2. *Id.* at 201.

3. See *United States v. Bates*, No. 05-81027, 2009 U.S. Dist. LEXIS 117073, at *45 (E.D. Mich. Dec. 15, 2009) (“[F]ederal districts have tackled the . . . dilemma [of underrepresentation], with minimal success.”).

4. Three of the four federal jurisdictions studied in this Article (the Southern District of California, the Middle District of Florida, and the Northern District of Illinois) restricted jury duty to registered voters when we brought the jury challenges, discussed *infra* Parts III–VI. Currently, the Northern District of Illinois also draws juror names from the driver’s license list, the records of state-issued photo identification cards, and the list of unemployment applicants and recipients. See *infra* Part V. Overall, two-thirds of federal courts take juror names only from the list of registered voters. Thirty-nine districts supplement the voter registration list with the driver’s license list, the list of state-issued identification card holders, or some other source list. See Primary Source Lists Employed in Federal Courts (as of March 20, 2018) (tables compiled by the Federal Defender’s Office, M.D. Fla., Orl. Div.) (on file with the *University of Michigan Journal of Law Reform*). For a fifty-state survey of juror source lists, see Alexander E. Preller, *Jury Duty is a Poll Tax: The Case for Severing the Link Between Voter Registration and Jury Service*, 46 *COLUM. J.L. & SOC. PROBS.* 1 app. (2012).

5. To give one example here from our jury challenge in the Middle District of Florida’s Orlando Division, see *infra* notes 165–69 and accompanying text, the jury clerk mailed out 51,306 qualification questionnaires in 2009. Five thousand nine hundred ninety-six (or 11.7%) were returned as undeliverable.

6. See *infra* Part VIII for an extended discussion of non-response to jury questionnaires or summonses.

7. See HON. GREGORY E. MIZE ET AL., *THE STATE-OF-THE-STATES SURVEY OF JURY IMPROVEMENT EFFORTS: A COMPENDIUM REPORT 24* (2007) (citing to many courts that report failure to appear (FTA) rates of 15% or higher).

8. *Id.* at 25; see also, Telephone Interview with Thomas G. Bruton, Clerk of Court for the Northern Dist. of Ill. (Mar. 30, 2018) (sharing his impression that FTA remains a major problem in the district).

9. *Thiel v. Southern Pacific Co.*, 328 U.S. 217, 224 (1946) (“[A] federal judge would be justified in excusing a daily wage earner for whom jury service would entail an undue financial hardship.”); see also *Reynolds v. McDonald*, No. SACV 14-1972-JAK (JEM), 2017 U.S. Dist. LEXIS 142349, at *52 (C.D. Cal. June 1, 2017) (citing with approval to a line of cases approving “hardship policy of excusing potential jurors who had to travel more than an hour and a half by public transportation” or for whom serving on a long trial would be a financial hardship).

10. Jasmine B. Gonzales Rose, *Language Disenfranchisement on Juries: A Call for Constitutional Remediation*, 65 *HASTINGS L.J.* 811, 814 (2014) (indicating that some thirteen million citizens, mostly Hispanic, lose their right to serve on juries due to language restrictions). *But*

is lousy;¹¹ people's work and child care schedules need to be accommodated;¹² ex-felons are typically disqualified;¹³ non-citizen lawful residents are excluded;¹⁴ challenges for cause must be granted; and peremptory challenges are strategically deployed to eliminate otherwise qualified jurors.¹⁵

These factors, singly and in combination, create juries that are not reflective of the community. Low-income and minority residents move more often,¹⁶ making it less likely that they receive their jury summons. Even if they do receive their summons, less wealthy individuals are less likely to respond.¹⁷ For instance, "African[]Americans from economically poor zip codes had a substantially lower response rate (60%) to [a jury summons] than whites from relatively wealthy zip codes (92%)."¹⁸ Moreover, poor and

c.f. N.M. CONST. art. VII, § 3 (stating that the right to serve on a jury cannot be restricted based on language ability).

11. Federal jury service currently pays \$40.00 per day, 28 U.S.C. § 1871 (2012), and may be increased to \$50.00 after ten days. *Jury Pay*, U.S. COURTS, <http://www.uscourts.gov/services-forms/jury-service/juror-pay> (last visited Aug. 28, 2018). The average state pay is about \$22.00 per day, increasing to \$32.00 per day for longer trials. MIZE ET AL., *supra* note 7, at 23. Only New Mexico, fully, and Oregon partly, mandate a minimum wage for jurors. See Evan R. Seamone, *A Refreshing Jury Cola: Fulfilling the Duty to Compensate Jurors Adequately*, 5 N.Y.U. J. LEGIS. & PUB. POL'Y 289, 299, 352 (2002). For a state by state breakdown, see *Jury Management*, NAT'L CTR. FOR STATE CTS., <https://www.ncsc.org/topics/jury/jury-management/state-links.aspx?cat=Juror%20Pay> (last visited Aug. 28, 2018).

12. *United States v. Bates*, No. 05-81027, 2009 U.S. Dist. LEXIS 117073, at *34 (E.D. Mich. Dec. 15, 2009) (approving "a policy of excusing individuals with transportation or child-care issues, or who could not take time from work," and citing to *Duren v. Missouri*, 439 U.S. 357, 370 (1979)).

13. Brian C. Kalt, *Exclusion of Felons from Jury Service*, 53 AM. U. L. REV. 65, 67 (2003); see also *State v. Christian*, No. 61114-3-I, 2009 Wash. App. LEXIS 1709, at *9 (Wash. Ct. App. 2009) ("[T]he exclusion of felons and accused felons from jury service has been upheld as constitutional.").

14. Arguably, no constitutional provision prohibits states or the federal government from making lawfully resident non-citizens eligible to serve on juries. However, citizenship is a qualification by statute in every state and for the federal judiciary. See, e.g., 28 U.S.C. § 1865(b)(1) (2012). In the 2013–2014 legislative session, the California Assembly passed Assembly Bill AB-1401 making non-citizens eligible for jury duty. However, Governor Jerry Brown vetoed the bill. Eyder Peralta, *Calif. Gov. Jerry Brown Vetoes Bill Giving Non Citizens Jury Duty*, NPR (Oct. 7, 2013, 7:49 PM), <https://www.npr.org/sections/thetwo-way/2013/10/07/230242924/calif-gov-brown-vetoes-bill-giving-non-citizens-jury-duty>.

15. See JEFFREY ABRAMSON, WE, THE JURY: THE JURY SYSTEM AND THE IDEAL OF DEMOCRACY 131–39 (2000).

16. Paula Hannaford-Agor, *Systematic Negligence in Jury Operations: Why the Definition of Systematic Exclusion in Fair Cross Section Claims Must Be Expanded*, 59 DRAKE L. REV. 761, 773 (2011) ("Local migration rates are highly correlated with socioeconomic status, which in turn is correlated with minority status. Individuals with lower socioeconomic statuses tend to change their place of residence more frequently . . .").

17. According to a Dallas County survey of persons who failed to appear for jury duty when summoned, 51.2% of the Hispanic respondents, 45.1% of the African-American respondents, but only 15.2% of white respondents had an annual household income of less than \$35,000. Ted M. Eades, *Revisiting the Jury System in Texas: A Study of the Jury Pool in Dallas County*, 54 SMU L. REV. 1813, 1816 n.18 (2001).

18. *United States v. Murphy*, No. 94 CR 794, 1996 U.S. Dist. LEXIS 8488, at *3 (N.D. Ill. June 17, 1996).

minority residents are less likely to be registered voters,¹⁹ citizens,²⁰ or proficient in English.²¹ The practice of jury selection rarely reaches the ideal of randomly recruiting jurors from a representative cross-section of the population.

The difficulties are not merely practical. The ideal of “mirror” image representation²² is itself contested when applied to the jury. As one commentator notes, “we have two conflicting aims here. One is to get intelligent and informed jurors and the other is the desire for a community cross-section. They are not [in the opinion of this commentator] altogether reconcilable. . . .”²³

For instance, restricting jury duty to registered voters, as many federal districts do, will leave out those who have not registered to vote. Some regard this as a good thing, since it “automatically eliminates those individuals not interested enough in their government to vote or indeed not qualified to do so.”²⁴ These critics question why anyone would want to include persons who did not bother to exercise their voting rights in our jury pools.²⁵ They would prefer to exclude the civically indifferent among us.²⁶

The quizzical aspect of jury representation is that the ideal requires more than merely not discriminating in selecting jurors one

19. According to the United States Census Bureau, in the last presidential election in 2016, 70.3% of the 18+ citizen population registered to vote. However, if we break the total down according to groups, the registration rates were 73.9% for non-Hispanic whites; 69.4% for African Americans; and 57.3% of Hispanics. U.S. CENSUS, VOTING AND REGISTRATION IN THE ELECTION OF NOVEMBER, 2016 tbl.4b (2017). All of the above figures are percentages of the group’s 18+ citizen population.

20. See discussion *infra* Parts IV–VI for the effects of controlling for citizenship on Hispanic representation but not African-American representation.

21. See Gonzales Rose, *supra* note 10, at 814 (“Under a conservative estimate, 11.3 million of the 13 million non-English proficient U.S. citizens are people of color, and the vast majority are Latino.”).

22. HANNA PITKIN, THE CONCEPT OF REPRESENTATION 60–61 (1967). Mirror image representation is when deputies stand in for the community, since descriptively they look like the community. *Id.*

23. Rose Jade, *Voter Registration Status as a Jury Service Employment Test: Oregon’s Retracted Endorsement Following Buckley v. American Constitutional Law Foundation, Inc.*, 39 WILLAMETTE L. REV. 557, 699 n.418 (2003) (quoting Eastman Birkett, Esq., Chairman of the Committee on Federal Legislation of the Association of the Bar of the City of New York, testifying before Congress on the JSSA).

24. ABRAMSON, *supra* note 15, at 129 (quoting the chair of the committee of federal judges who drafted an earlier version of the JSSA).

25. See *United States v. Gometz*, 730 F.2d 475, 479 (7th Cir. 1984) (“Voter lists contain an important built-in screening element in that they eliminate those individuals who are either unqualified to vote or insufficiently interested in the world about them to do so . . .”) (quoting S. REP. No. 90-891, at 22 (1967)). However, a 2008 Census Bureau survey found that only one-third of eligible Hispanics who had not registered to vote gave as their reason lack of interest. Among the other two-thirds, the most common reasons for not registering were missing the deadline or not knowing where or how to register. THOM FILE & SARAH CRESLEY, CURRENT POPULATION REPORTS: VOTING AND REGISTRATION IN THE ELECTION OF NOVEMBER 2008 at 14 tbl.6 (2008).

26. *Gometz*, 730 F.2d at 479.

by one.²⁷ Intentional discrimination during jury selection rightfully makes democratic blood boil and spurs judges to act.²⁸ Reform in this area was a critical step toward creating a representative jury. But what if, as appears to be the case, the government does not intend to exclude anyone from jury duty by race or ethnicity,²⁹ and yet the results are still unrepresentative jury venires? Discrepancies between equality of opportunity and equality of result are familiar in American law.³⁰ In jury selection, that discrepancy is especially important.³¹ It is one thing to fulfill the negative right housed in the Fifth and Fourteenth Amendments' prohibition of discrimination. It is a further (and good) thing to fulfill the positive or affirmative right housed in the Sixth Amendment's requirement that only a representative jury system can deliver impartial justice.³²

27. See Nina W. Chernoff, *Wrong About the Right: How Courts Undermine the Fair Cross-Section Guarantee by Confusing It with Equal Protection*, 64 HASTINGS L.J. 141, 143–44 (2012) (“The fair cross-section standard reflects the Court’s recognition that—separate and independent from the harm of discrimination—absence of any distinctive group in the community ‘deprives the jury of a perspective on human events’ . . .”).

28. The very first case in which the Supreme Court interpreted the Equal Protection Clause of the Fourteenth Amendment involved *de jure* discrimination against the right of African Americans to serve on juries. See *Strauder v. West Virginia*, 100 U.S. 303, 305 (1880). In *Batson v. Kentucky*, the Court relied on principles of intentional discrimination, not ideals of representation, to prevent prosecutors from deliberately striking a qualified juror on account of race. 476 U.S. 79, 91 (1986).

29. See, e.g., *Gomez*, 730 F.2d at 481 (distinguishing cases of intentional discrimination against prospective African-American jurors, where judges have “not merely the power but the duty” to act, from tolerable cases where African Americans have been underrepresented without discrimination).

30. Compare *Griggs v. Duke Power Co.*, 401 U.S. 424 (1971) (holding that under Title VII of the Civil Rights Act of 1964, a complainant does not have to prove discriminatory intent where the results of an employment test unrelated to job performance have a disparate impact on minority employment) with *Washington v. Davis*, 426 U.S. 229 (1976) (holding that when job applicant suing under the Fourteenth Amendment, which requires only that employment test give minority applicants equality of opportunity and not equality of results).

31. As the trial judge correctly understood in our jury challenge brought in the Eastern Division of the District of Massachusetts, “[t]he distinction is important. An Equal Protection challenge concerns the *process* of selecting jurors, or the allegation that selection decisions were made with discriminatory intent. The Sixth Amendment, on the other hand, is concerned with *impact* . . .” *United States v. Green*, 389 F. Supp. 2d 29, 51 (D. Mass. 2005) (emphasis in original), *overruled on other grounds by In re United States*, 426 F.3d 1, 16 (1st Cir. 2005). Sometimes there is even a tension between the ideals, as when a court relied on equal protection principles to prohibit race conscious methods of achieving cross-sectional representation. See, e.g., *United States v. Ovalle*, 136 F.3d 1092, 1095–96 (6th Cir. 1998) (holding that courts cannot correct for underrepresentation of African Americans in the jury pool by removing the names of qualified white jurors).

32. See *People v. Morales*, 770 P.2d 244, 276 (Cal. 1989) (Broussard, J., dissenting) (“The Fourteenth Amendment protects against intentional discrimination in the selection of venires, but the Sixth Amendment protects against unintentional deviations from the constitutional standard.”); see also *Jade*, *supra* note 23, at 665 (quoting *United States v. Armsbury*, 408 F. Supp. 1130, 1139–40 (D. Or. 1976) (“A defendant is not required by the Constitution to show bad faith discrimination in voter registration or jury selection in order to prevail The very philosophy and purpose of the Sixth Amendment requires . . . focus on the issue of a fair cross section and not on the issue of discrimination.”)).

The structure of the Jury Selection and Service Act (JSSA) reflects congressional awareness of the difference between preventing discrimination, on one hand, and ensuring representative juries, on the other. In one section, Congress outlawed discrimination.³³ In another, it required grand and petit juries to be “selected at random from a fair cross section of the community in the district or division wherein the court convenes.”³⁴ In a third, it approved drawing juror names from the voter registration list, on the assumption that every citizen of voting age had an equal opportunity to register.³⁵ And in a fourth section, Congress qualified the use of the list—mandating that districts supplement the voter registration list when it fails to approximate a fair cross-section of the community.³⁶

Despite clear language in the JSSA mandating supplementation of the voter registration list when necessary to achieve fair representation for all eligible citizens, federal judges are loathe to fault exclusive reliance on the voter registration list as a source of juror names.³⁷ Courts tolerate *approximations* to the cross-sectional ideal to an extent that they would never tolerate falling short of the anti-discrimination ideal.³⁸ Reported decisions are full of instances where the trial judge accepted the accuracy of data showing underrepresentation of minorities and yet found the loss of fair rep-

33. 28 U.S.C. § 1862 (2012) (“No citizen shall be excluded from service as a grand or petit juror in the district courts of the United States . . . on account of race, color, religion, sex, national origin, or economic status.”).

34. 28 U.S.C. § 1861 (2012).

35. 28 U.S.C. § 1863(b)(2) (2012).

