

## ARTICLE

### THE USE OF PEREMPTORY CHALLENGES IN CAPITAL MURDER TRIALS: A LEGAL AND EMPIRICAL ANALYSIS\*

*David C. Baldus*\*\*  
*George Woodworth*\*\*\*  
*David Zuckerman*\*\*\*\*  
*Neil Alan Weiner*\*\*\*\*\*  
*Barbara Broffitt*\*\*\*\*\*

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\*\* Joseph B. Tye Professor, College of Law, University of Iowa.

\*\*\* Professor, Statistics and Actuarial Science, University of Iowa.

\*\*\*\* Assistant Defender, Defender Association of Philadelphia.

\*\*\*\*\* Senior Research Associate, Center for the Study of Youth Policy, School of Social Work, University of Pennsylvania.

\*\*\*\*\* Research Associate, College of Law, University of Iowa.

## ARTICLE

I.	INTRODUCTION.....	10
II.	VOIR DIRE AND THE PEREMPTORY CHALLENGE:	
	A REVIEW OF THE LITERATURE.....	10
	A. An Overview of Voir Dire.....	10
	1. <i>The Bases for Peremptory Challenges</i> .....	14
	2. <i>The Use of Peremptory Challenges</i> .....	22
	3. <i>The Legality of Race- and Gender-Based</i> <i>Peremptory Challenges</i> .....	29
	4. <i>Academic and Professional Critique of the</i> <i>Effectiveness of Batson and Its Progeny</i> .....	34
	5. <i>Proposals for Reform</i> .....	36
	B. Voir Dire and the Peremptory Challenge in Philadelphia Capital Cases.....	40
	1. <i>Philadelphia Voir Dire Practice</i> .....	40
	2. <i>The McMahon Tape</i> .....	41
III.	THE SETTING AND RESEARCH QUESTIONS.....	43
IV.	METHODOLOGY, RESEARCH DESIGN, AND MEASURES.....	46
	A. The Universe and Sample.....	46
	B. Data Sources.....	47
	C. Measures and Analytic Methods.....	48
V.	DETERMINANTS OF COMMONWEALTH AND DEFENSE COUNSEL PEREMPTORY STRIKES: MIRROR IMAGES OF “GOOD” AND “BAD” JURORS.....	51
	A. An Overview.....	51
	B. Unadjusted Race, Gender, Age, and Neighborhood Effects.....	52
	C. Adjusted Race and Gender Effects: Part I (Crosstabular Analysis).....	55
	1. <i>The Impact of Defendant and Victim Race on</i> <i>Peremptory Strike Rates</i> .....	55
	2. <i>Race and Gender Disparities Estimated with</i> <i>Controls for Age, Race, and Gender</i> .....	60
	3. <i>Prosecutor Effects</i> .....	60
	4. <i>The Prime Strike Targets of Prosecutors and</i> <i>Defense Counsel</i> .....	61
	D. Adjusted Race and Gender Effects: Part II (Logistic Multiple Regression Analyses).....	65
VI.	THE IMPACT OF THE SUPREME COURT’S BAN ON THE USE OF RACE AND GENDER AS A BASIS FOR PEREMPTORIES.....	73
	A The Data Suggest a Modest Impact of <i>Batson and McCollum</i> .....	73

- B. Possible Explanations for Non-Compliance by Prosecutors and Defense Counsel .....77
  - 1. *The Perceived Risk of Judicial Sanction or Corrective Action Against the Discriminatory Use of Peremptories*..... 77
  - 2. *The Perceived Importance of Race and Gender Discrimination in the Use of Peremptories*.....84
- VII. THE COMPARATIVE EFFECTIVENESS OF PROSECUTORS AND DEFENSE COUNSEL IN THE USE OF PEREMPTORIES .....91
  - A. The "Canceling Out" Hypothesis .....96
  - B. The Comparative Effectiveness of Prosecutors and Defense Counsel in Target Group Selection ....102
  - C. The Comparative Effectiveness of Prosecutors and Defense Counsel in Influencing Sentencing Outcomes: The Outcome Enhancement Model ....103
    - 1. *Strike Effort and Jury Racial Composition* .....103
    - 2. *Strike Effort and Sentencing Results*.....106
  - D. The Jury of One’s Peers Issue .....112
- VIII. THE LIKELY IMPACT OF REFORMS IN THE USE OF PEREMPTORY CHALLENGES .....112
- IX. SUMMARY OF FINDINGS AND CONCLUSIONS.....121
  - A. Peremptory Strike Patterns.....121
  - B. The Impact of United States Supreme Court Decisions on the Discriminatory Use of Peremptories .....123
  - C. The Impact of the Race and Gender Composition of Juries on Penalty Trial Outcomes .....124
  - D. The “Canceling Out” Hypothesis and the Comparative Effectiveness of the Commonwealth and Defense Counsel in Their Use of Peremptory Challenges .....125
  - E. Effects on the Defendant’s Chances of Drawing a Jury of His Peers .....127
  - F. Conclusions .....127

## APPENDICES

APPENDIX A: METHODOLOGY .....	131
APPENDIX B: RACE, SEX, AND AGE DISPARITIES IN PROSECUTORIAL OR DEFENSE COUNSEL USE OF PEREMPTORY CHALLENGES WITH ALTERNATIVE CONTROLS FOR RACE, SEX, OR AGE.....	167
APPENDIX C: RACE AND GENDER EFFECTS IN THE EXERCISE OF PEREMPTORY CHALLENGES, BY INDIVIDUAL PROSECUTORS LISTED BY RACE, ETHNICITY, AND GENDER OF THE PROSECUTOR.....	168
APPENDIX D: RACE OF VENIRE PERSON AND NEIGHBORHOOD EFFECTS, CONTROLLING FOR THE TABLE 7 VARIABLES AND THE DEFENDANT/VICTIM RACIAL COMBINATIONS.....	169
APPENDIX E: ALTERNATIVE PEREMPTORY STRIKE SYSTEMS VERSUS THE ACTUAL PHILADELPHIA SYSTEM : ESTIMATED JURY REPRESENTATION RATES OF TARGET GROUPS .....	170

## FIGURES

FIGURE 1: VOIR DIRE PEREMPTORY CHALLENGE PROCESS: 317 PHILADELPHIA CAPITAL JURY TRIALS 1981-1997 .....	39
FIGURE 2: THE PEREMPTORY CHALLENGE IN CAPITAL TRIALS: PHILADELPHIA 1981-1997 .....	44
FIGURE 3: PROSECUTION AND DEFENSE COUNSEL STRIKE RATES AGAINST BLACK (PANEL A) AND NON-BLACK (PANEL B) VENIRE MEMBERS CONTROLLING THE RACE OF THE DEFENDANT AND VICTIM: PHILADELPHIA 1981-1997.....	57
FIGURE 4: PROSECUTION STRIKE RATES AGAINST BLACK AND FEMALE VENIRE MEMBERS: PHILADELPHIA CAPITAL TRIALS .....	75
FIGURE 5: DEFENSE COUNSEL STRIKE RATES AGAINST NON-BLACK AND MALE VENIRE MEMBERS: PHILADELPHIA CAPITAL TRIALS .....	76
FIGURE 6: THE IMPACT OF JURY RACIAL COMPOSITION ON PENALTY TRIAL DEATH SENTENCING OUTCOMES CONTROLLING FOR DEFENDANT CULPABILITY AND RACE: PHILADELPHIA 1981-1997 .....	85
FIGURE 7: RACE OF DEFENDANT DISPARITIES IN CAPITAL SENTENCING OUTCOMES, CONTROLLING FOR THE RACIAL COMPOSITION OF THE JURY: PHILADELPHIA 1981-1997 .....	86
FIGURE 8: THE IMPACT OF JURY RACIAL COMPOSITION ON PENALTY TRIAL DEATH SENTENCING OUTCOMES CONTROLLING FOR THE DEFENDANT/VICTIM RACIAL COMBINATION: PHILADELPHIA 1981-1997 .....	89

FIGURE 9: JURY PENALTY TRIAL DEATH SENTENCING OUTCOMES AND DISPARITIES CONTROLLING FOR THE RACIAL COMPOSITION OF THE JURY AND DEFENDANT/VICTIM RACIAL COMBINATION: PHILADELPHIA 1981-1997 .....	90
FIGURE 10: DEATH SENTENCING OUTCOMES ASSOCIATED WITH SUBGROUPS OF JURORS DEFINED BY RACE, AGE, AND SEX .....	92
FIGURE 11: THE IMPACT ON JURY COMPOSITION OF VARYING DEGREES OF PEREMPTORY STRIKE EFFORT AGAINST BLACK AND NON-BLACK VENIRE MEMBERS.....	105
FIGURE 12: THE IMPACT OF PROSECUTORIAL STRIKE RATE EFFORT AGAINST BLACK VENIRE MEMBERS WITH EFFORT MEASURED IN TERMS OF STRIKE RATES ABOVE AND BELOW THE MEDIAN LEVEL FOR ALL CASES: PHILADELPHIA 1981-1997 .....	108
FIGURE 13: RACE OF DEFENDANT DISPARITIES IN CAPITAL SENTENCING, CONTROLLING FOR THE PROSECUTOR'S EFFORT IN STRIKING BLACK VENIRE MEMBERS: PHILADELPHIA 1981-1997 .....	109
FIGURE 14: THE IMPACT OF DEFENSE COUNSEL STRIKE EFFORT AGAINST NON-BLACK VENIRE MEMBERS WITH EFFORT MEASURED IN TERMS OF DEFENSE CASE STRIKE RATES ABOVE AND BELOW THE MEDIAN LEVEL FOR ALL CASES: PHILADELPHIA 1981-1997 .....	110
FIGURE 15: RACE OF DEFENDANT DISPARITIES IN CAPITAL SENTENCING OUTCOMES, CONTROLLING FOR DEFENSE COUNSEL EFFORT IN STRIKING NON-BLACK VENIRE MEMBERS, PHILADELPHIA 1981-1997.....	111
FIGURE 16: JURY RACIAL COMPOSITION DOCUMENTED IN PHILADELPHIA CASES AND ESTIMATED IN FOUR HYPOTHETICAL SYSTEMS, CONTROLLING FOR THE PEREMPTORY STRIKE EFFORT BY PROSECUTORS AND DEFENSE COUNSEL IN THE PHILADELPHIA CASES .....	116
APPENDIX A FIGURE 1: DATA SOURCES CONSULTED FOR VENIRE- MEMBER RACE DESIGNATIONS IN 317 VENIRES.....	139

## TABLES

TABLE 1: DESCRIPTIVE STATISTICS ON USE OF PEREMPTORY CHALLENGES BY PROSECUTORS AND DEFENSE COUNSEL: PHILADELPHIA 1981-1997 .....	52
TABLE 2: UNADJUSTED RACE, GENDER, AND AGE EFFECTS IN THE USE OF PEREMPTORY CHALLENGES BY PROSECUTORS AND DEFENSE COUNSEL: PHILADELPHIA 1981-1997 .....	53

TABLE 3: PROSECUTORIAL AND DEFENSE COUNSEL PEREMPTORY STRIKE RATES, CONTROLLING FOR VENIRE MEMBER RACE AND THE RACIAL CHARACTERISTICS OF THE VENIRE MEMBER'S NEIGHBORHOOD OF RESIDENCE: PHILADELPHIA 1981-1997 .....	55
TABLE 4: PROSECUTORIAL AND DEFENSE COUNSEL VENIRE MEMBER RACE DISPARITIES IN THE USE OF PEREMPTORY CHALLENGES FOR ALL CASES AND CONTROLLING FOR DEFENDANT/VICTIM RACIAL COMBINATIONS: PHILADELPHIA 1981-1997 .....	58
TABLE 5: PROSECUTORIAL AND DEFENSE COUNSEL STRIKE RATES AGAINST VENIRE MEMBER TARGET GROUPS RANK ORDERED BY STRIKE RATE: PHILADELPHIA 1981-1997 .....	63
TABLE 6: PROSECUTOR AND DEFENSE COUNSEL VENIRE MEMBER STRIKE RATES CONTROLLING FOR VENIRE MEMBER OCCUPATION, EDUCATION, AND REPLIES TO VOIR DIRE QUESTIONS: PHILADELPHIA 1981-1997 .....	66
TABLE 7: LOGISTIC REGRESSION MODELS OF PROSECUTORIAL AND DEFENSE COUNSEL PEREMPTORY CHALLENGES: 317 PHILADELPHIA CAPITAL TRIALS 1981-1997 .....	70
TABLE 8: THE IMPACT OF THE DISCRIMINATORY USE OF PEREMPTORIES ON MALE AND FEMALE VENIRE MEMBERS IN PHILADELPHIA CAPITAL CASES 1981-1997.....	97
TABLE 9: COMPARATIVE EFFECTIVENESS OF PROSECUTORS AND DEFENSE COUNSEL IN STRIKING DEATH ELIGIBLE VENUE MEMBERS (THE DEPLETION MODEL) .....	99
TABLE 10: COMPARATIVE EFFECTIVENESS OF PROSECUTORS AND DEFENSE COUNSEL IN CONTROLLING JURY COMPOSITION (THE JURY REPRESENTATION MODEL): PHILADELPHIA 1981-1997 .....	101
TABLE 11: JURY REPRESENTATION OF DEFENDANT'S PEER GROUP MEMBERS AND OTHER GROUP MEMBERS IN CAPITAL JURY TRIALS: PHILADELPHIA 1981-1997 .....	113
APPENDIX A TABLE 1: SAMPLING PROPORTIONS FOR VENIRES .....	133
APPENDIX A TABLE 2: SAMPLING PROPORTIONS FOR VENIRE STUDY JURY DECISIONS.....	134
APPENDIX A TABLE 3: SOURCE OF RACE ESTIMATE FOR ALL VENIRE MEMBERS .....	142
APPENDIX A TABLE 4: SOURCE OF RACE BY ESTIMATED RACE (98%) .....	145
APPENDIX A TABLE 5: SOURCE OF GENDER ESTIMATE BY GENDER....	146
APPENDIX A TABLE 6: SOURCE OF AGE ESTIMATE BY AGE GROUP .....	147
APPENDIX A TABLE 7: VALIDATION ANALYSIS OF CENSUS BASED IMPUTATIONS OF VENIRE MEMBER RACE .....	148

APPENDIX A TABLE 8: ILLUSTRATION OF THE IMPUTATION  
PROCEDURE USED TO ESTIMATE THE RACE, AGE, AND  
SEX COMPOSITION OF JURIES AND VENIRES: CASE 922 ..... 152

APPENDIX A TABLE 9: PEREMPTORY STRIKE ESTIMATES AND  
DISPARITIES BASED ON (A) FINAL AND BEST RACE ESTIMATES, (B)  
98% RELIABLE RACE INDIVIDUAL VENIRE MEMBER ESTIMATES, AND  
(C) WORST CASE ANALYSES INVOLVING RECODES FOR VENIRE  
MEMBERS WITH UNCERTAIN AND UNKNOWN INDIVIDUAL RACE  
CODES: VENIRES ..... 155

APPENDIX A TABLE 10: DIRECT STANDARDIZATION PROCEDURE FOR  
ADJUSTMENT OF DEATH SENTENCING RATES FOR A HYPOTHETICAL  
SUBPOPULATION OF YOUNG PENALTY TRIAL DEPENDANTS  
CONTROLLING FOR DEFENDANT CULPABILITY ..... 165

## I. INTRODUCTION

One of the largely unique aspects of the American jury system is that it confers upon the parties the unilateral power—in the form of peremptory challenges—to remove prospective jurors for any non-racial or non-gender-based reason. This article presents an overview of the literature on peremptory challenges, and an empirical analysis of their use in Philadelphia capital cases in the 1980s and 1990s.

Our analysis of 317 capital murder cases tried by jury in Philadelphia between 1981 and 1997 supports the following conclusions about the use of peremptory challenges in that jurisdiction. First, discrimination in the use of peremptory challenges on the basis of race and gender by both prosecutors and defense counsel is widespread. The United States Supreme Court decisions banning these practices appear to have had only a marginal impact. Second, prosecutors are considerably more successful than defense counsel in their attempts to control jury composition. Third, the Commonwealth's comparative advantage in the use of peremptory challenges has several consequences for capital defendants; it enhances the probability of death for all defendants; it raises the level of racial discrimination in the application of the death penalty; and it denies defendants a trial by a jury that includes at least one of their "peers."<sup>1</sup>

## II. VOIR DIRE AND THE PEREMPTORY CHALLENGE: A REVIEW OF THE LITERATURE

### A. An Overview of Voir Dire

In American jury trials, a process known as "voir dire"<sup>2</sup> is the final phase of a multi-stage process by which the names of potential jurors, usually drawn from voter registration rolls,<sup>3</sup> are progressively screened to produce a jury and a handful of alternate jurors that are acceptable to the parties and the court.<sup>4</sup> Voir dire commences with a

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<sup>1</sup> For the reader interested in a summary of our empirical findings and conclusions, Part IX, *infra*, presents the equivalent of an executive summary of the entire study.

<sup>2</sup> *Voir dire* is "[a] preliminary examination of a prospective juror by a judge or lawyer to decide whether the prospect is qualified and suitable to serve on a jury." BLACK'S LAW DICTIONARY 1569 (7th ed. 1999). "Voir dire" has been translated both as "to speak the truth" and as "to see what is said." JON M. VAN DYKE, JURY SELECTION PROCEDURES: OUR UNCERTAIN COMMITMENT TO REPRESENTATIVE PANELS 140 (1977) [hereinafter VAN DYKE, JURY SELECTION].

<sup>3</sup> In addition to voter registration rolls, courts seeking to draw potential jurors from a representative cross-section of the community may draw names from lists of driver's license holders, census lists, social security registration lists, or a combination of income tax returns, welfare recipient lists, and unemployment lists. VAN DYKE, *supra* note 2, at 99-104. Although some courts use city directories, tax rolls, telephone books, or utility company lists for juror candidates, these sources have been criticized as unlikely to represent an appropriate cross-section of eligible residents. *Id.* at 101-02.

<sup>4</sup> The first level of screening involves hardship excuses presented by potential jurors to the court. This typically involves economic hardship, transportation difficulties, parenting obliga-



“venire,” or panel, of potential jurors, usually twenty to fifty people, who have been selected from a larger pool of candidates, often known as the master wheel. These candidates are then questioned (orally or via a written questionnaire) about topics bearing on their impartiality<sup>5</sup> and are either struck (by the court or a party) or seated as jurors.

Jury selection is driven by challenges for cause<sup>6</sup> and peremptory challenges, which are discretionary challenges granted to parties by statute or rule.<sup>7</sup> Although the theoretical goal of the process is a fair and impartial jury, the operative goal of the parties is to eliminate venire members they consider to be biased against them and a threat to their prospects of success.<sup>8</sup> And in capital trials, success in striking prospective jurors is measured first in terms of the likelihood that the jury candidate will vote for a capital conviction. In the event of such a conviction, success is further measured in terms of the candidate’s willingness to vote for a death sentence, the subject of this article.<sup>9</sup>

Challenges for cause are based on “narrowly specified, provable[,] . . . legally cognizable[,]”<sup>10</sup> and explicitly stated grounds that directly implicate the venire member’s impartiality.<sup>11</sup> There is no limit to the number of challenges for cause that the parties may present, but the general rule is that a strike for cause will not be granted unless the evidence suggests a “fixed” opinion on the part of the ve-

tions, or illness. *Id.* at 119-26. A second level of screening concerns the juror’s qualifications. Typically, to qualify as a juror a candidate must be a citizen old enough to vote, and be resident in the district for at least one year. In addition, the potential juror must be able to read, write, and understand English, must not suffer from a mental or physical infirmity that would impede her ability to serve, and must not be under felony indictment at the time or have been convicted of a felony in the past. *Id.* at 131. Finally, in many districts the juror receives and returns a questionnaire from the court. Most districts send only one questionnaire to a potential juror and do not follow up with candidates who do not complete and return the questionnaire. *Id.* at 131-34.

<sup>5</sup> The foundation of voir dire is the Sixth Amendment constitutional right of defendants to be judged by an impartial jury. For criminal cases, this requirement applies to the states under the Fourteenth Amendment. *Duncan v. Louisiana*, 391 U.S. 145, 149 (1968) (holding the Sixth Amendment right to jury trial applicable to the States). Though the Sixth Amendment right may suggest a right to exercise peremptory challenges, peremptory challenges are not constitutionally required. VAN DYKE, JURY SELECTION, *supra* note 2, at 45-76.

<sup>6</sup> That is, objections based on the qualifications or fitness of the juror.

<sup>7</sup> When both sides agree on the unacceptability of a venire member, she is excused by mutual consent rather than by a decision of the court.

<sup>8</sup> Barbara Allen Babcock, *Voir Dire: Preserving “Its Wonderful Power,”* 27 STAN. L. REV. 545, 551 (1975) (noting that each side seeks to eliminate venire members who are sympathetic to the other side).

<sup>9</sup> See *infra* text following note 138 for a discussion of the similarity of the considerations for these two decisions.

<sup>10</sup> Jon Van Dyke, *Voir Dire: How Should It Be Conducted to Ensure That Our Juries Are Representative and Impartial?*, 3 HASTINGS CONST. L.Q. 65, 66 (1976) [hereinafter Van Dyke, *Voir Dire*], (quoting *Swain v. Alabama*, 380 U.S. 202, 220 (1965)).

<sup>11</sup> There are two categories of bias—bias “implied as a matter of law” as a result of the venire member’s relationship to one of the parties (e.g., knew the defendant or had a financial interest in the proceedings) and “actual” bias arising from a predisposition for or against the state or criminal defendants (e.g., “I simply cannot believe the testimony of police officers.”).

nire member that would prevent an impartial verdict.<sup>12</sup> Peremptory challenges, in contrast, are limited in number, but are presented as a matter of right—with no justification or explanation required; thus the name “peremptory.” Moreover, until recently, peremptories were not subject to meaningful challenge by opposing counsel on any ground.<sup>13</sup> Because an articulated foundation for such a challenge is normally not required, they generally reflect the moving party’s “real or imagined” fear that the venire member is a threat to its interests.<sup>14</sup>

Voir dire procedures vary on three dimensions relevant to this article.<sup>15</sup> The first concerns the process of questioning the venire members—what questions are asked, by whom (judge, counsel, or a combination), in what form (verbally or in a written questionnaire), with what level of specificity, with what types of answers expected, and with what follow up expected from the court or counsel.<sup>16</sup>

Second, procedures vary in terms of the forum in which venire members are questioned, such as whether the questioning is of the

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<sup>12</sup> Susan C. Mormino, Note, *Exploring Racial Prejudice on Voir Dire: Constitutional Requirements and Policy Considerations*, 54 B.U. L. REV. 394, 396 n.13 (1974) (noting that a venire member with a fixed opinion that would impede rendering an impartial verdict may be challenged for cause).

<sup>13</sup> In *Swain v. Alabama*, 380 U.S. 202, 223-24 (1965), the Court held that a defendant could challenge the prosecutor’s use of peremptory challenges by showing that the prosecutor repeatedly eliminated all blacks from the jury in case after case. *Swain* did not limit a prosecutor’s use of peremptory challenges in a particular case. See Kenneth J. Melilli, *Batson in Practice: What We Have Learned About Batson and Peremptory Challenges*, 71 NOTRE DAME L. REV. 447, 449 (1996) (noting that in *Swain* the Court accepted the use of racially-motivated peremptory challenges so long as the challenges were intended to further the selection of a favorable jury). See also Brent J. Gurney, *The Case for Abolishing Peremptory Challenges in Criminal Trials*, 21 HARV. C.R.-C.L. L. REV. 227, 238 (1986) (arguing that *Swain* gave attorneys “virtually unrestricted use of peremptories”). Since the Supreme Court’s decisions in *Batson v. Kentucky*, 476 U.S. 79 (1986), *Georgia v. McCollum*, 505 U.S. 42 (1992), and *J.E.B. v. Alabama ex rel. T. B.*, 511 U.S. 127 (1994), a party opposing the exercise of a peremptory can demand an explanation of the basis of the challenge.

<sup>14</sup> Challenges for cause must be based on the venire member’s response to questions, and thus “depend on the juror’s admitting actual bias or grounds for implied bias.” Babcock, *supra* note 8, at 554. Peremptories may also be based on those answers. In addition, however, they are often based on stereotypical views about the venire member’s race, religion, occupation, education, physical appearance, or demeanor. Van Dyke, *Voir Dire*, *supra* note 10, at 71. We discuss, *infra* notes 28-46 and accompanying text, the folklore that appears to drive these decisions. Historically, the absence of a foundational requirement for peremptories gave them particular prominence in the South after overtly racial strategies for excluding blacks from jury service were banned by the United States Supreme Court. Morris B. Hoffman, *Peremptory Challenges Should Be Abolished: A Trial Judge’s Perspective*, 64 U. CHI. L. REV. 809, 827-30 (1997) (noting that the peremptory challenge served as an “incredibly final efficient racial filter” to remove any black potential jurors from the venire).

<sup>15</sup> For other ways in which voir dire can differ see Babcock, *supra* note 8, at 546-49 (discussing different ways in which the voir dire process can differ); Van Dyke, *Voir Dire*, *supra* note 10, at 74-83 (same).

<sup>16</sup> The trial judge has wide discretion over what questions are asked of venire members. Jurors are asked about bias based on personal knowledge of the case. In addition, jurors may be asked about areas of nonspecific bias such as ill-feeling toward a litigant’s race or religion. VAN DYKE, JURY SELECTION, *supra* note 2, at 141-45. On the issue of who should ask the questions, see, e.g., Susan E. Jones, *Judge Versus Attorney-Conducted Voir Dire: An Empirical Investigation of Juror Candor*, 11 LAW & HUM. BEHAV. 131 (1987).

venire as a group, with venire member answers heard by all present, or whether the questioning is of individual candidates outside the hearing of the other venire members.<sup>17</sup>

A third important dimension of voir dire is the number of peremptories allowed each side, and whether the numbers for each are the same or different.<sup>18</sup> There is considerable variability in the num-

<sup>17</sup> Babcock, *supra* note 8, at 547.