36. *Id.* (“The plan shall prescribe some other source or sources of names in addition to voter lists where necessary to foster the policy and protect the rights secured by . . . this title.”). According to the House report, the JSSA mandated that “any substantial percentage deviations must be corrected by the use of supplemental sources.” H.R. REP. NO. 95-1076, at 3 (1978), *reprinted in* 1968 U.S.C.C.A.N. 1792, 1794, 1968 WL 4922

37. *See* United States v. Oldham, No. 12-20287, 2014 U.S. Dist. LEXIS 57093, at *11 (E.D. Mich. Apr. 24, 2014) (“[T]he circuit courts are in complete agreement that neither the [JSSA] nor the Constitution require that a supplemental source of names be added to voter lists simply because an identifiable group votes in a proportion lower than the rest of the population.”).

38. United States v. Orange, 447 F.3d 792, 798 (10th Cir. 2006) (“In order to warrant judicial intervention, the disparities must be ‘gross’ or ‘marked.’”). As described in Part IV, we constantly kept bumping up against the so-called “ten percent rule,” where courts gave safe harbor to any jury plan that fell short of fairly representing a given group by 10% or less. In rejecting our challenge in the Southern District of California, the trial judge remarked that “the fact that representation of minority groups can be improved does not mean that the current selection procedures are in violation of the Constitution or the JSSA.” United States v. Hernandez-Estrada, No. 10cr0558 BTM, 2011 U.S. Dist. LEXIS 32157, at *9 (S.D. Cal. Mar. 25, 2011), *aff’d*, 704 F.3d 1015 (9th Cir. 2012), *aff’d en banc*, 749 F.3d 1154 (9th Cir. 2014); *see also* United States v. Lewis, 472 F.2d 252, 255 (3d Cir. 1973) (holding that even if supplementing the voter registration list with some other source lists would lead to a fairer representation of the community, the Constitution requires only a “fair” cross section).

resentation to be legally insignificant.³⁹ Far fewer are cases where the cross-sectional principle receives rigorous judicial enforcement. Although several federal district judges have been concerned enough about the underrepresentation of minorities to suggest amending their jury plans,⁴⁰ only a handful of districts have actually done so.⁴¹

In the groundbreaking 1975 case, *Taylor v. Louisiana*, the Supreme Court applied the cross-sectional requirement to state juries as a matter of constitutional law for the first time.⁴² The Court controversially reasoned that only a representative pool in a diverse society could truly be said to be impartial.⁴³ But even as it announced this sweeping new interpretation of the Sixth Amendment's guarantee of a trial before an impartial jury, the Court began to cabin its interpretation in ways that still roil the waters. *Taylor* insisted that jury selection must start from a representative list, but it just as strongly insisted that defendants had no right to any level of representation in their particular juries.⁴⁴

39. Sanjay K. Chhablani, *Re-Framing the 'Fair Cross-Section' Requirement*, 13 U. PA. J. CONST. L. 931, 948 (2011) (“[D]efendants have had little success in federal courts raising Sixth Amendment claims . . .”).

40. See, e.g., *United States v. Bates*, No. 05-81027, 2009 U.S. Dist. LEXIS 117073, at *44–45 (E.D. Mich. Dec. 15, 2009) (“The Court could end its analysis here simply by reaffirming the constitutionality of the . . . Jury Selection Plan. However, to do so would be an admission of incapability, or worse, unwillingness to, address factors that contribute to the underrepresentation of African Americans, . . . even though those factors . . . do not rise to the level of a constitutional violation.”). For cases in a similar vein, see Chernoff, *supra* note 27, at 146 n.22.

41. Even though defendants lost their jury challenges in the Eastern Division of the District of Massachusetts and the Northern District of Illinois, see discussion *infra* Parts III and V, these two districts subsequently chose to amend their jury plans as a matter of policy. UNITED STATES DIST. COURT FOR THE DIST. OF MASS., PLAN FOR RANDOM SELECTION OF JURORS § 8 (Nov. 1, 2015) [hereinafter DISTRICT OF MASSACHUSETTS PLAN], <http://www.mad.uscourts.gov/resources/pdf/RevisedJuryPlan.pdf>; UNITED STATES DIST. COURT FOR THE N. DIST. OF ILL., PLAN FOR RANDOM SELECTION OF JURORS (Jan. 26, 2017) [hereinafter NORTHERN DISTRICT OF ILLINOIS PLAN], http://www.ilnd.uscourts.gov/_assets/_documents/_forms/_press/ILNDJuryPlan.pdf. The District of Kansas has also amended its jury plan in ways similar to the Northern District of Illinois reforms. See D. KAN. R. PRACTICE AND P. 38.1(g)(2) (2016), http://www.ksd.uscourts.gov/wp-content/uploads/local_rules/local_rules.pdf.

42. See *Taylor v. Louisiana*, 419 U.S. 522, 528 (1975).

43. See *id.* at 530–31; see also *Peters v. Kiff*, 407 U.S. 493, 503–04 (1972) (Marshall, J.) (discussing risk of actual bias as well as appearance of bias in unrepresentative juries). Social science research also supports the conclusion that racially mixed juries adjudicate cases against non-white defendants and victims differently and more accurately than do all-white tribunals. See Samuel R. Sommers & Phoebe C. Ellsworth, *How Much Do We Really Know About Race and Juries? A Review of Social Science Theory and Research*, 78 CHI.-KENT L. REV. 997, 1028 (2003); see also Tanya E. Coke, *Lady Justice May Be Blind, But Is She a Soul Sister?*, 69 N.Y.U. L. REV. 327, 357 (1994) (“[I]mpartiality is not embodied in a single ‘ideal’ juror but achieved through the cross-pollination of a range of views and experiences.”).

44. *Taylor*, 419 U.S. at 538 (“[W]e impose no requirement that petit juries actually chosen must mirror the community and reflect the various distinctive groups in the population. Defendants are not entitled to a jury of any particular composition . . .”).

These two principles of law are in tension. The Court lauded the importance of representation to deliberation and dialogue. And yet the only place where deliberation actually occurs (the petit jury) is precisely the place where the ideal of representation has no black letter law application. This limit on the reach of the cross-sectional principle reveals a hedged bet on the ideal. We preach the importance of representation without practicing it.⁴⁵ Mostly, courts rehearse the practical difficulties that make the cross-sectional standard hard to achieve⁴⁶ and note that twelve-person juries do not have enough seats to accommodate representatives from all competing community groups.⁴⁷

Beyond the practical difficulties, there is discomfort with the norm.⁴⁸ The closer courts get to putting real persons on an actual jury, the more they sharply separate the overriding ideal of impartiality from the ideal of community representation. Instead of reforming jury selection to practice what we preach about the importance of representation, we repeat the same tired excuses for why we cannot do better.

I. OVERVIEW OF STUDY

In this Article, I draw on my work as a court-appointed or defense-retained jury selection expert in four different federal cases.⁴⁹

45. See Mary R. Rose et al., *Jury Pool Underrepresentation in the Modern Era: Evidence from Federal Courts*, 15 J. EMP. L. STUD. 1, 13 (2018) (noting that minority “underrepresentation is ubiquitous”).

46. *United States v. Cecil*, 836 F.2d 1431, 1455 (4th Cir. 1988) (noting problems of delay and administrative burdens in overly enforcing the cross-sectional requirement).

47. Kenneth Conboy, *The Race Factor and Trial by Jury*, 20 FORDHAM URB. L.J. 551, 555 (1993) (“[A]ny attempt to even facially approximate the racial (and gender, national origin and sexual preference) composition of a community in its jury boxes must ultimately fail in a society as diverse and mobile as ours.”).

48. See, e.g., Andrew D. Leipold, *Constitutionalizing Jury Selection in Criminal Cases: A Critical Evaluation*, 86 GEO. L.J. 945, 964 (1998) (“Although the cross-section doctrine is premised on the notion that different races and genders often view the world differently, *Batson* has declared these differences *legally* irrelevant.”); see also Richard M. Re, *Re-Justifying the Fair Cross Section Requirement: Equal Representation and Enfranchisement in the American Criminal Jury*, 116 YALE L.J. 1568, 1602 (2007) (suggesting that Justice Kennedy has “tacitly endorsed [a] revisionist interpretation” that understands fair cross-section cases to be based on equal protection principles).

49. The four jurisdictions were the Eastern Division of the District of Massachusetts (court appointed, pursuant to FED. R. EVID. 706, *United States v. Green*, 389 F. Supp. 2d 29, 39 (D. Mass. 2005), *mandamus granted*, *In re United States*, 426 F.3d 1 (1st Cir. 2005)); the Southern District of California (defense expert, *United States v. Garcia-Arellano*, Case No. 08cr-2876 BTM (S.D. Cal. June 9, 2009); defense expert, *United States v. Hernandez-Estrada*, No. 10cr0558 BTM, 2011 U.S. Dist. LEXIS 32157 (S.D. Cal. Mar. 25, 2011), *aff'd.*, 704 F.3d 1015 (9th Cir. 2012), *aff'd. en banc*, 749 F. 3d 1154 (9th Cir. 2014)); the Northern District of Illinois (defense expert in *United States v. Ivy*, 2011 U.S. Dist. LEXIS 9347 (N.D. Ill. Feb. 1, 2011) (transcript of hearing on file with the *University of Michigan Journal of Law*

Defendants in each case challenged their jury pool as depriving them of their constitutional and statutory rights to select a jury from a fair cross-section of the community.⁵⁰ By studying the results of these challenges, I hope to shed light on some of the overarching issues of representation noted in the previous section.

Typically, litigants and researchers train their sights on the initial and final stages of jury selection, studying the representativeness of the source lists for filling the Master Jury Wheel⁵¹ and the extent to which peremptory challenges drain diversity from juries at the end.⁵² However, in each of the four challenges studied in this Article, the key obstacles to empaneling representative juries arose during the overlooked and understudied⁵³ middle stages of jury selection.⁵⁴

These middle steps are the stages where courts mail out jury summonses or qualification questionnaires.⁵⁵ Only a subset of those mailings are delivered to the correct addresses.⁵⁶ That limited subset shrinks further when there is no response from those who, presumably, did receive the summons or questionnaire.⁵⁷

Reform)); and the Middle District of Florida, Orlando Division (United States v. Pritt, 2010 U.S. Dist. LEXIS 63470 (M.D. Fla. June 8, 2010), *aff'd.*, 458 Fed. App'x 795 (11th Cir. 2012).

50. For the constitutional requirement, see *Taylor v. Louisiana*, 419 U.S. 522, 527–28 (1975). For the statutory requirement, see 28 U.S.C. § 1863 (2012).

51. See, e.g., *Pritt*, 2010 U.S. Dist. LEXIS 63470, at *9 (“[The defendant’s] primary argument is that use of the voter registration list alone . . . underrepresents Blacks and Hispanics . . .”).

52. See J. Clark Kelso, *Final Report of the Blue Ribbon Commission on Jury System Improvement*, 47 HASTINGS L.J. 1433, 1474 (1996) (“The use[s] of peremptory challenges to sculpt a jury to be predisposed to one side or the other . . . are serious threats to the jury system.”); see also David C. Baldus et al., *Use of Peremptory Challenges in Capital Murder Trials*, 3 U. PA. J. CONST. L. 3 (2001).

53. Kelso, *supra* note 52, at 1453 (“[T]he summons stage is . . . a component that is desperately in need of attention.”).

54. In 2011, a co-author and I published some lessons for empirical legal studies drawn from these challenges. See Mary R. Rose & Jeffrey B. Abramson, *Data, Race, and the Courts: Some Lessons on Empiricism from Jury Representation Cases*, 2011 MICH. ST. L. REV. 911 (2011). That report did not include results from the Northern District of Illinois, and this Article focuses on legal reforms that the jury challenges in Illinois and Massachusetts helped to bring about.

55. Federal courts have the option of using a two-step or one-step jury selection process. Jury Selection and Service Act (JSSA), 28 U.S.C. § 1878 (2012). In the two-step process, the court first mails out a qualification questionnaire, to randomly selected names on its master jury wheel, to determine eligibility to serve. See, e.g., *Jury Service*, U.S. DISTRICT CT., NORTHERN DISTRICT OF TEX., <http://www.txnd.uscourts.gov/jury-service> (last visited Aug. 28, 2018). From the pool of qualified jurors, the court then summons people as needed. *Id.* The one-step process summons and qualifies prospective jurors simultaneously. See MIZE ET AL., *supra* note 7, at 15–16. Half of the states leave the choice between procedures to the discretion of local courts. *Id.* All four of the federal jurisdictions studied in this Article used the two-step process, which is the default procedure recommended in federal law. 28 U.S.C. § 1878 (2012).

56. See discussion *infra* Part VIII.

57. *Id.* In many multi-unit buildings without dedicated mail slots, the United States Postal Service (USPS) has discretion to leave mail at the door or other accessible areas. See

In theory, jury selection is a draft.⁵⁸ In practice, a large percentage of citizens opt out of the jury draft without consequence.⁵⁹ By the time failed mailings,⁶⁰ failure to respond to a questionnaire,⁶¹ and failure to appear when summoned⁶² take their toll on jury selection, the remaining pool of available jurors is smaller and far less representative of key groups in the community than the ideal of cross-sectional selection demands.⁶³

This Article uses the term “Available Jury Wheel” (AJW) to draw attention to these middle steps and away from the obscuring focus on the “Master Jury Wheel” (MJW). It does not matter if members of a cognizable group are fairly represented on the MJW but disappear from the AJW and “Qualified Jury Wheel” (QJW)—the only wheels or pools from which actual jury venires are drawn.⁶⁴

In each of the four federal districts studied here, jury selection moved through the following steps.⁶⁵ First, the district specified an initial source list or lists from which it drew names of potential jurors. Three of the four courts studied (California, Illinois, and Florida) relied exclusively on the voter registration list as a source of jurors.⁶⁶ Second, each district created an MJW by randomly drawing enough names from the source list to meet the anticipated need for jurors. Third, jury qualification questionnaires went out through the mail to the names selected at random. Fourth, the post office returned some number of questionnaires as undeliverable. Fifth, persons responded or did not respond to the questionnaire. Sixth, the jury clerk created an AJW from those who responded. Seventh, the jury clerk created a QJW from the AJW,

USPS, POSTAL OPERATIONS MANUAL § 631 (April 5, 2012), https://about.usps.com/postal-bulletin/2012/pb22334/html/updt_001.htm.

58. Andrew M. Pauwels, *Mandatory National Service: Creating Generations of Civic Minded Citizens*, 88 NOTRE DAME L. REV. 2597, 2605 (2013). Jury duty is a kind of lottery. In state courts, only 15% of American adults receive a summons each year, and less than 5% serve. Numbers are even smaller in federal courts. See John Gramlich, *Jury Duty Is Rare, but Most Americans See it as Part of Good Citizenship*, PEW RESEARCH CTR. FACTTANK (Aug. 24, 2017), <http://www.pewresearch.org/fact-tank/2017/08/24/jury-duty-is-rare-but-most-americans-see-it-as-part-of-good-citizenship/>.

59. See discussion *infra* Part VIII.

60. *Id.*

61. *Id.*

62. *Id.*

63. See Kelso, *supra* note 52, at 1449 (“Low yields result in juries that are less representative of the community and cause the burdens of jury service to be concentrated among relatively few citizens.”).

64. For use of the term “available jury wheel,” see *United States v. Green*, 389 F. Supp. 2d 29, 40.

65. These steps are typical of the two-step process used in most federal courts. See Jury Selection and Service Act (JSSA), 28 U.S.C. § 1878 (2012).

66. For the unique source list used in the District of Massachusetts, see discussion *infra* Part III. See *supra* note 4 for data on use of the voter registration list as the only source of juror names in most federal courts. See also Preller, *supra* note 4, at app.

after eliminating those whose questionnaire responses indicated that they were statutorily disqualified.

II. FOUR JURY CHALLENGES—SUMMARY RESULTS AND IMPACT

Trial judges rejected the challenges in three of the four cases studied in this Article.⁶⁷ Only in Massachusetts did the trial judge, Judge Nancy J. Gertner, grant the defendant's motion and propose remedies to recruit a more representative venire for the pending capital murder trial.⁶⁸ However, even there, the United States Court of Appeals promptly granted the government's request for a writ of mandamus, effectively reversing Judge Gertner's order for remedy.⁶⁹

While the challenges had little impact on their respective cases, the District of Massachusetts and the Northern District of Illinois subsequently amended their jury plans to address the problems that we had located.⁷⁰ A trial judge in a third district, the Southern District of California, agreed with our data and recommended that the District consider amending its jury plan in the future.⁷¹ Moreover, although the Ninth Circuit Court of Appeals upheld the denial of the defendant's jury challenge in the Southern District of California, the full court agreed to change the legal test for measuring the unrepresentativeness of a jury pool.⁷² Only in the Middle District of Florida, Orlando Division, did we make no progress.

The following Parts review each challenge separately. Taken together, the four challenges show a pattern. Each federal court's MJW fell short of representing a cross-section of the population. However, the starting "representation deficit" on the MJW was relatively small when compared to the mounting loss of minority jurors on the AJW. These losses were due primarily to the disproportionate impact that undeliverable qualification questionnaires and non-response to jury forms, presumably delivered, had on the retention of minority jurors. The result was a dramatic loss of repre-

67. These were the challenges in the Southern District of California, the Northern District of Illinois, and the Middle District of Florida.

68. *United States v. Green*, 389 F. Supp. 29 (D. Mass. 2005). For the remedies, see discussion *infra* Part VII.

69. *In re United States*, 426 F.3d 1, 16 (1st Cir. 2005).

70. DISTRICT OF MASSACHUSETTS PLAN, *supra* note 41; NORTHERN DISTRICT OF ILLINOIS PLAN, *supra* note 41.

71. *United States v. Garcia-Arellano*, Case No. 08cr-2876 BTM, at *15 (S.D. Cal. June 9, 2009) ("Defendant raises valid points regarding the shortcomings of the Southern District's present plan that should be given serious consideration.")

72. I explain this change in the legal test for measuring jury underrepresentation in Part IV.

sentation on the AJW, much worse than the starting problems with the MJW. By contrast, the creation of a QJW from the AJW, while eliminating individuals, did not alter the proportional representation of cognizable groups.

III. EASTERN DIVISION OF THE DISTRICT OF MASSACHUSETTS

By state law, Massachusetts requires each of its cities and towns to conduct an annual census of its population.⁷³ Taking note of these lists, Congress specifically amended the JSSA in 1992 to permit Massachusetts to select juror names from these local lists.⁷⁴ The hope was that the counts of local populations were accurate enough to provide a basis for cross-sectional jury selection.⁷⁵

In *United States v. Green*, the defendant pointed out fundamental flaws in the local population counts.⁷⁶ Despite a state mandate, not every city and town conducted an annual census; many lacked funding to do so (the state mandate was unfunded).⁷⁷ This problem affected poorer cities more than wealthier ones, and larger cities more than smaller communities.⁷⁸ The result was that the undercounting of residents was at its worst in big cities with the highest concentration of African-American residents.⁷⁹

In my independent research on behalf of the court, I confirmed these problems with constructing an MJW on the basis of the city and town census lists.⁸⁰ However, I pointed out to the court that although problems existed with the MJW, they were dwarfed by the growing loss of representation on the AJW.⁸¹ Moreover, the problems with the AJW were not entirely attributable to the source list but also to problems with undeliverable mail⁸² and non-response from those who presumably received their questionnaires.⁸³ While

73. MASS. GEN. LAWS ch. 234A, § 10. (LexisNexis 2018).

74. Jury Selection and Service Act (JSSA), 28 U.S.C. § 1863(b)(2) (2012); *see also* *United States v. Green*, 389 F. Supp. 2d 29, 42 (D. Mass. 2005).

75. *See Green*, 389 F. Supp. 2d at 36.

76. *See id.*

77. *Id.* at 43 n.25 (citing MASS. GEN. LAWS. ch. 234A, § 10 (LexisNexis 2018) (dictating that towns shall bear the costs of the count)).

78. *Cf. id.* at 49.

79. *Id.*

80. *Id.* at 35 n.1 (“[This Court’s decision] reflects comments made by the Court’s expert, Professor Jeffrey Abramson, on September 1, 2005.”); *see also* Jeffrey Abramson, Report on Defendants’ Challenge to the Racial Composition of Jury Pools in the Eastern Division of the United States District Court for the District of Mass. 25–29 (2005) [hereinafter “Abramson Report”] (on file with court and with the *University of Michigan Journal of Law Reform*).

81. Abramson Report, *supra* note 80, at 36–39.

82. *Id.* at 38–39.

83. *Id.* at 42–46.

the Division's overall undeliverable rate was 12.4%,⁸⁴ ten zip codes in neighborhoods of Boston with high concentrations of African Americans exceeded 20%.⁸⁵ Whereas the average non-response rate was 12.2% in the Division,⁸⁶ the non-response rate in Boston, home to the vast majority of the Division's African-American population, was 23%.⁸⁷

It proved possible to pinpoint the disproportionate impact that undeliverable mail and non-responses had on maintaining minority representation. Eighty percent of the Eastern Division's African-American population (18+) lived in fourteen towns, out of a total of 190 locales.⁸⁸ Table 1 compares the difference in jury selection outcomes in those fourteen towns, with the outcomes in the twenty-one towns with the fewest African-American residents.⁸⁹

TABLE 1: COMPARISON OF JURY SUMMONSING IN TOWNS WITH LOW VS. HIGH NUMBER OF AFRICAN AMERICANS

	Twenty-One Towns with Low Numbers of African Americans	Fourteen Towns with High Numbers of African Americans
Population	10,000	10,000
Percent Mailed	103.5	85.3
Number on MJW	10,348	8,530
Percent Undeliverable	5.8	18.4
Percent Not Returned	7.6	16.9
Percent Missing Forms	13.4	35.3
Total Prospective Jurors on AJW	8,961	5,519
Percent comparison of retention in the "14" vs. the "21" set		61.6

As expected, problems with the source list meant that, for every 10,000 persons that should have been present on the initial source

84. *United States v. Green*, 389 F. Supp. 2d 29, 44 n.29 (D. Mass. 2005).

85. Abramson Report, *supra* note 80, at 40; *see also Green*, 389 F. Supp. 2d at 61 (citing high undeliverable rates to addresses in Suffolk County, whose population is mainly in Boston).

86. *Green*, 389 F. Supp. 2d at 61–62.

87. Abramson Report, *supra* note 80, at 42; *Green*, 389 F. Supp. 2d at 62.

88. Abramson Report, *supra* note 80, at 41–42; *Green*, 389 F. Supp. 2d at 49.

89. Abramson Report, *supra* note 80, at 31. This table is based on Defendant's Table 33, appended to Fourth Declaration of Andrew A. Beveridge, defendant's expert witness (on file in court and with author). *See also Green*, 389 F. Supp. 2d at 48 n.35.

list, only 8,530, or 85.3% were counted in the lists for the fourteen cities and towns where most of the District's African-American population lived. By contrast, the cities and towns with low numbers of African-American residents actually were overrepresented on the initial source list.⁹⁰

The situation got even worse. Whereas the post office returned as undeliverable 5.8% of questionnaires mailed to addresses in the cities and towns with low numbers of African-American residents, it returned 18.4% in the subset of fourteen cities and towns with high numbers of African-American residents.⁹¹ Whereas 7.6% of the questionnaires mailed to the low-percentage African-American cities and towns received no response, the percentage rose to 16.9% of questionnaires delivered in the fourteen cities and towns with high-percentage African-American populations.⁹² Combining undeliverables with non-responses, 13.4% of prospective jurors that should have been on the AJW disappeared in the cities and towns with low numbers of African Americans, compared to the disappearance of 35.3% of potential jurors in the fourteen cities and towns set.⁹³

The bottom line is that the total yield from mailing jury questionnaires to residents in the fourteen cities and towns with higher numbers of African American residents accounted for only 61.6% of the yield in the comparable set. For every 10,000 people in the fourteen-town set, only 5,519 remained available on the AJW. For every 10,000 people in the cities and towns with few African-American residents, 8,961 made it onto the AJW.⁹⁴

However, as compelling as these numbers were as evidence of African-American underrepresentation, reigning precedent left Judge Gertner, the trial judge presiding over the *Green* case, in a legal vacuum. Under those precedents, the defendants bore the burden of showing not only that African Americans were underrepresented but also that they were being systematically excluded by the government's jury plan.⁹⁵ To the extent that rotten source lists compiled by the government were the genesis of underrepresentation, this would meet the burden of showing systematic exclusion. But by shifting the blame from the source list to the problems of undeliverable mail and non-response, the court's own jury expert (this author) created a quandary. No court ever count-

90. See *supra* Table 1.

91. See *supra* Table 1.

92. See *supra* Table 1.

93. See *supra* Table 1.

94. See *supra* Table 1.

95. See *Duren v. Missouri*, 439 U.S. 357, 373 (1979).

ed problems of non-response or non-delivery as “defects” attributable to the government’s system for finding jurors, as opposed to practical problems likely to occur in any jury plan.⁹⁶ Although she would be overruled on other grounds,⁹⁷ Judge Gertner became one of the first to fault a jury plan for underrepresentation caused by problems with assembling a representative group of *actually available* prospective jurors.⁹⁸

Knowing that the Equal Protection Clause prohibited her from ordering a race-conscious remedy, the trial judge mandated that, for every questionnaire returned as undeliverable from a given zip code, a replacement questionnaire be sent to a new address of a resident in the same zip code.⁹⁹ The judge ordered the same remedy for non-response. Given that these problems were worse in hyper-segregated neighborhoods, the hope was to achieve a more representative AJW.

Among our jury challenges, this was our only victory. It proved short-lived. The U.S. Attorney sought a writ of mandamus prohibiting Judge Gertner from putting her remedies into effect, and the First Circuit Court of Appeals granted the writ, holding that a single judge in a multi-judge district lacks authority to change the existing jury plan on her own.¹⁰⁰

IV. SOUTHERN DISTRICT OF CALIFORNIA

The large county of San Diego and the smaller county of Imperial make up the Southern District of California. We worked with the Federal Defenders of San Diego (FD) in two jury challenges to the District’s jury wheels.¹⁰¹ Between 1999 and 2009, the District filled and emptied its MJW every two years. The court gave us access to data from all six of these MJWs.

96. See, e.g., *United States v. Bates*, No. 05-81027, 2009 U.S. Dist. LEXIS 117073, at *41 (E.D. Mich. Dec. 15, 2009) (finding that undeliverable mail and non-response “are factors external to, and not inherent in, jury selection plans.”).

97. *In re United States*, 426 F.3d 1, 6 (1st Cir. 2005). The appeals court ruled that a single judge in a multi-member District lacked the authority to effectively amend the District’s jury plan on her own, for the sake of one trial. *Id.*

98. Judge Gertner rested her decision on statutory, rather than constitutional, grounds and found that failure to supplement the flawed town lists with other, more accurate juror source lists constituted a “substantial failure to comply” with the JSSA, 28 U.S.C. § 1863(b)(2) (2012). *United States v. Green*, 389 F. Supp. 2d 29, 65–66 (D. Mass. 2005).

99. *Green*, F. Supp. 2d at 75–77.

100. *In re United States*, 426 F.3d at 7–8, 16.

101. *United States v. Hernandez-Estrada*, No. 10cr0558 BTM, 2011 U.S. Dist. LEXIS 32157 (S.D. Cal. Mar. 25, 2011), *aff’d.*, 704 F.3d 1015 (9th Cir. 2012), *aff’d. en banc*, 749 F.3d 1154 (9th Cir. 2014); *United States v. Garcia-Arellano*, Case. No. 08cr-2876 BTM (S.D. Cal. June 9, 2009).

During this decade, the District saw significant growth in its Hispanic population. According to the 2000 census, Hispanics were 28.9% of the District's total population, 24.8% of the 18+ population, and 17.8% of the 18+ citizen population (Table 2).¹⁰² In 2009, those percentages grew to 33.7%, 29.3%, and 22.5% respectively (Table 3).¹⁰³

TABLE 2: POPULATION OF THE SOUTHERN DISTRICT BASED ON 2000 CENSUS¹⁰⁴

	San Diego	Imperial County	Southern District	Percent of Total in S.D. Cal.
Total Population	2,813,833	142,361	2,956,194	—
Hispanic	750,965	102,817	853,782	28.9
African American	154,487	5,148	159,635	5.4
Total Population 18+	2,090,172	97,615	2,187,787	—
Hispanic	475,519	66,170	541,689	24.8
African American	107,228	4,495	111,723	5.1
Total Population of Citizens 18+	1,789,814	75,398	1,865,212	—
Hispanic	285,739	45,472	331,211	17.8
African American	104,139	4,461	108,600	5.8

102. *Id.* This table was submitted to the court as part of Declaration of Jeffrey B. Abramson and Mary R. Rose in Support of Defendant's Motion to Dismiss Indictment, tbl.1a (on file with the *University of Michigan Journal of Law Reform*).

103. *See* Declaration, *supra* note 102, tbl.1f.

104. Since the 2000 Census does not directly report citizenship status, we estimated the percentage of the 18+ population that were citizens in the Southern District from estimates taken from proportions listed in Summary File 4 available on www.census.gov (Table PCT 44).

TABLE 3: 2009 POPULATION ESTIMATES FOR THE SOUTHERN DISTRICT

	San Diego	Imperial County	Southern District	Percent of Total in S.D. Cal.
Total population	3,053,793	166,874	3,220,667	
Hispanic	957,246	129,015	1,086,261	33.7
African American	146,550	5,361	151,911	4.7
Total Population 18 +	2,308,710	115,820	2,424,530	
Hispanic	625,277	84,911	710,188	29.3
African American	108,103	4,725	112,828	4.7
Total Population of Citizens 18+	1,976,256	87,977	2,064,233	
Hispanic	407,243	57,621	464,863	22.5
African American	103,260	4,720	107,981	5.2

Given these changing demographics, we alerted the court that the 2000 census was outdated, and we provided a series of updates of the District's jury-eligible population, as it existed at the time that each of the MJWs was filled.¹⁰⁵

Unlike Massachusetts but like most federal districts, the Southern District relied exclusively on voter registration records as a juror source list. This created its own immediate problem, since California at the time had a greater portion of non-Hispanic whites registered to vote (72.9%) than African Americans (67.2%) or Hispanics (62.8%).¹⁰⁶ In such a situation, the JSSA would seem to require a district to supplement the voter registration with some other source of juror names in order to assure fair representation.¹⁰⁷ Unless such supplementation occurs, the ideal of representative juries is more honored in the breach than in the observance.

However, in each of our two challenges in the Southern District of California, Judge Barry T. Moskowitz rejected the defense motion for supplementation. As a matter of policy, Judge Moskowitz expressed sympathy for the defense position, going so far as to say,

105. We relied on updated figures that the Census Bureau provides through its annual American Community Survey. We provided this data for each of the jury wheels studied from 1999 through 2009.

106. We took these figures from 2008, the year of the last presidential election before the District filled its 2009 jury wheel. See THOM FILE & SARAH CRESLEY, U.S. CENSUS BUREAU, VOTING AND REGISTRATION IN THE NOVEMBER ELECTION OF 2008 tbl.4b (2012), <https://www.census.gov/data/tables/2008/demo/voting-and-registration/p20-562-rv.html>.