<sup>18</sup> The number of peremptories available in capital cases ranges widely. *See, e.g.*, ALA. CODE § 12-16-100 (1995) (number of peremptory challenges varies with the severity of the crime and the number of jurors removed from initial jury list for "good reason"); ARIZ. R. CRIM. PROC. 18.4(c) (West 1998) (in single-defendant capital cases, both parties permitted ten peremptories); ARK. CODE ANN. § 16-33-305 (Michie 1999) (in single-defendant capital cases, defendant receives twelve and prosecution ten peremptories); CAL. CIV. PROC. CODE § 231 (a)-(b) (West Supp. 2000) (in single-defendant capital cases, both sides permitted twenty peremptories); COLO. R. CRIM. PROC. 24 (d) (2000) (in single-defendant capital cases, both sides permitted ten peremptories); CONN. GEN. STAT. ANN. § 54-82g (West 1994) (in single-defendant capital cases, both sides permitted twenty-five peremptories); DEL. SUPER. CT. CRIM. R. 24(b) (Michie 1991) (in single-defendant capital cases, defendant receives twenty and prosecution twelve peremptories); FLA. STAT. ANN. § 913.08 (West 1996) (in single-defendant capital cases, both sides permitted ten peremptories); GA. CODE ANN. 15-12-165 (Michie 1999) (in single-defendant capital cases, defendant receives twenty peremptories; prosecution receives half the number of defendant's peremptories); IDAHO CODE § 19-2016 (in single-defendant capital cases, both sides permitted ten peremptories); ILLCS S. CT. RULE 434 (West 1993) (in single-defendant capital cases, both sides permitted fourteen peremptories); IND. CODE ANN. § 35-37-1-3 to -4 (West 1998) (in single-defendant capital cases, both sides permitted twenty peremptories); KAN. STAT. ANN. § 22-3412 (a)(2)(A),(E) (1995) (in single-defendant capital cases, both sides permitted twelve peremptories); KY. R. CRIM. PROC. 9.40(1) (in single-defendant capital cases, both sides permitted eight peremptories); LA. CODE CRIM. PROC. ANN. art. 799 (West 1998) (in single-defendant capital cases, both sides permitted twelve peremptories); MD. CODE ANN. CTS. & JLD. PROC. § 8-301(a) (1989) (in single-defendant capital cases, defendant receives twenty and prosecution ten peremptories); MISS. R. UNIF. CIR. & CTY. CT. 10.01 (1995) (in single-defendant capital cases, both sides permitted twelve peremptories); MO. ANN. STAT. § 494.480(2)(1) (West 1996) (in single-defendant capital cases, both sides permitted nine peremptories); MONT. CODE ANN. § 46-16-116(1),(3) (1993) (in single-defendant capital cases, both sides permitted eight peremptories); NEB. REV. STAT. § 29-2005 (Michie 1995) (in single-defendant capital cases, both sides permitted twelve peremptories); NEV. REV. STAT. 175.051(1) (Michie 1999) (in single-defendant capital cases, both sides permitted eight peremptories); N.H. REV. STAT. ANN. §§ 606:3(I), :4(I) (1999); N.H. REV. STAT. ANN. § 606:4 (1999) (in single-defendant capital cases, defendant receives twenty and prosecution ten peremptories); N.J. R. CT. GEN. APP. R. 1:8-3(d) (1999) (in single-defendant capital cases, defendant receives twenty and prosecution twelve peremptories); N.M. R. CRIM. PROC. 5-606(D)(1)(a) (Michie 1999) (in single-defendant capital cases, defendant receives twelve and prosecution eight peremptories); N.Y. CRIM. PROC. LAW § 270.25(2)(a) (McKinney 2000) (in single-defendant capital cases, both sides permitted twenty peremptories for regular jurors); N.C. GEN. STAT. § 15A-1217(a) (1999) (in single-defendant capital cases, both sides permitted fourteen peremptories); OHIO REV. CODE ANN. § 2945.21(A)(2) (West 2000) (in single-defendant capital cases, both sides permitted twelve peremptories); OKLA. STAT. ANN. tit. 22 § 655 (West 1992) (in single-defendant capital cases, both sides permitted nine peremptories); OR. REV. STAT. § 136.230(1) (1999) (in single-defendant capital cases, both sides permitted twelve peremptories); PA. R. CRIM. PROC. 1126(a)(3) (West 1989) (in single-defendant capital cases, both sides permitted twenty peremptories); S.C. CODE ANN. § 14-7-1110 (Law Co-op. 1999) (in single-defendant capital cases, defendant receives ten and prosecution five peremptories); S.D. CODIFIED LAWS § 23A-20-20 (Michie 2000) (in single-defendant capital cases, each side permitted twenty peremptories); TENN. CODE ANN. § 40-18-118 (in single-defendant capital cases, each side permitted fifteen peremptories); TEX. CRIM. P. CODE ANN. § 35.15(a) (West 1989) (in single-defendant capital cases, each side permitted fifteen peremptories); UTAH R. CRIM. PROC. 18(d) (West 1999) (in single-defendant capital cases,

ber allowed, with the largest number permitted in capital cases. And, while defense counsel historically has had more strikes than the State, there is now parity in most jurisdictions, even in capital cases.<sup>19</sup>

### 1. *The Bases for Peremptory Challenges*

Peremptory challenges fall into four different categories. First are those based on direct evidence of potential bias that is otherwise insufficient to support a challenge for cause. For example, a venire member's reservations about the death penalty may be insufficient to support a challenge for cause but sufficient to alarm the government and provide the basis for a peremptory challenge.<sup>20</sup>

The second category of peremptories is based on the appearance, attitude, and demeanor of the venire member during the voir dire process. This information may also suggest something about venire member attitudes and their likely reactions as jurors.<sup>21</sup>

The third category of peremptories is premised on perceptions about the extent to which a juror's race or gender is likely to bias his or her decisions because of an affinity for or antipathy against the defendant or victim. For example, it is commonly believed that in rape cases, women are better jurors for the state than are men.<sup>22</sup> It is also widely believed that non-black and black jurors react quite differently to black defendants.<sup>23</sup>

The fourth category of peremptories is based on widely shared stereotypes that hypothesize either a general anti-defendant or anti-government bias, principally on the basis of demographics (race, gender, age, occupation, or education), intelligence, or prior contact with the criminal justice system. In general, prosecutors perceive minorities as a threat, especially blacks, younger people, women, college educated and bright people, people with disabilities, non-conformists, "free thinkers," liberals, teachers, and people from the

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each side permitted ten peremptories); VA. CODE ANN. § 19.2-262 (C) (Michie 2000); WA. REV. CODE ANN. SUPER. CT. CRR 6.4(e)(1) (in single-defendant capital cases, both sides permitted twelve peremptories); WYO. STAT. ANN. § 7-11-103(a) (in single-defendant capital cases, both sides permitted twelve peremptories). See *infra* note 111 for a discussion of how the number of strikes implicates the effectiveness of voir dire for the government and the defendant.

<sup>19</sup> In most states the prosecution and the defense are allotted the same number of peremptory strikes. In four of the remaining states the defense is allotted twice as many strikes as the prosecution. See *supra* note 18.

<sup>20</sup> Although this is now considered a legitimate basis for the exercise of a peremptory, one author suggested earlier that based on *Witherspoon v. Illinois*, 391 U.S. 510 (1968), this should be considered an inappropriate basis for the exercise of a peremptory challenge. Bruce J. Winick, *Prosecutorial Peremptory Challenge Practices in Capital Cases: An Empirical Study and a Constitutional Analysis*, 81 MICH. L. REV. 1, 43-44 (1982).

<sup>21</sup> This category includes such items as speech patterns and comprehension of the venire member, their attire, circumstantial evidence of hostility (glaring, sarcastic), and body language (slouched). See generally Jim Goodwin, Note, *Articulating the Inarticulable: Relying on Nonverbal Behavioral Cues to Deception to Strike Jurors During Voir Dire*, 38 ARIZ. L. REV. 739 (1996).

<sup>22</sup> Cf. *J.E.B. v. Alabama ex rel. T. B.*, 511 U.S. 127, 138 n.9 (1994).

<sup>23</sup> See *infra* note 29.

helping professions, such as doctors, lawyers, and social workers.<sup>24</sup> In the words of Texas prosecutor Jon Sparling, who prepared a training manual for prosecutors in the 1970's: "You are not looking for a fair juror, but rather a strong, biased and sometimes hypocritical individual who believes that Defendants are different from them in kind, rather than degree."<sup>25</sup> Defense counsel prefer "jurors with apparent biases in the opposite direction;" accordingly, they look for the "young, the better educated, the non-white, the odd or whatever."<sup>26</sup> The literature suggests that prosecutors and defense counsel share a common set of stereotypes of who are good and bad jurors for the State and the defense.<sup>27</sup>

How valid are the perceptions of prosecutors and defense counsel that inform their peremptory strike strategies? First, it is clear that the public and the courts perceive a link between jury racial composition and the results of criminal trials.<sup>28</sup> Second, there is empirical evidence on the issue. The results of mock juror studies are mixed. The evidence from them is strongest in terms of the extent to which jurors of the same race or gender as the defendant or victim may influence guilt and punishment decisions.<sup>29</sup> There are also studies sup-

<sup>24</sup> VAN DYKE, JURY SELECTION, *supra* note 2, at 152-54. See *infra* notes 133-158 and accompanying text for detail on prosecutorial perceptions of jurors in Philadelphia.

<sup>25</sup> VAN DYKE, JURY SELECTION, *supra* note 2, at 152.

<sup>26</sup> Van Dyke, *Voir Dire*, *supra* note 10, at 71.

<sup>27</sup> There is substantial lore on jury selection. See, e.g., Molly Stuart, *Using Psychological Measures to Avoid Impermissible Classifications under Batson*, 22 AM. J. TRIAL ADVOC. 423, 423-24 (1998); Susan E. Jones, *Voir Dire and Jury Selection: Strategies for Success*, 22 TRIAL, Sep. 1986, at 60. On the strengths and weaknesses of "scientific" jury selection, see SAUL M. KASSIN & LAWRENCE S. WRIGHTSMAN, THE AMERICAN JURY ON TRIAL: PSYCHOLOGICAL PERSPECTIVES 57-58 (1988); Cathy E. Bennett, et al., *How to Conduct a Meaningful & Effective Voir Dire in Criminal Cases*, 46 SMU L. REV. 659 (1992); Goodwin, *supra* note 21; Michael J. Saks, *The Limits of Scientific Jury Selection: Ethical and Empirical*, 17 JURIMETRICS J. 3 (1976).

<sup>28</sup> Nancy J. King, *Postconviction Review of Jury Discrimination: Measuring the Effects of Juror Race on Jury Decisions*, 92 MICH. L. REV. 63, 63-64 (1993). The courts make no effort to quantify the impact, beyond assuming in certain contexts that the under-representation of blacks in a given case may have adversely affected the outcome of the case.

<sup>29</sup> A number of studies have explored the juror/defendant interaction process. See, e.g., Sheri Lynn Johnson, *Black Innocence and the White Jury*, 83 MICH. L. REV. 1611, 1640 nn.135-38 (1985) (collecting and reviewing studies on the juror/defendant interaction process); Kitty Klein & Blanche Creech, *Race, Rape, and Bias: Distortion of Prior Odds and Meaning Changes*, 3 BASIC & APPLIED SOC. PSYCHOL. 21, 29-32 (1982) (reporting on two studies investigating how racial bias affects decision making); Marina Miller & Jay Hewitt, *Conviction of a Defendant as a Function of Juror-Victim Racial Similarity*, 105 J. SOC. PSYCHOL. 159, 160 (1978) (reporting a study concluding that subjects "were more likely to vote for the conviction of the accused when the victim was similar rather than dissimilar in race"); Denis C.E. Ugwuegbu, *Racial and Evidential Factors in Juror Attribution of Legal Responsibility*, 15 J. EXPERIMENTAL SOC. PSYCHOL. 133, 143 (1979) (finding that jurors judge a defendant of a dissimilar race more harshly than a racially similar defendant and that black jurors were even more likely to acquit a black defendant even when faced with strong evidence of guilt). Studies have tested different theories to explain this interaction process. See, e.g., J.L. Bernard, *Interaction Between the Race of the Defendant and That of Jurors in Determining Verdicts*, 5 LAW & PSYCHOL. REV. 103 (1979); Steven Cohn et al., *Punitive Attitudes Toward Criminals: Racial Consensus or Racial Conflict?*, 38 SOC. PROBS. 287, 292 (1991) (testing the relationship between fear and prejudice and attitudes toward punitiveness and concluding that punitiveness in the white community correlates with prejudice, whereas in the

porting a “black sheep” hypothesis which suggests that minority group jurors may be more punitive toward members of their own race than other jurors out of a sense of embarrassment and a desire to distance themselves from deviant members of their own group.<sup>30</sup> Recent empirical studies of capital trials document both the impact of jury racial composition on death-sentencing outcomes<sup>31</sup> and the

black community it correlates with fear); James M. Gleason & Victor A. Harris, *Race, Socio-Economic Status, and Perceived Similarity as Determinants of Judgements by Simulated Jurors*, 3 SOC. BEHAV. & PERSONALITY 175, 179 (1975) (concluding in part that “[s]ubjects’ judgments of responsibility are related to their perceptions of how likely it is that they could find themselves in situations similar to that of the defendant”); Craig Haney, *Commonsense Justice and Capital Punishment: Problematizing the “Will of the People”*, 3 PSYCHOL. PUB. POL’Y & L. 303, 331 (1997) (reporting the results of a simulation study suggesting that “the racially discriminatory pattern of death-sentencing may be a function of jurors’ inability [to] empathize with or enter the subjective world of victims and defendants who are racially different from them”); Michael Sunnafrank, *General and Crime Related Racial Stereotypes and Influences on Juridic Decisions*, 17 SOC. REL. 1 (1983). There is also a substantial literature suggesting that defendant and victim attractiveness is a matter of great importance to juries and that race may influence perceptions of attractiveness. See David Landy & Elliot Aronson, *The Influence of the Character of the Criminal and His Victim on the Decisions of Simulated Jurors*, 5 J. EXPERIMENTAL SOC. PSYCHOL. 141 (1969) (finding through simulation that juries faced with an attractive victim sentenced the defendant to harsher punishment and that an unattractive defendant will receive a harsher sentence); Charlan Nemeth & Ruth Hyland Sosis, *A Simulated Jury Study: Characteristics of the Defendant and the Jurors*, 90 J. SOC. PSYCHOL. 221, 227 (1973) (finding that mock jurors imposed harsher sentences against unattractive defendants); Wayne Weiten & Shari Seidman Diamond, *A Critical Review of the Jury Simulation Paradigm: The Case of Defendant Characteristics*, 3 LAW & HUM. BEHAV. 71, 74 (1979) (citing numerous sources finding that defendant’s attractiveness is an important variable in jury simulations); David L. Wiley, *Beauty and the Beast: Physical Appearance Discrimination in American Criminal Trials*, 27 ST. MARY’S L.J. 193, 234 (1995) (suggesting that because physical appearance leads to pre-judgment and discrimination, proxy defendants should be used in attempting to give the defendant a fair trial).

<sup>30</sup> See, e.g., GORDON W. ALLPORT, *THE NATURE OF PREJUDICE* 152 (1954) (self-hatred refers to a “sense of shame for possessing the despised qualities of one’s group—whether these qualities be real or imaginary. We have applied it also to repugnance for other members of one’s group—because they ‘possess’ these qualities.”); *Id.* at 150 (the “victim instead of pretending to agree with his ‘betters’ actually *does* agree with them, and sees his own group through their eyes”); ARNOLD M. ROSE, *THE NEGRO’S MORALE: GROUP IDENTIFICATION AND PROTEST* 85-86 (1949) (“A well-known phenomenon among members of minority groups is hatred of the group, its culture, its members, and even of oneself because one is a member of the group. Group self-hatred may be thought of as the opposite of group identification.”); PAUL M. SNIDERMAN & THOMAS PIAZZA, *THE SCAR OF RACE* 44-45 (1993) (reporting on a 1991 nationwide telephone survey of 1744 whites and 182 blacks, where the black respondents were uniformly more willing than white respondents to agree with “negative stereotypes of blacks” including their being “aggressive or violent” (59% for blacks vs. 52% for whites)); Frank P. Williams, III & Marilyn D. McShane, *Inclinations of Prospective Jurors in Capital Cases*, 74 SOC. & SOC. RES. 85, 89 (1990) (finding, in a study of the death-sentencing recommendation of Texas citizens prepared after reading a vignette of a homicide, which indicated the race, age, and gender of the defendant, that “minority jury candidates were most punitive to members of their own group . . .”). See also *Castaneda v. Parteda*, 430 U.S. 482, 503 (1977) (Marshall, J., concurring) (“Social scientists agree that members of minority groups frequently respond to discrimination and prejudice by attempting to distance themselves from the group, even to the point of adopting the majority’s negative attitudes towards the minority.”).

<sup>31</sup> Recent work by Bowers et al. showed that in a sample of 340 penalty trials from fourteen states, the presence of one or more black men on a jury was associated with lower death-sentencing rates in black defendant cases, i.e., a rate of 70% (35/50) for juries with no black men versus a rate of 45% (37/82) for juries with one or more black men. William J. Bowers, et

differential attitudes and beliefs of black and non-black jurors that are highly relevant to trial guilt and death-sentencing outcomes.<sup>32</sup>

al., *Death Sentencing in Black and White: An Empirical Analysis of the Role of Jurors' Race and Jury Racial Composition*, 3 U. PA. J. CONST. L. 171, 191 tbl.1, panels B & C (2001) (based on our calculations from the data presented). In white defendant cases, the number of black males on the juries did not appear to affect the death-sentencing outcomes. The impact of black men on the juries was most pronounced in black defendant/white victim cases with one or more black men on the jury, i.e., a death-sentencing rate of 72% (23/32) with no black men on the jury and a rate of 40% (16/40) with one or more black men on the jury. *Id.*, panel B.

The Bowers et al. analysis also focused on the impact of white men on the jury. Those data indicated that the presence of five or more white men on the jury was associated with a distinctly higher death-sentencing rate for black defendants. This sentencing disparity was most pronounced in the black defendant/white victim cases, where juries with five or more white men imposed a death sentence in 71% (30/42) of cases versus 30% (9/30) for juries with four or fewer white men. *Id.*

Bowers et al.'s findings, based on interviews with capital jurors, validate the perceptions of Philadelphia's prosecutors and defense counsel of how juror race interacts with the race of the defendant and victim in capital penalty trials. The questions these researchers put to the former jurors in personal interviews addressed (a) juror perceptions of the dangerousness and remorse, and lingering juror doubts about the defendant's guilt, and (b) the importance of these perceptions in juror sentencing decisions. *Id.* at tbls.3-5.

A forerunner of the Capital Jury Project was the Chicago Jury Project in the 1950's and 1960's which included over 1500 interviews with jurors who served on 213 different criminal trials. See Dale W. Broeder, *The University of Chicago Jury Project*, 38 NEB. L. REV. 744 (1959); Dale W. Broeder, *The Negro in Court*, 1965 DUKE L.J. 19; Dale W. Broeder, *Occupational Expertise and Bias as Affecting Juror Behavior: A Preliminary Look*, 40 N.Y.U. L. REV. 1079 (1965); Dale W. Broeder, *Voir Dire Examinations: An Empirical Study*, 38 S. CAL. L. REV. 503 (1965); Dale W. Broeder, *Previous Jury Trial Service Affecting Juror Behavior*, 506 INS. L. J. 138 (1965); Dale W. Broeder, *Plaintiff's Family Status as Affecting Juror Behavior: Some Tentative Insights*, 14 J. PUB. L. 131 (1965). Other studies have shown that minority jurors must constitute a critical mass so as not to be overwhelmed by the majority. See, e.g., Robert T. Roper, *Jury Size & Verdict Consistency: "A Line has to be Drawn Somewhere?"*, 14 LAW & SOC'Y. REV. 977, 988 (1980) (finding that "viable" minorities, defined as at least two jurors, are more successful at resisting conformity pressures); Kenneth S. Klein & Theodore D. Klastorin, *Do Diverse Juries Aid or Impede Justice?*, 1999 WISC. L. REV. 553, 561; cf. David A. Wilder, *Homogeneity of Jurors: The Majority's Influence Depends upon Their Perceived Independence*, 2 LAW & HUM. BEHAV. 363 (1978).

<sup>32</sup> The Bowers et al. data suggest that black jurors were more likely than their white juror counterparts: (a) to have lingering doubts about the defendant's guilt and; (b) to consider this doubt to be a "very" or "fairly" important factor in deciding the defendant's punishment. Bowers, et al., *supra* note 31, at 202-04 tbl.3, panel A.1 & C.1. They were also more likely (c) to believe the defendant was sorry for what s/he did. *id.* tbl.4, panel A.2; and (d) to believe the defendant deserved mercy because of his remorse. *Id.* tbl.4, panel C.1.

On the importance of dangerousness, the Bowers et al. research documented a strong "race of defendant" effect in white victim cases, i.e., a defendant was perceived to be more dangerous in black defendant/white victim cases (79% for black jurors and 89% for white jurors), than in the white defendant/white victim cases (69% for black jurors and 76% for white jurors). *Id.* at 215-17 tbl.5, panel A.1.

"Race of victim" effects were also apparent among black jurors in black defendant cases, i.e., the defendant was perceived as dangerous by 84% of black jurors when both the defendant and victim were black, but only by 79% of black jurors when the defendant was black and the victim was white. *Id.* There were also strong race of victim effects associated with remorse and lingering doubt issues. Specifically, black jurors believed mercy was appropriate because of the defendant's remorse 31% of the time when the defendant was black and the victim was white, but only 6% of the time when both the defendant and victim were black. *Id.* at 209-11 tbl.4, panel C.1. And on the issue of lingering doubts in deciding the punishment, black jurors considered it to be "very" or "fairly" important 44% of the time when the defendant was black and the victim was white, but such doubts assumed that importance only 17% of the time when both the

On the issue of characteristics that may affect more general juror attitudes toward criminal defendants and the State, some mock trial studies also show a main effect of race in which black mock jurors are less willing to convict than are non-black mock jurors regardless of the race of the defendant.<sup>33</sup> There is also evidence suggesting that gender,<sup>34</sup> age,<sup>35</sup> education, and occupation<sup>36</sup> are related to punitiveness. However, a number of studies based on both mock and actual trials indicate that demographics explain relatively little in the way of juror-rating behavior in guilt trials.<sup>37</sup> Also, a handful of empirical studies of actual trials show a distinct relationship between the probability of conviction and the number of black jurors.<sup>38</sup>

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defendant and victim were black. *Id.* at 202-04 tbl.3, panel A.1. *See also* Williams & McShane, *supra* note 30, at 91-92 tbls.1 & 2 (reporting results of a study based on questionnaires submitted by a self-selected sample of 769 death-qualified Texas residents responding with a guilt and sentencing recommendation to a vignette of a homicide, among whites, 76% of the men and 61% of the women recommended a death sentence; for blacks the figures were 40% and 42% and for Hispanics, 32% and 49%, though the sample sizes for the blacks and Hispanics were quite small,  $n = 28$  and  $n = 84$ , respectively).

<sup>33</sup> J.L. Bernard, *Interaction Between the Race of the Defendant and that of Jurors in Determining Verdicts*, 5 LAW & PSYCHOL. REV. 103 (1979) (noting that in mock trials with student jurors involving an assault and battery charge against a police officer, black jurors found all defendants, both black and white, not guilty).

<sup>34</sup> Many studies show that men are more punitive than women. *See, e.g.*, Mike Hough, et al., *Factors Associated with 'Punitiveness' in England and Wales*, in PUBLIC ATTITUDES TO SENTENCING: SURVEYS FROM FIVE COUNTRIES 203, 206 (Nigel Walker & Mike Hough eds., 1988) [hereinafter PUBLIC ATTITUDES TO SENTENCING] (reporting study results showing men to be more punitive than women, though difference "disappears in middle age"); John Walker, et al., *How the Public Sees Sentencing: An Australian Survey*, in PUBLIC ATTITUDES TO SENTENCING, *supra*, at 149, 156 (noting that men are more punitive than women). *But see* Yves Brillon, *Punitiveness, Status, and Ideology in Three Canadian Provinces*, in PUBLIC ATTITUDES TO SENTENCING, *supra*, at 84, 97-98 (finding men and women to be similarly punitive); Carol J. Mills & Wayne E. Bohannon, *Juror Characteristics: To What Extent Are They Related to Jury Verdicts?*, 64 JUDICATURE 22, 27 (1980) (reporting data showing that women were more conviction prone than men); Francis T. Cullen, et al., *The Seriousness of Crime Revisited: Have Attitudes Toward White-Collar Crime Changed?*, 20 CRIMINOLOGY 83, 95 (1982) (finding in a study of attitudes toward white collar crime that gender had little influence on subjects' crime seriousness ranking). For a study finding that black women are more punitive than black men, see Mills & Bohannon, *supra*, at 27.

<sup>35</sup> In addition to the gender effects reported above, studies find that older people tend to be more punitive than younger people. *See, e.g.*, Hough, et al., *supra* note 34 at 203, 206 (finding age positively associated with punitiveness); Charles W. Thomas, et al., *Research Note, Public Opinion on Criminal Law and Legal Sanctions: An Examination of Two Conceptual Models*, 67 J. CRIM. L. & CRIMINOLOGY 110, 114 (1976) ("Older respondents were typically more harsh in their sentencing than were their younger counterparts").

<sup>36</sup> *See, e.g.*, Mike Hough & David Moxon, *Dealing with Offenders: Popular Opinion and the Views of Victims in England and Wales*, in PUBLIC ATTITUDES TO SENTENCING, *supra*, note 34, at 134, 147 (suggesting that manual workers and their families generally favor tougher sentences more than non-manual workers).

<sup>37</sup> Reid Hastie, *Is Attorney-Conducted Voir Dire an Effective Procedure for the Selection of Impartial Jurors?*, 40 AM. U. L. REV. 703, 712 (1991) (stating upon a review of mock trials that "a non-negligible, but small (about ten percent) portion of the variation between jurors in verdict preferences can be predicted from the background characteristics, attitudes, and personality traits of individual jurors using statistical models to make the predictions").

<sup>38</sup> *See* VAN DYKE, JURY SELECTION, *supra* note 2 at 375-76, 378-79 (documenting a decline in felony convictions of approximately ten percentage points following Baltimore, Maryland's 1969 change in jury selection procedures that increased black representation on juries); *id.* at



Finally, public opinion polls and surveys document distinct correlations between demographics and beliefs and attitudes that may bear on their likely reaction to a death penalty prosecution.<sup>37</sup> Some of the strongest associations are with citizen race.<sup>38</sup> Much less pronounced

377, 380-82 (documenting a twenty percentage point decline (from 67% to 47%) in convictions in the Central District of Los Angeles County from 1970 to 1972, when the method of jury selection substantially increased black representation on criminal juries). In the civil context, see also MICHAEL D. GREEN, BENDECTIN AND BIRTH DEFECTS: THE CHALLENGES OF MASS TOXIC SUBSTANCES LITIGATION 290-91 (1996) (reviewing nine civil verdicts, noting that three of the five plaintiff verdicts had predominantly or exclusively non-white jurors from mid-size cities and suburban or rural areas). *But see id.* at 291 (noting that "it is difficult to separate race from socioeconomic variables") (footnote omitted).

<sup>39</sup> Particularly relevant here are three components of a juror's decision making process: "[the] evaluation of witness credibility, [the] inferences that go beyond the given evidence, and the value of the juror's personal standard-of-proof threshold for conviction." Phoebe C. Ellsworth, *Some Steps Between Attitudes and Verdicts*, in *INSIDE THE JUROR: THE PSYCHOLOGY OF JUROR DECISION MAKING* 42, 58 (Reid Hastie ed., 1993).

<sup>40</sup> Disparities in opinion polls are most marked along racial lines. When asked in a 1997 poll if they believe in or are opposed to capital punishment, 80% of whites said they believe in it, compared to 46% of blacks. BUREAU OF JUSTICE STATISTICS, U.S. DEPARTMENT OF JUSTICE, SOURCEBOOK OF CRIMINAL JUSTICE STATISTICS - 1997 at 138 tbl.2.57 (Kathleen Maguire & Ann L. Pastore eds., 1998) [hereinafter BJS] (nationwide survey of approximately 1250 adults). In another survey, when asked specifically if they favored or opposed the death penalty for people convicted of murder, 75% of whites said they favored it, compared to 54% of nonwhites. *Id.* at 140-41 tbl.2.60 (1996 nationwide survey of 2904 adults). And in a 1993 survey that explicitly asked if the penalty for murder should be "the death penalty or life imprisonment with absolutely no possibility of parole," 62% of whites said the death penalty, compared to 38% of blacks. ADAM DOBRIN ET AL., STATISTICAL HANDBOOK ON VIOLENCE IN AMERICA 330 tbl.5.59 (1996) (nationwide survey of 1244 adults). A 1994 poll asked respondents if they supported the death penalty for persons convicted of murder, then adjusted the results for race and gender. The levels of support were: 82.8% of white males, 74.9% of white females, 56.7% of black males, and 47.5% of black females. *Id.* at 331 tbl.5.61 (nationwide survey of 2992 adults).

Attitudes toward police also break clearly along racial lines. A 1999 poll asked if blacks are treated less fairly than whites in dealings with the police in their local community. Sixty-four percent of blacks agreed, compared to thirty percent of whites. Jack Ludwig, *Perceptions of Black and White Americans Continue to Diverge Widely on Issues of Race Relations in the U.S.*, at <http://www.gallup.com/poll/releases/pr000228.asp> (last visited Mar. 17, 2000) (nationwide survey of 2,006 adults). A 1998 survey asked how much confidence do "you, yourself" have in police. Twenty-five percent of blacks answered "very little," as compared to 8% of whites. BJS, *supra*, at 107 tbl.2.17 (nationwide survey of approximately 1000 adults). When another survey asked this same question specifically of local police, the response was similar: 20.7% of blacks said they had very little confidence, compared to 11% of the whites. *Id.* tbl.2.18 (1996 nationwide survey of 1085 adults).

Even more recently, a 1999 poll asked whether people had favorable or unfavorable opinions of their local police: 85% of whites said they had a favorable opinion, compared to 58% of blacks. Ludwig, *supra*. When asked to rate the honesty and ethics of police, 51% of whites responded "high" or "very high," compared to only 32% of non-whites. Leslie McAneny, *Pharmacists Again Most Trusted; Police, Federal Lawmakers Images Improve*, at <http://www.gallup.com/poll/releases/pr970103.asp> (1996 nationwide survey of 813 adults).

These attitudes appear to stem not only from observations of society at large, but often from personal experience. Asked in a 1999 survey if they had personally ever felt treated unfairly by the police or a police officer because of their own race, 43% of blacks said yes, compared to 24% of whites. Mark Gillespie, *One Third of Americans Believe Police Brutality Exists in Their Area*, at <http://www.gallup.com/poll/releases/pr990322.asp> (last visited Mar. 17, 2000) (nationwide survey of 1021 adults). Even more remarkable is the difference that emerges when questions are asked about

differences also exist on such dimensions as gender,<sup>41</sup> age,<sup>42</sup> educa-

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what powers police *ought* to be allowed. A 1996 survey asked respondents if there were any situation they could imagine in which they would approve of a policeman striking an adult male citizen. Seventy-one percent of whites said yes, compared to forty-seven percent of non-whites. BJS, *supra*, at 116-17 tbl.2.28 (nationwide survey of 2904 adults). A 1994 survey asked the same question, and tabulated the results adjusted for race and gender. The levels of support were: 83.3% of white males, 69.4% of white females, 66.3% of black males, and 32.7% of black females. DOBRIN, *supra*, at 291 tbl.5.2 (nationwide survey of 2992 adults). Another survey asked what special powers, if any, police should be allowed in high crime areas: 62% of whites said they would favor allowing police to conduct stop-searches compared to 37% of blacks; 19% of whites said they would favor allowing police to search homes without warrant compared to 4% of blacks; and 77% of whites would favor holding suspects without bail compared to 54% of blacks. DOBRIN, *supra*, at 321 tbl.5.48 (1993 nationwide survey of 1244 adults). See also Scott Wortley et al., *Just Deserts? The Racial Polarization of Perceptions of Criminal Injustice*, 31 LAW & SOC'Y. REV. 637, 646, 659 (1997) (reviewing the empirical literature, stating: "The evidence is clear that a large proportion of African Americans perceive the courts as well as the police as discriminatory on the basis of race;" reporting the results of interviews of 1,201 Toronto citizens indicating that these perceptions are especially strong among well-educated blacks who have had recent contact with the police); Charles W. Peek et. al, *Race and Attitudes Toward Local Police: Another Look*, 11 J. BLACK STUD. 361, 365 (1981) (in a nationwide 1973 Gallup poll of 1554 people who expressed their attitude toward the local police, the strongest predictors "on liking for local police" were race (with blacks less favorable) and age (with older citizens more favorable), although respondent demographics explained only 6% of the variance of the response).

These differences between black and white attitudes extend to perceptions about the people accused and convicted of crime as well. In 1999, when asked what percentage of convicted murderers they would guess are actually innocent, whites said 10%, while blacks said 18%. The Harris Poll #45, Wednesday, July 28, 1999, at 5 (nationwide survey of 1015 adults).

When asked if courts in their own area deal too harshly or not harshly enough with criminals, 11% of non-whites said "too harshly," compared with 3% of whites. BJS, *supra*, at 134-35 tbl.2.50 (1996 nationwide survey of 2904 adults).

Similar differences appear when respondents are asked about specific high profile cases. When asked if they thought there were circumstances in which police officers should be allowed to use the amount of force shown on the Rodney King videotape, 16% of whites said yes compared to 4% of blacks. DOBRIN, *supra*, at 296 tbl.5.9 (1992 nationwide survey of 1102 adults). And as recently as a 1999 poll, when asked if the murder charges against O. J. Simpson were true, 79% of whites said yes, compared to 35% of blacks. Frank Newport, *Fifth Anniversary of Nicole Brown Simpson and Ron Goldman Murders Finds Americans Still Pointing at O.J. Simpson*, <http://www.gallup.com/poll/releases/pr990614.asp> (last visited Mar. 17, 2000) (nationwide survey of 1013 adults).

Arguably, there is a counter influence of race, moving in the opposite direction: this is the issue of victimization. The consistently higher rates at which black people are the victims of crime is one area in which being black would logically provide an impetus to tend to convict. For example, 46% of blacks said they feel a sense of danger from gun violence where they live and work as compared to 34% of whites. DOBRIN, *supra*, at 306 tbl.5.27 (1993 nationwide survey of 1244 adults). And 13% of blacks said they very frequently worry about getting murdered, compared to 7% of whites. *Id.* at 309 tbl.5.32 (1993 nationwide survey of 1244 adults).

<sup>41</sup> In a 1996 national poll, when asked if they favored or opposed the death penalty for people convicted of murder, 79% of males said they favored it, while 65% of women favored it. BJS, *supra* note 40, at 140-41 tbl.260 (nationwide survey of 2904 adults). And 64% of males versus 55% of females think the penalty for murder should be the death penalty, as opposed to life imprisonment with absolutely no possibility of parole. DOBRIN, *supra* note 40, at 330 tbl.5.59 (1993 nationwide survey of 1244 adults).

Likewise, attitudes toward police differ by gender. A 1996 survey asked respondents if there was any situation they could imagine in which they would approve of a policeman striking an adult male citizen. Seventy-five percent of males said yes, compared to sixty percent of females. BJS, *supra* note 40, at 116-17 tbl.2.28 (nationwide survey of 2904 adults). A 1994 survey asked the same question, and tabulated the results adjusted for race and gender. The levels of sup-

tion,<sup>43</sup> income,<sup>44</sup> political orientation,<sup>45</sup> and occupation.<sup>46</sup> In evaluat-

port were: 83.3% of white males, 66.3% of black males, 69.4% of white females, and 32.7% of black females. DOBRIN, *supra* note 40, at 291 tbl.5.2 (nationwide survey of 2992 adults).

When asked in 1998 how much confidence they had in the criminal justice system, 28% of males said "a great deal" or "quite a lot," compared to 20% of females. BJS, *supra* note 40, at 106 tbl.2.15 (nationwide survey of approximately 1000 adults). In 1999, when asked what percentage of convicted murderers they would guess are actually innocent, men said 8%, while women said 13% (nationwide poll of 1015 adults). The Harris Poll #45, Wednesday, July 28, 1999, at 5. These results may be offset to some degree by the same counter-current that exists with blacks: higher levels of victimization. For example, 65% of black females vs. 45.4% of black males said there was an area within a mile of them where they would be afraid to walk alone at night; 57.4% of white females compared to 27.2% of white males said there was. DOBRIN, *supra* note 40, at 304 tbl.5.24 (1994 nationwide survey of 2992 adults).

<sup>43</sup> Older people also tend toward some of the attitudes that might make them more desirable jurors for the prosecution to seat. When it comes to capital punishment for example, 63% of those 65 and older think the penalty for murder should be the death penalty, as opposed to life imprisonment with absolutely no possibility of parole, versus 58% of those 50-64, 62% of those 30-49, and 52% of those 18-29. *Id.* at 330 tbl.5.59 (1993 nationwide survey of approximately 1244 adults). Also, a 1998 survey asked how much confidence do "you, yourself" have in police. Forty-six percent of adults under 30 said "a great deal" or "quite a lot," compared to fifty-nine percent of those from 30-49, sixty-one percent of those from 50-64, and sixty-eight percent of those 65 or older. BJS, *supra* note 40, at 107 tbl.2.17 (nationwide survey of approximately 1000 adults).

<sup>44</sup> Another quality of a desirable juror from the prosecution point of view is a certain lack of education, or at least not being "overly" educated. However, the effect of education seems mixed. On the one hand, less educated people have less confidence in the system and the integrity of its players. On the other hand, they tend to be less likely to be analytical, to "rock the boat," or to be influential in the jury room.

For example, education appears to be correlated with sensitivity to mitigating circumstances. Sixty-three percent of those with no college education believe that when a teenager is found guilty of murder he should not be spared the death penalty because of her/his youth, compared to fifty-nine percent with some college, fifty-nine percent of college graduates, and fifty-two percent of those with postgraduate experience. DOBRIN, *supra* note 40, at 324 tbl.5.51 (1994 nationwide survey of 1022 adults). Likewise, in a 1993 poll, 74% of people with no college or some college thought that juveniles who commit violent crimes should be treated the same as adults, not more leniently, compared with 67% of college graduates and 65% of those with postgraduate education. *Id.* at 322 tbl.5.49 (nationwide survey of 1244 adults).

Attitudes toward police and law enforcement also tend to vary according to education levels. A 1996 survey asked respondents if there were any situation they could imagine in which they would approve of a policeman striking an adult male citizen. Fifty-two percent of non-high school graduates said yes, compared to sixty-two percent of high school graduates, and seventy-four percent of those with some college education. BJS, *supra* note 40, at 116-17 tbl.2.28 (nationwide survey of 2904 adults). When asked how much confidence they have in their local police, 17.1% of non-high school graduates said "very little," compared to 14.2% of high school graduates, 13.3% of those with some college, and 6.2% of college graduates. *Id.* at 107 tbl.2.18 (1996 nationwide survey of adults).

In 1999, when asked what percentage of convicted murderers they would guess are actually innocent, people with an education level of high school or less said 13%, people with some college said 9%, while college graduates and people with post-college education averaged approximately 6.5% (nationwide poll of 1015 adults). The Harris Poll #45, Wednesday, July 28, 1999 at 5.

But as explained above, not all education based survey results are so evenly unidirectional. The poll results that correlate increasing education levels with presumably less prosecution-friendly attitudes are sometimes less linear. For instance, when asked in a 1996 poll if they favored the death penalty for persons convicted of murder, 67.2% of college graduates said yes, compared to 74.5% of those with some college, 80.5% of high school graduates, and 67.2% of those with less than a high school education. BJS, *supra* note 40, at 139 tbl.2.58 (nationwide

ing demographics, it is important to note, however, that statistically they explain very little of the variations in the responses given in public opinion polls.<sup>47</sup>

## 2. *The Use of Peremptory Challenges*

Beyond the studies that have been conducted by litigants to support constitutional challenges to the use of peremptories in individual cases,<sup>48</sup> we are aware of only five empirical studies of the use of

survey of 1085 adults). Another poll asking the same question showed a similar "bubble" in the middle education range: it reported that people with a college education were in favor of the death penalty 69% of the time, while high school graduates were in favor 76% of the time and those who didn't graduate from high school in favor 68% of the time. *Id.* at 140-41 tbl.2.60 (1996 nationwide poll of 2904 adults).

<sup>47</sup> Approximately 63% of people with income over \$20,000 think the penalty for murder should be the death penalty, as opposed to life imprisonment with absolutely no possibility of parole, compared to 52% of those with income under \$20,000. DOBRIN, *supra* note 40, at 330 tbl.5.59 (1993 nationwide poll of 1244 adults).

<sup>48</sup> Prosecutors tend to favor conservative jurors. This idea is borne out by the surveys which include breakdowns based on politics and ideology; they tend to show conservatives/Republicans as being markedly more punitive than liberals/Democrats. In a 1996 poll, when asked if they favor or oppose the death penalty for persons convicted of murder, 85% of Republicans said they favor it, compared to 61% of Democrats. BJS, *supra* note 40, at 140-41 tbl.2.60 (nationwide poll of 2904 adults). Sixty-eight percent of Republicans think the penalty for murder should be the death penalty, as opposed to life imprisonment with absolutely no possibility of parole, compared to fifty-five percent of Democrats. DOBRIN, *supra* note 40, at 330 tbl.5.59 (1993 nationwide poll of 1244 adults). Similarly, 63% of conservatives think the penalty for murder should be the death penalty, as opposed to life imprisonment with absolutely no possibility of parole, compared to 48% of liberals. *Id.* In 1999, when asked what percentage of convicted murderers they would guess are actually innocent, Republicans said 7%, while Democrats said 12%. The Harris Poll #45, Wednesday, July 28, 1999, at 5 (nationwide poll of 1015 adults). A 1996 survey asked respondents if there were any situation they could imagine in which they would approve of a policeman striking an adult male citizen. Seventy-eight percent of Republicans said yes, compared to sixty percent of Democrats. BJS, *supra* note 40, at 116-17 tbl.2.28 (nationwide poll of 2904 adults).

<sup>49</sup> On the role of occupation, the results are less clear cut than some other traits we have examined. For example, when asked if they favor or oppose the death penalty, 70% of professional/business respondents said they favored it, compared to 73% of clerical workers and 72% of manual laborers and farmers—a comparatively tight range in responses. BJS, *supra* note 40, at 140-41 tbl.2.60 (nationwide survey of 2,904 adults). But when asked if there was any situation they could imagine in which they would approve of a police officer striking an adult male citizen, 75% of the professional/business respondents said yes, compared with 66% of the manual laborers, 60% of clerical workers, and 58% of farmers. *Id.* at 116 tbl.2.28 (1996 nationwide survey of 2,904 adults).

In their paper on the death penalty and public opinion, Professors Vidmar and Ellsworth state that "[g]enerally, people who support the death penalty tend to be older, less educated, male, more wealthy, white, and from urban areas. A greater percentage of white collar workers, manual laborers, and farmers favor capital punishment than do professionals and businesspersons." Neil Vidmar & Phoebe Ellsworth, *Public Opinion and the Death Penalty*, 26 STAN. L. REV. 1245, 1253 (1974). They go on to describe a specific area where occupation influences opinion, that of expert occupational groups. They report, not surprisingly, that policemen, sheriffs, district attorneys, and prison guards tend to support the death penalty, while psychiatrists, clergymen, and prisoners tend to oppose it. *Id.* at 1254.

<sup>47</sup> *Id.* ("[D]emographic correlates . . . do not account for much variability in attitudes . . .").

<sup>48</sup> See, e.g., VAN DYKE, JURY SELECTION, *supra* note 2, at 155-56 (collecting studies).

peremptory challenges in actual cases. The first study examined jury selection in thirty capital trials in Florida during 1974-78.<sup>49</sup> The principal purpose of the study was to establish that prosecutors disproportionately used peremptories to strike death penalty scrupled jurors who had not been removed from the jury for cause. The study accomplished this objective quite well, documenting that prosecutors struck 77% (40/52) of the scrupled jurors but only 28% of those who were not scrupled. That disparity was not explained by legitimate venire-member characteristics. In addition, the paper documented that the overall strike rates for the government and defense counsel were 32% and 30%, respectively.<sup>50</sup>

Next, two studies focused on race discrimination in the use of peremptories. The first examined their use by both the prosecution and defense counsel in twelve felony trials conducted in a single parish in Louisiana in the period 1976-81, during which time blacks constituted 18% of the registered voters, the group from whom the venires were selected.<sup>51</sup> On the assumption that the venires were 18% black (the actual figure was not reported), we would expect, in an even-handed system, to see 18% of the venire members who were struck to be black. In fact, the figure was 44%, a 26-percentage point disparity. In spite of this disparity, the average proportion of blacks reported on the juries selected was 15%, only three points below the percentage among the registered voters. How could this occur? The explanation lies in defense counsel's use of their peremptories. Specifically, 96% of their strikes were directed against non-black veniremembers.<sup>52</sup>

The Louisiana study illustrates that discrimination in the use of peremptories is not restricted to prosecutors. Indeed, each side in this study discriminated and apparently saw the strategy as essential to counteract the effects of the other side's use of peremptories. The problem for defense counsel is particularly acute when the minority population is small.<sup>53</sup>

When the number of "minority" and "majority" venire members is roughly equal and each side has the same number of strikes, the playing field is level. However, when the proportion of minorities is small and the government disproportionately strikes them, defense counsel can maintain a reasonable representation of minorities on the juries only by heavily concentrating their strikes against non-black venire-

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<sup>49</sup> Winick, *supra* note 20.

<sup>50</sup> *Id.* at 30-31 tbls. 1 & 2.

<sup>51</sup> Billy M. Turner, et al., *Race and Peremptory Challenges During Voir Dire: Do Prosecution and Defense Agree?*, 14 J. CRIM. JUST. 61, 63 (1986).

<sup>52</sup> *Id.* at 67 tbl.4. The rates were approximately the same regardless of the race of the defendant.

<sup>53</sup> "Because black prospective jurors are a minority in many jurisdictions, the exclusion of most black prospective jurors by [the] prosecution can be accomplished more easily than the similar exclusion of Caucasian prospective jurors by [the] defense." *Id.* at 68.

members, as was reflected in this study.

The second race-related study, conducted by Mary R. Rose of the American Bar Foundation, focused on thirteen post-*Batson*, non-capital cases involving serious felonies tried in a North Carolina county.<sup>54</sup> The population of the county was 37% black and, on average, the venire members were 32% black.<sup>55</sup> Even though 32% of the venire members were black, blacks comprised 60% of the prosecution's total strikes (a 28-point disparity).<sup>56</sup> However, white venire members constituted 87% of defense counsel's strikes (a 19-point disparity).<sup>57</sup> The result was that, in spite of considerable variation in the proportions of blacks on the individual juries, on average, black representation was slightly higher than what one would have expected in an even-handed system. The author concluded:

In this sense, the peremptory had no "disparate impact" upon the minority participation in juries in this county. On the other hand, a closer look reveals that this result comes about in large part because of the adversary system and "disparate treatment" by prosecutors and defense attorneys of both racial groups.<sup>58</sup>

Finally, two empirical studies focus on the effectiveness of prosecutors and defense counsel in their use of peremptories in actual cases.<sup>59</sup> These inquiries build upon a substantial body of mock trial

<sup>54</sup> Mary R. Rose, *The Peremptory Challenge Accused of Race or Gender Discrimination? Some Data from One County*, 23 LAW & HUM. BEHAV. 695, 697 (1999).

<sup>55</sup> *Id.* at 698. Almost 10% of the venire members were excluded for cause and; overall, 46.8% of the remaining venire-members were struck peremptorily.

<sup>56</sup> *Id.* at 699. If venire members were peremptorily struck even-handedly, blacks would have represented 32% of those struck. The 28-point disparity reflects the difference between that number and the proportion of blacks observed among the venire members peremptorily struck by the prosecution (60% - 32% = 28 percentage points).

<sup>57</sup> *Id.* Even-handed defense strikes would have seen 68% whites among those struck compared with the 87% observed, thus the 19-point disparity.

<sup>58</sup> *Id.* at 700. There were no gender effects measured in terms of the number of women serving on the juries and the prosecutor and defense counsel strike rates against women. *Id.* at 699.

<sup>59</sup> A recent jury simulation study by Norbert L. Kerr and colleagues focused principally on the effectiveness of voir dire in reducing the impact of pre-trial publicity. Norbert L. Kerr, et al., *On the Effectiveness Of Voir Dire In Criminal Cases With Prejudicial Pretrial Publicity: An Empirical Study*, 40 AM. U. L. REV. 665, 700 (1991) (noting that on the principal focus of the paper the authors conclude that "confidence in voir dire as an effective remedy for exposure to extensive, highly prejudicial pretrial publicity is not warranted"). Among other things, the paper examined the effectiveness of defense counsel and prosecutors in the use of peremptory challenges. The study was a simulation in which current or former judges, prosecutors, and defense counsel viewed videotaped interviews of eight prospective jurors in an armed robbery trial of a young black man. The interviews contained four questions concerning the pre-trial publicity associated with the crime but the attorneys also had access to a written questionnaire prepared by the venire member that covered occupation, education, and venire member demographics. At the conclusion of the interview, the attorneys were asked to rate each venire member in terms of "how likely" they were to strike the venire member for cause or peremptorily and to estimate "which way the juror would lean in the trial." *Id.* at 677-78. Counsel were also asked to write down any reasons why they might want or not want to challenge the juror and, if they did exercise a peremptory, how confident were they that the strike was correctly made. The authors then compared the evaluations of each side with each juror's actual inclination to convict before and after deliberation. *Id.* at 682-83.

research and other analyses, which suggest that lawyers are not particularly effective in the selection process. The generally accepted view among social scientists who have studied the subject is that the use of peremptories makes only marginal differences in the composition of juries.<sup>60</sup>

Law and social science pioneers Hans Zeisel and Shari Diamond conducted the first systematic study of attorney effectiveness in a series of actual cases.<sup>61</sup> They tracked 12 criminal cases tried in a federal court and compared the verdicts returned by the actual jurors with the verdicts that would likely have been returned had the venire members who were struck by the parties been seated. The distinctive feature of this study was the retention of the peremptorily struck venire members as shadow jurors who heard the testimony and deliberated as a group before casting their votes on guilt or innocence. This

Defense counsel evaluated 99 venire members and prosecutors evaluated 107, with peremptory strike rates of .38 for defense counsel and .17 for the prosecutors. In terms of accuracy, defense counsel's strikes bore no significant relationship to the juror voting behavior—"in identifying jurors hostile to their cases, defense attorneys would have done no worse in exercising their peremptory challenges had they simply flipped coins." *Id.* at 685. Prosecutors were considerably more successful in their use of peremptories, even though they used fewer of them. Among the jurors not challenged by the prosecution, 50.5% favored conviction prior to deliberation but among those challenged only 16.7% favored conviction. *Id.* at 686. However, contrary to expectations, "prosecutor experience" did not correlate with effective peremptory use. *Id.*

The authors also compared the actual successful "hit rate" of the striking attorneys with their "self-estimated" hit rates. On this measure both sides showed similar results in that they "grossly overestimated their actual rate of success." On average they estimated a hit rate of .72 where in fact the correct rate was .45, "which was not significantly differently from performing at the level of pure chance." *Id.* at 688-89.

For the prosecutors, the authors examined the reasons given for the peremptory strikes. High on the list of demographics and personal characteristics were black and bearded jurors. *Id.* at 692. Similar results for defense counsel were not reported. The authors then examined the data to see whether these characteristics explained the pattern of prosecutorial strikes statistically. They found that the beards did not but that race did: "The odds of being challenged by the prosecutor were over five times as great if the prospective juror was black than non-black." *Id.* See also Hastie, *supra* note 37, at 713-15 (describing earlier mock jury studies).

<sup>60</sup> See Hastie, *supra* note 37, at 716 (reviewing the literature on effectiveness in the use of peremptory challenges and stating that the literature supports the view that "attorney selection strategies do exercise a small influence on the outcomes of a few cases . . ."); Michael J. Saks, *What Do Jury Experiments Tell Us About How Juries (Should) Make Decisions?*, 6 S. CAL. INTERDISCIPLINARY L.J. 1, 10-12 (1997) ("Even where individual difference variables do predict jurors' preferences, these differences are of a small magnitude, even when combined into an optimal prediction model . . . . [I]f social science jury selection methods cannot usually be much help except on the margin, what about lawyers selecting juries the old fashioned way, by relying on their intuitive judgments? The available evidence is that, at least for most lawyers, that is an even less effective road to a favorable jury."); M. Juliet Bonazzoli, Note, *Jury Selection and Bias: Debunking Invidious Stereotypes Through Science*, 18 QUINNIPIAC L. REV. 247, 303 (1993) (arguing that the use of scientific jury selection methods may reduce the level of discrimination in the use of peremptories by reducing reliance on "over-generalized stereotypes.").

<sup>61</sup> Hans Zeisel & Shari Seidman Diamond, *The Effect of Peremptory Challenges on Jury and Verdict: An Experiment in a Federal District Court*, 30 STAN. L. REV. 491 (1978). They had earlier examined the impact of peremptories in a single case through an evaluation of actual strikes with follow up interviews with jurors selected and struck. Hans Zeisel & Shari Seidman Diamond, *The Jury Selection in the Mitchell-Stans Conspiracy Trial*, 1976 AM. B. FOUND. RES. J. 151.

enabled the authors to estimate the likelihood that the verdicts would have been different if no peremptories had been available.

The study also considered whether the venire members struck by the government would have voted for the defendant or the State. The authors conducted a similar analysis of defense strikes. The conclusion of the study was that in only two of the cases would the outcome likely have been different if no peremptories had been used. Also, on the basis of how well each side predicted the likely vote of the venire members it struck, the authors concluded that the prosecutors made "about as many good challenges as bad ones," and that defense counsel did a "slightly better" job in striking jurors who would have voted to convict.<sup>62</sup>

The second empirical study, conducted by two pioneers in the field of law and statistics, Michael Finkelstein and Bruce Levin,<sup>63</sup> was also set in federal court.<sup>64</sup> The distinctive feature of this study is that it did not involve simulation, but rather used the actual results of peremptory challenges in sixteen trials conducted by three federal judges in 1995 and 1996 in the Southern District of New York. The judges were selected because they had adopted the unusual practice of requiring each side to make all of its peremptory strikes (usually seven for the government and eleven for the defense) *simultaneously* at the completion of the court's questioning of the entire venire. As a result, counsel on each side had no knowledge of which venire members the other side planned to strike when submitting their own challenges.

The authors first assumed a categorical model in which peremptory strikes were divided into two categories: (a) "clear choice strikes," i.e., those on which "lawyers generally would agree on the juror's bias," and (b) other strikes (which the authors called "guesses"), i.e., those struck jurors about whom lawyers might disagree as to bias, or struck for some reason other than bias, such as perceived unpredictability. The authors argued that "guess" strikes are a less justifiable use of the peremptory strike power because they are based on a personal intuition not necessarily shared by other lawyers, or on a less valid reason than bias, such as unpredictability. The goal of the re-

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<sup>62</sup> *Id.* at 517. The authors created a scoring system, which for each case indicated on a scale ranging from -100 (all bad strikes) to +100 (all good strikes), how well each side identified and peremptorily struck the jurors who would have voted against their interest. The average prosecutorial score across twelve cases was close to zero (-0.5), while the average score for defense counsel was +17. *Id.* at 516 tbl.9.

<sup>63</sup> Michael O. Finkelstein's 1966 article, *The Application of Statistical Decision Theory to the Jury Discrimination Cases*, 80 HARV. L. REV. 338 (1966), has had an enormous influence over judicial approaches to the proof of discrimination with statistics. He has also paved the way in numerous other creative applications of statistical methodology to legal issues. Bruce Levin has been a long time collaborator with Finkelstein. See, e.g., MICHAEL O. FINKELSTEIN & BRUCE LEVIN, STATISTICS FOR LAWYERS (1990).

<sup>64</sup> Michael O. Finkelstein & Bruce Levin, *Clear Choices and Guesswork in Peremptory Challenges in Federal Criminal Trials*, 160 J. ROYAL STAT. SOC'Y A 275 (1997) [hereinafter Finkelstein & Levin].



search was to estimate the number of clear choices and guesses that resulted in strikes.

The challenge in the research was that the authors collected almost no direct evidence concerning (a) the reasons for each side's strikes, (b) the characteristics of the jurors struck, (c) professional opinion about the likely bias of those jurors, or (d) any indication of how the struck jurors would have voted had they been seated as jurors (as did Zeisel and Diamond). The only direct information the investigators systematically collected was the frequency with which both sides struck the same juror or jurors—which the authors styled as “overstrikes.” Such overstrikes are clearly “guesses,” since the two lawyers in the case disagreed about the direction of that juror's potential bias, or struck for a reason other than perceived bias. In the venires analyzed, the number of overstrikes ranged between zero and four; there were a total of twenty-one.

To estimate the number of clear choices and guesses from the overstrike data, the authors assumed that guess strikes were made at random from venire members who were not clear choices.<sup>65</sup> Then, using a mathematical model, the authors identified, by computer iteration, the average proportion of clear-choice strikes for the sixteen cases that maximized the probability of the observed numbers of overstrikes. They concluded that clear-choice strikes represented only about 20% of the total strikes for both sides combined; most of the strikes were guesses.<sup>66</sup>

The authors further argued that dividing jurors into clear choices and random selections is probably too black and white. They plausibly argued that lawyers would probably disagree over most jurors and that the likelihood of being struck would differ for the jurors who were not clear choices. However, they observed that one can include in a categorical model any distribution of consensus about jurors. As a consequence, their model could have reflected different degrees of randomness in the use of peremptories.<sup>67</sup>

The authors concluded that because so few of the strikes actually used were clear choices, “little if anything would be lost to fairness if

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<sup>65</sup> On the basis of both theory and our own analysis of the Philadelphia data, this assumption appears to be reasonable.

<sup>66</sup> When the authors examined the prosecution and defense strikes separately, they found that the prosecution had substantially more clear-choice strikes than did the defense. However, because of the “small sample” involved in the analysis, they focused on the overall proportion of clear strikes for both sides together. *Id.* at 281.

<sup>67</sup> To test the robustness of their finding, the authors used a “randomness index” to estimate the number of overstrikes one would likely observe in a random selection process using an alternative set of assumptions. The first assumption was that all of the strikes were “clear choices,” which would have resulted in zero overstrikes. The second assumption was that all of the strikes were guesses, which would have resulted in 38.72 overstrikes. Given that the observed number of overstrikes was 21, the authors conclude that the actual selections were about 54% (21/38.72) “of the way from all clear choices to all guesswork in strikes.” On the basis of these results and the results of their categorical model, they concluded that the observed overstrike data “are thus consistent with a high degree of guesswork in preemptory challenges.” *Id.* at 284.

the numbers of peremptory challenges were reduced to compel lawyers to focus on the most egregious problem jurors.” They further argue that such a reduction would “decrease the opportunities for discrimination in their exercise, a problem that cannot adequately be controlled” under existing law.<sup>68</sup>

Our jury selection data from Philadelphia did not permit us to replicate directly the Zeisel and Diamond and Finkelstein and Levin research.<sup>69</sup> Nevertheless, we share their interest in evaluating the effectiveness of each side in eliminating the venire members they perceive to be most threatening, i.e., their “clear choices” for exclusion. We also share the interest of Finkelstein and Levin in tailoring the use of peremptories to deal with their stated goal of eliminating clearly “bad” jurors from each side’s perspective, based on legitimate considerations, while at the same time reducing opportunities for race and gender discrimination.

We defined clear choice venire members in terms of group membership defined by race, age, and gender. By combining these venire member characteristics, we defined twelve target groups.<sup>70</sup> For each target group, the strength of each side’s clear choice was measured in terms of the peremptory strike rates leveled against it.<sup>71</sup>

We assessed the effectiveness of counsel in terms of their ability to exclude their clearest choices from jury service, which we measured in two ways. The first measure—the “depletion” model—focused on the success of each side in excluding prime target group members from the strike eligible venire members that it considered (each side exercised its peremptory strike discretion over a different but over-

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<sup>68</sup> *Id.* Regrettably, the methodology of the study does not enable us to know the race and gender of the “clear choices” on both sides. It may well be that the race and gender play a major role in defining the “most egregious problem jurors.” *Id.* However, even if this were the case, the reduction in the numbers of strikes would limit the magnitude of the opportunities for race and gender discrimination. Also, under existing law, with only a few strikes available to each side, the burden of proof required to establish a prima facie case based on the patterns of strikes exercised in an individual trial would be heightened. See *infra* text following note 81 for a discussion of the burden of proof under *Batson v. Kentucky*.

<sup>69</sup> Unlike Zeisel and Diamond, we have no data on the likely votes of the venire-members peremptorily struck in Philadelphia. And unlike Finkelstein and Levin, we have no information on overstrikes. Their overstrike data are an artifact of the system they studied, which required each side to submit all of its strikes simultaneously without knowledge of the other side’s strike requests. In Philadelphia, jurors are struck sequentially with each side alternating. As a result we cannot document the venire members each side wanted to strike even though only one side actually removed the venire member.