107. See 28 U.S.C. § 1863(b)(2) (2012).

“that supplementation of the Southern District’s source list with [driver’s license] lists would result in greater inclusiveness, and potentially, better representation of minority groups that do not register to vote in the same proportion as non-Hispanic whites.”¹⁰⁸ However, as a matter of law, he felt that *Duren v. Missouri*¹⁰⁹ tied his hands. *Duren* famously created a three-pronged test for violations of the Sixth Amendment or the JSSA.¹¹⁰ To find a violation, a judge must find that (1) a cognizable group is underrepresented in the jury venires; (2) that the amount of underrepresentation is not fair or reasonable; and (3) the cause of the underrepresentation is some defect in the jury plan that systematically excludes members of the cognizable group.

Applying *Duren*, the judge found that African Americans and Hispanics were clearly cognizable groups.¹¹¹ However, citing to existing precedents in the Ninth Circuit and elsewhere, he found that these groups were “fairly” represented on the MJW and that any disparity between their percentage of the population and the MJW was not “substantial” enough to require supplementation under the terms of the JSSA or Sixth Amendment.¹¹²

When does underrepresentation become significant enough to trigger a violation of *Duren*’s second prong? Ultimately, this is a legal rather than a mathematical question.¹¹³ Unfortunately, at the time, the Southern District of California—as in most federal jurisdictions—minimized the amount of lost representation by measuring the loss using the “absolute disparity” test.¹¹⁴

108. United States v. Garcia-Arellano, Case. No. 08cr-2876 BTM, at *16 (S.D. Cal. June 9, 2009).

109. 439 U.S. 357 (1979).

110. *Id.* at 364.

111. United States v. Garcia-Arellano, Case. No. 08cr-2876 BTM, at *3 (S.D. Cal. June 9, 2009).

112. United States v. Hernandez-Estrada, No. 10cr0558 BTM, 2011 U.S. Dist. LEXIS 32157, at *8 (S.D. Cal. Mar. 25, 2011) (holding that under existing law, disparities not great enough “to support a conclusion of underrepresentation.”); *See also* United States v. Garcia-Arellano, Case. No. 08cr-2876 BTM, at *7 (S.D. Cal. June 9, 2009) (noting that the “Ninth Circuit has declined to find underrepresentation of a distinctive group in the jury pool” where the amount of underrepresentation was even greater than it is in the present case).

113. *See* Richard M. Re, *Jury Poker: A Statistical Analysis of the Fair Cross-Section Requirement*, 8 OHIO ST. J. CRIM. L. 533, 540 (2011).

114. United States v. Garcia-Arellano, Case. No. 08cr-2876 BTM, at *7 (S.D. Cal. June 9, 2009) (following binding Ninth Circuit precedent at the time that “absolute disparity” was the proper test, and citing to United States v. Rodriguez-Lara, 421 F.3d 932, 943 (9th Cir. 2005)); *see also* United States v. Davis, 854 F.3d 1276, 1295 (11th Cir. 2017); United States v. Orange, 447 F.3d 792, 798 (10th Cir. 2006); United States v. Royal, 174 F.3d 1, 10 (1st Cir. 1999) (“We accordingly employ the absolute disparity test”); United States v. Rioux, 97 F.3d 648, 655 (2d Cir. 1996) (“[T]he law in this Circuit strongly suggests the absolute disparity/absolute numbers approach is appropriate in this case.”); United States v. Bates, No. 05-81027, 2009 U.S. Dist. LEXIS 117073, at *25 (E.D. Mich. Dec. 15, 2009) (“[M]ost courts apply the ‘absolute disparity’ standard.”); Commonwealth v. Arriaga, 438 Mass. 556, 565 (2003) (“Consistent with the majority of jurisdictions, we apply the absolute disparity test to

Absolute disparity (AD) is an arithmetic approach: If a group makes up 10% of the jury-eligible population but only 5% of the jury wheels, then the disparity is 5%. In other words, AD uses subtraction to calculate the loss of fair representation (10%-5% = 5%).

The best measure of underrepresentation will be one that provides the most practical information about the harm that is done to a defendant's chances of drawing a representative jury. Absolute disparity does not provide that guidance. It does not take into account a group's size.¹¹⁵ As numerous commentators and courts have observed, it both overstates insignificant disparities of large groups and understates significant disparities of small groups.¹¹⁶ If one group is 75% of the population and 70% of the jury pool, and another group is 10% of the population and 5% of the jury pool, the absolute disparity for both groups comes out to be 5%. But clearly these instances of underrepresentation are quite different. The same absolute disparity will have a far greater impact on fair representation of the latter group than the former. In other words, absolute disparity records identical results in wholly different circumstances. The chances that a representative of a group will be empaneled on a jury decline by half in the 10% minus 5% example, whereas the chances of a representative from a group that is 75% of the population, but only 70% of the jury pool, decline by less than 7%.

Problems with the absolute disparity test are compounded by the traditional rule that the absolute disparity must exceed a 10% threshold for it to be constitutionally suspect.¹¹⁷ From a legal point of view, such a mathematically arbitrary threshold makes no sense. It would justify, or at least tolerate, the complete absence of minority groups from the jury pool in any county where the minority's

determine whether underrepresentation of a group is substantial."); *Commonwealth v. Prater*, 431 Mass. 86, 92 (2000) ("The majority of courts have looked to the absolute disparity test to determine whether underrepresentation of a group is substantial . . ."). For a further list of jurisdictions using the absolute disparity test, see R. Darcy & Brett M. Stingley, *Statistical Criticism of Jury Selection Methods in the Western District of Oklahoma*, 30 BUFF. PUB. INT. L.J. 5, 8 n.14 (2012).

115. *Hernandez-Estrada*, 749 F.3d at 1162.

116. *See, e.g.*, Brief for Social Scientists, Statisticians, and Law Professors Jeffrey Fagan et al. as Amici Curiae Supporting Respondent at 12–19, *Berghuis v. Smith*, 559 U.S. 314 (2010).

117. *See, e.g.*, *United States v. Murphy*, No. 94 CR 794, 1996 U.S. Dist. LEXIS 8488, at *9 (N.D. Ill. June 17, 1996) ("The '10% discrepancy' standard has been adopted and applied by the Seventh Circuit in numerous cases . . ."); *Blair v. Superior Court*, 119 Cal. App. 4th 532, 541 (2004) ("[O]ur Supreme Court consistently relies on the absolute disparity test and 'no case has found a significant disparity utilizing that test with a less [than] 10% absolute disparity.'" In *Garcia-Arellano*, the judge relied on Ninth Circuit precedents where the court had treated absolute disparities up to 7.7% as insubstantial. *United States v. Garcia-Arellano*, No. 08cr-2876 BTM, at *4 (S.D. Cal. June 9, 2009) (citing *United States v. Rodriguez-Lara*, 421 F.3d 932, 943 (9th Cir. 2005)).

percentage of the jury-eligible population was 10% or less to begin with.¹¹⁸ For instance, the entire African-American population in the Southern District of California is less than 10% of the total population.¹¹⁹

An alternative method, known as comparative disparity (CD), is better than absolute disparity as a measure of the significance of departures from fair representation.¹²⁰ While absolute disparity measures the difference between a group's percentage of the general population and its percentage of the jury wheel, comparative disparity calculates the decreased likelihood that members of such a group will be called for a given jury.¹²¹ To return to our previous example of a group falling from its 10% share of the population to a 5% share of the jury wheel, the absolute disparity test mistakenly uses subtraction to calculate the disparity as 5%. The comparative disparity test correctly takes a proportional approach to see that 50% of the group's members have disappeared from the jury pool [(10%-5%) / 10% = 50%].

Comparative disparity, therefore, assists a court in focusing on the legal question at hand: How have the odds of drawing a representative jury changed when the deck (the jury pool) is stacked against representing a particular group from the outset? However, only a minority of districts utilize comparative disparity. Among the jurisdictions that consider comparative data are the Third¹²², Fifth¹²³, Ninth¹²⁴, and Tenth¹²⁵ Circuits.

In our challenges in the Southern District of California, we presented the court with measures of both absolute and comparative disparities.¹²⁶ We stressed that the use of the voter registration list

118. See *Hernandez-Estrada*, 749 F.3d at 1162 (indicating that given small African-American population in the federal District of Montana, the absolute disparity test would excuse the complete absence of that population from the jury wheel).

119. See *supra* Table 3.

120. See *Hernandez-Estrada*, 749 F.3d at 1163 (citing *Hirst v. Gertzen*, 676 F.2d 1252, 1258 n.14 (9th Cir. 1982), for cases in which the comparative disparity test is "more informative.") Note, however, that the comparative disparity method tends to exaggerate loss of proportional representation when the aggrieved group is a small percentage of the community population. Thus, if a group is two members of a four-person community, then the loss of a single person will translate into a comparative disparity of 50%. See *Hernandez-Estrada*, 749 F.3d at 1163.

121. *United States v. Chanthadara*, 230 F.3d 1237, 1257 (10th Cir. 2000).

122. *Ramseur v. Beyer*, 983 F.2d 1215, 1231 (3d Cir. 1992) (en banc) (approving of the use of multiple tests).

123. *Mosley v. Dretke*, 370 F.3d 467, 479 n.5 (5th Cir. 2004) ("[I]f the distinctive group at issue makes up less than 10% of the population, comparative disparity may be used.").

124. *Hernandez-Estrada*, 749 F.3d at 1164-65.

125. *United States v. Orange*, 447 F.3d 792, 798 (10th Cir. 2006) ("[W]e have consistently relied upon two measurements: absolute and comparative disparity.").

126. In the Conclusion, I consider a third measure of disparity based on the binomial theorem that may be superior to both comparative and absolute disparity methods as a way of capturing a defendant's chances of drawing a representative jury. See *infra* Conclusion.

was not the only or even major source of the disparities, but that attrition mounted as the MJW morphed into the AJW and QJW. Table 4 summarizes the attrition.¹²⁷ When we combined undeliverable questionnaires with non-response to presumably delivered forms, we found that from 25.2% (in 2005) to 40.2% (in 2009) of potential jurors disappeared.

TABLE 4: RETURN STATUS OF JURY WHEELS

Wheels	Persons Sent Questionnaires	Responded	No Response (Including Undeliverables)	Qualified Wheel
2009	116,000	69,375 (59.81%)	46,625 (40.19%)	40,743 (35.12%)
2007	124,500	79,306 (63.70%)	45,194 (36.30%)	45,755 (36.75%)
2005	104,441	78,080 (74.76%)	26,361 (25.24%)	45,907 (43.95%)
2003	53,000	33,629 (63.45%)	19,371 (36.55%)	18,662 (35.21%)
2001	63,500	45,203 (71.19%)	18,297 (28.81%)	32,697 (51.49%)
1999	25,000	16,505 (66.02%)	8,495 (33.98%)	9,808 (39.23%)
Combined	486,441	322,098 (66.22%)	158,502 (32.58%)	193,572 (39.79%)

Crucially, the losses were disproportionate among African Americans and Hispanics, as compared to non-Hispanic whites. As Table 5 shows, in 2009 Hispanics were 22.5% of the 18+ citizen population but only 17.66% of the AJW.

Table 6 presents comparable African-American percentages on the AJW and QJW. The jury questionnaire sent to prospective federal jurors asks them to report both their race and their Hispanic ethnicity status.¹²⁸ Since the average response rate to the race ques-

Justice Breyer has expressed interest in this method. *See* Transcript of Oral Argument at 5, *Berghuis v. Smith*, 559 U.S. 314 (2010) (No. 08-1402) (“[T]he only way you could figure out . . . what’s what here is you use something called [the] binomial theorem”).

127. Table 4 is based on data submitted to court in Declaration of Jeffrey B. Abramson and Mary R. Rose, *supra* note 102.

128. The jury questionnaire contains one question asking prospective jurors to report their race and a second question asking whether they are Hispanic. *See* Juror Qualification Questionnaire (Sample), U.S. DIST. CT., at 10a, 10b, <https://www.prd.uscourts.gov/sites/default/files/documents/ajax/QualificationQuestionnaireWithInstructions.pdf> (last visited Aug. 29, 2018). Accompanying instructions tell them that “[f]ederal law requires you, as a prospective juror to indicate your race/ethnicity.” *Id.* Nevertheless, on average over all the jury wheels studied, only 60% of people who returned their questionnaires answered the Hispanic ethnicity question. *See* Declaration of Jeffrey B. Abramson and Mary R. Rose, *supra* note 102, at tbl.3. (on file with the *University of Michigan Journal of Law Reform*). The low rate of response, together with the fact that those who answered the question were a self-selected rather than random sample, made calculations of Hispanic percentages difficult. When we excluded unknowns and calculated the percentage of self-identified Hispanics from only those who answered the Hispanic question, the results spuriously overrepresented Hispanics

tion was much higher than the response rate to the Hispanic question (82% versus 60%),¹²⁹ we could present the court with more reliable data about African-American percentages, both in relation to the pool of all persons returning questionnaires and also in relation to the smaller pool of persons returning their questionnaires who answered the race question.

TABLE 5: MEASUREMENT OF DISPARITIES BETWEEN HISPANICS AS PERCENTAGE OF THE CITIZEN POPULATION (18+) AND HISPANICS AS PERCENTAGE OF JURY WHEELS, 1999–2009

Year	Percent 18+ Citizen Population	Available Wheel			Qualified Wheel		
		Percent of All Questionnaires	AD	CD	Percent of All Questionnaires	AD	CD
2009	22.5	17.66	4.84	21.51	16.26	6.24	27.73
2007	20.9	15.83	5.07	24.26	14.99	5.91	28.28
2005	19.7	13.68	6.02	30.56	13.41	6.29	31.93
2003	18.8	14.63	4.17	22.18	14.49	4.31	22.93
2001	17.8	8.27	9.53	53.54	5.76	12.04	67.64
1999	17.8	10.35	7.45	41.85	10.37	7.43	41.74

on the jury wheels. Therefore, we arrived at our calculations in Table 5 by counting the number of people who returned their questionnaires and identified as Hispanic, and then divided this number by the total number of returned questionnaires. In our jury challenge, the judge rejected the FD's argument that Section 1864(a) of the JSSA required the jury clerk to return for completion any questionnaire that omitted answering the Hispanic question. *See* United States v. Garcia-Arellano, Case. No. 08cr-2876 BTM, at *12–13 (S.D. Cal. June 9, 2009). For similar problems with missing data on Hispanic prospective jurors, see Rose et al., *supra* note 45, at 393–95.

129. *See* Declaration of Jeffrey B. Abramson and Mary R. Rose, United States v. Hernandez-Estrada, *supra* note 102, at 3, 15, tbl.3.

TABLE 6: AFRICAN AMERICANS ON JURY WHEELS, 1999-2009

Percent of Population (Year)	Percent African American:			
	Of All Who Returned Questionnaires	Of All Answering the Race Question	Of All on the Qualified Wheel	Of All on Qualified Wheel Whose Race Is Known
5.2 (2009)	2.71	3.35	3.09	3.49
5.3 (2007)	2.51	3.17	3.00	3.41
5.5 (2005)	2.63	3.26	2.96	3.32
5.6 (2003)	2.80	3.52	3.31	3.78
5.8 (2001)	3.10	3.56	3.58	3.82
5.8 (1999)	3.21	3.54	3.68	3.92
Combined	2.74 (8,826 of 322,098)	3.35 (8,826 of 263,849)	3.17 (6,138 of 193,572)	3.54 (6,138 of 173,385)

Examining Table 6 further, specifically column one or two for the AJW, or column three or four for the QJW, there is a dramatic disappearance of African Americans, as compared to the percentage of African Americans in the 18+ citizen population.