<sup>70</sup> 1) young black men, 2) young black women, 3) middle-aged black men, 4) middle-aged black women, 5) older black men, 6) older black women, 7) young non-black men, 8) young non-black women, 9) middle-aged non-black men, 10) middle-aged non-black women, 11) older non-black men, and 12) older non-black women.

<sup>71</sup> A refinement of this measure compares the two side’s strike rates against each group; for example, the strike rate against older black males is .37 for the Commonwealth and .30 for defense counsel, yielding a clear strike Commonwealth preference of only seven points. In contrast, the strike rates for the Commonwealth and defense counsel against young black females are .69 and .13 respectively, yielding a clear strike preference of fifty-six points.

lapping group of venire members).<sup>72</sup> Our second measure of effectiveness—the “jury representation” model—focused on the under- and over-representation of the clear choice groups on the juries as compared to what an even-handed selection process would produce (a difference that reflects the combined effects of each side’s peremptory strike decisions).<sup>73</sup>

Our third measure—the “target selection” model—focused on the extent to which each side’s strike strategy correctly targeted the groups that appeared to be most hostile to its interests. For example, a high government strike rate against a target group that appeared to be death-prone across the board would score low on this measure of effectiveness. This approach is similar to Zeisel and Diamond’s in focusing on the extent to which groups of venire members (rather than individuals) who are perceived to be biased by each side actually behaved in the manner predicted.

Our fourth measure—the “outcome enhancement” model—measures the effectiveness of each side’s peremptory strike strategy in terms of their impact on jury death-sentencing rates overall and against particular defendants defined in terms of their race and the race of their victim.

### 3. *The Legality of Race- and Gender-Based Peremptory Challenges*

The Supreme Court barred the overt and explicit use of racial criteria to exclude blacks from jury service in the late nineteenth century.<sup>74</sup> It nevertheless countenanced the use of peremptories based on “race, religion, nationality, occupation or affiliation.”<sup>75</sup> Indeed, *Swain v. Alabama*, which imposed the first limitation on the use of race as a basis for peremptories, recognized the legitimacy of race-based peremptories when used in individual cases. For example, according to *Swain*, prosecutors could legally use race as a basis for peremptorily striking jurors to counteract the possibility that black jurors may be unduly sympathetic to a black defendant whose victim was non-black. *Swain* imposed, however, some limitations on the use of such peremptories if they resulted in the total exclusion of blacks

<sup>72</sup> This measure first compared the percentage of target group members among the prosecutor’s strike eligible venire members (percentage among the strike eligible) with their proportion among the venire members struck by the prosecution (percentage among those struck). The same comparison was then made for defense counsel’s peremptory strikes in each case.

<sup>73</sup> The measure compared for each case the percentage of target group members among all strike eligible members on the venire (percentage on the venire) with their representation on the jury (percentage on the jury).

<sup>74</sup> *Strauder v. West Virginia*, 100 U.S. 303 (1880). The history of all-white juries in the South suggests that for many years, the goal of prosecutors was the total exclusion of blacks. There is recent evidence, however, that in the eyes of some prosecutors, the presence of a small minority of black jurors tends to minimize the risk that an all-white jury may not take black defendant-black victim crimes seriously and result in jury nullification in such cases. There is also some empirical evidence to support this expectation. See Hoffman, *supra* note 14, at 827-30.

<sup>75</sup> *Swain v. Alabama*, 380 U.S. 202, 220 (1965).

from juries over the long run. The Court assumed that such exclusion would reflect a motivation that had nothing to do with the likely outcome of the individual cases.<sup>76</sup> However, the burden of proof created by *Swain* was so high that the limitation was largely ineffective.

By the mid-1980s, only two State appellate courts prohibited prosecution-based peremptories under all circumstances.<sup>77</sup> Moreover, by this time peremptories were the “last bastion of undisguised racial discrimination in the criminal justice system.”<sup>78</sup> Against this background, the Supreme Court ruled 7-2 in *Batson v. Kentucky* that the prosecutorial use of race as a basis for the exercise of peremptory challenges was prohibited by the Equal Protection Clause of the Fourteenth Amendment.<sup>79</sup> *Batson* held that a “person’s race simply ‘is unrelated to his fitness as a juror’”<sup>80</sup> and could never be justified under any standard of review. Accordingly, the majority felt no obligation to consider the substantial body of evidence suggesting that the perceptions of prosecutors and defense counsel concerning the attitudes of black and non-black jurors toward issues of guilt and punishment—especially as they related to the race of the defendant and victim—had a rational basis. The dissenting Justices strongly disagreed, arguing that the use of race as a proxy for certain attitudes has “long been accepted as a legitimate basis for the State’s exercise of peremptory challenges” and documented the pervasiveness of such beliefs.<sup>81</sup>

However, instead of a total ban on the use of peremptories, *Batson* and *McCullum* allow the institution to stand but permit defendants and the State, as the case may be, to raise claims of discrimination in the context of individual cases. In this regard, the court established a prima facie case model of proof, permitting challenges to individual strikes, usually after a pattern of peremptory strikes suggests one or more of the strikes may be racially motivated. This shifts to the respondent the burden of demonstrating that the peremptories under

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<sup>76</sup> See Melilli, *supra* note 13, at 450. Relief under *Swain* has been granted in very few cases of which we are aware. See, e.g., *Jackson v. Herring*, 42 F.3d 1350, 1357 (11th Cir. 1995) (affirming the district court’s conclusion that the use of peremptory strikes by the prosecutor violated *Swain*); *Horton v. Zant*, 941 F.2d 1449, 1467 (11th Cir. 1991) (reversing a conviction which became final prior to the decision in *Batson v. Kentucky* and, therefore, applying *Swain v. Alabama*); *State v. Washington*, 375 So. 2d 1162 (La. 1979) (reversing the conviction on the grounds that the prosecutor violated *Swain*).

<sup>77</sup> *People v. Wheeler*, 583 P.2d 748 (Cal. 1978); *Commonwealth v. Soares*, 387 N.E.2d 499 (Mass. 1979).

<sup>78</sup> Albert W. Alschuler, *The Supreme Court and the Jury: Voir Dire, Peremptory Challenges, and the Review of Jury Verdicts*, 56 U. CHI. L. REV. 153, 167 (1989).

<sup>79</sup> *Batson v. Kentucky*, 476 U.S. 79, 84 (1986). In 1992, the Court extended the prohibition to defense counsel. *Georgia v. McCollum*, 505 U.S. 42, 59 (1992) (prohibiting criminal defendant from engaging in purposeful racial discrimination in the exercise of peremptory challenges).

<sup>80</sup> *Batson*, 476 U.S. at 87 (quoting *Thiel v. Southern Pac. Co.*, 328 U.S. 217, 227 (1946) (Frankfurter, J., dissenting)).

<sup>81</sup> *Id.* at 138 (Rehnquist, J., dissenting).

challenge were in fact based on legitimate factors.

In 1994, the Court, in *J.E.B. v. Alabama ex rel. T.B.*, extended the prohibition to gender.<sup>82</sup> In that decision, the court recognized a “shred of truth”<sup>83</sup> in the gender-based stereotypes, but held that this ground for exclusion was not acceptable because gender-based peremptory challenges were not “substantially related to an important government objective.”<sup>84</sup>

It is important to note the shift that has occurred in the Supreme Court’s rationale for its ban on the discriminatory use of peremptories. *Batson* focused on the right of defendants to be “judged by juries chosen without discrimination.”<sup>85</sup> However, since *McCullum*, the justification for the ban on such discrimination has shifted from a defendant-centered focus to a focus on the “rights of potential jurors whose opportunities for jury service are affected by jury discrimination.”<sup>86</sup>

The opinions of the Justices in the series of cases dealing with peremptory challenges since *Batson* raise a number of empirical issues that we address in this Article. The first issue is the effectiveness of *Batson* and its progeny in eliminating or reducing the use of race and gender by the State and defense counsel. Citing the apparent ineffectiveness of *Batson*-type rules that had been adopted in Massachusetts and California, Justice Marshall doubted that these decisions would ever be effective in this regard.<sup>87</sup> In his view, the problem of peremptories could be solved only by their complete abolition.<sup>88</sup> At one level, Justice Scalia appeared to share Justice Marshall’s skepticism, later characterizing the *Batson* line of cases as having merely “great symbolic value” as a demonstration of the court’s “uncompromising hostility to race-based judgments.”<sup>89</sup>

However, Justice Scalia also suggested that “defense counsel can generally be relied upon to do what we say the Constitution requires,”<sup>90</sup> implying a belief that the court will have some impact on the use of peremptories. Further, he stated that one “price” of applying the reasoning of *Batson* “will be paid by the minority litigants who use our courts.”<sup>91</sup> Similarly, then-Chief Justice Burger believed that

<sup>82</sup> *J.E.B. v. Alabama ex rel. T. B.*, 511 U.S. 127, 129 (1994).

<sup>83</sup> *Id.* at 139 n.11.

<sup>84</sup> *Id.* at 137 n.6.

<sup>85</sup> Nancy J. King, *The Effects of Race-Conscious Jury Selection on Public Confidence in the Fairness of Jury Proceedings: An Empirical Puzzle*, 31 AM. CRIM. L. REV. 1177, 1178 (1994).

<sup>86</sup> *Id.* See also Barbara Underwood, *Ending Race Discrimination in Jury Selection: Whose Right Is It, Anyway?* 92 COLUM. L. REV. 725, 726-27 (1992) (arguing that “the fundamental injury inflicted by race discrimination in jury selection is its effect on the excluded jurors, and that the primary reason for its prohibition is to bring all citizens into full and equal participation in the institutions of American self-government”).

<sup>87</sup> *Batson v. Kentucky*, 476 U.S. 79, 105-106 (1986) (Marshall, J., concurring).

<sup>88</sup> *Id.* at 107-08.

<sup>89</sup> *Edmonson v. Leesville Concrete Co.*, 500 U.S. 614, 645 (1991) (Scalia, J., dissenting).

<sup>90</sup> *Id.* at 644.

<sup>91</sup> *Id.* at 645.

the “clear and inescapable import of [*Batson*] will inevitably be to limit the use of [peremptories by] both prosecutors and defense attorneys alike.”<sup>92</sup>

Another assumption in the opinions concerns the consequences of applying the prohibitions on the use of race- and gender-based peremptories to both the government and criminal defendants. Justice Scalia, in *Edmonson*, argued that application of the prohibition to defense counsel would make it more difficult for minorities to “prevent an all-white jury, or to seat as many jurors of his own race as possible.”<sup>93</sup> In *J.E.B.*, Justice O’Connor similarly argued that the prohibition on gender-based peremptories should “be limited to the government’s use of gender-based peremptory strikes.”<sup>94</sup>

The opinions of the Justices in these cases also reflect assumptions about how and why peremptories are used and the impact they have on the parties and on venire members. The first assumption is that race- and gender-based peremptories are motivated solely by a fear of juror bias arising from the juror’s identification (or lack thereof) with the defendant or the victim in the case because of the juror’s race or gender (for the dissenting Justices this appeared to be a quite legitimate basis for the use of peremptories). Under this “identification” model, in black defendant cases, we can expect, for example, that black venire members will be the State’s prime targets, while in non-black defendant cases, non-black venire members will be.<sup>95</sup> The opinions do not explicitly recognize the possibility that prosecutors and defense counsel may fear or favor non-black and black, and male and female jurors for reasons that are totally independent of the interaction between the juror’s race or gender and the race of the defendant or victim in the case. In other words, the Justices did not appear to perceive the possibility of bias on the part of black and non-black jurors for reasons having nothing to do with race- or gender-based identification with (or antipathy toward) the defendant or the victim. This perception was clearly reflected by Justice Scalia in a case involving a white defendant’s challenge to the peremptory strikes of black

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<sup>92</sup> *Batson*, 476 U.S. at 125-26 (Burger, C.J., dissenting).

<sup>93</sup> *Edmonson*, 500 U.S. at 644. Interestingly, Justice Marshall suggested that any prohibition on the use of race should apply to both sides. *Batson*, 476 U.S. at 107-08 (Marshall, J., concurring).

<sup>94</sup> *J.E.B. v. Alabama ex rel. T.B.*, 511 U.S. 127, 147 (1994) (O’Connor, J., concurring) (emphasis in original).

<sup>95</sup> In his *Batson* dissent, Justice Rehnquist presumed most race-based strikes were driven by racial identification between juror and defendant:

In my view, there is simply nothing “unequal” about the State’s using its peremptory challenges to strike blacks from the jury in cases involving black defendants, so long as such challenges are also used to exclude whites in cases involving white defendants, Hispanics in cases involving Hispanic defendants, Asians in cases involving Asian defendants, and so on. This case-specific use of peremptory challenges by the State does not single out blacks, or members of any other race for that matter, for discriminatory treatment.

*Batson v. Kentucky*, 476 U.S. 79, 137-38 (1986) (Rehnquist, J., dissenting) (footnote omitted).

venire members. In his view, the defendant had not “been injured *in fact*” because the struck venire members were of a different race than his.<sup>96</sup>

The identification model of the motivations driving the discriminatory use of peremptories also supports the “equal treatment” assumption of the dissenting Justices. The argument is that the discriminatory use of peremptories does not harm any individual group because “all groups are subject to the peremptory challenge (and will be made the object of it, depending upon the nature of the particular case).”<sup>97</sup> Although a majority of the Court has rejected this argument on legal grounds (“racial classifications do not become legitimate on the assumption that all persons suffer them in equal degree”),<sup>98</sup> it does not challenge the validity of the factual premise of the “equal treatment” argument.

The equal treatment hypothesis also supports a second assumption (most clearly stated by Justice Scalia)—overall, the strikes of the prosecution will be offset by or canceled by the strikes of defense counsel and vice versa. In his view, the analytic error of the Court was in “separating individual exercises of peremptory challenge from the process as a whole.”<sup>99</sup> In *J.E.B.*, he considered it “preposterous”<sup>100</sup> to fault the government for using nine of its ten peremptories against men to produce an all-female jury because the defendant used all but one of his peremptories against women. In his view: “[t]his case is a perfect example of how the system as a whole is evenhanded,”<sup>101</sup> even though all ten men in the strike-eligible pool of thirty-three venire members apparently were struck peremptorily.

In this Article, we consider the extent to which the use of race- and gender-based peremptories by the two sides cancel each other out.<sup>102</sup> In so doing, we examine how the unequal distribution of the each side’s prime target groups influences the extent to which each can protect itself from the consequences of the other side’s discriminatory peremptory strike strategy. Justice Scalia passed over this issue. However, Justice Rehnquist explicitly rejected the argument that “because there are fewer ‘minorities’ in a given population [of venire members] than there are ‘majorities,’ the equal use of peremptory challenges against members of ‘majority’ and ‘minority’ racial groups

<sup>96</sup> *Powers v. Ohio*, 499 U.S. 400, 427 (1991) (Scalia, J., dissenting).

<sup>97</sup> *J.E.B.*, 511 U.S. at 159 (Scalia, J., dissenting).

<sup>98</sup> *Powers*, 499 U.S. at 410.

<sup>99</sup> *J.E.B.*, 511 U.S. at 160 (Scalia, J., dissenting).

<sup>100</sup> *Id.*

<sup>101</sup> *Id.* at 159.

<sup>102</sup> The “canceling out” theory appears to have been first articulated by Babcock, *supra* note 8, at 551. See also VAN DYKE, JURY SELECTION, *supra* note 2, at 157 (noting that in a New Mexico county in the early 1970’s, prosecutors struck “young and nonwhite jurors” while defense counsel struck “older and more established jurors” and that to “some extent the challenges cancel each other out”). United States Supreme Court opinions also suggest the effect. See *supra* note 97 and accompanying text.

has an unequal impact.”<sup>103</sup>

Another empirically testable hypothesis suggested by the Supreme Court’s decisions is that the discriminatory use of peremptories has a significant adverse effect on interests of venire members. As noted above, the Court’s current justification for its ban on race and gender discrimination in the use of peremptories is based on the adverse impact they have on venire members’ opportunities for jury service. In this Article, we assess the impact of the discriminatory use of peremptories on the venire members in our sample of Philadelphia capital murder trials.

The final hypothesis suggested by the Court’s opinions is that because *Batson*, *McCullum*, and *J.E.B.* will allow both sides to routinely raise claims of discrimination in the use of peremptories, these three decisions impose significant burdens on the courts.<sup>104</sup>

#### 4. *Academic and Professional Critique of the Effectiveness of Batson and Its Progeny*

There is a substantial body of literature addressing the effectiveness of *Batson* and its progeny in reducing the level of race and gender discrimination in the use of peremptories. To our knowledge, no one has made the case or even argued that the goal of prohibition has been achieved. On the contrary, all evidence points in the direction of, at most, only a limited if any impact, although we are unaware of any before-and-after empirical studies documenting *Batson*’s impact in a given jurisdiction. The empirical evidence in the literature consists of examinations of the circumstances and outcomes in the reported cases in which *Batson*, *McCullum*, and *J.E.B.* claims have been raised.<sup>105</sup> These studies indicate that, on a national level, in both

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<sup>103</sup> *Batson*, 476 U.S. at 138 n.1 (Rehnquist, J., dissenting). Justice Rehnquist offered no explanation for his conclusion, but instead cited *United States v. Leslie*, 783 F.2d 541, 558-61 (5th Cir. 1986), *vacated*, 479 U.S. 1074 (1987), with approval. The *Leslie* opinion does not deny that factually the equal use of peremptories against minority and majority group members may decimate a minority population because of its smaller proportion on the venire. However, the resulting unfairness to the minority party is acceptable to the *Leslie* court because the unfairness is no greater than when “the lack of minority representation [on the jury] results from venire composition due either to chance or to the paucity of minority residents in the community, from challenge for cause, or from peremptory challenge for ‘individual’ reasons.” *Id.* at 559.

<sup>104</sup> See *Edmonson v. Leesville Concrete Co.*, 500 U.S. 614, 645 (1991) (Scalia, J., dissenting) (“[T]he amount of judges’ and lawyers’ time devoted to [the adjudication of peremptory discrimination claims] will be enormous.”); *Batson v. Kentucky*, 476 U.S. 79, 102 (1986) (White, J., concurring) (“Much litigation will be required to spell out the contours of the Court’s equal protection holding today, and the significant effect it will have on the conduct of criminal trials cannot be gainsaid.”); *J.E.B.*, 511 U.S. at 147 (O’Connor, J., concurring) (“*Batson* appeals have proliferated . . . . In further constitutionalizing jury selection procedures, the Court increases the number of cases in which jury selection—once a sideshow—will become part of the main event.”).

<sup>105</sup> See generally Melilli, *supra* note 13 (undertaking an exhaustive survey of *Batson*, *McCullum*, and *J.E.B.* claims in state and federal courts); Eric N. Einhorn, Note, *Batson v. Kentucky and*



State and federal courts, claims of discrimination are not frequently raised. Moreover, when they are, a prima facie case is often recognized. However, following the respondent's rebuttal, an ultimate finding of race or gender discrimination and a grant of relief is quite infrequent.

The explanations offered in the literature for *Batson's* ineffectiveness closely track Justice Marshall's concurring critique.<sup>106</sup> First, the Supreme Court has failed to provide clear standards to guide the judicial review of *Batson* claims. This has been largely left to the discretion of State and lower federal courts that have set standards which (a) sometimes make proof of a prima facie case difficult, (b) set a very low standard for the rebuttal of a prima facie case, and (c) provide only minimal scrutiny on appellate review.<sup>107</sup>

By way of further explanation for the persistence of discrimination in the use of peremptories, Professor Charles Ogletree has argued that the *Batson* line of decisions was misguided from the outset because it failed to appreciate the "interest litigants have in continuing to discriminate by race and gender if they can get away with it."<sup>108</sup> He further argued that, contrary to the Supreme Court's assertion in *Batson*, the profession does not consider it irrational for attorneys seeking to protect the best interests of their clients to discriminate on the basis of race and gender.<sup>109</sup> There is also empirical evidence in the form of interviews with, and questionnaires from, both the prosecution and defense counsel supporting the continued use of peremptories, in spite of the apparent ineffectiveness of the *Batson* line of

J.E.B. v. Alabama *ex rel.* T.B.: *Is The Peremptory Challenge Still Prevalent?*, 36 B.C. L. REV. 161 (1994) (undertaking analysis of 113 federal appellate decisions involving *Batson* claims).

<sup>106</sup> *Batson*, 476 U.S. at 105-06.

<sup>107</sup> See generally, e.g., Alschuler, *supra* note 78, at 170-76 (discussing prima facie standards); Sheri Lynn Johnson, *Batson Ethics for Prosecutors and Trial Court Judges*, 73 CHI.-KENT L. REV. 475, 486-87 (1998) (discussing appellate review); Jeffrey S. Brand, *The Supreme Court, Equal Protection, and Jury Selection: Denying That Race Still Matters*, 1994 WIS. L. REV. 511 (reviewing *Batson* claims in the federal courts); Leonard L. Cavise, *The Batson Doctrine: The Supreme Court's Utter Failure to Meet the Challenge of Discrimination in Jury Selection* 1999 WIS. L. REV. 501 (discussing problems of *Batson* doctrine and advocating race- and gender-conscious jury selection); Edward S. Adams & Christian J. Lane, *Constructing a Jury that is Both Impartial and Representative: Utilizing Cumulative Voting in Jury Selection*, 73 N.Y.U. L. REV. 703 (1998) (discussing problems of *Batson* doctrine and advocating system based on cumulative voting); Jean Montoya, *The Future of the Post-Batson Peremptory Challenge: Voir Dire by Questionnaire and the "Blind" Peremptory*, 29 U. MICH. J.L. REFORM 981 (1996) (discussing problems of *Batson* doctrine and advocating anonymous voir dire by questionnaire).

<sup>108</sup> Charles J. Ogletree, *Just Say No!: A Proposal to Eliminate Racially Discriminatory Uses of Peremptory Challenges*, 31 AM. CRIM. L. REV. 1099, 1104 (1994).

<sup>109</sup> *Id.*; see also Robin Charlow, *Tolerating Deception and Discrimination After Batson*, 50 STAN. L. REV. 9, 64 (1997) (arguing against the imposition of sanctions for *Batson* violation—"perhaps it is necessary to tolerate some deliberate deception and discrimination in the interest of other greater goods."); Eric Muller, *Solving the Batson Paradox: Harmless Error, Jury Representation, and the Sixth Amendment*, 106 YALE L.J. 93 (1996). On the necessity for discrimination to protect the interest of criminal defendants, see Abbe Smith, "Nice Work if You Can Get It": "Ethical" Jury Selection in Criminal Defense, 67 FORDHAM L. REV. 523, 547 (1998) (noting that defense attorneys have ethical obligation to consider race and gender in jury selection).

cases.<sup>110</sup>

### 5. *Proposals for Reform*

There is a sharp division of opinion among judges and criminal law practitioners about the effectiveness and desirability of peremptories. There have been a number of passionate calls for their abolition matched by equally passionate arguments in their defense.<sup>111</sup> Other

<sup>110</sup> See Jean Montoya, *supra* note 107, at 998 (reporting survey of 98 San Diego prosecutors and 96 defenders with both sides viewing peremptories as valuable with little difference between the pre- and post-Batson situation, and none believing peremptories should be eliminated to prevent unlawful discrimination); Hoffman, *supra* note 14, at 852 n.194 ("When I asked one of the prosecutors in my [federal] courtroom what she thought of abolishing peremptory challenges, she responded, 'I'd rather get rid of challenges for cause;'" of nine prosecutors surveyed, only three expressed any sympathy with the abolition of peremptories).

<sup>111</sup> For example of calls for abolition, see *Batson*, 476 U.S. at 103 (Marshall, J., concurring); Alschuler, *supra* note 78; Raymond J. Broderick, *Why the Peremptory Challenge Should be Abolished*, 65 TEMP. L. REV. 369 (1992); Brent J. Gurney, *supra* note 13; Morris B. Hoffman, *supra* note 14; Nancy S. Marder, *Beyond Gender: Peremptory Challenges and the Roles of the Jury*, 73 TEX. L. REV. 1041 (1995); Jere W. Morehead, *When a Peremptory Challenge Is No Longer Peremptory: Batson's Unfortunate Failure to Eradicate Invidious Discrimination from Jury Selection*, 43 DEPAUL L. REV. 625 (1994); David Zonana, *The Effect of Assumptions About Racial Bias on the Analysis of Batson's Three Harms and the Peremptory Challenge*, 1994 ANN. SURV. AM. L. 203, 243.

For examples of authors arguing in support of peremptory challenges, see Michael A. Cressler, *Powers v. Ohio: The Death Knell for the Peremptory Challenge?*, 28 IDAHO L. REV. 349 (1991-1992); Roberta K. Flowers, *Does It Cost Too Much? A 'Difference' Look at J.E.B. v. Alabama*, 64 FORDHAM L. REV. 491 (1995); James J. Gobert, *The Peremptory Challenge—An Obituary*, 1989 CRIM. L. REV. 528; Patricia F. Kaufman, Recent Development, *The Beginning of the End of Peremptory Challenges: Georgia v. McCollum*, 16 HARV. J.L. & PUB. POL'Y 287 (1993).

Both sides are handicapped by the limited information each has available on individual venire members and the difficulty of predicting how individuals will behave if seated as a juror. See Babcock, *supra* note 8, at 558-59. The two sides may also face structural handicaps that are based on (a) the comparative number of targets each side faces in the venire after its challenges for cause have been exhausted, and (b) the comparative number of peremptory strikes that are available to each side. If one side faces a disproportionately larger number of targets, it is likely to have parity in the competition only if it has a proportionately larger number of available peremptories. However, even if a party is at a structural disadvantage, it may prevail because of access to better information and/or greater skill in predicting jury behavior.

It is an article of faith in the criminal defense community and for many observers of the criminal justice system, that in virtually all communities in America, the defendants face a significantly larger threat from biased venire members than does the government; i.e., a much larger proportion of the population from which juries are drawn is biased against criminal defendants than is biased against the government. Hoffman, *supra* note 14, at 851-52. The only empirical evidence of which we are aware on this point supports this perception of more substantial bias against criminal defendants. See Hans Zeisel & Shari Seidman Diamond, *The Effect of Peremptory Challenges on Jury and Verdict: An Experiment in a Federal District Court*, 30 STAN. L. REV. 491, 507 tbl.4 (1978).

It comes as a surprise, therefore, to see assertions in the literature that in the exercise of peremptories, the two sides "cancel each other" out. Van Dyke, *Voir Dire*, *supra* note 10, at 71. Also, many criminal defense attorneys believe that they would be worse off without peremptories. The only empirical study on the issue of which we are aware estimates that defense counsel did a better job of striking biased venire members than did the government. Zeisel & Diamond, *supra*, at 513-18. The reason was a higher defense success rate in identifying hostile venire members. *Id.* at 517 ("The prosecutors' average score is close to zero (-0.5). Thus, in aggregate, the prosecutors made about as many good challenges as bad ones. The defense counsel's average performance score (+17.0) is slightly better, which suggests that, on the aver-

authors have advocated a reduction in the number of peremptories available.<sup>112</sup> There have also been proposals for "affirmative selection"<sup>113</sup> and other approaches to ensure meaningful participation for jurors from underrepresented groups such as racial minorities.

Arguments for abolition have a number of grounds, including claims that (a) the original justification for peremptories has long disappeared;<sup>114</sup> (b) because of modern jury selection procedures and strikes for cause, peremptories are no longer necessary to empanel a representative impartial jury;<sup>115</sup> (c) peremptories are an ineffective vehicle for identifying hostile jurors;<sup>116</sup> (d) they give the government a significant advantage over criminal defendants in eliminating the venire members they fear;<sup>117</sup> (e) peremptories are a serious source of uncontrolled race and gender discrimination;<sup>118</sup> and (f) the administration of peremptories is excessively time consuming and offensive to jurors.<sup>119</sup>

The argument in favor of peremptories focuses primarily on the ineffectiveness of challenges for cause as a vehicle to identify and remove biased venire members. The first such claim is that many venire members either refuse to admit,<sup>120</sup> or are unaware of, their bi-

age, defense attorneys shifted in their favor the proportion of not guilty votes in the venire."). In addition, the defendants had available to them 66% more peremptories in each case (10 vs. 6) than did the State. *Id.* at 516 n.45.

<sup>112</sup> Finkelstein & Levin, *supra* note 64, at 284-85.

<sup>113</sup> Deborah Ramirez, *Affirmative Jury Selection: A Proposal to Advance Both the Deliberative Ideal and Jury Diversity*, 1998 U. CHI. LEGAL F. 161 (1998) (affirmative selection); Hans Zeisel, *Affirmative Peremptory Juror Selection*, 39 STAN. L. REV. 1165 (1987); Tanya E. Coke, Note, *Lady Justice May Be Blind, But Is She a Soul Sister? Race-Neutrality and the Ideal of Representative Juries*, 69 N.Y.U. L. REV. 327 (1994); Note, *The Case for Black Juries*, 79 YALE L.J. 531, 536 (1970); Clem Turner, Note, *What's the Story? An Analysis of Juror Discrimination and a Plea for Affirmative Jury Selection*, 34 AM. CRIM. L. REV. 289 (1996).

<sup>114</sup> Hoffman, *supra* note 14, at 819-23 (explaining that the thirteenth-century adoption of peremptories by the English Parliament was intended to counter the Crown's unlimited right to exclude venire members for cause without having to offer any reason for the challenge, a right that essentially provided the Crown with an unlimited number of peremptory challenges).

<sup>115</sup> Judge Hoffman reports in his survey of opinions that not only do prosecutors favor peremptories more than defense attorneys do, but they would also rather forego challenges for cause than forego peremptories. Hoffman, *supra* note 14, at 852-53. Nevertheless, most defense counsel believe that they are better off with peremptories and that they would feel vulnerable if they could not remove jurors who are clearly biased in favor of the government.

<sup>116</sup> Finkelstein & Levin, *supra* note 64.

<sup>117</sup> The argument here is that the juries are now empanelled in a way that ensures the selection of venires that represent a cross section of the community, and strikes for cause are sufficient to screen out bias relating to the venire member's relationship to the parties.

<sup>118</sup> The claim is that *Batson* and its progeny are completely incapable of controlling the problem of discrimination. *Batson v. Kentucky*, 476 U.S. 79, 103 (1986) (Marshall, J., concurring).

<sup>119</sup> The claim is that the removal of venire members on the grounds of bias is insulting and unnecessary because most of those struck peremptorily are in fact impartial. Another curious position is that peremptories might just as well be eliminated because they exist in name only, i.e., because under *Batson*, the basis of the challenges can be challenged. Coburn R. Beck, Note, *The Current State of the Peremptory Challenge*, 39 WM. & MARY L. REV. 961, 989 (1998).

<sup>120</sup> Dale W. Broeder, *Voir Dire Examination: An Empirical Study* 38 S. CAL. L. REV. 503, 515-21 (1965) (documenting, on the basis of post-trial interviews, that jurors often failed to disclose the truth in response to questions); David Suggs & Bruce D. Sales, *Juror Self-Disclosure in the Voir Dire*:

ases.<sup>121</sup> The second claim is that the legal standards applied in the evaluation of challenges for cause are excessively lenient in allowing rehabilitation of venire members that appear to be biased.<sup>122</sup> The third claim is that courts are more likely to approve challenges for cause presented by the Government than by the defense; the use of peremptories by defense counsel, it is argued, is essential to overcome the adverse effects of those rulings. Finally, it is argued that peremptories are essential when a court rejects a challenge for cause. Without them, the juror so challenged would likely harbor resentment toward the party who sought to remove her from the panel.<sup>123</sup>

In spite of the force of the arguments for the abolition of peremptories, critics have been unable to rally support for their abolition, and little change in that regard is now expected. One goal of this research project is to shed new light on the issue of peremptories.

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*A Social Science Analysis*, 56 INDIANA L.J. 245, 246 (1981) (quoting Broeder for proposition that jurors often lie on voir dire).

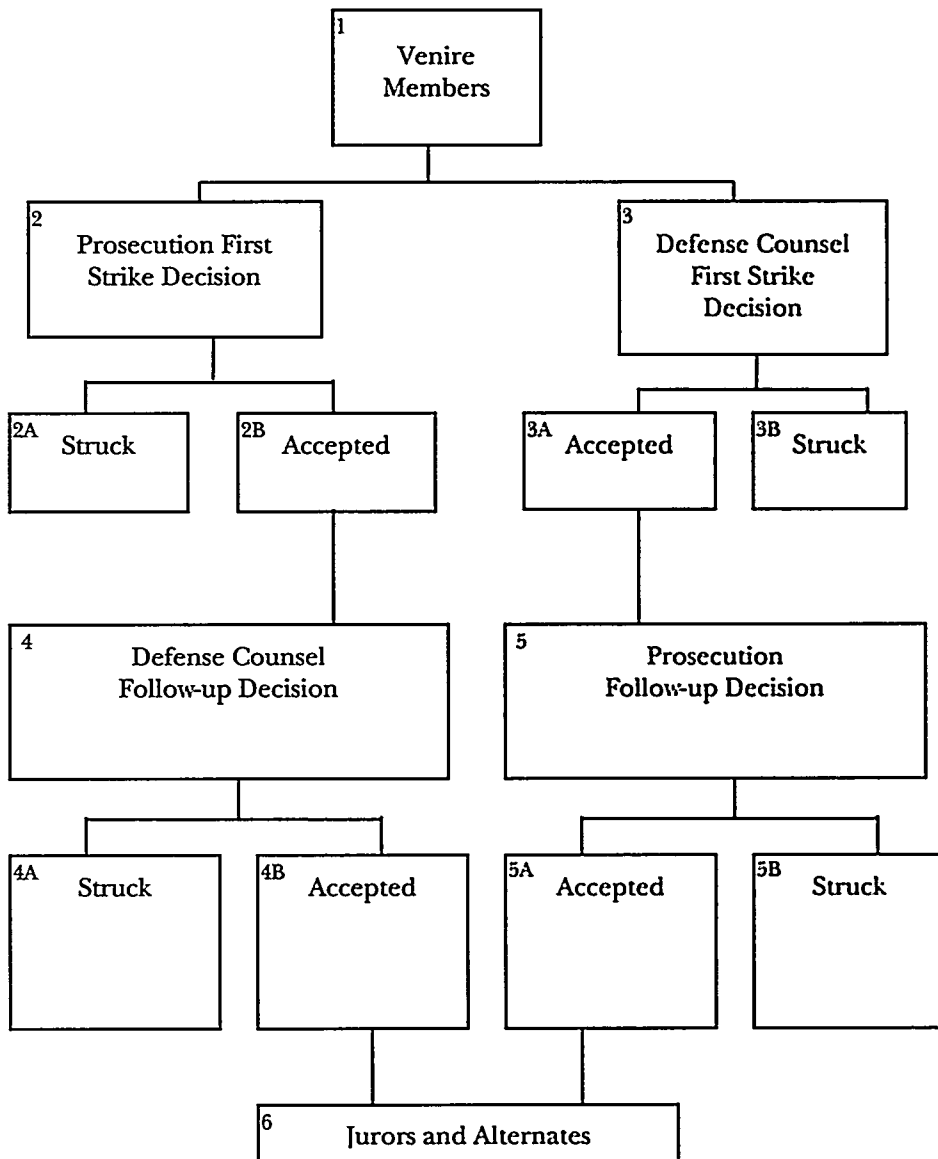
<sup>121</sup> Arthur H. Patterson & Nancy L. Neuffer, *Removing Juror Bias by Applying Psychology to Challenges for Cause*, 7 CORNELL J.L. & PUB. POL'Y 97, 101-02 (1997).

<sup>122</sup> Gurney, *supra* note 13, at 266-69 (1986).

<sup>123</sup> Flowers, *supra* note 111, at 501. However, it is possible to administer the system of strikes for cause so that the venire member is unaware who sought his removal. For example, in jurisdictions like Philadelphia, challenges for cause are made at sidebar.

FIGURE I

VOIR DIRE PEREMPTORY CHALLENGE PROCESS:  
317 PHILADELPHIA CAPITAL JURY TRIALS 1981-1997



B. *Voir Dire and the Peremptory Challenge  
in Philadelphia Capital Cases*

1. *Philadelphia Voir Dire Practice*

In Philadelphia capital cases, voir dire is conducted in two phases. In the first phase, a venire of forty people is typically assembled in a court room where a judge asks a series of general questions.<sup>124</sup> The answers to these questions may provide grounds for striking jurors for cause. For example, the venire member may state that he or she personally knows the defendant. And if a venire member's answers to these questions are insufficient to support a strike for cause, they may also provide the basis for the subsequent exercise of a peremptory challenge.

In the second stage of the process, voir dire is conducted typically out of the presence of the other venire members.<sup>125</sup> At this stage, additional reasons may be offered by the parties to excuse potential jurors for cause; for example if the juror is so strongly opposed to the death penalty that she could never vote for death, whatever the facts of the case may be.

If a juror answers all questions satisfactorily and is not struck for cause, she is deemed to be death qualified,<sup>126</sup> and "peremptory strike eligible." This means that, thereafter, the venire member may be removed from the panel and denied the opportunity to serve on the jury only by the exercise of a peremptory challenge.

The number of peremptories available to each side depends on the number of defendants in the case. In a single-defendant capital case, each side has twenty peremptories,<sup>127</sup> while in cases involving multiple defendants, the twenty strikes initially allotted to the defense is rounded upward so that each defendant has the same number; e.g., in a three-defendant case, each defendant typically has seven per-

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<sup>124</sup> In 1991, the Philadelphia courts began employing uniform juror questionnaires to help streamline the voir dire process. The questionnaires are completed en masse in the jury assembly room, with follow-up questioning done in the courtroom after the panel is assigned. On July 1, 1999, the use of written juror information questionnaires, the contents of which are confidential, was mandated in all Pennsylvania jurisdictions. PA. R. CRIM. PROC. 1107.

<sup>125</sup> The Pennsylvania Rules of Criminal Procedure require that voir dire in capital cases be conducted individually. PA. R. CRIM. PROC. 1106 (E). This questioning "may be conducted beyond the hearing and presence of other jurors," PA. R. CRIM. PROC. 1106 (E)(1)(a), a practice employed by most of the Philadelphia homicide judges.

<sup>126</sup> A venire member is considered "death-qualified" if he or she reflects no attitudes or beliefs that would unduly influence his or her discretion in favor of or in opposition of a death sentence in the case. *See Witherspoon v. Illinois*, 391 U.S. 510, 521-22 (1968) (discussing standards for striking venire members for cause because of their opposition to, and reservations about, capital punishment); *Wainwright v. Witt*, 469 U.S. 412 (1984) (same); *Morgan v. Illinois*, 504 U.S. 719, 729 (1992) (standards for striking venire members for cause because they would automatically sentence a defendant to death upon his conviction for capital murder).

<sup>127</sup> PA. R. CRIM. PROC. 1126 (A)(3).

emptories for a total of twenty-one.<sup>128</sup> The Commonwealth receives an equal number of peremptories.<sup>129</sup> The right to exercise a peremptory challenge, therefore, gives each side the discretion to strike a significant number of venire members for any reason that is not illegitimate, such as race or gender.<sup>130</sup>

Philadelphia's peremptory challenge process in capital trials is presented in Figure 1. Once the judge deems a venire member qualified and therefore peremptory strike-eligible, the Commonwealth has the first opportunity either to strike or accept that person (see boxes 2, 2A, and 2B). If the Commonwealth accepts the person, the "pad" (option to strike) passes to defense counsel, who may exercise a peremptory strike (see boxes 4, 4A, 4B). If the defense counsel accepts, the venire member is seated (box 4B).

For the next person that survives challenges for cause, the defendant has the first opportunity to exercise a peremptory (boxes 3, 3A, and 3B), and if that candidate is accepted, the opportunity to strike passes to the Commonwealth (boxes 5, 5A, and 5B). The right of first peremptory strike rotates between the Commonwealth and the defendant as each successive venire member is interviewed and survives challenges for cause.<sup>131</sup> This process continues until the jury and alternates have been seated.

Philadelphia's prosecutors in capital cases are highly competent. They typically have several years of experience before assignment to the capital docket and many of them have tried substantial numbers of capital cases.<sup>132</sup> Defense counsel, in contrast, typically may have had prior experience as a prosecutor, but relatively little prosecutorial experience trying capital cases. Also, the number of capital cases handled by defense counsel is typically much lower than his or her prosecutorial counterpart.

## 2. *The McMahon Tape*

In the Philadelphia system, prosecutors appear to have been guided for many years by a jury selection model that is strikingly reminiscent of the model described above from Texas in the 1970s. The model is outlined in a 1986 video training tape for Philadelphia prosecutors prepared by then-homicide prosecutor Jack McMahon.<sup>133</sup>

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<sup>128</sup> PA. R. CRIM. PROC. 1126.

<sup>129</sup> PA. R. CRIM. PROC. 1126 (A), (B)(3).

<sup>130</sup> See *supra* notes 74-101 and accompanying text for a discussion of the law that purports to limit the exercise of discretion in the use of peremptory challenges.

<sup>131</sup> However, some judges alternate the strikes each time a juror disposition is made without regard to whether a peremptory strike was exercised. PA. R. CRIM. PROC. 1106 (E)(1)(b) ("Challenges, both peremptory and for cause, shall be exercised alternately, beginning with the attorney for the Commonwealth, until all jurors are chosen.").

<sup>132</sup> See *infra* App. C, Col. B.

<sup>133</sup> *Jury Selection with Jack McMahon* (transcript of DATV Productions videotape, n.d.) (on file with *University of Pennsylvania Journal of Constitutional Law*).

It emphasizes the importance of voir dire and the overarching goal of seating jurors who are “conviction-prone,”<sup>134</sup> possess a good respect for “law [and] authority,”<sup>135</sup> are predisposed to accept the government’s claims at face value,<sup>136</sup> and are “more likely to convict than anybody else in that room.”<sup>137</sup> McMahon also identifies the jurors to be avoided as those who “inherently may be against the government or against police or against the Commonwealth in some way, shape, or form.”<sup>138</sup>

Because McMahon’s tape focuses on the “guilt trial” and the importance of obtaining convictions in criminal trials generally, he had no occasion to consider good and bad “penalty trial” jurors. However, the literature and common sense suggest that the qualities he strives for in guilt trial jurors would also make a good penalty trial juror for the Commonwealth, i.e., a predisposition toward the legitimacy of capital punishment and a willingness to accept as right and just the Government’s evidence and arguments in favor of a death sentence.

The training tape identifies with particularity the best and the worst jurors. The best jurors are stable, conservative,<sup>139</sup> middle class, well dressed<sup>140</sup> people from good (law abiding) neighborhoods,<sup>141</sup> who are not particularly bright,<sup>142</sup> and who are not inclined to analyze critically the government’s case. Overall, McMahon recommends striving, as a result, for a panel of middle class jurors of comparable intellectual ability, a group characteristic that facilitates consensus building.<sup>143</sup>

The worst jurors according to McMahon are “blacks from the low-income areas,”<sup>144</sup> because they are less likely to convict as a result of “resentment for law enforcement [and] . . . for authority.”<sup>145</sup> The tape distinguishes, however, between good and bad black jurors on the basis of their age and gender. Indeed, he criticizes other prosecutors who view all blacks as bad jurors.<sup>146</sup> The worst (“very bad”) black jurors are young women<sup>147</sup> and any who are “real educated.”<sup>148</sup> McMahon also advises against older black women, who may be inclined to “identify” with young black males (the “maternal in-

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<sup>134</sup> *Id.* at 61.

<sup>135</sup> *Id.* at 48.

<sup>136</sup> *Id.* at 51.

<sup>137</sup> *Id.* at 46.

<sup>138</sup> *Id.* at 61.

<sup>139</sup> *Id.*

<sup>140</sup> *Id.* at 48-49.

<sup>141</sup> *Id.* at 20.

<sup>142</sup> *Id.* at 50.

<sup>143</sup> *Id.* at 58.

<sup>144</sup> *Id.* at 47.

<sup>145</sup> *Id.* at 47-48.

<sup>146</sup> *Id.* at 56.

<sup>147</sup> *Id.* at 57.

<sup>148</sup> *Id.* at 55.



stinct").<sup>149</sup> Black men, in contrast, have less parental "instinct" and are a "little bit more demanding and a little bit more [into] law and order."<sup>150</sup> Among black men, he distinctly perceives older men (70+) as good jurors because "they're from a different era and different time and they have a different respect for the law."<sup>151</sup>

Contrary to what one might expect, McMahon's goal is not an all white jury, but rather one with 3 or 4 blacks. Although he does not address this concern, there is an obvious *Batson* problem with an all white jury in a county with 35% black venire members. Rather, he argues that a reasonable representation of blacks on the jury is necessary to protect against possible jury nullification by non-black jurors in black-on-black homicides, which may not generate much concern for the victim or identification with the State's witnesses.<sup>152</sup>

McMahon also perceives as dangerous a series of occupations characterized by intelligence<sup>153</sup> and critical analysis;<sup>154</sup> for example, doctors, lawyers, law students, social workers, and teachers (unless they are "fed up" with their black students).<sup>155</sup>

He justifies his recommended policy of discrimination against black venire members as necessary to obtain convictions and to offset the effects of defense counsel's counter-strategy,<sup>156</sup> which is to rid the jury of people it considers unsympathetic to criminal defendants and unduly respectful of law and order.

As a defense against *Batson* claims, McMahon recommends the contemporaneous documentation of otherwise legitimate reasons as each black is struck.<sup>157</sup> With these reasons at hand, a prosecutor who is challenged later in the trial will be able to present non-racial reasons for the strikes against blacks.<sup>158</sup>

### III. THE SETTING AND RESEARCH QUESTIONS

In the balance of this Article, we present the results of an empirical study of the use of peremptory challenges by the Commonwealth and the defense counsel in Philadelphia County, Pennsylvania, during the seventeen year period 1981-1997.<sup>159</sup>

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<sup>149</sup> *Id.* at 56.

<sup>150</sup> *Id.*

<sup>151</sup> *Id.* McMahon argues that blacks from the South are "excellent." *Id.*

<sup>152</sup> *Id.* at 59.

<sup>153</sup> McMahon asserts, "You do not want smart people. Now, I wish that you could ask everyone's IQ. If you could know their IQ, you could pick a great jury all the time. You don't want smart people . . ." *Id.* at 50-51.

<sup>154</sup> "You want people to come in there and say, 'Yep, she said he did it, he did it.' And that's what you want." *Id.* at 51.

<sup>155</sup> *Id.* at 63.

<sup>156</sup> *Id.* at 48.

<sup>157</sup> *Id.* at 70.

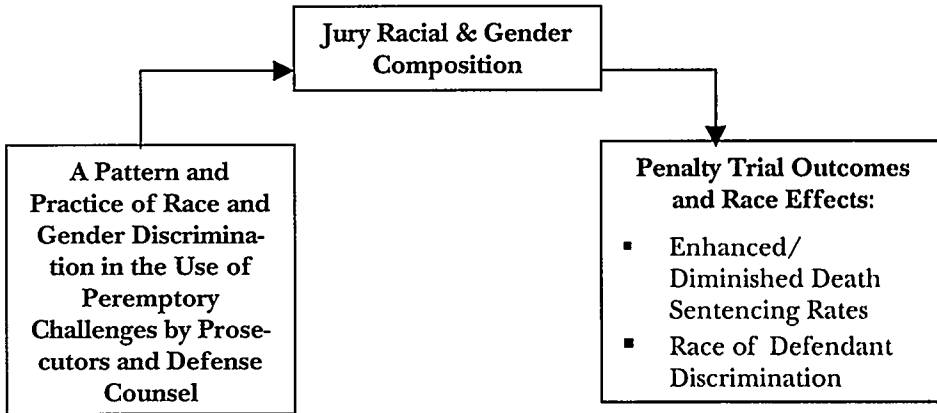
<sup>158</sup> *Id.* at 71.

<sup>159</sup> The sample also includes two cases from January 1998.

FIGURE 2

THE PEREMPTORY CHALLENGE IN CAPITAL TRIALS:  
PHILADELPHIA 1981-1997

A. The Causal Model



Our primary focus is on the following six questions, which are suggested by the literature and informed the causal model presented in Figure 2:

1. What are the strike rates of the Commonwealth and defense counsel against different subgroups of venire members defined in terms of race, age, and gender? To what extent do the peremptory strike strategies of each side reflect a pattern and practice of race and gender discrimination?
2. What impact have the Supreme Court's decisions in *Batson*, *McCullum*, and *J.E.B.* had on the covert use of race and gender as a basis for peremptory challenges? What explains their impact or lack thereof?
3. What impact, if any, does jury composition, defined in terms of race, gender, and age, have on penalty trial sentencing outcomes, measured: first, in terms of the likelihood that a death verdict will be returned; and second, in terms of the magnitude of race disparities in sentencing results?

4. What is the comparative effectiveness of the Commonwealth and defense counsel in:
  - a. striking their prime target group member defined in terms of race, age, and gender among the “strike eligible” venire members—the “depletion” model;
  - b. excluding their prime targets from jury service after also taking into account the impact of the other side’s peremptory strike strategy—the “jury representation” model;
  - c. selecting as their prime targets venire members who are a genuine threat to their interests—the “target selection” model; and
  - d. influencing death-sentencing outcomes—the “outcome enhancement” model?
5. How does the use of peremptory challenges by the Commonwealth and defense counsel influence the likelihood that a defendant’s jury will include a representative sample of his or her “peers,” defined in terms of race, gender, and age?
6. Finally, to what extent would the composition of Philadelphia’s capital juries differ in terms of their race, gender, and age composition if:
  - a. race and gender were not a factor in the use of peremptories by the Commonwealth and defense counsel—the “fair” model;
  - b. the number of peremptories was limited to five for the Commonwealth and ten for defense counsel—the “restricted strike” model;
  - c. juries were empanelled with an affirmative selection system—the “affirmative selection” model, and
  - d. peremptories were abolished—the “British” model?

The remainder of this Article elaborates on each of the six research questions, followed by a summary and conclusions. To preview what follows, we have found much that confirms our expectations. Race and gender play a profound part in the venire drama, with prosecutors and the defense bar heavily involved in the serious game of peremptory strike point-counterpoint. This is so despite the United States Supreme Court’s decisions barring the use of race and gender. The principal reasons for this widespread and deep lack of compliance, which we detail later, are the tandem of strong incentives for using discriminatory strike patterns and lack of strong incentives for not doing so in the form of court-mandated corrective action. On balance, noncompliance unnecessarily excludes from jury service many qualified venire members, resulting in disparate death-sentencing by juries not composed of the defendant’s peers, sentencing that unduly burdens black defendants. We think these are re-

markable findings: we think undoing the process that causes such damage will require remarkable, but not undoable, remediation.

#### IV. METHODOLOGY, RESEARCH DESIGN, AND MEASURES

This study focused on two different decisions. The first is the peremptory strike decision taken by prosecutorial and defense counsel. Our analysis of these decisions provides the basis for inferring the extent to which venire members' characteristics—such as race, gender, and age—had a systematic influence on the peremptory strike strategies of each side.

Our second focus was on the penalty trial sentencing decisions of juries. The purpose of these analyses is to estimate the extent to which the race, gender, and age composition of the juries influenced jury sentencing decisions.

##### A. *The Universe and Sample*

The universe of venires for the first part of our empirical study consisted of 461 venires in Philadelphia capital murder cases from which juries were selected between 1981 and 1997. The sample consisted of 317 venires. The shortfall between the universe and sample was the consequence of missing jury records or unavailable files in the Philadelphia judicial system.<sup>160</sup> Our strike rate estimates have been weighted to reflect the gap between the universe and sample of venires.

The universe of jury sentencing decisions for the second part of the empirical study includes 527 defendants for whom a jury imposed a life or death sentence between 1981 and 1997. The sample includes 401 defendants.<sup>161</sup> The death-sentencing estimates based on these cases have also been weighted to reflect this gap between the universe and sample.

The details of these sampling procedures are presented in Appendix A.

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<sup>160</sup> We planned to include all 249 of the venires in our previously published charging and sentencing study, David C. Baldus, et al., *Racial Discrimination and the Death Penalty in the Post-Furman Era: An Empirical and Legal Overview, With Recent Findings from Philadelphia*, 83 CORNELL L. REV. 1638 (1998) [hereinafter *Charging and Sentencing Study*], plus sixty-eight venires in capital cases tried before and after the period covered by that study, but we were unable to learn the names of the venire members in 31% (144/461) of those cases. See App. A, tbl.1. In some instances, the court files did not contain the jury tally sheets. Other files were unavailable, either because they could not be located by the clerk or had been signed out to the court, typically for preparation of an opinion in a post-conviction proceeding.

<sup>161</sup> The sample of defendants included 343 primary defendants and 58 co-defendants sentenced in jury penalty trials between 1981 and 1997. See App. A, tbl.2.

### B. Data Sources

For the analysis of venire member strike rates, we obtained information on individual venire members who were the subject of peremptory strike discretion by either side. Key variables included the venire member's race, gender, age, education, occupation, and residential address, as well as the venire member's answers to questions put to them in a questionnaire or by the court during voir dire. We obtained this information from court records, voter registration rolls, and census data. On the basis of these data, we produced 98% reliable estimates<sup>162</sup> for the race of 75% of the venire members, for the gender of 96% of the venire members, and for the age of 83% of the venire members.<sup>163</sup> This estimation procedure is described in detail in Appendix A.<sup>164</sup>

When we lacked race, gender, or age estimates from these data sources at the 98% level of reliability, we used a conditional mean imputation procedure to fill in the gaps.<sup>165</sup> This approach follows generally accepted statistical methodology. The resulting composite estimates enabled us to estimate the race, gender, and age composition of six groups: 1) the venire, 2) the jury, 3) the pool of Commonwealth strike-eligible venire members, 4) the pool of defense counsel strike-eligible venire members, 5) the venire members struck peremptorily by the Commonwealth, and 6) the venire members struck peremptorily by defense counsel. These data provided the basis for estimating peremptory strike rates and disparities based on venire member race, gender, and age.

We considered the race and gender disparities estimated on the basis of the conditional mean imputations, which used the 98% reliable measures as their core, to be the best and most reliable estimates of prosecutorial and defense counsel strike rates and race and gender disparities. For this reason, we considered them our "primary" estimates. The following from Appendix A summarizes the basis for our confidence in the primary estimates:

our final estimates were based on the entire sample of venire members and not merely a 75% sub-sample that did not appear to be a random sample in terms of the distribution of blacks and non-blacks in it. Moreover, in some cases, by chance, the proportion of known race venire members was sufficiently low to give substantial pause about relying on the strike estimates limited to the 98% reliable estimates. In addition, the imputation procedure made use of all of the relevant data available to us on the venire members. A significant proportion of that informa-

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<sup>162</sup> By 98% reliable estimates, we mean that if we estimated a venire member's race to be black or non-black, there was a 98% probability that they were black or non-black, as the case may be. This also holds for the gender and age estimates.

<sup>163</sup> The age groups were young (18-29), middle aged (30-55), and older (above 55).

<sup>164</sup> See App. A, Sec.III.A.-E.

<sup>165</sup> See App. A, Sec.III.F.

tion would be lost if we had relied solely on the 98% reliable estimates. Finally, the imputation estimates were sufficiently fine-tuned to indicate when the race estimates in a given venire may have been particularly low in terms of reliability because of the amount of information that was uncertain or unknown.

In this Article, unless otherwise indicated, we present strike rates and disparities based on our “primary” estimates.

### C. *Measures and Analytic Methods*

Our strike estimates are based on each side’s decisions to strike or accept its “strike eligible” venire members. These are overlapping but different pools of venire members.<sup>166</sup>

We defined target groups of venire persons for each side on the basis of the observed strike rates, the McMahan tape, and the literature. For example, blacks were a prime target group for the prosecution, as were non-blacks for defense counsel. We also defined twelve subgroups of venire members based on their race, gender, and age. Six non-black subgroups emerged as defense counsel’s principal targets, while six subgroups of black venire members emerged as the principal target groups of the prosecution. We defined as “prime” or “clear choice” target groups the three subgroups for whom we observed the highest strike rates by each side.

Our principal measure of race and gender discrimination in each case was the disparity in the rates at which men versus women and blacks versus non-blacks (as well as the smaller prime target groups) were struck by the two sides. We estimated these disparities in cross-tabular<sup>167</sup> and logistic multiple regression analyses.<sup>168</sup>

We estimated the impact of *Batson*, *McCullum*, and *J.E.B.* in three different ways. First, we applied an interrupted time-series analysis that compares the strike rates of prosecutors and defense counsel before and after the Supreme Court decisions that applied to each side. Second, we estimated race and gender effects separately in the cases that were tried before and after the three Supreme Court decisions.

We estimated the impact of jury composition on sentencing outcomes by comparing death-sentencing rates for subgroups of cases with more than or fewer than the median number of subgroup members on the jury. For example, the median number of black jurors was 4.7. Thus, we estimated the impact on sentencing outcome of venire member race by comparing the average death-sentencing rates for juries with four or fewer blacks (eight or more non-black jurors), which we call “predominantly non-black juries,” with the death-sentencing rates for juries with five or more black jurors, which we

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<sup>166</sup> The Commonwealth exercised discretion over 11727 venire members; the number for defense counsel was 12092.

<sup>167</sup> See tbls.2-4.

<sup>168</sup> See tbl.7.

call “predominantly black” juries. For a number of the smaller subgroups of jurors, such as young black men and women, the median rate of jury representation was zero. For those analyses, we compared juries with one or more subgroup members on the jury with juries which included no such members. In all of these analyses, we estimated the death-sentencing rate for each subgroup of cases (for example, those involving black and non-black defendants), after adjustment for the culpability of each defendant.<sup>169</sup>

As noted briefly above, we appraised the effectiveness of the prosecution’s and defense counsel’s use of peremptories in four ways. First, for each case, we estimated the rate at which each side succeeded in removing members of its prime target group through the use of its own peremptories. We called this the “depletion” model.

Second, we estimated the extent to which both sides’ peremptory strikes combined to exclude each side’s prime target groups from jury service. For each case, this involved comparing the representation rate of the prime targets on the venire with their representation on the jury. We called this the “jury representation” model.