Despite overwhelming evidence for our Southern District of California challenge, Judge Moskowitz followed precedent and used only the absolute disparity test.¹³⁰ As a result, since the test showed that the lost representation for African Americans and Hispanics was less than disparities the Ninth Circuit had previously tolerated,¹³¹ he denied the defendant's challenge.¹³²

After Judge Moskowitz's first decision rejecting our jury challenge,¹³³ the Supreme Court decided *Berghuis v. Smith*.¹³⁴ In a second challenge to the underrepresentation of African Americans and Hispanics in the Southern District of California, the FD pointed to passages in *Berghuis*, where the Court stated that it had never mandated use of the absolute disparity test, and specifically criticized the 10% rule.¹³⁵ However, Judge Moskowitz concluded that

130. *United States v. Garcia-Arellano*, Case. No. 08cr-2876 BTM, at *4 (S.D. Cal. June 9, 2009); *Hernandez-Estrada*, 2011 U.S. Dist. LEXIS 32157, at *6.

131. *Hernandez-Estrada*, 2011 U.S. Dist. LEXIS 32157, at *6.

132. *Id.*

133. *United States v. Garcia-Arellano*, Case. No. 08cr-2876 BTM (S.D. Cal. June 9, 2009).

134. 559 U.S. 314 (2010).

135. *Hernandez-Estrada*, 2011 U.S. Dist. LEXIS 32157, at *8 (citing *Berghuis*, 559 U.S. at 329-31); *accord Berghuis*, 559 U.S. at 329 n.4 ("Under the rule the State proposes, the Sixth

he was bound to continue with the absolute disparity method, until the Ninth Circuit abandoned it.¹³⁶ Therefore, finding that nothing had significantly changed since our earlier jury challenge, he rejected the renewed challenge.

In an en banc decision, the Ninth Circuit affirmed the dismissal of the jury challenge, even while granting us a partial victory by overruling its own precedents that required courts to use the absolute disparity method. Since “African Americans constituted only 5.2% of the population of the Southern District in 2009,” the court wrote, “under the absolute disparity test, there could be no successful jury challenge in the Southern District for African Americans, given precedents tolerating absolute disparities as large as 7.7%.”¹³⁷ For this reason, “it [was] appropriate to abandon the absolute disparity approach.”¹³⁸

Even though the defendant won the battle over the proper mathematical test, he still lost the war over his jury challenge. Turning to the third prong of the *Duren* test, the Ninth Circuit concluded that, even assuming the underrepresentation of African Americans and Hispanics was substantial, the defense failed to “provide evidence that this underrepresentation is due to the *system* employed by the Southern District.”¹³⁹ According to the court, the defendant had “not provided sufficient evidence ‘linking sole reliance on voter registration lists for jury selection to current systematic exclusion of [distinctive groups] in the [Southern District].’”¹⁴⁰ In other words, Hernandez had “not shown that the alternative system he proposes—[supplementing the juror source list]—would increase [minority group] representation.”¹⁴¹

From our point of view, it was unfortunate that neither the trial judge nor the full bench of the Ninth Circuit focused on the defense’s data showing loss of representation not just from the use of the voter registration list but also, and arguably more significantly, from the inability of the system to retain minority jurors through later stages of jury selection. Table 4 shows that, over a decade of jury wheels, the Southern District’s jury plan systematically tolerated losing 32.58% of persons on average, due to undeliverable mail

Amendment offers no remedy for complete exclusion of distinct groups in communities where the population of the distinct group falls below the 10 [%] threshold.”) (citation omitted).

136. *Hernandez-Estrada*, 2011 U.S. Dist. LEXIS 32157, at *8.

137. *Hernandez-Estrada*, 749 F.3d at 1161, 1164.

138. *Id.* at 1164.

139. *Id.* at 1166 (emphasis added).

140. *Id.* (changes in original) (quoting *United States v. Rodriguez-Lara*, 421 F.3d 932, 945 (9th Cir. 2005)).

141. *Id.* (changes in original) (quoting *Randolph v. California*, 380 F.3d 1133, 1141 (9th Cir. 2004)).

or failures of response to delivered juror questionnaires. Tables 5 and 6 show the disproportionate impact these problems had on maintaining fair representation for Hispanics and African Americans respectively.

Sub silentio, both the trial judge and appellate bench assumed that problems with the mechanics of successfully summoning jurors do not count as the kind of systematic exclusions that the *Du- ren* test requires. Part VIII returns to an in-depth examination of that which does and does not amount to systematic defects in a jury plan. For now, I simply note that the Ninth Circuit was in line with jurisdictions that dismiss problems with non-response to a jury summons or with undeliverable mail as the fault of private individuals for ignoring their summonses or failing to update their addresses, rather than the fault of the government's jury plan. The intuition was that the jury plan wanted to include persons who, by their own choice, excluded themselves.¹⁴²

V. NORTHERN DISTRICT OF ILLINOIS

On behalf of the defendant in *United States v. Roceaser Ivy*, we analyzed two wheels in the Northern District of Illinois (2007 and 2009).¹⁴³ Over objections from the U.S. Attorney's office, the trial judge granted us access to court records on the composition of the District's jury wheels.¹⁴⁴ At the time, the District relied solely on the voter registration list as a source of potential jurors.

An MJW filled with the names of registered voters only is bound to reflect the lower rates at which minorities register to vote as compared to the rates for non-Hispanic whites. However, just as in

142. See discussion *infra* Part VII, as well as text accompanying note 192, for criticism of this intuition.

143. *United States v. Ivy*, 2011 U.S. Dist. LEXIS 9347 (N.D. Ill. Feb. 1, 2011); see also Transcript of Proceedings, *United States v. Ivy*, No. 1-10-CR00496 (N.D. Ill. 2011) at 2–3 (on file with the *University of Michigan Journal of Law Reform*). The judge issued a protective order limiting use of jury records to the needs of the defendant. Memorandum Order, *United States v. Ivy*, No. 1:10-CR-00496 (N.D. Ill. 2011) (on file with the *University of Michigan Journal of Law Reform*). However, since that time, the Northern District of Illinois has released data from the 2009 jury wheel for public research purposes. See Rose et al., *supra* note 45, at 404 app. Therefore, I use data from 2009 in this Article, but not from 2007.

144. In granting the defense access to jury records, the trial judge remarked,

You know, let me tell you, I lived through the—as you might guess, the updated confirmation by our District Court of the existing jury plan, but I can assure you that it was on our agenda as one of the items that really did not get, frankly, a lot of attention. What we were really doing was confirming something that had been in existence for a long time. And I can tell you right now nobody really took a look at whether the system continued to make sense, relying, remember, on something that is now 25 years [old]. Transcript of Hearing, *Ivy*, No. 1:10-CR-00496.

the Southern District of California, the underrepresentation built into the voter registration list was small in the Northern District of Illinois. When measured using the absolute disparity method favored by the federal judiciary, the disparity between African Americans' percentage on the registered voters list and their percentage of the jury-eligible population was less than two percent.¹⁴⁵ The same held true for Hispanics.

TABLE 7: VOTING REGISTRATION DISPARITIES—ILLINOIS

	Percent of 18+ Citizen Population	Percent of Registered Voters	Absolute Disparity	Comparative Disparity
Hispanics (Nationally)	9.5	7.9	1.6%	16.84%
Hispanics (in Illinois)	7.7	6.3	1.4%	18.18%
African Americans (Nationally)	12.1	11.9	0.2%	1.65%
African Americans (in Illinois)	14.5	13.4	1.1%	7.58%

The story was entirely different when we investigated the composition of the AJW and QJW. Table 8 shows that the Northern District experienced the same issues with undeliverable mail and failures to respond that were present in the Eastern Division of the District of Massachusetts and the Southern District of California.

TABLE 8: UNDELIVERABLE MAIL/NON-RESPONSE RATES

Pool	Summoned	Responded	Undeliverable	No Response	Qualified Wheel (Percent of Summoned/ Percent of Responses)
2009	33,878	20,374 (60.14%)	2,200 (6.49%)	11,304 (33.37%)	15,968 (47.13%/78.37%)

While the non-response rate (33.37%) appeared to be high and the undeliverable rate (6.49%) appeared to be low, the total was in line with rates reported nationally.¹⁴⁶

145. Data in Table 7 is based on *Voting and Registration in the Election of November*, U.S. CENSUS BUREAU at tbl.4(b) (2008) <https://www.census.gov/data/tables/2008/demo/voting-and-registration/p20-562-rv.html>. The 2008 voter registration figures are the appropriate ones against which to measure the representativeness of the 2009 jury wheels.

146. See discussion *infra* Part VIII, and text accompanying notes 213–32.

How do these attrition factors affect retention of prospective minority jurors? To answer that question, we analyzed the personal information provided on returned jury questionnaires. Just as in the Southern District of California challenge, we ran into a problem of incomplete data. While nearly 93% of respondents specified a race, less than 78% of respondents bothered to answer the Hispanic ethnicity question. Table 9 shows the results.

TABLE 9: REPOSSES PROVIDED TO RACE AND
HISPANIC QUESTIONS—AJW

Pool	Available Wheel		
	Total Response	Number (Percent) Who Did Not Identify a Race	Number (Percent) Who Did Not Answer Yes/No to Hispanic Identity
2009	20,374	1,578 (7.75%)	4,523 (22.20%)

Given the large numbers of persons on the AJW whose Hispanic ethnicity was unknown, we did not attempt to calculate the percentage of Hispanic-identifying people on the AJW.¹⁴⁷ However, the much higher rate of response to the race question permitted us to analyze the racial composition of the AJWs and QJWs for 2009. As Table 10 shows, we calculated the percentage of African Americans from the number of *all persons* returning their questionnaires (columns two and four of Table 10) and also from only those specifying a race (columns three and five of Table 10). Since nearly 93% of persons remaining on the AJW and QJW reported their race, the difference between the two calculations was small.

147. See Rose et al., *supra* note 45, at 392 (“imputational methods are not available” for dealing with large number of prospective jurors who do not answer the Hispanic identity question).

TABLE 10: DISPARITIES BETWEEN AFRICAN-AMERICAN PERCENTAGE OF THE POPULATION AND AFRICAN-AMERICAN PERCENTAGE ON THE AJW AND QJW

Percent of 18 + Citizen Population	Percent of AJW (of All Returns)	Percent of AJW (of Those Reporting Race)	Percent of QJW (of All Returns)	Percent of QJW (of Those Reporting Race)
19.5	12.41	13.45	13.36	14.0
	AD=7.09 CD= 36.36	AD=6.05 CD=31.03	AD=6.14 CD=31.49	AD= 5.5 CD=28.21

The import of Table 10 is best understood by considering the CD measurements of lost representation, which are shown in the last row of the table. Nearly one-third (sometimes even more than one-third) of the expected number of African-American prospective jurors disappeared from the Available and Qualified Jury Wheels in 2009. While drawing names of prospective jurors only from the list of registered voters was one factor causing minority attrition, it was not the major factor (Table 7). Whereas the AD between African Americans in the jury-eligible population and African-American registered voters was 1.1% (CD of 7.58%) in 2008, the disparity grew to 7.09% AD (36.36% CD) on the AJW (Table 7).¹⁴⁸ This result conforms with the results from the Eastern Division for the District of Massachusetts and Southern District of California challenges—namely, that difficulties with mailing out summonses to correct addresses and having recipients return them disproportionately leads to the loss of minority representation on the AJW.

In the end, the defendant pleaded guilty to reduced charges and the judge never ruled on our jury challenge.¹⁴⁹ Fortunately, this was not the end of the matter. In 2013, the Northern District amended its jury plan to deal with many of the problems we had pointed out.¹⁵⁰ To address the problems of undeliverable mail and non-response, the District followed Massachusetts in ordering targeted-zip-code replacement mailings.¹⁵¹ For every undeliverable qualification questionnaire, the Court immediately sent a replacement

148. These figures are for all names on the AJW. See *supra* Table 10 (columns two and four). Comparable figures for only those names on the AJW whose race was known would be 6.05% for AD and 31.03% for CD. See *supra* Table 10 (columns three and five).

149. United States v. Ivy, No. 10 CR 496, 2011 U.S. Dist. LEXIS 123603 (N.D. Ill. Oct. 26, 2011).

150. See generally NORTHERN DISTRICT OF ILLINOIS PLAN, *supra* note 41 (supplementing the voter registration list with other sources of juror names and instituting reforms to deal with undeliverable mail and non-response to jury questionnaires).

151. *Id.* § 7(b) at 5.

questionnaire to another person residing in the same zip code.¹⁵² The Northern District went beyond Massachusetts in using targeted-zip-code replacements for every questionnaire that failed to elicit a response to two requests.¹⁵³ Given the hyper-segregation by zip code in many parts of the District, which includes Chicago, the idea was to increase the likelihood of replacing lost jurors due to mail or non-response with jurors of the same race or ethnicity. In addition, the District began supplementing the voter registration list with the state driver's license list and state-issued photo identification records in 2013. In 2017, the District expanded its source lists to include names of unemployment benefits applicants. These reforms will be addressed in Parts VII and VIII.

VI. MIDDLE DISTRICT OF FLORIDA, ORLANDO DIVISION

In 2009, the Federal Defenders of the Middle District of Florida, Orlando Division, hired sociologist Mary Rose and me to assist with a jury challenge in a then-pending criminal case.¹⁵⁴ The FD did not pursue that challenge but retained us in connection with a second case in 2010.¹⁵⁵ In the course of doing that research, the FD put us in contact with a private attorney who brought a similar jury venire challenge on behalf of defendant, Robert Edward Pritt.¹⁵⁶ In this Article, we draw upon our research for the FD, as well as on the public records from *United States v. Pritt*.

Jury selection in the Orlando Division followed the same script as in the Southern District of California and the Northern District of Illinois. Like those districts, the Orlando Division relied exclusively on the voter registration list to fill its MJW.¹⁵⁷ However, African Americans and Hispanics were a smaller percentage of registered voters in the Orlando Division than they were of the jury-eligible population. In 2009, African Americans were 12.5% of the Orlando Division 18+ citizen population and Hispanics were 15.3%.¹⁵⁸ However, according to the Florida Department of State, Division of Elections, African Americans were only 11.53% of Or-

152. *Id.*

153. *Id.*

154. *In re John McCullah*, No. 5:05-Mj-44-Oc-GRJ (M.D. Fla. 2009).

155. Complaint as to Elaine Joseph, *United States v. Joseph*, No. 6:09-cr-00260-GAP-KRS-1 (M.D. Fla. 2009), ECF No. 1.

156. See *United States v. Pritt*, No. 6:09-cr-110-Orl-28KRS, 2010 U.S. Dist. LEXIS 63470 (M.D. Fla. June 8, 2010).

157. *Id.* at *4–5. See discussion *infra* Part VII for changes in the source lists used in the Northern District of Illinois since our challenge.

158. U.S. CENSUS BUREAU, AMERICAN COMMUNITY SURVEY FOR 2009; see also *infra* Table 11.

lando citizens registered to vote in the November 2008 presidential election, while Hispanics comprised 13.8% of the Division's registered voters.¹⁵⁹ Thus, the Division's MJW somewhat underrepresented these groups from the beginning. This was true in 2005, 2007, and 2009.¹⁶⁰ To take 2009, the final year we studied, African Americans were 12.5% of the Division's jury-eligible population and 11.44% of the MJW. Hispanics were 15.3% of Division's jury-eligible population and 13.72% of the MJW.¹⁶¹

However, the disparities were not vast, at least as measured by the absolute disparity test. The disparity between percentage of the population and percentage of the MJW was typically less than 2%.¹⁶² In *Pritt*, the trial judge found this level of absolute disparity to be legally insignificant, since previous Eleventh Circuit decisions had found no problem with even greater disparities.¹⁶³ Moreover, the judge noted that “[courts] are ‘in complete agreement that neither the [JSSA] nor the Constitution require that a supplemental source of names be added to voter lists simply because an identifiable group votes in a proportion lower than the rest of the population.’”¹⁶⁴

Even if the judge was correct in finding the representation of African Americans and Hispanics to be fair and reasonable on the MJW, he should have gone on to consider the defendant's principal complaint—that the subsequent attrition on the AJW and QJW required a remedy.