Our third measure of comparative effectiveness focused on the extent to which each side defined as its principal target groups (i.e., those who are peremptorily struck at the highest rate) venire members who appeared to be a genuine threat to their interests. Specifically, we examined the extent to which the Commonwealth’s principal target groups were prone to the imposition of life rather than death sentences, and the extent to which defense counsel’s principal target groups were prone to the imposition of death rather than life sentences. We called this the “target selection” model.

Our final measure of comparative effectiveness (the “outcome enhancement” model) focused on the extent to which the peremptory strike effort of each side appeared to be successful in influencing sentencing outcomes (toward death sentences for the Commonwealth and toward life sentences for defense counsel). We measured the success of the peremptory strike effort in two ways. Our first measure of effort focused on the magnitude of each side’s strike rate. For the Commonwealth, the focus was on the strike rate against black venire members. For defense counsel, it was on the strike rate against non-black venire members. With this measure, we then compared sentencing outcomes observed when each side’s peremptory strike effort was above the median rate for all cases with the outcomes observed when each side’s peremptory strike effort was below the median rate for all cases.

Our second measure of peremptory strike effort evaluated the extent to which each side struck black and non-black venire members at different rates. Specifically, we focused on whether or not the Commonwealth struck black venire members at a rate statistically signifi-

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<sup>169</sup> See *infra*, App. A, Sec.V, for a description of the adjustment procedure.

cantly higher than the rate at which it struck non-black venire members. For defense counsel, the focus was on whether the rate of their strikes against the non-black venire members was significantly higher than their strikes against black venire members. The analysis permitted us to correlate the level of racial discrimination in each side's use of peremptories with sentencing outcomes. For example, on average, were death-sentencing rates higher or lower when defense counsel discriminated against non-black venire members to a statistically significant degree?

We also considered the impact of the system on the likelihood that defendants would be tried by juries that included one or more of their "peers," in terms of race, age, or gender. This measure compared the degree to which juries included "close peer group" members (for example, young black male jurors in the trial of young black male defendants), as well as the inclusion of black and non-black jurors generally.

Our final focus was on the extent to which the results observed in the current Philadelphia system differed from what we would expect to see in three hypothetical alternative systems, and how the juries selected in these hypothetical systems would compare with the results of a random selection process. The first alternative, which we called a "fair" system, would operate exactly as does the current system, with a major exception—the race and gender of venire members, as well as the race of the defendant and victim, would have no impact on either side's use of peremptories. For each case, we used the logistic regression model in Table 7 to estimate an "unacceptability" score for each venire member, based on all known characteristics other than his or her race and gender, or the race of the defendant or victim. We then estimated the likely pattern of strikes that each side would have applied on the basis of legitimate case characteristics. The fair jury for each case was the final group of venire members remaining after each side used the same number of strikes it actually used in the case.<sup>170</sup>

The second alternative, which we called a "restricted strike" system, involved a reduction of the Commonwealth's peremptory strikes to five, and defense counsel's strikes to ten. To simulate this system, we first reduced the size of each venire to twenty-seven (twelve jurors, plus five and ten strikes, respectively, for the two sides). On the basis of a modification of the Table 7 regression model, we then created an unacceptability score for each venire member. This score reflected both the legitimate factors in the model and the race of the venire member, and neighborhood effects adjusted to account for the impact of the race of the defendant and victim in the case. The strikes of each side were then used to eliminate its most unacceptable jurors.

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<sup>170</sup> Specifically, we struck the venire members that each side would have found most objectionable according to the model, until a "least worst" pool of twelve venire members remained.



The twelve venire members who survived this process constituted the restricted strike jury.

The third alternative was based on an “affirmative selection” model suggested in the literature. It used “acceptability” scores. However, in contrast to the fair jury model, these scores reflected the influence of the venire member’s race and gender. Under this model, each side would identify its top six plus picks. The court would then select the jury by seating first the venire members who were among each side’s top six picks. The balance of the jury would then be filled in by alternatively seating the venire members from each side’s remaining top selections.

The fourth alternative was the complete abolition of peremptories, which we call the “British” alternative because peremptories are not available in Great Britain. A British jury consists of the first twelve venire members who are not struck for cause. To replicate the British system, therefore, we selected for each case the first twelve venire members who were not struck for cause and treated them as the hypothetical “British” jury.

#### V. DETERMINANTS OF COMMONWEALTH AND DEFENSE COUNSEL PEREMPTORY STRIKES: MIRROR IMAGES OF “GOOD” AND “BAD” JURORS

##### A. An Overview

Table 1 presents an overview of the system, with detail on the median number of strike eligible venire members evaluated by the Commonwealth and defense counsel (recall that the two pools have considerable overlap), the number of strikes used by each side, and the strike rates. The data in Column A, Rows A.2. and B.2. indicate that defense counsel exercised an average of three more strikes per case (17 vs. 14), which explains why the average strike rate was seven points higher for defense counsel than for the Commonwealth (44% vs. 37%) (Column A, Rows A.3. and B.3.). Nevertheless, defense counsel tended to keep an average of three strikes in reserve (20 authorized and 17 used), presumably out of concern that the uncertainty of the process calls for a reasonable cushion of protection (who knows who the final few venire members will be).<sup>171</sup> Also of interest was the Commonwealth’s restraint, leaving an average of six strikes unused (Column A, Row A.2). It may be that the Commonwealth considered itself able to accomplish its goals in shaping jury composition with considerably fewer strikes than the number authorized. It was also possible that this unused reserve of strikes provided protec-

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<sup>171</sup> The maintenance of a reserve of strikes appears to be an artifact of the sequential screening of venire members in Philadelphia. Finkelstein & Levin, *supra* note 64, at 277-78, describe a process in a Manhattan federal court in which no peremptories may be exercised until the conclusion of the questioning of all venire members. In this situation, both prosecutor and defense counsel routinely exercise all of their peremptories.

tion against claims of race and gender discrimination. The Pennsylvania courts reviewing *Batson* claims have viewed an unused reserve of strikes as evidence supporting the Commonwealth's defense to such claims.<sup>172</sup>

TABLE 1

DESCRIPTIVE STATISTICS ON USE OF PEREMPTORY  
CHALLENGES BY PROSECUTORS AND DEFENSE COUNSEL: PHILADELPHIA  
1981-1997  
(All statistics are averages.)

	A. All Cases	B. Single Defendant Cases	C. Multiple Defendant Cases
A. Prosecutorial Strikes	(n=317)	(n=281)	(n=36)
1. Number of strike eligible venire members	37	37	41
2. Number of strikes	14	14	16
3. Strike rate	37%	36%	38%
B. Defense Counsel Strikes			
1. Number of strike eligible venire members	38	37	43
2. Number of strikes	17	17	20
3. Strike rate	44%	44%	47%

*B. Unadjusted Race, Gender, Age, and Neighborhood Effects*

Table 2 presents unadjusted race, gender, and age effects for the entire sample of venires. It reveals (Column B) effects in the direction suggested by the McMahon tape, i.e., strong, almost identical—but opposite—race effects on the part of both prosecutors and defense counsel.<sup>173</sup> Specifically, each side's strike rate was substantially higher against its target group than against the favored group (+25 and -28 percentage points respectively) (Column B, Rows A and B). The gender effects were much less prominent for both

<sup>172</sup> See, e.g., *Commonwealth v. Hardcastle*, 546 A.2d 1101, 1105 (Pa. 1988) ("Commonwealth had ample challenges remaining"); *Commonwealth v. Jackson*, 562 A.2d 338, 346 (Pa. Super. 1989) ("The fact that the prosecutor did not take advantage of his opportunity to strike these jurors is evidence that he did not discriminate on the basis of race.")

<sup>173</sup> See *supra* note 48 for evidence supporting the rationale of the prosecution and defense counsel strike rate strategy based on race and gender.

gender effects were much less prominent for both sides (+7 and -11 percentage points), but slightly stronger (by 4 percentage points) on the defense side (Column C). The age effects for each side also mirror one another with the prosecution favoring older, and disfavoring younger, venire members. However, for the prosecution the strike rate gap between the young and middle-aged venire members (11 points) is nearly twice the defense counsel strike rate gap (6 points) between the middle-aged and older venire members.

TABLE 2

UNADJUSTED RACE, GENDER, AND AGE EFFECTS IN THE USE OF PEREMPTORY CHALLENGES BY PROSECUTORS AND DEFENSE COUNSEL: PHILADELPHIA 1981-1997

(The strike rate statistics are averages of case level estimates.)<sup>1</sup>

A Decision Maker	B <sup>2</sup> Race Effects	C <sup>3</sup> Gender Effects	D <sup>4</sup> Age Effects <sup>4</sup>
Prosecution (Avg. Strike Rate for All Cases- .37)	BVM .51 NBVM .26 Diff. 25 pts. Ratio 2.4 (n=317) (p=.0001)	Female VM .40 Male VM .33 Diff. 7 pts. Ratio 1.2 (n=317) (p=.0001)	a. Young VM .46 (18-29) b. Middle-Age VM .35 (30-55) c. Older VM .31 (over 55) (n=317)
Defense Counsel (Avg. Strike Rate for All Cases- .44)	BVM .26 NBVM .54 Diff. -28 pts. Ratio .48 (n= 317) (p=.0001)	Female VM .39 Male VM .50 Diff. -11 pts. Ratio .78 (n=317) (p=.0001)	a. Young VM .39 (18-29) b. Middle-Age VM .44 (30-55) c. Older VM .50 (over 55) (n=317)

<sup>1</sup>These estimates give equal weight to each case.

<sup>2</sup>BVM stands for black venire member; NBVM stands for non-black venire member.

<sup>3</sup>VM stands for venire member.

<sup>4</sup>For both prosecutors and defense counsel, the differences between strike rates for young and older VM's, middle-age and older VM's, middle-age and young VM's are all significant at the .0001 level.

Table 3 presents evidence of discrimination on the basis of the racial makeup of the venire member's neighborhood of residence. (The table classifies the neighborhoods in terms of the percentage of

blacks residing in the venire member's census block.) We tested here the perception that people who reside in racially integrated neighborhoods would make "better" jurors for the defense than those living in all non-black neighborhoods. With respect to non-black venire members (Columns C, D, and E, Rows 1 and 2), the data did show substantially higher prosecutorial strike rates against residents of integrated neighborhoods, while defense counsel strike rates were slightly lower for integrated neighborhoods.<sup>174</sup> One plausible explanation suggested by the literature for these perceptions of prosecutors and defense counsel is that non-blacks living in integrated neighborhoods have "lower levels of prejudice" against blacks than their counterparts living in highly segregated neighborhoods.<sup>175</sup> However, the neighborhood prosecutorial effect for non-black venire persons was as pronounced in non-black defendant cases as it was in black defendant cases.<sup>176</sup> This suggests that prosecutors may have perceived non-blacks living in integrated neighborhoods as more liberal and less sympathetic to the Commonwealth than non-blacks living in all non-black neighborhoods.

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<sup>174</sup> For the Table 3 prosecution data (Row 1), the nine percentage point gap (.19 vs. .28) between Column C and Column D is significant at the .0003 level and the thirteen point gap (.28 vs. .41) between Column D and Column E is significant at the .0001 level. For the defense counsel data (Row 2), the six point gap (.59 vs. .53) is significant at the .01 level and the seven point gap (.53 vs. .46) between Column D and Column E is significant at the .02 level.

<sup>175</sup> E.g., Wesley G. Skogan, *Crime and the Racial Fears of White Americans*, 539 ANNALS AM. ACAD. POL. & SOC. SCI. 59, 70 (1995) ("[T]hrough choices about where they live, many whites have sorted themselves into residential patterns that reflect their attitudes.").

<sup>176</sup> In non-black defendant cases the prosecutor strike rates against non-black venire members in Column C, D, and E, were .25, .30, and .55 respectively. In black defendant cases, the prosecutorial strike rates against non-blacks were .18, .28, and .37.

TABLE 3

PROSECUTORIAL AND DEFENSE COUNSEL PEREMPTORY STRIKE RATES,  
CONTROLLING FOR VENIRE MEMBER RACE AND THE RACIAL  
CHARACTERISTICS OF THE VENIRE MEMBERS NEIGHBORHOOD OF  
RESIDENCE<sup>1</sup>: PHILADELPHIA 1981-1997

A	B	C	D	E	F	G	H	I
Decision Maker	Strike Rates Against Non-Black Venire Members				Strike Rates Against Black Venire Members			
	Avg. Strike Rate	Neighborhood Percent Black <sup>2</sup>			Avg. Strike Rate	Neighborhood Percent Black		
		0-1	1.1-9.9	10-100		0-89.9	90-98.9	99-100
1. Pros.	.23 (5233)	.19 (3784)	.28 (849)	.41 (552)	.54 (3482)	.50 (754)	.54 (1623)	.58 (1073)
2. Def.	.57 (6375)	.59 (4785)	.53 (990)	.46 (549)	.23 (2843)	.24 (653)	.24 (1321)	.21 (843)

<sup>1</sup> The number in parentheses below each strike rate is the number of strike eligible venire members for prosecutors or defense counsel, as the case may be.

<sup>2</sup> The "neighborhood percent black" is based on census "block" data.

For black venire members, the effects were in the same direction as suggested by Jack McMahon's concern about "blacks from low-income areas," but were much less pronounced (Cols. G-I, Rows 1 & 2).<sup>177</sup>

*C. Adjusted Race and Gender Effects: Part I (Crosstabular Analysis)*

*1. The Impact of Defendant and Victim Race on Peremptory Strike Rates*

In this section, we examined the extent to which the race and gender disparities documented in Table 2 could be explained by the identification model, which suggests that black and non-black venire members are struck peremptorily primarily out of a concern that, because of their race, they will identify with the defendant or victim.<sup>178</sup> There is important literature documenting the risk of such discrimination, and a number of Supreme Court opinions leave one with the impression that this is the sole motivation behind the exercise of

<sup>177</sup> We are assuming here that the low income areas to which McMahon refers are predominantly black neighborhoods.

<sup>178</sup> Because of the small number of female defendants in the study, we were unable to conduct a similar analysis focused on gender.

race- and gender-based peremptories.<sup>179</sup>

Table 4 presents strike rate data for both the prosecution and defense counsel that clearly support these expectations. Note that in the "Diff." and "Ratio" rows in Table 4, reading from Column C to Column F, the race effects steadily fall for both sides. When the defendant was non-black (Columns E and F), prosecutors perceived black venire members as less of a threat (the black prosecutorial strike rates are lower than in Columns C and D) and defense counsel were less deferential to them (the non-black defense counsel strike rates in Columns E and F are higher than in Columns C and D).<sup>180</sup>

Note particularly Column F, where the defendant was non-black and the victim was black. The race effects for both sides nearly evaporate.<sup>181</sup> The answer appears to lie in the interaction with the race of the victim (compare Columns E and F). In non-black-on-black murders (Column F), prosecutors appear to have perceived black venire members as more likely to identify with the Commonwealth because of the victim's race, and non-black venire members slightly more likely to identify with the defendant. Similarly, when the victim was black, defense counsel found black venire members less attractive and non-black venire members less threatening.

In fact, Figure 3 suggests that the interaction of venire member race with the race of the defendant and the victim generalizes across each defendant-victim racial combination. Figure 3 reformats the data in Table 4 to reveal a pattern in which perceived empathy for, and identification with, defendants and victims on the basis of venire member's race appears to have substantially influenced prosecutors' and defense counsel's decisions.

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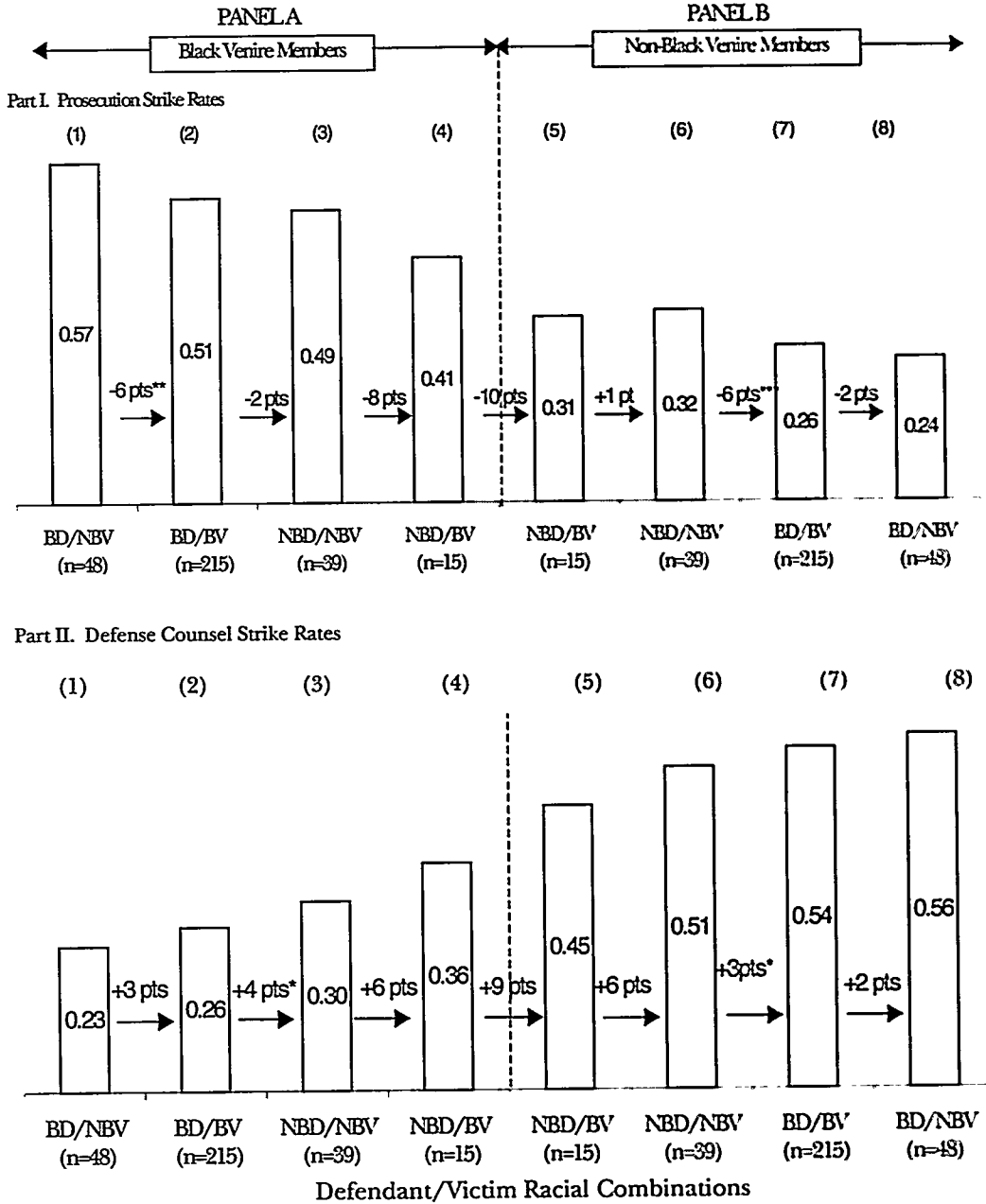
<sup>179</sup> See *supra* note 95 and accompanying text.

<sup>180</sup> The difference in the prosecutor strike rates (Cols. C & D vs. E & F) is significant at the .03 level; the difference in defense counsel strike rates is significant at the .002 level.

<sup>181</sup> The *p*-values of the disparities were .15 (Row A, Col. F) and .21 (Row B, Col. F) respectively.

FIGURE 3

PROSECUTION AND DEFENSE COUNSEL STRIKE RATES AGAINST BLACK (PANEL A) AND NON-BLACK (PANEL B) VENIRE MEMBERS CONTROLLING THE RACE OF THE DEFENDANT AND VICTIM: PHILADELPHIA 1981-1997



\* means significant at the .10 level.  
 \*\* means significant at the .05 level.

TABLE 4

PROSECUTORIAL AND DEFENSE COUNSEL VENIRE MEMBER RACE  
DISPARITIES IN THE USE OF PEREMPTORY CHALLENGES FOR ALL CASES  
AND CONTROLLING FOR DEFENDANT/VICTIM RACIAL COMBINATIONS:  
PHILADELPHIA 1981-1997

A Race Effects	B All Cases <sup>1</sup>	C Black Defendant/ Non-Black Victim <sup>2</sup>	D Black Defendant/ Black Victim	E Non-Black Defendant/ Non-Black Vic- tim <sup>3</sup>	F Non-Black Defendant/ Black Victim
1. Pros. Strikes <sup>4</sup>	BVM .51 <u>NBVM</u> .26 Diff. 25 pts. Ratio 1.96 (n=317) ( <i>p</i> =.0001)	BVM .57 <u>NBVM</u> .24 Diff. 33 pts. Ratio 2.38 (n=48) ( <i>p</i> =.0001)	BVM .51 <u>NBVM</u> .26 Diff. 25 pts. Ratio 1.96 (n=215) ( <i>p</i> =.0001)	BVM .49 <u>NBVM</u> .32 Diff. 17 pts. Ratio 1.53 (n=39) ( <i>p</i> =.005)	BVM .41 <u>NBVM</u> .31 Diff. 10 pt Ratio 1.32 (n=15) ( <i>p</i> =.15)
2. Defense Counsel Strikes <sup>5</sup>	BVM .26 <u>NBVM</u> .54 Diff. -28 pts. Ratio .48 (n=317) ( <i>p</i> =.0001)	BVM .23 <u>NBVM</u> .56 Diff. -33 pts. Ratio .41 (n=48) ( <i>p</i> =.0001)	BVM .26 <u>NBVM</u> .54 Diff. -28 pts. Ratio .48 (n=215) ( <i>p</i> =.0001)	BVM .30 <u>NBVM</u> .51 Diff. -21 pts. Ratio .59 (n=39) ( <i>p</i> =.0001)	BVM .36 <u>NBVM</u> .45 Diff. -9 pt Ratio .80 (n=15) ( <i>p</i> =.21)

<sup>1</sup> BVM stands for black venire member; NBVM stands for non-black venire member. Sample sizes, "n", is for cases.

<sup>2</sup> In two trials, the black lead defendant was tried with a non-black co-defendant.

<sup>3</sup> In one trial, the lead non-black defendant was tried with a black co-defendant.

<sup>4</sup> Logistic odds multipliers estimated on the basis of the model in Table 7 that correspond to the prosecutorial race effects reported in this table are by column: B (.4.5, *p* = .0001); C (7.9, *p* = .0001); D (4.65, *p* = .0001), E (3.3, *p* = .0001); F (1.6, *p* = .05). See *infra* note 264 and accompanying text and App. D for more detail on the regression models.

<sup>5</sup> Logistic odds multipliers estimated on the basis of the model in Table 7 that correspond to the defense counsel race effects reported in this table are by column: B (.18, *p* = .0001); C (.12, *p* = .0001); D (.19, *p* = .0001), E (.29, *p* = .0001); F (.54, *p* = .01). See *infra* note 264 and accompanying text and App. D for more detail on the regression models.

Figure 3 presents strike rate data for the black venire members under Panel A (Bars 1-4) and for the non-black venire members under Panel B (Bars 5-8). The four bars in each Panel represent the four defendant-victim racial combinations. For example, the prosecution strike rate in Bar 1 of Part I represents the prosecutor strike rate against black venire members in the black defendant/non-black victim case, the category of cases in which the prosecution most fears black venire members. Similarly in Part II, Bar 8 represents defense counsel's strike rate for non-black venire members in the black de-



defendant/non-black victim cases, the category of cases in which defense counsel most fear non-black venire members.

The overall pattern of the data in Table 4 and Figure 3 vividly documents the sensitivity of both sides to the defendant-victim racial combination, exactly as suggested by the opinions of the United States Supreme Court and the literature. However, these data do not fully support the "equal treatment" hypothesis articulated by the Justices who consider race and gender discrimination a legitimate basis for the use of peremptories.<sup>182</sup> Under this hypothesis, discrimination in the use of peremptories is not a concern because it is driven by the defendant/victim racial (or gender) combination of the cases, and because non-black venire members are as likely to be struck in some cases as are black venire members in other cases. At one level, the data appear to support this hypothesis because, combining the strikes of both prosecutors and defense counsel, the overall strike rates against black and non-black venire members are close.<sup>183</sup>

However, when one examines separately the pattern of strikes for each side, it is plain that their strike strategies are driven by racial considerations that go well beyond the defendant/victim racial combinations of the cases. If the identification model were the driving force behind the exercise of peremptories, we would see prosecution strike rates against black venire members in black/non-black cases that were comparable to prosecution strike rates for non-black venire members in non-black/black cases. But Table 4 indicates in Columns C and F that those strike rates were twenty-six points apart (.57 vs. .31). The same was true for defense counsel, with a twenty point gap between the strike rate against non-blacks in black/non-black cases (.56) and the strike rate against black venire members in the non-black/black cases (.36). Indeed, if the identification model controlled the process, the Figure 3 bars for each side in Columns 1-4 and 5-8 would be comparable. In fact, for the prosecution, none of the bars for non-black venire members (Columns 5-8) exceeded the bars for the black venire members (Columns 1-4). The same and opposite pattern exists with respect to defense counsel strike rates, shown in Part II of Figure 3. These data clearly indicate that the peremptory strike strategies of each side were driven by racially based stereotypes that go well beyond concerns relating to the race of the defendant or victim. In short, they reflect the widely shared perceptions of good and bad jurors articulated in 1986 by Philadelphia

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<sup>182</sup> See *supra* note 97 and accompanying text.

<sup>183</sup> Overall, the strike rate for black venire members was .65, and for non-blacks it was .67. Also, the strike rate overall was three points higher for men (.68) than for women (.65). The explanation for these overall disparities is that the defense counsel overall strike rate was higher than the Commonwealth's, and defense counsel discriminated against non-blacks and men. *But see supra* notes 49-58 and accompanying text for data on the practical effects of both sides' discriminatory use of peremptories.

prosecutor Jack McMahon<sup>184</sup> and earlier by Texas prosecutor Jon Sparling.<sup>185</sup>

## 2. *Race and Gender Disparities Estimated with Controls for Age, Race, and Gender*

We also conducted analyses of race, gender, and age effects, controlling for each of the other two factors. For example, we matched venire members on age (young, middle, and older) and gender and then calculated race effects in the strike rates of prosecutors and defense counsel. The results, shown in Appendix B, indicate that for prosecutors, race was the predominant factor—ranging from a 32-point disparity for young males (Part A.1, Column B) to a 17-point disparity for older women (A.6). Gender appears to have been important primarily among older venire members, with the males distinctly favored (B.3 and B.6). Age effects were concentrated among the black venire members, with the younger jury candidates distinctly disfavored (C.1 and C.2).

For defense counsel, race was also a major factor across all age and gender categories, ranging from a 29-point disparity among older males (Part A.3, Column C) to an 18-point disparity among young women (A.4). Gender effects for defense counsel (Part B) were concentrated among non-black venire members, with men disfavored, while age disparities (Part C) were consistent across all race and gender combinations, with the younger venire members distinctly favored and older members disfavored.

## 3. *Prosecutor Effects*

There were two other prosecution interactions worthy of note. First, black assistant district attorneys were much less likely to strike black venire members and slightly more likely to strike non-black venire members than their white and Hispanic counterparts. As a result, for black prosecutors (69 cases), the average black versus non-black venire member strike disparity was seventeen points while for the white and Hispanic prosecutors (248 cases) the disparity was twenty-seven points. (Appendix D presents detail on individual prosecutors.) That some black prosecutors strike black venire members at almost the same rate as their non-black counterparts is compelling evidence of the strength of the stereotypes driving the use of peremptories by prosecutors. Nevertheless, the strike rate against black venire persons was lower when the prosecutor was black.

The literature suggests two possible explanations for this effect. One is that persons of the same race read each other's attitudes and

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<sup>184</sup> See *supra* notes 133-58 and accompanying text.

<sup>185</sup> See *supra* notes 25-26 and accompanying text.

values more easily than persons of different races. As a consequence they need to rely less heavily on racially based stereotypes in evaluating one another.<sup>186</sup> A second possible explanation is that people are generally more comfortable communicating with people of their own race than with people of different races; prosecutors communicating with jurors in the course of a murder trial are no exception in this regard.<sup>187</sup>

Second, when the cases were classified according to the incumbency of the three elected District Attorneys during the period studied (Rendell, pre-January 1, 1986; Castille, January 1, 1986 to March 12, 1991; Interim, March 13, 1991 to April 24, 1991; and Abraham, April 24, 1991 to the present), we observed a distinctly lower race effect in prosecutorial strike rates since Abraham took office—a seven percentage point decline in the black venire member strike rate disparity.<sup>188</sup> This conclusion is also confirmed by the year-to-year analyses of strike rates presented in Figure 4.<sup>189</sup>

#### 4. *The Prime Strike Targets of Prosecutors and Defense Counsel*

The crosstabular analyses described above and the McMahon tape provide a useful guide for identifying the principal targets for both sides. Table 5 presents twelve target groups based on age, gender, and race of the venire members. The Commonwealth's principal targets are listed in Part I in decreasing order of the average prosecution strike rates (Column C), with defense counsel's principal targets listed in Part II, also in decreasing order of the average defense counsel strike rate (Column C). The Column C strike rates indicate the extent to which the members of each subgroup were "clear choices" for exclusion.