In connection with *Pritt's* jury challenge, defense counsel obtained access to court documents that tracked the racial and Hispanic status of all persons who completed and mailed back the jury qualification questionnaire.¹⁶⁵ Relying on these documents, Pritt was able to show the impact of undeliverable mail and non-response on retention of African Americans and Hispanics in the jury pool. For instance, in 2009, the jury clerk mailed out 51,306 jury questionnaires to names randomly selected from the MJW.¹⁶⁶ Overall, 54% of those questionnaires were returned.¹⁶⁷ Likewise,

159. The Florida Department of State, pursuant to a public records request, provided this registration data in connection with *Pritt*. See Defendant's Motion and Memorandum to Stay Trial and Request Hearing at 5, *United States v. Pritt*, No. 6:09-cr-110-Orl-28KRS (M.D. Fla. 2010) [hereinafter “Pritt Motion”] (on file with court and the *University of Michigan Journal of Law Reform*).

160. See *infra* Table 11.

161. *Id.*; see also Rose & Abramson, *supra* note 54, at 936 tbl.3.

162. See *infra* Table 11.

163. *Pritt*, 2010 U.S. Dist. LEXIS 63470, at *19–21.

164. *Id.* at 14 (quoting *United States v. Carmichael*, 560 F.3d 1270, 1279 (11th Cir. 2009)).

165. Pritt Motion, *supra* note 159, at *3, (on file with court and author).

166. *Id.* at 7.

167. *Id.*

11.7% of mailed questionnaires were undeliverable.¹⁶⁸ Another 34% elicited no response.¹⁶⁹

These factors of undeliverable mail and non-response had a disproportionate effect on retention of African-American and Hispanic jurors. Whereas the return rate of questionnaires mailed to whites was 62.7%,¹⁷⁰ the return rate among African Americans was 30.6%¹⁷¹ and among Hispanics was 36.6%.¹⁷²

Pritt's defense counsel performed a similar analysis for every jury wheel between 2003 and 2009. The white response rate never fell below 58.5%. The African-American return rate never exceeded 40.3% and the Hispanic return rate never topped 46.4%.¹⁷³ These figures include losses both from undeliverable summonses and non-responsiveness.

Table 11¹⁷⁴ captures the cumulative loss of representation as jury selection moved from creating an MJW to filling the QJW. In 2009, African Americans were 12.5% of the jury-eligible population, 11.44% of the MJW, but only 6.95% of the QJW.¹⁷⁵ Likewise, Hispanics remained only 9.51% of the QJW, which was down from the 13.72% share of the MJW and 15.3% of the jury-eligible population.¹⁷⁶ In sum, the loss of minority representation from the MJW to the QJW was far greater than the loss occurring at the MJW stage. Whereas the loss of minority representation on the MJW was less than 2% AD,¹⁷⁷ Table 11 shows the AD percentages for African Americans ranging from a low of 5.92% on the 2005 QJW to a high of 6.95% on the 2009 QJW. For prospective Hispanic jurors, the attrition on the QJW was even greater, ranging from a low of 7% AD in 2005 to a high of 9.51% in 2009.

168. *Id.* at 6 (5,996 out of 51,306).

169. *Id.* at 7.

170. *Id.*

171. *Id.*, Def. Ex. 43 (of 5,872 mailed questionnaires, only 1,795 came back) (on file with court and author).

172. *Id.* (2,575 returned out of the 7,043 mailed questionnaires).

173. For these calculations, see Calculations, Jury Wheels (2003-2009) 1-8. These calculations were done by Pritt's attorney, Mark L. Horwitz (on file with court and the *University of Michigan Journal of Law Reform*).

174. Table 11 is adapted from Rose & Abramson, *supra* note 54, at 936 tbl.3, and from Pritt, 2010 U.S. Dist. LEXIS 63470, at Def. Ex. 12 (Source List Race/Gender Report, Entire Source List, 2007).

175. *See infra* Table 11.

176. *Id.*

177. *See* text accompanying notes 161 and 162.

TABLE 11: DISPARITIES BETWEEN THE QJW AND JURY-ELIGIBLE POPULATION¹⁷⁸

Year	African Americans			Hispanics				
	Percent of MJW	Percent of Population	Percent of QJW	AD (CD)	Percent of MJW	Percent of Population	Percent of QJW	AD (CD)
2009	11.44	12.5	6.95	5.55 (44.4)	13.72	15.3	9.51	5.79 (37.8)
2007	10.36	12.1	6.44	5.67 (46.8)	12.35	13.8	8.34	5.43 (39.4)
2005	9.87	11.2	5.92	5.28 (47.1)	11.10	12.9	7.00	5.90 (45.7)

When the defendant in *Pritt* pointed to undeliverable mail and non-response as key problems with retaining prospective minority jurors on the QJW, the judge responded as the judges in our California and Illinois challenges had: The jury plan should not be faulted for the practical or administrative shortcomings that were likely to occur in any alternative jury plan.¹⁷⁹ Ironically, the more convincing we were about the problems lurking within these so-called administrative details, the more courts seemed to find comfort in treating the problems as ones we had to accept, no matter how much juror disenfranchisement takes place.

VII. REMEDIES FOR SOURCE LIST PROBLEMS: SUPPLEMENTING THE VOTER REGISTRATION LIST

No federal court has ever struck down a jury plan for relying on the voter registration list as the sole source of juror names.¹⁸⁰ Just as in our jury challenges, courts nationally give remarkable safe harbor to voter-registration-based plans.¹⁸¹ They do so for two reasons: First, judges do not find the levels of underrepresentation that are built into reliance on the voter registration list substantial enough to trigger statutory or constitutional violations.¹⁸² Second, even if

178. Figures for the MJW and QJW in Table 11 are taken from court documents provided to Pritt. See Pritt Motion, *supra* note 159, at 4–5.

179. United States v. Pritt, No. 6:09-cr-110-Orl-28KRS 2010 U.S. Dist. Lexis 63470, at *16–19 (M.D. Fla. June 8, 2010).

180. See United States v. Oldham, No. 12-20287, 2014 U.S. Dist. LEXIS 57093, at *11 (E.D. Mich. Apr. 24, 2014).

181. See, e.g., Preller, *supra* note 4, at 8.

182. United States v. Garcia-Arellano, Case. No. 08cr-2876 BTM, at *7–8 (S.D. Cal. June 9, 2009).

underrepresentation is found to be substantial, the judges lay the blame not on government action but instead on the private choice of individuals to effectively remove themselves from the juror rolls by failing to register to vote.¹⁸³ As the judge described it when he rejected our first challenge to the Southern District of California jury plan, “[d]efendant’s evidence falls far short of establishing that Hispanics or African Americans have been systematically excluded from registering to vote in this District.”¹⁸⁴

By insulating voter registration jury lists from legal challenge, federal courts skirt the JSSA’s command to supplement the registration list when necessary to form representative jury venires.¹⁸⁵ Federal courts also set aside the American Bar Association’s recommendation that a jury source list cover at least 85% of the eligible population.¹⁸⁶ None of the districts that we studied met that standard. In our Southern District of California challenge, the judge noted that while voter registration had never exceeded 76% in the district, over 93% of district residents held a driver’s license.¹⁸⁷

On the representation front, the good news is that the registration gap between whites and African Americans has significantly closed in recent years.¹⁸⁸ The bad news is that a significant gap still exists between Hispanic and non-Hispanic white registration rates.¹⁸⁹

If supplementing the voter registration list with other sources of juror names can eliminate these disparities, then courts should try supplementation.¹⁹⁰ The stereotype of the nonvoter, as discussed previously, is a person without the civic interests that society would

183. *United States v. Weaver*, 267 F.3d 231, 244 (3d Cir. 2001) (holding that defendant did not meet his *Duren* burden of proving systematic exclusion of a minority group where “the underrepresented group has freely excluded itself quite apart from the system itself,” by failing to register to vote).

184. *United States v. Garcia-Arellano*, Case. No. 08cr-2876 BTM, at *9 (S.D. Cal. June 9, 2009).

185. *See* 28 U.S.C. § 1863(b)(2) (2012).

186. *See* William Caprath et al., *Assessing and Achieving Jury Pool Representativeness*, 55 JUDGES J. 16, 18 (2016).

187. *United States v. Garcia-Arellano*, Case. No. 08cr-2876 BTM, at *16 (S.D. Cal. June 9, 2009). To be sure, as the judge noted, non-citizens can hold a driver’s license, so the improvement would not be quite as dramatic once we purge names of non-citizens from the driver’s license list.

188. *See* THOM FILE, UNITED STATES CENSUS BUREAU, THE DIVERSIFYING ELECTORATE—VOTING RATES BY RACE AND HISPANIC ORIGIN IN 2012 (AND OTHER RECENT ELECTIONS) 3 fig.1 (2013).

189. *See* VOTING AND REGISTRATION IN THE ELECTION OF NOVEMBER, 2016 *supra* note 19, at tbl.4b for figures from the most recent (2016) presidential election.

190. *See, e.g.,* Stephanie Domitrovich, *Jury Source Lists and the Community’s Need to Achieve Racial Balance on the Jury*, 33 DUQ. L. REV. 39, 42 (1994).

want in a juror.¹⁹¹ But this is an incorrect assumption about the psychology of nonvoters. A 2008 Census Bureau survey found that only one-third of eligible Hispanics who had not registered to vote gave lack of interest as their reason. Among the other two-thirds, the most common reasons for not registering were missing the deadline, not knowing where to register, or not knowing how to register.¹⁹²

The Northern District of Illinois has authorized me and my colleague, sociologist Mary Rose, to study the effects of supplementation since its inception in 2013.¹⁹³ To date, the court has publicly released preliminary data comparing African-American and Hispanic representation on the last two wheels, filled with the voter registration list from 2009 and 2011 only, with the inaugural two wheels that were filled with supplemental names from the driver's license list and state-issued identification list (2013 and 2015).¹⁹⁴ No information is available yet on the changes introduced in 2017. The preliminary data shows improvement in African-American, but not Hispanic, representation.

A. African American Representation

The 2009 and 2011 MJWs straddled the 2010 Census of the population. In 2009, the MJW included 14.0% of the African-American, 18+ population.¹⁹⁵ The court compared this to 2000 Census data, which showed African-Americans to be 17.3% of that population.¹⁹⁶ This produced an absolute disparity of 3.3%. In 2010, the new Census showed that the African-American, voting-age population had increased to 19.5% of the District's population.¹⁹⁷ The MJW was 12.6%.¹⁹⁸ This left an absolute disparity of 6.9%. On average, the last two wheels filled with the voter registration list only produced an absolute disparity of 5.1%.

191. See *supra* notes 24–26 and accompanying text.

192. THOM FILE & SARAH CRESLEY, U.S. CENSUS BUREAU, VOTING AND REGISTRATION IN THE ELECTION OF NOVEMBER, 2008 14 tbl.5 (2008).

193. Per contract with Federal Defenders of Northern Illinois (attorney Beth Jantz) (on file with the *University of Michigan Journal of Law Reform*). See also NORTHERN DISTRICT OF ILLINOIS PLAN, *supra* note 41.

194. Hon. Ruben Castillo, Chief Judge, U.S. Dist. Court for the Northern Dist. of Ill., Address at the State & Federal Jury Representation Seminar (Feb. 23, 2017) (on file with the *University of Michigan Journal of Law Reform*).

195. *Id.*

196. *Id.*

197. *Id.*

198. *Id.*

By contrast, the two wheels that were filled with the help of driver license lists and state-issued identifications did increase African-American representation. In 2013, African-American representation increased to 15% (absolute disparity of 4.5%) and in 2015 to 15.47% (absolute disparity of 4.03%).¹⁹⁹ Thus, on average, the two wheels that were filled under the 2013 amended jury plan succeeded in decreasing the absolute disparity from 5.1% to 4%.

B. *Hispanic Representation*

As previously noted, a low rate of response (69%) to the question about Hispanic identity on the jury questionnaire means that the data on Hispanics' representation on the Northern District's jury wheels are incomplete.²⁰⁰ There are simply too many prospective jurors whose ethnicity is unknown. This may explain why the District's own reports on Hispanic percentages tend to vary so much. For example, for the two wheels before the 2013 amended jury plan went into effect, the District strangely reported that Hispanics were 12.8% of the 2009 MJW at a time when Hispanics were actually only 12% of the District's jury-eligible population.²⁰¹ Then in 2011 the Hispanic percentage on the jury wheel slipped to 10.7% at a time when their presence in the jury-eligible population had in fact increased.²⁰² In the two wheels filled since supplementation began, there appeared to be a significant improvement at first, when Hispanic representation increased to 15.5% in 2013.²⁰³ But then it declined to 12.9% of the 2015 MJW.²⁰⁴ Thus, until the numbers stabilize from one wheel to the next, we cannot say whether supplementation is increasing Hispanic representation on the jury wheel.

Nationally, more studies are needed to ascertain which source lists come closest to creating a truly representative MJW. The most common additional source is the driver's license list.²⁰⁵ Other sources include state-issued identification cards, unemployment lists, or disability card lists.²⁰⁶ All but three states use multiple sources.²⁰⁷ Eight states do not use the voter registration list at all.²⁰⁸

199. *Id.*

200. See *supra* Table 9 for data for low response rates to questions about Hispanic status.

201. See Address at the State & Federal Jury Representation Seminar, *supra* note 194.

202. *Id.*

203. *Id.*

204. *Id.*

205. See Preller, *supra* note 4, at app.

206. *Id.*

207. *Id.*

A particularly useful study would be one comparing jury selection in a federal district that uses only the voter registration list as a source of juror names with a state district covering some or all of the same counties that uses source lists in addition to, or in place of, the voting registration list. For instance, Orange County is within both the federal Middle District of Florida and the state Eleventh Judicial Circuit. The state court uses the lists of licensed drivers and state-issued photo identification cards as source lists, while the federal court uses the voter registration list alone.

Most, but not all, studies show supplementation is promising.²⁰⁹ A 2004 study in Oklahoma found that African Americans made up a greater percentage of the lists of persons holding either a state driver's license or a state-issued identification card (9.41%) than they were of the voter registration list (5.22%).²¹⁰ As authors of the Oklahoma study noted, "[t]he relatively high proportion of Blacks appearing on the DPS [Department of Public Safety] licensee lists suggests that supplementation from such lists would contribute to reducing Black juror underrepresentation due to registered voter lists."²¹¹

Similarly, in Oregon, the jury clerk reported "reviews have shown that the [Department of Motor Vehicle] lists provide better demographic coverage in each county than any other list readily available, including the voter registration list . . . if used singly."²¹² Oregon courts conducted an experiment, comparing use of the voter registration list alone to supplementation of that list with the driver's license list. The experiment showed that the driver's li-

208. *Id.* With few exceptions, the JSSA requires federal courts to use the voter registration list or the list of actual voters. However, the act permits supplementation of those lists. See 28 U.S.C. § 1863(b)(2) (2012).

209. Studies conducted before the attacks on September 11, 2001 may no longer be reliable, since the need to have a government-issued photo identification card has increased since then. In that regard, it is worth noting that the Northern District of Illinois elected to start using lists of licensed drivers and state-issued ID holders in 2013, even though a pre-September 11th study in that same district cast some doubt on the efficacy of supplementation. See Ted C. Newman, *Fair Cross-Sections and Good Intentions: Representation in Federal Juries*, 18 JUSTICE J. 211, 212, 221–22 (1996) (indicating that results of 1994 study were mixed, showing an improvement in Hispanic representation but a decline in African-American presence). For another pre-September 11th study doubting that supplementation works, see John P. Bueker, *Jury Source Lists: Does Supplementation Really Work?*, 82 CORNELL L. REV. 390, 410 (1997).