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<sup>186</sup> See 11 INTERNATIONAL ENCYCLOPEDIA OF THE SOCIAL SCIENCES 562 (David L. Sills et al. eds., 1968) (discussing the principle of assumed similarity, in which people tend to assume that others will react in the manner they would; noting as a consequence that one expects "high accuracy scores for judges who happen to be similar to the persons judged and low scores for judges who are not"). See also Ronald Taft, *The Ability to Judge People*, 52 PSYCHOL. BULL. 1, 6 (1955) ("We could not expect, however, that even a capable judge would be able to judge members of another culture as well as he can judge members of his own.").

<sup>187</sup> See, e.g., A.L. RICH, *INTERRACIAL COMMUNICATION* 61-62 (1974) ("The stereotypes blacks hold of white communicators are so negative that, with the influence of selective perception reinforcing these negative views, productive interracial communication is rendered difficult, if not impossible at times."). Also, an experienced black prosecutor in Florida, informally interviewed on this issue, believed that this communication theory was the more plausible explanation for the lower black prosecution strike rate documented in the text. Interview with Charles B. Morton, Assistant State Attorney, Office of State Attorney, 17th Judicial Circuit, Fort Lauderdale, Fla., in Tallahassee, Fla. (Mar. 31, 2000).

<sup>188</sup> The average strike rate against black venire members declined six points (.53 vs. .47) ( $p = .001$ ) and the rate against non-black venire members rose one point (.26 vs. .27) ( $p = .33$ ). During the Abraham regime the defense counsel strike rate against non-black venire persons remained the same, at .54, and declined against black venire members only slightly (.27 vs. .25) ( $p = .17$ ).

<sup>189</sup> See *infra* notes 197-201 and accompanying text.

Another measure of the strike priorities of each side is the difference between the strike rates directed at each subgroup. This measure, shown in Column F, indicates the extent to which the views of the two sides differed on how good or bad the jurors in each subgroup were. Note that for two subgroups, older black men (Part I: #6) and young non-black women (Part II: #6), the difference measure in Column F indicates that the strike rate was near the average rate for both sides, suggesting indifference.

The Commonwealth's order of clear choices closely tracks the McMahon model: young blacks were the prime targets followed next by middle-aged and older women, and then by the middle age and older men. For defense counsel non-black, older, and middle-aged men and older non-black women were the prime targets, with the middle age and young women seen as the least threatening.

TABLE 5

PROSECUTORIAL AND DEFENSE COUNSEL STRIKE RATES AGAINST  
VENIRE MEMBER TARGET GROUPS RANK ORDERED BY STRIKE RATE:  
PHILADELPHIA 1981-1997

Part I. Prosecution Prime Target Group Members					
A	B	C	D	E	F
Venire Member Race, Age, and Sex	Prosecution		Defense Counsel		
Black Venire Members	# Strike Eligible	Strike Rate	# Strike Eligible	Strike Rate	Strike Rate Difference (Col. C - Col. E)
1. Young Women	750	.63	554	.23	.40
2. Young Men	471	.61	333	.28	.33
3. Mid-Age Women	1684	.49	1423	.24	.25
4. Older Women	700	.48	616	.30	.18
5. Mid-Age Men	1006	.43	894	.30	.13
6. Older Men	410	.38	391	.36	.02
Part II. Defense Counsel Prime Target Group Members					
A	B	C	D	E	F
Venire Member Age, Race, and Sex	Defense Counsel		Prosecution		
Non-Black Venire Members	# Strike Eligible	Strike Rate	# Strike Eligible	Strike Rate	Strike Rate Difference (Col. C - Col. E)
1. Older Men	1059	.65	798	.18	.47
2. Mid-Age Men	2104	.58	1732	.25	.33
3. Older Women	888	.55	773	.31	.24
4. Young Men	840	.54	735	.29	.25
5. Mid-Age Women	2082	.48	1867	.28	.20
6. Young Women	838	.41	809	.35	.06

There were two additional points of interest in Table 5. The dominance of race in the system is apparent from the fact that the highest prosecutorial strike rate (Part II, Column E, Row 6), against

a non-black subgroup (young non-black women, .35), was lower than the lowest strike rate against a black subgroup (older black men, .38) (Part I, Column C, Row 6). The same was true for defense counsel, i.e., the highest strike rate against a subgroup of black venire members (older black men, .36) (Part I, Column E, Row 6) was lower than the lowest defense counsel strike rate for a non-black subgroup (young non-black women, .41) (Part II, Column C., Row 6).

Second, the prosecutorial strike rates against black venire members appear directly to reflect Jack McMahon's perceptions of black jurors, i.e., the "very bad" jurors were the young men and women and the best were older black men—a spread of 25 points (.63 - .38). In between the young black and the older black males were the middle aged and older black women, the "moms" with possible maternal instincts toward young black defendants. Also perceived as less dangerous were the middle age black men who lack the parental instinct found in the women and are more demanding of conformity with law and order. Defense counsel strike rates for these black subgroups reflected a similar perception of black jurors, but the spread was only 13 points (.23 - .36) between the most and least favored.

For defense counsel, among non-black venire members older men were most feared and young women were the least feared—a spread of 24 points (.65 - .41). Prosecutors shared this perception of non-black venire members, with the lowest strike rate against the older men (.18) and the highest rate against the young women (.35) (Part II, Column E).

A notable feature of Table 5 is the extent to which the strike rates of each side mirrored each other and in doing so reflected the perceptions of Jack McMahon, particularly his expectations about black jurors. As suggested earlier, this shared view of black and non-black jurors likely reflects the fact that defense counsel are often former prosecutors.<sup>190</sup> Indeed, in our sample of Philadelphia cases, 42% of the defense counsel for whom we had relevant information (10/24) had earlier worked as prosecutors.<sup>191</sup>

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<sup>190</sup> See *supra* note 132 and accompanying text.

<sup>191</sup> We sought to test the hypothesis that the reason prosecution and defense jury selection strategies mirror each other is that many defense counsel are in fact former prosecutors. We used the first degree murder database supplied by the Philadelphia courts. The database covers incident dates from September 13, 1978, to May 5, 1995, and contains 1054 observations. A total of 314 lawyers handled these 1054 cases. We looked at the subset of these lawyers who had handled eight or more of these trials. This resulted in thirty-two lawyers (10% of the total) who handled 428 of the 1054 cases (41%). Of these thirty-two lawyers, ten were former prosecutors, fourteen were not, and eight were unknown. The source of the information on prior experience as prosecutor was a survey of three experienced public defenders each with approximately twenty-five years experience, including the former chief of the Defender Association of Philadelphia jury program, the present assistant chief, and an experienced homicide trial lawyer.

*D. Adjusted Race and Gender Effects: Part II  
(Logistic Multiple Regression Analyses)*

To test further the race and gender discrimination hypothesis, we conducted multiple regression analyses at the venire member level. In addition to the variables described above in the crosstabular analyses, we introduced controls for known occupation and education, and answers given by the venire members to questions in voir dire.<sup>192</sup>

Table 6 presents the bivariate relationships between these legitimate venire member characteristics and the prosecutorial and defense counsel strike rates that showed a substantial relationship to the strike rates of either prosecutors or defense counsel. The results in Column C and E are generally in the expected direction.<sup>193</sup>

As suggested by the literature and the McMahon tape, occupation (Section I) produced the largest bivariate effects. The education variable (Section II) with the largest effect (7 points) was "attended graduate school." Also, several venire members' answers to questions indicating that he, she, or a close friend or relative had worked as a police officer (Section III, code = 600), produced the expected response from both sides.<sup>194</sup> The question that produced the most significant effects concerned venire member reservations about imposing a death sentence in an appropriate case (Section III, code = 1300). (These were venire members whose stated concerns about the death penalty were apparently insufficient to support a strike for cause.)<sup>195</sup>

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<sup>192</sup> For sixty-seven venires the files did not include venire members' answers to the court's questions in the sample.

<sup>193</sup> Each of these effects was statistically significant at or beyond the .05 level, unless followed by NS for "not significant."

<sup>194</sup> ARTHUR L. STINCHCOMBE ET AL., *CRIME AND PUNISHMENT—CHANGING ATTITUDES IN AMERICA* 72 (1980) ("People are more afraid of crime when they are exposed to it, when the damages they might sustain are larger, or when they have fewer resources to protect themselves.").

<sup>195</sup> See, e.g., *Commonwealth v. Bronshtein*, 691 A.2d 907 (Pa. 1997); *Commonwealth v. Gibson*, 688 A.2d 1152 (Pa. 1997); *Commonwealth v. Bond*, 652 A.2d 308 (Pa. 1995); *Commonwealth v. Wheeler*, 645 A.2d 853 (Pa. Super. 1994).

TABLE 6

PROSECUTOR AND DEFENSE COUNSEL VENIRE MEMBER STRIKE RATES  
 CONTROLLING FOR VENIRE MEMBER OCCUPATION, EDUCATION, AND  
 REPLIES TO VOIR DIRE QUESTIONS: PHILADELPHIA 1981-1997  
 (All strike rates are at the venire member level.)

A Venire Member Characteristics	B Prosecutor Strike Rate <sup>1</sup>	C Prosecutor Strike Rate Deviation from Norm <sup>2</sup>	D Defense Counsel Strike Rate <sup>1</sup>	E Defense Strike Rate Deviation from Norm <sup>1</sup>
<b>Section I. Occupation</b>				
10=Professional and managerial	.39 (n=348)	+1 pt. (NS)	.49 (n=361)	+4 pts. (NS)
11=Professional (doctor, lawyer)	.50 (n=139)	+12 pts.	.48 (n=123)	+3 pts. (NS)
20=Law enforcement and military	.30 (n=140)	-8 pts.	.57 (n=171)	+12 pts.
21=Police, Fireman, Corrections	.29 (n=29)	-9 pts. (NS)	.70 (n=45)	+25 pts.
30=White-collar	.32 (n=2581)	-6 pts.	.45 (n=2749)	0 pts. (NS)
31=Office worker	.32 (n=770)	-6 pts.	.46 (n=840)	+1 pt. (NS)
33=Store manager	.22 (n=49)	-16 pts.	.40 (n=54)	-5 pts. (NS)
35=Government office worker	.31 (n=215)	-7 pts.	.49 (n=228)	+4 pts. (NS)
36=Technical, computer sciences	.32 (n=287)	-6 pts.	.46 (n=326)	+1 pt. (NS)
40=Blue collar and unskilled	.31 (n=911)	-7 pts.	.50 (n=1011)	+5 pts.
41=Blue-collar or skilled worker	.25 (n=427)	-13 pts.	.49 (n=512)	+4 pts. (NS)
43=Unskilled laborer	.35 (n=130)	-3 pts. (NS)	.54 (n=138)	+9 pts.
45=Social serv./educ./health care	.47 (n=765)	+9 pts.	.33 (n=686)	-12 pts.
46=Teacher or day care worker	.49 (n=288)	+11 pts.	.31 (n=257)	-14 pts.
47=Social worker	.69 (n=53)	+31 pts.	.13 (n=36)	-32 pts.
48=Nurse, nurse's assistant, etc.	.42 (n=342)	+4 pts. (NS)	.36 (n=317)	-9 pts.
49=Therapist or counselor	.46 (n=38)	+8 pts. (NS)	.25 (n=32)	-20 pts.
50=Service worker	.41 (n=870)	+3 pts.	.42 (n=857)	-3 pts. (NS)
55=Domestic	.69 (n=48)	+31 pts.	.25 (n=32)	-20 pts.
60=Outside of labor force	.42 (n=1508)	+4 pts.	.46 (n=1576)	+1 pt. (NS)
62=Student	.55 (n=212)	+17 pts.	.37 (n=197)	-8 pts.
63=Retired	.26 (n=540)	-12 pts.	.55 (n=653)	+10 pts.
65=Unemployed (welfare also)	.57 (n=401)	+19 pts.	.36 (n=354)	-9 pts.



TABLE 6 (continued)

A Venire Member Characteristics	B Prosecutor Strike Rate <sup>1</sup>	C Prosecutor Strike Rate Deviation from Norm <sup>2</sup>	D Defense Counsel Strike Rate <sup>1</sup>	E Defense Strike Rate Deviation from Norm <sup>3</sup>
<b>Section II. Education</b>				
1. Attended/graduated grade school	.42 (n=119)	+4 pts. (NS)	.49 (n=123)	+4 pts. (NS)
2. Attended high school	.42 (n=942)	+4 pts.	.47 (n=969)	+2 pts. (NS)
3. Graduated high school	.33 (n=2757)	-5 pts.	.48 (n=3006)	+3 pts.
4. Attended college	.39 (n=1525)	+1 pt. (NS)	.41 (n=1507)	-4 pts.
5. Graduated college	.34 (n=633)	-4 pts.	.47 (n=676)	+2 pts. (NS)
6. Attended graduate school	.45 (n=357)	+7 pts.	.37 (n=336)	-8 pts.
7. Other education	.42 (n=785)	+4 pts.	.40 (n=769)	-5 pts.
<b>Section III. Venire Member Affirmative Answers to Voir-Dire Questions</b>				
100=Hardship—juror would have difficulty participating in trial	.42 (n=169)	+4 pts. (NS)	.44 (n=168)	-1 pt. (NS)
200=Juror previously served in a jury	.27 (n=635)	-11 pts.	.47 (n=721)	+2 pts. (NS)
210=Prior jury service in criminal case	.11 (n=37)	-27 pts.	.56 (n=50)	+11 pts. (NS)
250=Juror or close friend, etc., w/prior contact with criminal justice system	.42 (n=140)	+4 pts. (NS)	.51 (n=148)	+6 pts. (NS)
300=Juror or a close friend or relative of the juror was a victim of crime	.39 (n=898)	+1 pt. (NS)	.46 (n=903)	+1 pt. (NS)
400=Juror or close friend or relative of the juror was accused of being involved in criminal activity	.52 (n=491)	+14 pts.	.34 (n=418)	-11 pts.
420=Juror's close friend, relative accused of crime	.50 (n=92)	+12 pts.	.35 (n=76)	-10 pts.
500=Juror or a close friend or relative of the juror was an eyewitness to a crime	.29 (n=67)	-9 pts. (NS)	.26 (n=69)	-19 pts.

A Venire Member Characteristics	B Prosecutor Strike Rate <sup>1</sup>	C Prosecutor Strike Rate Deviation from Norm <sup>2</sup>	D Defense Counsel Strike Rate <sup>1</sup>	E Defense Strike Rate Deviation from Norm <sup>3</sup>
600=Juror or a close friend or relative of the juror has worked as a police officer or in other law enforcement job	.27 (n=1386)	-11 pts.	.54 (n=1618)	+9 pts.
620=Close friend or relative of the juror has worked as police officer or in a law enforcement job	.24 (n=366)	-14 pts.	.56 (n=429)	+11 pts.
700=Juror admitted to a bias or other reason juror could not be fair	.51 (n=45)	+13 pts. (NS)	.50 (n=49)	+5 pts. (NS)
800=Juror expressed view contrary to applicable law, except questions of death qualification	.33 (n=26)	-5 pts. (NS)	.26 (n=25)	-19 pts. (NS)
900=Juror had prior familiarity with the defendant, victim, witnesses, attorneys or judge	.27 (n=104)	-11 pts.	.54 (n=117)	+9 pts.
1300=Juror had moral, religious or ethical beliefs that caused juror to express reservations about imposing the death penalty in an appropriate case	.77 (n=130)	+39 pts.	.24 (n=100)	-21 pts.

<sup>1</sup> Unless otherwise indicated with NS (for not significant) all of the strike rates reported in this table are statistically significant at the .05 level or beyond when compared with cases that do not share the characteristics noted in Column A. The sample sizes ("n") indicate the number of strike eligible venire-persons with the characteristics noted in Column A.

<sup>2</sup> Prosecution overall strike rate is .38.

<sup>3</sup> Defense overall strike rate is .45.

Table 7 reports separate logistic regression models of prosecutorial and defense counsel strikes. We developed the analysis by first including all of the variables for legitimate case characteristics that showed a statistically significant relationship with the strike rates. We then added variables for the race and gender of the venire members.

The key statistics for the two models in Table 7 are the odds multipliers reported in Columns C and F, which indicate the extent to which the presence of the factor in Column A on average enhanced or diminished the predicted odds that a venire member would be peremptorily struck. In this regard, note the odds multiplier "1.0" listed for "reference category/populations" among the case characteristics with multiple levels of classification (occupation, education, race, gender, and age). These categories are omitted from the regression and provide the point of comparison with the variables in-

cluded in the models. For example, in the age analysis in Table 7, (Part A.4), the omitted or reference category is "mid-age." Accordingly, a comparison of that reference category to the odds multipliers for "Young" and "Older" indicates that prosecutors feared the young (1.8) and favored the older (.81)—vis-à-vis the middle-aged reference group. For defense counsel, the pattern reversed, .72 for young, and 1.3 for older venire members.

The results for venire member occupation (A.1), education (A.2), and venire member answers to voir dire questions (A.3), were as expected. The age results (A.4) were also consistent with the crosstabular analyses, as were the results for venire member gender (B.2), i.e., the gender coefficients are statistically significant, but suggest only moderate gender discrimination after we controlled for other factors. However, the regression coefficients in Columns D and G (Row B.2a) (21 vs. -.33) indicated a stronger gender effect in the decisions of defense counsel than in those of the prosecution.

The regression coefficients and odds multipliers for the race variables reported in Part B (items 1.a-d) use non-black venire members residing in a segregated neighborhood (item 1.c.(1)) as a reference population. The race effects estimated in the two models were considerably stronger than the estimated gender and age effects mentioned above. Specifically, the regression coefficients for the black versus non-black venire member variable (item B.1a) indicate that venire member race was the dominant factor driving both side's peremptory strike strategies—a +1.5 coefficient for the Commonwealth (Column D) and a -1.6 coefficient for defense counsel (Column G). (The corresponding odds multipliers in Columns C and F are 4.5 and .20.<sup>196</sup>)

For non-black venire members (item 1.c), note that as the neighborhood of residence becomes more integrated, the strike rates rose significantly for prosecutors and fell less significantly for defense counsel (items 1.c(2) and 1.c(3), Columns D and G).

For the prosecutorial decisions, the only factor with a stronger effect than venire member race was an expressed concern about imposing a death sentence (item A.3(f)) (with a 6.5 odds multiplier). For defense counsel only social work status—a -1.5 regression coefficient at item A.1(f)—was close to venire member race in apparent impact on the use of peremptories.

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<sup>196</sup> We report the regression coefficients as well as the odds multiplier here to highlight the mirror effect of race in both side's decisions, which is not as apparent in a comparison of odds multipliers.

TABLE 7

LOGISTIC REGRESSION MODELS OF PROSECUTORIAL AND DEFENSE  
COUNSEL PEREMPTORY CHALLENGES: 317 PHILADELPHIA CAPITAL  
TRIALS 1981-1997

(This unit of observation is the individual venire member eligible for  
a peremptory strike by the prosecution or defense counsel.)

A	B	C	D	E	F	G
Peremptory Strikes by:	Prosecution (n=11,727)			Defense Counsel (n=12,092)		
	% & # of Strike Eligible VM	Odds Multi- plier <sup>1</sup>	Logistic Coeffi- cient <sup>2</sup> ( <i>p</i> value)	% & # of Strike Eligible VM	Odds Multi- plier <sup>1</sup>	Logistic Coeffi- cient <sup>2</sup> ( <i>p</i> value)
Part A. Legitimate venire member (VM) characteristics						
<b>1. Occupation</b>						
a. Professional (11) <sup>a</sup>	1 (137)	2.1	.74 (.0003)	1 (123)	—	—
b. Law/military (20)	1 (140)	— <sup>3</sup>	—	1 (171)	2.0	.68 (.0002)
c. White collar (30)	22 (2572)	.80	-.22 (.003)	23 (2749)	—	—
d. Blue collar/unskilled (40)	8 (910)	.79	-.24 (.02)	8 (1011)	—	—
e. Teacher/daycare (46)	2 (287)	1.6	.47 (.002)	2 (257)	.67	-.40 (.01)
f. Social worker (47)	.5 (53)	2.9	1.07 (.005)	.3 (36)	.22	-1.5 (.003)
g. Domestic worker (55)	.4 (48)	2.8	1.03 (.004)	.3 (32)	—	—
h. Student (62)	2 (211)	1.6	.45 (.008)	2 (197)	—	—
i. Retired (63)	5 (540)	.69	-.37 (.006)	5 (653)	1.3	.25 (.02)
j. Unemployed (65)	3 (401)	1.9	.61 (.0001)	3 (354)	—	—
k. Other (reference cat.) <sup>4</sup>	15 (1807)	1.0	NA <sup>5</sup>	15 (1828)	1.0	NA
l. Occupation unknown	39 (4621)	1.4	.34 (.02)	39 (4681)	.95	-.05 (.72)

<sup>a</sup> The numbers in parentheses associated with the different categories in Column A are administrative identifiers from the Data Collection Instrument.

<sup>1</sup> The odds multiplier indicates the extent to which, on average, the odds of being struck are enhanced or diminished when the venire member characteristic in Column A is present. The odds multiplier is based on the regression coefficient in Column D or G, as the case may be.

<sup>2</sup> The coefficients in this analysis were estimated in a weighted logistic regression analysis of venire member strike rates. In addition to the variables included in this table, the models include case-specific variables that indicate with which of the 317 cases in the study each venire member was associated. The inclusion of these variables minimizes the risk that extremely high or low strike rates in a single case may bias the overall estimates of the average impact of the explanatory variables in Column A.

<sup>3</sup> — means the characteristic did not improve the Bayesian information criterion (BIC) and was not included in the model.

<sup>4</sup> This is the reference category/population with an odds multiplier of 1.0 against which to compare the other odds multiplier in Columns C and F within lists of characteristics, one of which is applicable to all venire members, e.g., gender—male, female, or unknown.

<sup>5</sup> NA means not applicable as the variable for this reference population category was not included in the analyses and no coefficient was estimated for it.

TABLE 7 (continued)

A	B	C	D	E	F	G
<b>2. Education</b>						
a. Incomplete H.S. (1-2) <sup>†</sup>	9 (1061)	.79	-.23 (.13)	9 (1092)	1.7	.50 (.0005)
b. Graduated H.S. (3)	23 (2750)	.59	-.52 (.0002)	25 (3006)	1.7	.50 (.0002)
c. Attended college (4)	13 (1520)	.69	-.38 (.009)	12 (1507)	1.4	.33 (.02)
d. Graduated college (5)	5 (632)	.65	-.44 (.007)	6 (676)	1.6	.46 (.003)
e. Vocational school (7)	7 (782)	.88	-.12 (.42)	6 (769)	1.2	.21 (.16)
f. Attended graduate school (6) (reference category) <sup>†</sup>	3 (354)	1.0	—	3 (336)	1.0	—
g. Education unknown	39 (4628)	.72	-.33 (.08)	39 (4706)	1.5	.40 (.04)
<b>3. VM affirmative answers to voir dire questions:</b>						
a. VM with prior jury service in criminal case (210) <sup>†</sup>	.3 (37)	.21	-1.6 (.005)	.4 (50)	—	—
b. VM, close friend, relative accused of crime (400)	4 (488)	1.8	.57 (.0001)	3 (418)	.68	-.39 (.002)
c. VM, close friend, relative an eyewitness to a crime (500)	.6 (67)	—	—	.6 (69)	.38	-.96 (.003)
d. VM, close friend, relative worked in law enforce. (600)	12 (1381)	.52	-.65 (.0001)	13 (1618)	1.6	.48 (.0001)
e. VM had prior familiarity with witness (930)	.3 (37)	—	—	.3 (40)	2.3	.83 (.02)
f. VM had concerns re: imposing death sentence (1300)	1 (129)	6.5	1.9 (.0001)	.8 (100)	.47	-.76 (.003)
g. VM's answers unknown	7 (851)	1.1	.11 (.41)	8 (908)	1.8	.60 (.0001)
<b>4. VM age:</b>						
a. Young: 18-29	20 (2331)	1.8	.58 (.0001)	18 (2135)	.72	-.32 (.0001)
b. Mid-age: 30-55 (reference category) <sup>†</sup>	44 (5194)	1.0	NA	45 (5442)	1.0	NA
c. Older: 56+	19 (2183)	.81	-.21 (.002)	20 (2465)	1.3	.23 (.0002)
d. Age Unknown	17 (2019)	1.2	.22 (.04)	17 (2050)	1.6	.46 (.0001)

TABLE 7 (continued)

A	B	C	D	E	F	G
Part B. Illegitimate/suspect VM Characteristics						
1. VM race: <sup>6</sup>						
a. Black (1= black)	30 (3478)	4.5	1.5 (.0001)	24 (2843)	.20	-1.6 (.0001)
b. Black (est. 2.1%-97.9%)	14 (1633)	1.02	.02 (.0001)	12 (1439)	.98	-.02 (.0001)
c. Non-black VM with % of black residents in neighborhood:						
(1) Neighbors < 1% black (reference category) <sup>4</sup>	32 (3776)	1.0	NA	40 (4783)	1.0	NA
(2) Neighbors 1-10% black	7 (841)	1.5	.38 (.0001)	8 (982)	.78	-.25 (.0005)
(3) Neighbors > 10% black	5 (557)	2.6	.94 (.0001)	5 (559)	.59	-.53 (.0001)
(4) Neighborhood rate unknown	.4 (48)	2.1	.73 (.04)	.4 (51)	.60	-.52 (.11)
d. Race of venire member unknown and unestimated (1=unknown and unestimated)	12 (1394)	1.6	.45 (.0001)	12 (1435)	.36	-1.0 (.0001)
2. VM gender:						
a. Female	55 (6425)	1.2	.21 (.0001)	52 (6306)	.72	-.33 (.0001)
b. Male (reference category) <sup>4</sup>	43 (5001)	1.0	NA	46 (5525)	1.0	NA
c. Gender unknown	3 (301)	2.1	.73 (.0001)	2 (261)	.79	-.24 (.09)

<sup>6</sup> Each venire member was given a unique assignment to one of the seven race racial categories in Part B. 1. For each of the other non-applicable categories, the venire member was coded "zero." The coding for each applicable category was as follows: 1.a. (Black = 1 if the black race estimate was at the 98% level of certainty.); 1.b. (Black race estimate uncertain and ranging from 2.1% to 97.9%); 1.c. (Non-black = 1 if the non-black estimate was at the 98% level of certainty, and the venire member fell within the 1.c. ((1) - (4) subgroup classification based on the racial composition of the venire member's neighborhood of residence.); and 1.d. (race unknown and unestimated = 1).

The race of venire member results reported in Table 7 are estimated without regard to the race of the defendant and victim in the cases. When we introduced into the Table 7 regression models controls for the defendant/victim race, the results, presented in detail in Appendix D, mirrored the effects presented in Table 4 and Figure 3, i.e., the race of defendant and victim had a significant effect on each side's strikes against black and non-black venire members. Also, the neighborhood effects documented in Table 3 persist when controls were introduced for the race of the defendant and victim.

## VI. THE IMPACT OF THE SUPREME COURT'S BAN ON THE USE OF RACE AND GENDER AS A BASIS FOR PEREMPTORIES

### A. *The Data Suggest a Modest Impact of Batson and McCollum*

We used two strategies to estimate the likely impact of *Batson*, *McCollum*, and *J.E.B.* in Philadelphia during the period of this study. Figures 4 and 5 present annually the years covered by this study. Figure 4 reports the prosecutorial strike rates against black and female venire persons, and Figure 5 reports defense counsel strike rates against non-black and male venire members. Each part also indicates the year of decision of *Batson*, *McCollum*, and *J.E.B.*, where applicable.

The time series data suggest that overall, *Batson* (Figure 4) had no effect whatever on prosecutorial strikes against black venire members.<sup>197</sup> However, the decline in prosecutorial rates immediately before *Batson* may reflect an anticipation of that decision as it moved to the Supreme Court; the sharp upswing in rates after the decision may reflect a perception that the decisions had little actual clout (although we have no independent evidence that such changes occurred). The most substantial change in prosecutorial strike rates was since 1991, the year Lynne Abraham became District Attorney.<sup>198</sup> Policy changes in her office appear to be a more plausible explanation for the reduced strike rates against black venire members than does a delayed impact of *Batson*.<sup>199</sup>

The Figure 4 data do suggest a slight impact of *J.E.B.* on prosecutorial strikes against women (from an average pre-*J.E.B.* of .41 to an average post-*J.E.B.* of .38). However, as the decline in prosecutorial strikes against women began in 1992, the apparent impact of *J.E.B.* may also be due entirely to policy changes introduced when Lynne Abraham became District Attorney.<sup>200</sup> Figure 5, Part A, suggests that *McCollum* had only a slight impact on defense counsel strikes against non-black venire members. Figure 5, Part B, suggests a somewhat stronger effect of *J.E.B.* on defense counsel's strikes against male venire members (from an average pre-*J.E.B.* of .51 to a post-*J.E.B.* of .46).<sup>201</sup>

<sup>197</sup> When the pre-*Batson*/post-*Batson* rates were averaged we observed a decline in the strike rates of two percentage points (.52 to .50) ( $p = .45$ ). The change in defense counsel strike rates against non-black venire members after *McCollum* was one percentage point (.54 average to .53 average) ( $p = .40$ ).