210. Darcy & Stingley, *supra* note 114, at 26.

211. *Id.*

212. Jade, *supra* note 23, at 570 n.97 (quoting letter from jury clerk) (emphasis in original); see also Dennis Bilecki, *Program Improves Minority Group Representation on Federal Juries*, 77 JUDICATURE 221, 222 (1994) ("[T]he use of driver record information to supplement voter record information [when compiling juror source lists] . . . improve[s] representation of blacks, Hispanics, and Asians . . .").

cense list picked up substantial numbers of eligible jurors that the registered voter list had excluded.²¹³

The majority of federal districts remain wedded to voter registration-only jury plans, long after the majority of state courts turned to multiple source lists. There appears to be no good reason for this continued holdout, especially when advances in technology allow for merging source lists while purging duplicate names.

VIII. REMEDIES FOR LOSS OF REPRESENTATION DUE TO UNDELIVERABLE MAIL/NON-RESPONSE

Parts III through VI reported that the greatest loss of cross-sectional representation in our four jurisdictions occurred during the seemingly innocuous stages of mailing out and returning jury qualification forms. This is a process that did not intentionally discriminate against any group and, yet, yielded a significantly lower percentage of prospective minority jurors than random selection of names from the MJW should have.

Yield is a problem nationally. In large urban jurisdictions, 15% of all jury questionnaires mailed are returned as undeliverable.²¹⁴ Nationally, the undeliverable rate is 12%.²¹⁵ Some urban courts have reported undeliverable rates as high as 50%.²¹⁶ A study of one federal district in Michigan found that 18.27% of questionnaires were undeliverable.²¹⁷ In the 1990s, Los Angeles County reported its undeliverable rate to be 15%.²¹⁸

Among questionnaires or summonses presumably delivered, another 5.4% to 15% of prospective state court jurors fail to respond and appear.²¹⁹ The non-response rate in federal court is 11%.²²⁰ In 2006, the Southern Division of the Eastern District of Michigan recorded a non-response rate of 21.85%.²²¹ Only 22% to 25% of those summoned in August of 1995 for jury duty in Dallas County

213. Jade, *supra* note 23, at 663.

214. See MIZE ET AL., *supra* note 7, at 22 tbl.16.

215. See Caprathe et al., *supra* note 186, at 18.

216. *Id.* at 19.

217. United States v. Bates, No. 05-81027, 2009 U.S. Dist. LEXIS 117073, at *36 tbl.6 (E.D. Mich. Dec. 15, 2009) (representing average of surveyed countries).

218. Kelso, *supra* note 52, at 145.

219. MIZE ET AL., *supra* note 7, at 22 tbl.16.

220. Giuseppe M. Fazari, *Targeting Noncompliant Jurors: Findings from a Comprehensive Enforcement Program*, in NAT'L CTR. FOR STATE COURTS, TRENDS IN STATE COURTS 71 (2013), <https://www.courts.wa.gov/subsite/mjc/docs/2017/Targeting-Noncompliant-Jurors-Findings-from-a-Comprehensive-Enforcement-Progr.pdf> (representing an average of a survey of one hundred federal courts).

221. Bates, 2009 U.S. Dist. LEXIS 117073, at *39 tbl.8 (representing an average of surveyed counties).

responded.²²² In the Western District of Oklahoma (Oklahoma City Division), 26.89% of those summoned in 1993 did not respond.²²³ In the 1990s, Los Angeles County was reporting the worst yields, with a 36% non-response rate on top of a 15% undeliverable rate.²²⁴ Combining undeliverables with non-responders, 26% of persons summoned did not make it into the pool of available jurors in one state judicial district in Michigan.²²⁵

By any measure, these are large numbers. They generate costly inefficiencies and free rider problems.²²⁶ However, violations of the Sixth Amendment or JSSA occur only if rates of non-response and undeliverable mail spike among minority groups. In fact, they do.²²⁷ In Wayne County, Michigan;²²⁸ Dallas County, Texas;²²⁹ Cook County (Chicago), Illinois;²³⁰ Suffolk County (Boston), Massachusetts;²³¹ and Dane County, Wisconsin,²³² the data show difficulties in

222. Nancy J. King, *Juror Delinquency in Criminal Trial in America, 1796–1996*, 94 MICH. L. REV. 2673, 2697 n.89 (1996).

223. Darcy & Stingley, *supra* note 114, at 21.

224. Kelso, *supra* note 52, at 1453. The study did find that a follow-up summons could improve the yield. *Id.*

225. King, *supra* note 222, at 2697 n.89 (citing G. THOMAS MUNSTERMAN, THIRD JUDICIAL CIRCUIT COURT, WAYNE COUNTY, MICHIGAN, A TECHNICAL ASSISTANCE REPORT, JURY MANAGEMENT 9, 12 (Nat'l Ctr. For State Courts ed., 1995)).

226. The free rider problem occurs when summonsed jurors know they can safely ignore jury duty, relying on others to serve.

227. See *United States v. Ortiz*, 897 F. Supp. 199, 204 (E.D. Pa. 1995) (“First, many Hispanics are poor. Like other poor people, they are apt to move more frequently than the more affluent, with their mail not being forwarded to their new address. Secondly, poor people in general have less reliable mail service.”); see also *Commonwealth v. Fryar*, 680 N.E.2d 901, 907 (Mass. 1997) (“[T]he representation of Blacks and Hispanics in the jury pool was adversely affected because the communities with the highest percentage of Blacks and Hispanics have the highest nonresponse rate.”).

228. See, e.g., *United States v. Bates*, No. 05-81027, 2009 U.S. Dist. LEXIS 117073, at *40 (“Wayne County [where the preponderance of the African-American population in the southern division of the Eastern District of Michigan lives] has a nonresponse rate nearly double the Division average.”). A study of the state court system reached similar results. See PAULA L. HANNAFORD-AGOR & G. THOMAS MUNSTERMAN, THIRD JUDICIAL CIRCUIT OF MICHIGAN JURY SYSTEM ASSESSMENT ii–iii, 14–15 (Nat'l Ctr. For State Courts ed., 2006) (non-response rates disproportionately high among residents of predominantly African-American neighborhoods).

229. In a 1995 Dallas County survey, twice as many Hispanics as whites, about one in five, noted that difficulties in taking time off from work was a reason for avoiding jury duty. Eades, *supra* note 17, at 1815–16.

230. *United States v. Murphy*, No. 94 CR 794, 1996 U.S. Dist. LEXIS 8488, at *12 (“[P]oor African-Americans failed to respond to jury notices at a much higher rate than wealthy whites.”).

231. *Commonwealth v. Arriaga*, 781 N.E.2d 1253, 1266 (Mass. 2003) (citing data showing that “a disproportionate number of undeliverable summonses are addressed to inner city locations” where the majority of the state’s Hispanic residents live).

232. DANE COUNTY JURY STUDY COMM., FINAL REPORT 7 (1993) (one-third of the jury questionnaires sent to African Americans were undeliverable, compared to 14% of forms mailed to whites).

maintaining fair representation for minorities through the middle stages of jury selection.²³³

It is inconceivable that these levels of representation attrition should be legally tolerable. Yet, they are.²³⁴ The culprit is the wooden way in which judges apply the second and third prongs of the *Duren* test.²³⁵ In our challenges, judges found that while the defendants easily satisfied the first *Duren* prong (African Americans and Hispanics are clearly cognizable groups), they failed to meet their burdens of proving that any underrepresentation is *both* substantial (the second *Duren* prong) *and* due to some systematic defect in the jury plan (the third *Duren* prong).²³⁶

Part IV reviewed flaws in the way that the absolute disparity test calculates the difference between a group's presence in the population and its share of the jury wheel. We propose a new mathematical test for measuring disparities in the Conclusion to this Article. This Part criticizes the way in which courts repeatedly erect the "systematic exclusion" prong of the *Duren* test as a roadblock to remedying the loss of minority underrepresentation. There will be little progress toward "practicing what we preach" about the importance of cross-sectional representation until courts expand their cramped understanding of systemic defects in a jury plan.²³⁷

233. See *United States v. Barnes*, No. 3:94CR112(AHN), 1996 WL 684388, at *5 (D. Conn. June 26, 1996) ("[U]nderrepresentation . . . results from the high rate of questionnaires mailed to Hispanic communities which are returned as undeliverable.").

234. In *United States v. Ivy*, No. 10 CR 496, 2011 U.S. Dist. LEXIS 123603 (N.D. Ill. Oct. 26, 2011), the Assistant U.S. Attorney argued that "if you compare the population to the voters' list [a]nd if there is not a huge disparity there, then that should be the end of the inquiry." Transcript of Proceedings, *United States v. Ivy*, No. 1:10-CR-00496, at 20–21 (Feb. 11, 2011) (on file with the *University of Michigan Journal of Law Reform*). It is this position that leaves in place the major losses of fair representation that occur at later stages of jury selection.

235. See *Duren v. Missouri*, 439 U.S. 357, 370 (1979).

236. *Id.*

237. The reading of *Duren*'s systematic exclusion test used by all but one of the judges in our challenges fits a national pattern. See, e.g., *Rivas v. Thaler*, 432 F. App'x 395, 402–03 (5th Cir. 2011) ("[T]he fact that certain groups of persons called for jury service appear in numbers unequal to their proportionate representation in the community does not support Rivas's allegation that Dallas County systematically excludes them in its jury selection process."); *Alexander v. Lafler*, No. 11-10286, 2013 U.S. Dist. LEXIS 87368, at *1, *22 (E.D. Mich. June 21, 2013) ("Non-responses to juror questionnaires and a court's failure to put forth additional effort to obtain responses from potential jurors are generally not considered systematic exclusions of a group from jury service."); *People v. Currie*, 104 Cal. Rptr. 2d 430, 435 (Cal. Ct. App. 2001) (finding no systematic exclusion where "the disparity in representation is attributable to the disproportionately high rate of failure to appear by those summoned for service"); *rev'd sub nom. Currie v. Adams*, 149 F. App'x 615 (9th Cir. 2005), *rev'd sub nom. Currie v. McDowell*, 825 F.3d 603 (9th Cir. 2016); *Kellogg v. Peterson*, No. 178760, 1996 WL 33362172, at *2 (Mich. Ct. App. Aug. 2, 1996) ("That a certain segment of Detroit residents chose not to respond to questionnaires cannot be considered 'inherent' to the jury selection process.").

If one views jury selection through the lens of anti-discrimination law, it is not the state's fault that people move and do not leave a forwarding address. The state *intends* to summon jurors fairly but plans go awry when the postal service returns so many summonses as undeliverable.²³⁸ For the same reason, courts find no systematic exclusion when prospective jurors make the choice to ignore summonses that are properly delivered.²³⁹

Of course, as a matter of law, courts need not find intentional discrimination in order to hold a district accountable for departures from the JSSA or Sixth Amendment cross-sectional requirement. However, in interpreting *Duren*'s mandate that litigants show a systematic exclusion of cognizable groups, courts frequently read an intent requirement back into Sixth Amendment analysis.²⁴⁰ *Duren*'s conceptual distinction between "intentional discrimination" and "systematic exclusion" was supposed to be clear. If the underrepresentation flowed from some systematic defect in the court's jury plan, then the government violated the Sixth Amendment—whether it intended to discriminate or not. However, the difference between "exclusion" and "discrimination" is far from obvious, and courts understandably conflate the two.²⁴¹ They import the state action requirement,²⁴² which is typical of equal protection analysis, into Sixth Amendment law. Courts do not treat supposedly private choices—registering to vote, updating mailing

238. *United States v. Oldham*, No. 12-20287, 2014 U.S. Dist. LEXIS 57093, at *10–11, *11 n.1 (quoting *United States v. Rioux*, 97 F.3d 648, 658 (2d Cir. 1996) ("The inability to serve juror questionnaires because they were returned as undeliverable is not due to the system itself, but to outside forces, such as demographic changes.")).

239. *See, e.g., Bates v. United States*, 473 Fed. App'x 446, 451 (6th Cir. 2012) (concluding that "[t]he only evidence in the record establishing a possible cause for the underrepresentation of African-Americans is the non-response rate in Wayne County, which is more than double that of any other county. Non-responses, however, are not a problem 'inherent' to the jury selection procedures, but are the result of individual choice."); *United States v. Murphy*, No. 94 CR 794, 1996 U.S. Dist. LEXIS 8488, at *12 ("The jury selection system . . . is not excluding African-Americans as a group, but many African-American individuals are excluding themselves by not responding to jury questionnaires."). For further discussion of attitudes towards jury duty, see also John Gramlich, *Jury Duty is Rare But Most Americans See it as Part of Good Citizenship*, PEW RESEARCH CTR. FACTTANK (Aug. 24, 2017), <http://www.pewresearch.org/fact-tank/2017/08/24/jury-duty-is-rare-but-most-americans-see-it-as-part-of-good-citizenship> ("Blacks and Hispanics are less likely than whites to see jury duty as a part of good citizenship, as are those with a high school diploma or less when compared with people with at least some college education.").

240. For a similar argument, see Chernoff, *supra* note 27, at 151–54.

241. *Id.*; *see also United States v. Tuttle*, 729 F.2d 1325, 1327 n.2 (11th Cir. 1984) ("The prima facie case under the equal protection clause is 'virtually identical' to that under the Sixth Amendment, and . . . the threshold disparity requirement [is] the same under both types of challenge.").

242. An example of state action responsible for systematically excluding qualified jurors occurred in Connecticut when a glitch in the computer program coded eligible jurors as dead. *See United States v. Jackman*, 46 F.3d 1240, 1242–43 (2d Cir. 1995) (citing *United States v. Osorio*, 801 F. Supp. 966, 972–73 (D. Conn. 1992)).

addresses or responding to jury summonses—as government action.²⁴³ The result is to not address the problems responsible for the persistence of unrepresentative jury venires.²⁴⁴

In rejecting *Pritt's* challenge to underrepresentation in the Middle District of Florida's Orlando Division, the trial judge treated the defendant's Sixth Amendment complaint as if it were an equal protection claim. He emphasized that the defendant

has not alleged that the Clerk's processes or the use of the voter registration lists are anything but neutral [or] . . . that the [selection] process [was] not executed in a neutral and random manner. [Defendant] only objects that the neutral process results in the underrepresentation of Blacks and Hispanics. This does not amount to systematic exclusion under the Sixth Amendment."²⁴⁵

While neutrality may be a defense to a charge of intentional discrimination, it is not dispositive when a defendant argues that a jury plan, despite the best of intentions, still fails to recruit jurors from a cross-section of the community. Otherwise, there is no way to make sense of Congress's decision to approve of voter registration lists as a nondiscriminatory starting point but also to require courts to supplement the voter registration list with other sources of juror names, should that be necessary, to achieve a cross-sectional source list.²⁴⁶

Until courts cease wielding the systematic exclusion prong of the *Duren* test as an all-purpose excuse for unrepresentative jury pools, the problems identified in this Article will remain beyond legal redress. When the evidence shows, as it did in our four jury challenges, that a jury plan continuously underrepresents minorities in jury wheel after jury wheel, that very continuity constitutes a systematic failure that the government should be obliged to remedy. As the California Supreme Court has long recognized, at some point the state's "negligence or inertia" in the face of continued failure to

243. *United States v. Orange*, 447 F.3d 792, 800 (10th Cir. 2006) ("Discrepancies resulting from the private choices of potential jurors do not represent the kind of constitutional infirmity contemplated by *Duren*.").

244. *Hannaford-Agor*, *supra* note 16, at 764 ("By perpetuating the misconception that courts have no responsibility to address causes of underrepresentation other than those inherent in the system itself, caselaw has created a functional safe harbor in which courts can ignore substantial minority underrepresentation in their own jury pools as long as they can plausibly deny actively contributing to the problem.").

245. *United States v. Pritt*, No. 6:09-cr-110-Orl-28KRS, 2010 U.S. Dist. LEXIS 63470, at *15–16 (M.D. Fla. June 8, 2010).

246. 28 U.S.C. § 1863(b)(2) (2012).

achieve representative jury wheels “may drift into discrimination by not taking affirmative action to prevent it.”²⁴⁷

Moreover, there is something odd about fobbing off the failures to register to vote, to keep addresses up-to-date, or to respond to jury summons as private choices when structural forces, such as poverty, housing disparities, and racial and ethnic status, should raise concerns about the voluntariness of these choices.²⁴⁸

If courts could adopt a more relaxed or flexible understanding of that which constitutes a systematically defective jury plan under *Duren*, then a number of reforms come to the fore for addressing problems of undeliverable mail and non-response:

(i) *Update addresses*. At a minimum, courts should update the addresses on the MJW annually, using the National Change of Address (NCOA) list maintained by the United States Postal Service. Biannual review, adopted in Massachusetts federal courts,²⁴⁹ would be even better, given the frequency with which people move.²⁵⁰ The jury clerk for the Northern District of Illinois currently puts the MJW addresses through the NCOA system every ninety days.²⁵¹

(ii) *Follow-up mailings*. State courts have significantly reduced failures to appear by sending a second mailing to every person who did not respond to their first summons. In Los Angeles County, for instance, the initial non-response rate of 52% fell to 36% simply by sending a second mailing.²⁵² A pilot program in Eau Claire, Wisconsin also dramatically reduced non-response with second and third mailings.²⁵³ A study by the National Center for State Courts compared state jurisdictions that send follow-up mailings to those that do not and concluded that, in courts that follow-up, non-response and failure to appear rates were 24% to 46% less than those reported by courts that did not send follow-up mailings.²⁵⁴

(iii) *More rigorous enforcement?* As a way of curing non-response, some commentators suggest that jury duty should be rigorously en-

247. *People v. Superior Court*, 113 Cal. Rptr. 732, 736 (Cal. Ct. App. 1974).

248. *See, e.g.*, Sandra F. Sperino, *Rethinking Discrimination Law*, 110 MICH. L. REV. 69, 92–93 (2011) (“It is likely that structural problems and unconscious bias contribute to the discriminatory environment.”).

249. *See, e.g.*, DISTRICT OF MASSACHUSETTS PLAN, *supra* note 41, at § 6(c) (“The Clerk shall submit the names on the Master Jury Wheel and the Supplemental Jury Wheel twice a year to be updated through the national change-of-address system of the United States Postal Service and corrected as appropriate before issuing summonses.”).

250. The Census Bureau estimates that an average of 15% of households move each year. *See* Caprathe et al., *supra* note 186, at 18.

251. Telephone Interview with Thomas Bruton, Clerk of Court, Northern Dist. of Ill. (Mar. 29, 2018).

252. *Hannaford-Agor*, *supra* note 16, at 775.

253. *Id.*

254. *Id.*

forced as the draft it is meant to be.²⁵⁵ For instance, a Los Angeles County court study proposed new legislation to “plac[e] a hold upon driver’s license renewals of those persons who fail to respond to a juror summons.”²⁵⁶ Massachusetts runs a delinquent juror program that authorizes fines up to \$2,000 for failures to appear for jury duty.²⁵⁷

The JSSA does give courts discretion to enforce juror summonses by fine, jail, or community service.²⁵⁸ However, the above examples notwithstanding, enforcement is episodic at best.²⁵⁹ Enforcing jury duty as a true draft might make sense as a matter of law and logic. However, it defies common sense to believe that unwilling participants make good jurors. As one federal court put it, “anyone with experience as a trial judge knows that a person forced against his will to serve on a jury is apt to be an angry juror and that an angry juror is a bad juror.”²⁶⁰ In line with this remark, jurors motivated only by the threat of punishment would lead to new reasons for granting challenges for cause or for exercising peremptory challenges. Culturally speaking, in an era where even military duty is voluntary, there is a limit to how rigorously the state should conscript people into jury service. There is much to recommend the current compromise, where there is no opt-in (volunteering) for jury duty but there is an unacknowledged opt-out.

(iv) *Weighted summonsing*. Two of the four jurisdictions where we brought our challenges put in place a better remedy for non-response. The District of Massachusetts and the Northern District of Illinois now engage in a system of targeted or weighted summonsing to compensate for disproportionately low yields of minority jurors.²⁶¹ The District of Kansas has since followed suit.²⁶²

255. *Id.* at 784–85 (“Individuals who believed nothing would happen were significantly less likely to appear for service than those who believed they would be punished for their failure to appear.”).

256. Kelso, *supra* note 52, at 1454 (Recommendation 3.5); *see also* U.S. v. Murphy, No. 94 CR 794, 1996 U.S. Dist. LEXIS 8488, at *3–4 (indicating that the percentage of African Americans on the Master and Qualified Jury Wheels increased when second and third mailings gave addressee the choice between finally returning a completed questionnaire or appearing at the courthouse on a specific date to explain their failure).

257. Hannaford-Agor, *supra* note 16, at 784–85; JURY TRIAL INNOVATIONS 47–48 (G. Thomas Munsterman et al. eds., 2d ed. 2006). In Wisconsin, county courts have discretion to impose fines on delinquent jurors. *See For Jurors*, WIS. COURT SYS., <https://www.wicourts.gov/services/juror/terms.htm> (last visited Aug. 30, 2018).

258. 28 U.S.C. § 1866(g) (2012).

259. *See* Hannaford-Agor, *supra* note 16, at 784 (conceding the reality of nonenforcement).

260. *United States v. Gometz*, 730 F.2d 475, 480 (7th Cir. 1984).

261. *See* discussion *supra* Parts III, V.

262. *See* D. KAN. R. PRACTICE AND P. 38.1 (2016), http://www.ksd.uscourts.gov/wp-content/uploads/local_rules/local_rules.pdf.

In Massachusetts, Judge Nancy Gertner—alone among trial judges in our four jurisdictions—found that the Division’s system for summoning jurors violated the cross-sectional requirements of the JSSA.²⁶³ Consequently, Judge Gertner ordered two remedies. As noted earlier in this Article, for every jury questionnaire returned as undeliverable, Judge Gertner ordered that a replacement questionnaire be sent randomly to an address *from the same zip code* as the first questionnaire.²⁶⁴ Aware that she could not constitutionally order a race-conscious remedy, Judge Gertner chose a geographical remedy, knowing that hyper-segregation in certain zip codes would increase the probability that one minority juror lost through an undeliverable questionnaire would be replaced with another minority juror. Judge Gertner ordered the same zip code remedy for every instance of non-response to a questionnaire presumably delivered.²⁶⁵

The First Circuit vacated Judge Gertner’s order, however, noting that a single judge in a multi-judge district lacks authority to change the existing jury plan on her own.²⁶⁶

Subsequently, in 2005, Massachusetts federal judges voluntarily decided to amend their jury plan to deal with the problems that Judge Gertner found.²⁶⁷ The District adopted Judge Gertner’s remedy for zip-code-targeted second mailings for every questionnaire returned as undeliverable.²⁶⁸ However, it did not require the same remedy for non-responses. To date, no one has studied the impact of this remedy on the incidence of undeliverable questionnaires.

In 2013, the Northern District of Illinois voluntarily adopted its own zip-code-weighted mailing plan, both for undeliverable summonses and for non-responses.²⁶⁹ As reported in Part V, the Northern District also began supplementing the voter registration list with the lists of licensed drivers and state-issued identification card holders in 2013.²⁷⁰ In 2017, the District added the names and addresses of people applying for or receiving unemployment compensation within the last two years.²⁷¹

263. See discussion *supra* Part III.

264. *United States v. Green*, 389 F. Supp. 2d 29, 75–77 (D. Mass. 2005).

265. *Id.*

266. *In re United States*, 426 F.3d 1, 7–8 (1st Cir. 2005).

267. See DISTRICT OF MASSACHUSETTS PLAN, *supra* note 41.

268. “For each summons returned by the United States Postal Service to the Court as ‘undeliverable,’ the Clerk shall draw at random from the Supplemental Jury Wheel the name of a resident who lives in the same zip code area to which the undeliverable summons had been sent and prepare and cause to be mailed to such resident a new one” *Id.* at § 8(a).

269. NORTHERN DISTRICT OF ILLINOIS PLAN, *supra* note 41, at § 7(b).

270. *Id.* at § 5(a).

271. *Id.*

Massachusetts' and Illinois' use of weighted replacement summoning has the potential merit of achieving in practice that which purely random summoning promises: selection from a cross-section of the eligible community. Of course, the utility of targeted summoning depends on members of racial or ethnic minorities being sufficiently concentrated in particular zip codes so as to make geographical location a proxy for racial identity. This is true in many areas of Boston and Chicago, but the remedy may not work as well in racially diverse neighborhoods.

In other areas of law, courts have upheld the constitutionality of public university affirmative action programs that classify persons according to geography rather than race.²⁷² There ought to be no constitutional objections to the Massachusetts and Illinois plans.²⁷³

A closer call is whether the plain language of the JSSA requiring random selection proportional to every *county* rules out replacement mailings weighted by zip code.²⁷⁴ The Eastern Division of Massachusetts contains nine counties.²⁷⁵ Part III explained that undeliverable questionnaires are disproportionately returned from the two most urban counties and from a set of zip codes within those counties with the highest percentages of minority residents. Thus, the replacement mailings will not be proportional by county, but will target the two counties with the most undeliverable summonses.

The argument in favor of this plan is that it simply adopts a remedy to correct undelivered summonses due to wrong addresses. On the other side, any summoning by zip code might be a violation of the JSSA requirement that *all* summoning be proportional to the population of each county in the district.²⁷⁶

As of this writing, no challenge based on the JSSA has been brought against the Massachusetts and Illinois plans. Insofar as

272. The University of Texas at Austin currently accepts the top 6% of students from any Texas high school. Since high schools in many areas of the state are de facto segregated, the expectation is that this way of running an affirmative action program will indirectly accomplish that which direct considerations of race would. See *Admission Decisions*, UNIV. OF TEX. AT AUSTIN, <https://admissions.utexas.edu/apply/decisions> (last visited Nov. 11, 2018).

273. See, e.g., *United States v. Bates*, No. 05-81027, 2009 U.S. Dist. LEXIS 117073, at *66 (E.D. Mich. Dec. 15, 2009) (opining that the geographical basis of the Massachusetts plan passes muster under the Equal Protection Clause).

274. 28 U.S.C. § 1863(b)(3) (2012) requires that "each county, parish, or similar political subdivision within the district or division [be] substantially proportionally represented in the master jury wheel . . ."

275. See *United States v. Green*, 389 F. Supp. 2d 29, 41 n.15 (D. Mass. 2005).

276. The United States attorney made this argument on appeal of Judge Gertner's order of zip-code targeted summoning in *Green*, 389 F. Supp. 2d 29. However, the First Circuit did not reach this contention, noting only that "[w]ithout developing its argument in detail, the government has questioned whether the district court's remedy would comport with the statute even if embodied in a properly adopted plan." *In re United States*, 426 F. 3d 1, 9 (1st Cir. 2005).

these reforms were adopted to comply with the Sixth Amendment mandate of cross-sectional jury selection,²⁷⁷ the traditional rule of statutory construction is to construe the statute so as to avoid if possible any conflict between statute and constitution.

If courts adopted all or some of the reforms recommended in this Part, they would be in a better position to offer remedies for the maladies that this Article diagnosed as bleeding representation from our jury pools.

CONCLUSION

Although we lost all four of our jury challenges, federal districts in Massachusetts and Illinois subsequently reformed their jury plans to address problems with undeliverable mail and non-response that our data singled out as the greatest causes of minority underrepresentation in jury pools.²⁷⁸ In the Southern District of California, the trial judge also noted these problems and urged his fellow District Judges to consider supplementing the voter registration list with alternate sources of juror names.²⁷⁹ While the District has not yet adopted such reforms, the Ninth Circuit, in an en banc decision on our jury challenge, abandoned the absolute disparity test as a way of measuring underrepresentation.²⁸⁰ In so doing, the court acknowledged that math should not mask the extent of failure to practice the cross-sectional ideal.

In this vein, one final reform suggests itself. In *Berghuis v. Smith*, the Supreme Court highlighted for lower courts that traditional mathematical tests for measuring jury underrepresentation were “imperfect” and that they should feel free to seek better methods.²⁸¹

During oral argument in *Berghuis*, Justice Breyer noted that mathematical calculations known as binomials could aid courts to bring law and math together.²⁸² To use an analogy suggested by one commentator, drawing jurors is a bit like drawing cards in poker.²⁸³ In poker, it is possible to use the binomial theorem to

277. See JURY TRIAL INNOVATIONS, *supra* note 257, at 32 (indicating that stratified jury selection can help courts avoid Sixth Amendment infractions).

278. See discussion *supra* Parts III, V.

279. United States v. Garcia-Arellano, Case. No. 08cr-2876 BTM, at *15 (S.D. Cal. June 9, 2009).

280. United States v. Hernandez-Estrada, 749 F.3d 1154, 1164 (9th Cir. 2014).

281. *Berghuis v. Smith*, 559 U.S. 314, 329 (2010).

282. Transcript of Oral Argument at 5, *Berghuis v. Smith*, 559 U.S. 314 (2010) (No. 08-1402) (“[T]he only way you could figure out . . . what’s what here is you use something called [the] binomial theorem”).

283. Re, *supra* note 113, at 535–36.

compare the odds of drawing 1, 2, 3, or n diamonds from a standard deck versus making the same draw from a deck stacked by the removal of half the diamonds.²⁸⁴ The same binomial calculation could be made for jury selection. If a certain minority group is underrepresented on the initial source list, then the chances of drawing 1, 2, 3 or n members of this group on an actual jury are less than the odds would be when making the same draw from a fairly representative starting point. Although the math may seem difficult, the numbers are readily calculated by using a freely available binomial calculator or online program.²⁸⁵

Consider for instance a commentator's hypothetical jurisdiction where a distinctive group constitutes 25% of the population but only 10% of the members of jury venires.²⁸⁶ Practically speaking, courts want to know how this affects the chances that random selection will result in one, two, three (and so on) members of that group on a given jury. The binomial theorem helps us calculate these odds. If the group had been fairly represented, then a defendant would have faced a 16% chance of drawing a jury with one or no members of that group. However, due to the underrepresentation of that group in jury pools, the odds of drawing one or no jurors of that group swelled to 66%, an increase of 50%.²⁸⁷

Since the binomial calculation is a matter of math rather than law, it cannot answer the normative question of where to draw the line between acceptable and unacceptable levels of underrepresentation. Still, the calculation provides courts with precise information about the odds of drawing a representative jury. In the above example, where a group is 25% of the population but only 10% of jury venires, the prevailing absolute disparity test would come up with a loss of 15% representation. But that number stands in a vacuum, whereas the binomial calculation addresses that which we need to know: the difference in the chances of drawing a representative jury.

In 1879, when Arthur Sullivan wrote the lyrics for the Gilbert and Sullivan operetta, *The Pirates of Penzance*, he satirized the binomial theorem as something known only to pompous blowhards such as the play's Major-General character.²⁸⁸ Although the term

284. *Id.*

285. Two freely available programs are RStudio statistical software with the command "dbinom" and Excel command "BINOM.DIST."

286. Re, *supra* note 113, at 543.

287. *Id.*

288. "I am the very model of a modern Major-General . . . I'm very well acquainted, too, with matters mathematical. I understand equations, both the simple and quadratical. About binomial theorem I'm teeming with a lot o' news, [w]ith many cheerful facts about the

remains as obscure as it was in Gilbert and Sullivan's time, judges do not have to sing their own praises to do the math. They only must be "the very models" of a modern judge when it comes to using math to inform the law.

square of the hypotenuse." W.S. Gilbert & Arthur Sullivan, *The Pirates of Penzance*, <https://www.naic.edu/~gibson/poems/gilbert1.html> (last visited Aug. 31, 2018).