<sup>198</sup> There was a six percentage point decline from before she took office to after (.53 average to .47 average) ( $p = .001$ ).

<sup>199</sup> A contrast between the pre-*Batson* prosecutorial rates and the rates observed between *Batson* and the commencement of Abraham's incumbency saw a three percentage point increase (.52 average vs. .55 average), although the increase was not statistically significant ( $p = .15$ ).

<sup>200</sup> In addition, there was a slight increase in prosecutorial strike rates against women immediately after *J.E.B.*

<sup>201</sup> The change in the prosecution strike rate is not significant at conventional levels ( $p = .11$ ). The change in defense counsel strike rates is significant at the .02 level.

Our second approach to the impact issue was to estimate separate logistic regression models for the cases tried before and after both *Batson* and *McCollum*, and those tried before and after *J.E.B.* Specifically, in the analysis of the pre-*Batson* prosecutorial decisions, the black venire member odds multiplier was 6.9 ( $p = .0001$ ) versus 4.2 ( $p = .0001$ ) in the post-*Batson* period.<sup>202</sup> For defense counsel decisions, the pre-*McCollum* figure for strike rates against black venire members was .19 ( $p = .0001$ ) versus .23 ( $p = .0001$ ) in the post-*McCollum* period, a difference that is consistent with the data in Figure 5, Part A.

The results of the before-and-after *J.E.B.* regressions are also consistent with the time-series data. The analysis of the prosecutorial strike rates show a pre-*J.E.B.* odds multiplier of 1.28 ( $p = .0001$ ) for strikes against women and a post-*J.E.B.* odds multiplier of 1.21 ( $p = .08$ ). For defense counsel, the pre-*J.E.B.* odds multiplier for strikes against men was 1.48 ( $p = .0001$ ); for the post-*J.E.B.* analysis the odds ratio was 1.20 ( $p = .08$ ).

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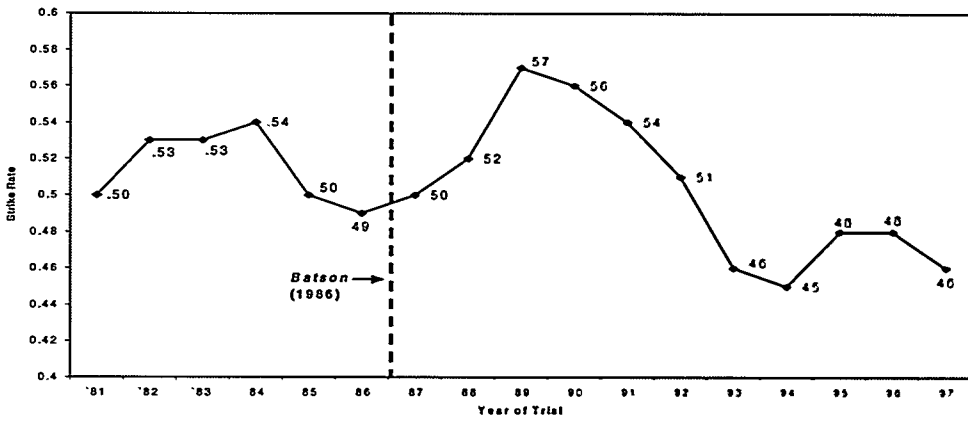
<sup>202</sup> The  $p$ -values reported in the text indicate the statistical significance in the logistic regression model of the variables for race and gender, as the case may be. However, as noted above, this post-*Batson* decline in the prosecutorial strike rate against blacks appears primarily to reflect the decline in those strike rates in the Abraham administration.



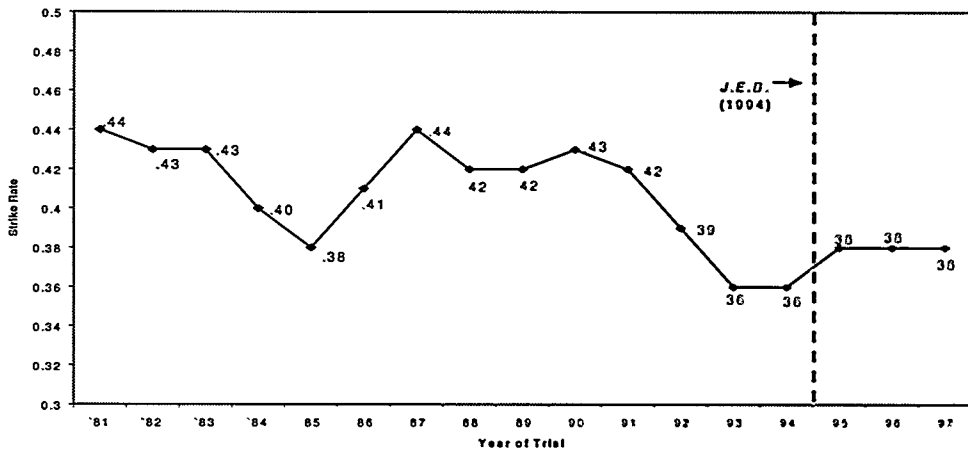
FIGURE 4

PROSECUTION STRIKE RATES AGAINST BLACK AND FEMALE VENIRE MEMBERS: PHILADELPHIA CAPITAL TRIALS<sup>1</sup>

Part A: Prosecution Strike Rates Against Black Venire Members



Part B: Prosecution Strike Rates Against Female Venire Members

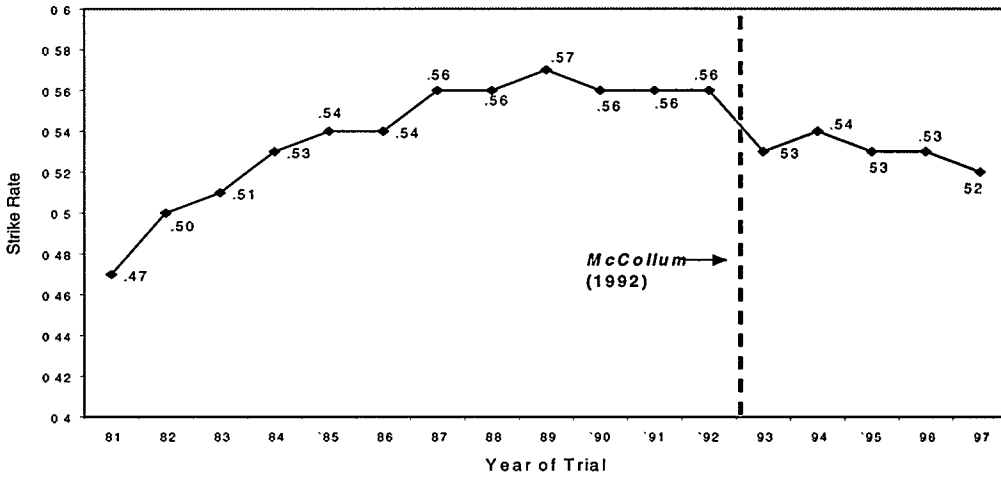


<sup>1</sup> The reported strike rates are two year moving averages of the average strike rates for each year.

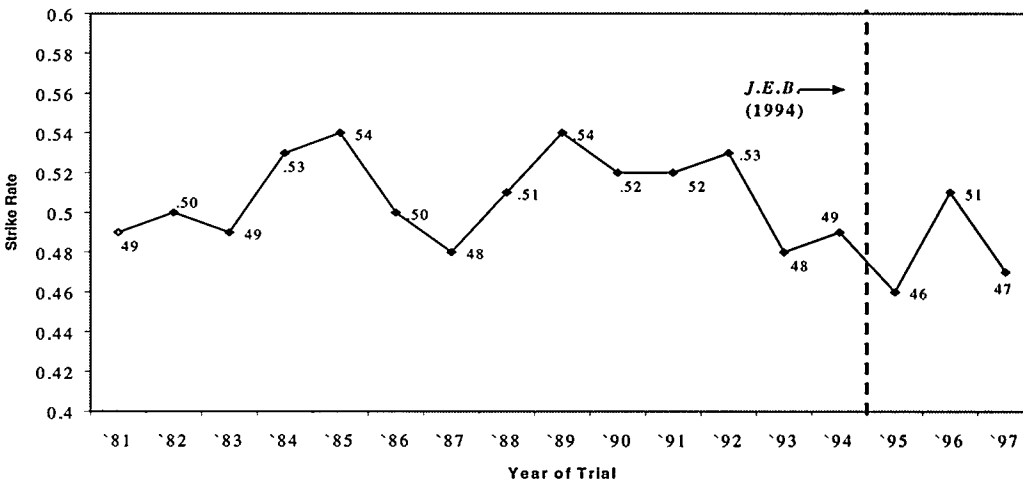
FIGURE 5

DEFENSE COUNSEL STRIKE RATES AGAINST NON-BLACK AND MALE VENIRE MEMBERS: PHILADELPHIA CAPITAL TRIALS<sup>1</sup>

Part A: Defense Counsel Strike Rates Against Non-Black Venire Members



Part B: Defense Counsel Strike Rates Against Male Venire Members



<sup>1</sup> The reported strike rates are two year moving averages of the average strike rate for each year.

*B. Possible Explanations for Non-Compliance by  
Prosecutors and Defense Counsel*

Two hypotheses may explain the apparent lack of compliance with the controlling law. First, both sides may believe that if discrimination is used only in moderation, the Pennsylvania courts are unlikely to interfere with their discriminatory practices. Second, both sides may believe that the race, and to a lesser extent the gender, of venire members are important in predicting how jurors will behave in both the guilt and penalty phases of trial.

1. *The Perceived Risk of Judicial Sanction or Corrective Action  
Against the Discriminatory Use of Peremptories*

The first plausible explanation for the persistence of race discrimination, in spite of decisions of the United States Supreme Court barring such strategies, is that an absence of meaningful enforcement of *Batson* and *McCullum* supports a perception that only egregious patterns of discrimination will trigger a corrective response from the courts. To test this hypothesis, we examined all reported Pennsylvania judicial decisions that adjudicated *Batson* and *McCullum* claims.<sup>203</sup> Those decisions support a compelling argument that the existing pattern of enforcement by the Pennsylvania courts of United States Supreme Court decisions prohibiting the use of race and gender by both sides is likely to deter only the grossest forms of discrimination in the use of peremptories.

We found first that Pennsylvania trial courts place a prima facie case burden of proof on *Batson* and *McCullum* claimants that is not impossible to meet.<sup>204</sup> Nevertheless, in the absence of egregious strike

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<sup>203</sup> Our survey embraces both capital and non-capital cases in the belief that the level of judicial enforcement of *Batson* and its progeny across the board shapes expectations in capital cases. Also, we found no differences in the judicial treatment of these issues in capital and non-capital cases. See *infra* notes 204-10 and accompanying text for a discussion of the application of the *Batson* line of cases in our sample of venires.

<sup>204</sup> In the cases surveyed, a prima facie case was found, or apparently found, a significant percentage of the time that a claimant raised a *Batson* or *McCullum* claim. See *Commonwealth v. Rico*, 711 A.2d 990, 995 (Pa. 1998) (noting trial court finding that "record shows a purposeful exclusion or pattern of exclusion on the part of [the] Commonwealth on anybody who appears to be of Italian descent") (brackets in original); *Commonwealth v. Harris*, 703 A.2d 441 (Pa. 1997) (noting prima facie *McCullum* violation); *Commonwealth v. Fisher*, 681 A.2d 130 (Pa. 1996) (noting that Commonwealth used two of three strikes against black venirepersons; unclear if court ruled on prima facie case but prosecutor offered neutral explanation); *Commonwealth v. Bond*, 652 A.2d 308, 313 (Pa. 1995) (noting that "trial court agreed that a prima facie case had been made"); *Commonwealth v. Jones*, 580 A.2d 308, 310-11 (Pa. 1990); *Commonwealth v. Young*, 572 A.2d 1217 (Pa. 1990) (*Young I*) (noting that the Commonwealth struck sole black venireperson; unclear whether trial court ruled on prima facie case but prosecutor offered neutral explanation for the exclusion); *Commonwealth v. Eddings*, 721 A.2d 1095, 1098 (Pa. Super. 1998), *appeal granted, cross appeal denied*, 2000 Pa. LEXIS 346 (Feb. 16, 2000) (finding prima facie case); *Commonwealth v. Miller*, 721 A.2d 1121 (Pa. Super. 1998) (noting that the prosecutor *sua sponte* offered neutral explanations before court ruled on motion); Com-

conduct, the exact standard applied is often hard to discern.<sup>205</sup> Also,

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monwealth v. Garrett, 689 A.2d 912, 916 (Pa. Super. 1997) (noting that the trial court found prima facie *McCollum* violation); Commonwealth v. Wheeler, 645 A.2d 853, 855-57 (Pa. Super. 1994) (outlining discussion by appellate court implying a prima facie case found); Commonwealth v. Correa, 620 A.2d 497, 499-501 (Pa. Super. 1993) (finding prima facie case); Commonwealth v. Twilley, 612 A.2d 1056, 1058 (Pa. Super. 1992) (finding prima facie case); Commonwealth v. Smulsky, 609 A.2d 843, 845 (Pa. Super. 1992) (noting that "trial court found that defendant had demonstrated a prima facie case"); Commonwealth v. Ulen, 607 A.2d 779, 784 (Pa. Super. 1992) (requesting prosecutor to put reasons for strike on record), *rev'd on other grounds*, 650 A.2d 416 (Pa. 1994); Commonwealth v. Phillips, 601 A.2d 816, 821 (Pa. Super. 1992) (finding prima facie case); Commonwealth v. Jackson, 562 A.2d 338 (Pa. Super. 1989) (noting trial court found prima facie case); Commonwealth v. Lloyd, 545 A.2d 890, 893 (Pa. Super. 1988) (noting that the trial court asked for explanation of strikes).

In one additional case, although declining to rule a prima facie case was made out, the trial court nevertheless required racially neutral explanations "in the interest of developing a complete record." Commonwealth v. Young, 637 A.2d 1313, 1319 (Pa. 1993) (*Young II*). In another case, the trial court raised a *McCollum* challenge *sua sponte* against defense counsel after counsel used his first and second peremptory strikes against white venire members, rejected defense counsel's proffered race-neutral explanations, and ordered the second venire member seated on the jury. *See* Commonwealth v. Carson, 741 A.2d 686, 693-96 (Pa. 1999).

The trial court declined to find a prima facie case and did not require racially neutral or gender neutral explanations in the following cases, as reported on appeal: Commonwealth v. Hackett, 735 A.2d 688, 695 (Pa. 1999) (holding that trial court did not find prima facie case); Commonwealth v. Baez, 720 A.2d 711 (Pa. 1998) (same); Commonwealth v. Thomas, 717 A.2d 468, 475 (Pa. 1998) (same); Commonwealth v. Clark, 710 A.2d 31, 40-42 (Pa. 1998) (same); Commonwealth v. Bronshtein, 691 A.2d 907, 915 (Pa. 1997) (same); Commonwealth v. Gibson, 688 A.2d 1152, 1159 (Pa. 1997) (same); Commonwealth v. McNeil, 679 A.2d 1253 (Pa. 1996) (trial court found no prima facie case, *Batson* respondent volunteered explanations); Commonwealth v. Jones, 668 A.2d 491 (Pa. 1995) (*J.E.B.* gender claim); Commonwealth v. Simmons, 662 A.2d 621, 632 (Pa. 1995) (trial court found no prima facie case, *Batson* respondent volunteered explanations); Commonwealth v. Rush, 646 A.2d 557, 564 (Pa. 1994) (trial court ruled post-trial that no prima facie showing was made); Commonwealth v. Horne, 635 A.2d 1033, 1034 (Pa. 1993) (affirming, by divided court, lower court's reversal on *Batson* grounds; trial court declined to find prima facie case, *Batson* respondent volunteered explanations); Commonwealth v. Spence, 627 A.2d 1176, 1183 (Pa. 1993) (holding that trial court found no prima facie case); Commonwealth v. Dinwiddie, 601 A.2d 1216, 1219 (Pa. 1992) (although initially questioning challenge of two black venirepersons, trial court found no prima facie case); Commonwealth v. Foster, 651 A.2d 163, 165 (Pa. Super. 1994) (*J.E.B.*-based gender challenge pending *J.E.B.* decision by United States Supreme Court, citing *Batson*; no gender-based prima facie case found); Commonwealth v. Woodall, 579 A.2d 948, 949 (Pa. Super. 1990) (trial court found no prima facie case); Commonwealth v. Stern, 573 A.2d 1132, 1136 (Pa. Super. 1990) (same); Commonwealth v. Weaver, 568 A.2d 1252, 1253 (Pa. Super. 1989) (no prima facie case found); Commonwealth v. Jackson, 561 A.2d 335, 341 (Pa. Super. 1989) (same), *aff'd on other grounds*, 585 A.2d 1001 (1991); Commonwealth v. Monroe, 542 A.2d 113, 116 (Pa. Super. 1988) (appellate court found no prima facie case); Commonwealth v. Wilson, 537 A.2d 370, 372-73, 373 n.3 (Pa. Super. 1988) (with no ruling by trial court, appellate court remanded for decision on prima facie case); Commonwealth v. Long, 532 A.2d 853 (Pa. Super. 1987) (no prima facie case found); Commonwealth v. McCormick, 519 A.2d 442, 446 (Pa. Super. 1986) (same); Commonwealth v. McKendrick, 514 A.2d 144, 151 (Pa. Super. 1986) (same).

In some recent proceedings, defendants have invoked the McMahan tape, *supra* note 133, as direct evidence of racial discrimination. *See* Commonwealth v. Rollins, 738 A.2d 435, 443 n.10 (Pa. 1999) (rejecting defendant's *Batson* claim); Commonwealth v. Lark, 746 A.2d 585 (Pa. 2000); Commonwealth v. Basemore, 744 A.2d 717 (2000).

<sup>205</sup> If the *Batson* respondent used more than 70% of available strikes against the protected class, either the trial court or the appellate court is likely to find a prima facie case of discrimination. For examples of trial courts finding a prima facie case at least partially based on the percentage of the respondent's peremptory strikes exercised against the protected class, see,

e.g., *Commonwealth v. Harris*, 703 A.2d 441, 447 (Pa. 1997) (noting that the trial court required defense counsel to provide racially neutral reasons for striking a white man because "every venireman previously struck by the defense had been a white male"); *Commonwealth v. Bond*, 652 A.2d 308, 312 (Pa. 1995) (noting that the trial court found a prima facie case when the Commonwealth had used three of its first six peremptory strikes (50%) against black venire members and that the Commonwealth had used eleven of fifteen total strikes (73%) against blacks); *Commonwealth v. Correa*, 620 A.2d 487, 501 (Pa. Super. 1993) (noting that trial court found a prima facie case when the Commonwealth used five of six peremptory challenges (83%) to strike black venire members); *Commonwealth v. Smulsky*, 609 A.2d 843, 845 (Pa. Super. 1992) (reporting that the trial court found a prima facie case of discrimination when the Commonwealth exercised seven of seven available peremptory strikes (100%) against blacks); *Commonwealth v. Twilley*, 612 A.2d 1056 (Pa. Super. 1992) (noting that the trial court required the Commonwealth to provide racially neutral explanations after it exercised all seven of seven peremptory challenges (100%) against black venire members); *Commonwealth v. Jackson*, 562 A.2d 338, 344 (Pa. Super. 1989) (reporting that the trial court stated in its opinion that the defense stated a prima facie case of purposeful discrimination when the Commonwealth used seven of seven peremptory challenges (100%) against blacks); *Commonwealth v. Lloyd*, 545 A.2d 890, 893 (Pa. Super. 1988) (noting that trial court required the Commonwealth to provide racially neutral explanations after it used five of seven peremptory strikes (71%) against blacks).

Although it is possible to estimate that respondents using more than 70% of available strikes against a protected class probably will be asked to provide racially neutral explanations, it is not difficult to find cases where the court did not follow this rule. *See, e.g., Commonwealth v. Clark*, 710 A.2d 31 (Pa. 1998) (noting the trial court declined to find a prima facie case when the *Batson* respondent exercised four of five (80%) peremptory challenges against the protected class); *Commonwealth v. Stern*, 573 A.2d 1132 (Pa. Super. 1990) (noting the trial court declined to find a prima facie case when the *Batson* respondent exercised six of eight (75%) peremptory challenges against the protected class); *Commonwealth v. Monroe*, 542 A.2d 113 (Pa. Super. 1988) (noting the trial court declined to find a prima facie case when the *Batson* respondent exercised seven of first seven (100%) peremptory challenges against the protected class); *Commonwealth v. Long*, 532 A.2d 853 (Pa. Super. 1987) (noting the trial court declined to find a prima facie case when the *Batson* respondent exercised four of five (80%) peremptory challenges against the protected class); *Commonwealth v. Horne*, 635 A.2d 1033, 1033 (Pa. 1993); *Commonwealth v. Woodall*, 579 A.2d 948, 949 (Pa. Super. 1990); *Commonwealth v. Weaver*, 568 A.2d 1252, 1254 (Pa. Super. 1989); *Commonwealth v. McCormick*, 519 A.2d 442, 446 (Pa. Super. 1986); *Commonwealth v. Wilson*, 537 A.2d 370, 372 (Pa. Super. 1988).

For appellate level decisions finding a prima facie case where the trial court did not, *see, e.g., Commonwealth v. Dinwiddie*, 601 A.2d 1216, 1219-22 (1990) (holding that the trial court applied an "overly restrictive" standard when it failed to find a prima facie case of discrimination after the Commonwealth used five of six (83%) peremptory challenges to exclude black venire members); *Commonwealth v. Weaver*, 568 A.2d 1252, 1254 (Pa. Super. 1989) (finding a prima facie case of discrimination when the Commonwealth used five of six (83%) peremptory challenges against black venire members).

In addition, the appellate court seems more likely to find a prima facie case (i.e. where the trial court did not) when the record shows that the *Batson* respondent struck all members of the protected class from the jury (100% strike rate). *See Commonwealth v. Horne*, 635 A.2d 1033, 1033 (Pa. 1993); *Commonwealth v. Woodall*, 579 A.2d 948, 949 (Pa. Super. 1990); *Commonwealth v. Weaver*, 568 A.2d 1252, 1254 (Pa. Super. 1989); *Commonwealth v. McCormick*, 519 A.2d 442, 446 (Pa. Super. 1986); *Commonwealth v. Wilson*, 537 A.2d 370, 372 (Pa. Super. 1988). On the other hand, when the *Batson* respondent leaves one or more member of the protected class on the jury, the court is more likely to decline to find a prima facie case. *See, e.g., Commonwealth v. Clark*, 710 A.2d 31, 41 (Pa. 1998) ("Although the empaneling of a jury which is balanced by race and gender does not in and of itself negate a *Batson* challenge it is entitled to some weight in reviewing a *Batson* claim;" upholding trial court finding of no prima facie case).

Another barrier to the establishment of a prima facie case is the requirement of the Pennsylvania Supreme Court adopted in *Commonwealth v. Hardcastle*, 546 A.2d 1101, 1104 (Pa. 1988), that the *Batson* proponent make a record of the race of all venire members struck by the prosecution, the race of jurors acceptable to the prosecution but struck by the defense and the

when trial courts find a prima facie case and shift to the respondent the burden of explaining the basis for the peremptory challenges under attack, they are extremely tolerant in accepting as valid the "legitimate" explanation offered up for the challenged strikes.<sup>206</sup> The situation is further complicated by a very strong reluctance on the part of the Pennsylvania appellate courts to override a lower court's refusal to find a prima facie case.<sup>207</sup> And there is an even greater reluctance<sup>208</sup> to overturn a trial court's factual finding that the respon-

racial composition of the final jury selected. See *Commonwealth v. Lark*, 746 A.2d 585, 591 (2000) (Nigro, J., concurring). This rule has resulted in the dismissal of many *Batson* claims for failure to establish such a record. See, e.g., *Commonwealth v. Holloway*, 739 A.2d 1039, 1045 (Pa. 1999) (noting that appellant failed to make record of the race of venirepersons stricken by Commonwealth); *Commonwealth v. Rollins*, 738 A.2d 435, 442-43 (Pa. 1999) (same); *Commonwealth v. Porter*, 728 A.2d 890, 900-01 (Pa. 1999) (same); *Commonwealth v. Williams*, 732 A.2d 1167, 1191 (Pa. 1999) (same, though claim was waived as not having been raised on direct appeal); *Commonwealth v. Johnson*, 668 A.2d 97, 102 (Pa. 1995) (noting that appellant failed to make record of the race of venirepersons stricken by Commonwealth); *Commonwealth v. Lambert*, 603 A.2d 568, 577 (Pa. 1992) (same); *Commonwealth v. Lewis*, 567 A.2d 1376, 1381 n.3 (Pa. 1989).

<sup>206</sup> An acceptable racially neutral reason requires only that the *Batson* respondent supply a relatively clear ground for exercising a strike that did not also apply to a seated juror. The most common reasons provided by *Batson* respondents cases included the following:

(1) The venire member's position on the death penalty. See, e.g., *Commonwealth v. Fisher*, 681 A.2d 130 (Pa. 1996); *Commonwealth v. Bond*, 652 A.2d 308 (Pa. 1995); *Commonwealth v. Wheeler*, 645 A.2d 853 (Pa. Super. 1994); *Commonwealth v. Bronshtein*, 691 A.2d 907 (Pa. 1997); *Commonwealth v. Gibson*, 688 A.2d 1152 (Pa. 1997); *Commonwealth v. Griffin*, 644 A.2d 1167 (Pa. 1994); *Commonwealth v. Hardcastle*, 546 A.2d 1101 (Pa. 1988).

(2) The venire member's relationship to a person charged or convicted of a serious crime. See, e.g., *Commonwealth v. Fisher*, 681 A.2d 130 (Pa. 1996); *Commonwealth v. Bond*, 652 A.2d 308 (Pa. 1995); *Commonwealth v. Smulsky*, 609 A.2d 843 (Pa. Super. 1992); *Commonwealth v. Wheeler*, 645 A.2d 853 (Pa. Super. 1994); *Commonwealth v. Young*, 637 A.2d 1313 (Pa. 1993); *Commonwealth v. Hardcastle*, 546 A.2d 1101 (Pa. 1988).

(3) The venire member's employment status. See, e.g., *Commonwealth v. Correa*, 620 A.2d 487 (Pa. Super. 1993) (striking social workers and unemployed venire members); *Commonwealth v. Lloyd*, 545 A.2d 890 (Pa. Super. 1988) (striking unemployed venire members); *Commonwealth v. Smulsky*, 609 A.2d 843 (Pa. Super. 1992) (striking security guards); *Commonwealth v. Griffin*, 644 A.2d 1167 (Pa. 1994) (striking venire members with a short employment history).

<sup>207</sup> The appellate court reversed the trial court's decision that the *Batson* proponent did not establish a prima facie case in a small percentage of the cases reviewed. *Commonwealth v. Horne*, 635 A.2d 1033 (Pa. 1994); *Commonwealth v. Dinwiddie*, 601 A.2d 1216 (Pa. 1992); *Commonwealth v. Tourscher*, 682 A.2d 1275 (Pa. Super. 1996); *Commonwealth v. Woodall*, 579 A.2d 948 (1990) (citing a previous unpublished decision in which the Superior Court found a prima facie case and remanded); *Commonwealth v. Weaver*, 568 A.2d 1252 (Pa. Super. 1989); *Commonwealth v. McCormick*, 519 A.2d 442 (1986). In one additional case, the appellate court remanded to the trial court for a decision on whether a prima facie case had been established. The court remanded as part of an ineffective assistance of counsel claim because no record had been preserved. *Commonwealth v. Wilson*, 537 A.2d 370 (1987).

<sup>208</sup> We have found only two cases where the appellate court reversed the trial court on the basis that the explanations given were pretextual or plainly unconstitutional, and therefore ordered a retrial. *Commonwealth v. Horne*, 635 A.2d 1033 (Pa. 1994) (affirming a Superior Court decision reversing and remanding on the grounds that the explanation that the venire member came from "a high crime area" was pretextual); *Commonwealth v. Tourscher*, 682 A.2d 1275 (Pa. Super. 1996) (holding that the trial court erred in not finding that the prosecutor's explanation that "women are a lot tougher on domestic cases" reflected plain and uncon-

dent's proffered explanation is legitimate.<sup>294</sup>

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stitutional gender discrimination). The apparent ease of supplying such reasons minimizes the importance of finding a prima facie case.

<sup>299</sup> Our analysis of Pennsylvania's *Batson* and *McCullum* jurisprudence was greatly facilitated by Kenneth J. Melilli's seminal study of *Batson*. See Melilli, *supra* note 13. Professor Melilli has provided a useful basis for comparing our approach to the measurement of race and gender discrimination with the methods used by the courts in the application of *Batson* and its progeny. Throughout this article, we measured race and gender disparities by comparing the strike rate of both sides against various subgroups. For example, in Table 2, to estimate race effects, we compared each side's strike rates against blacks and non-blacks. We quantified the difference in the rates by way of the arithmetic difference between the rates, e.g., a 25-percentage point difference (.51 vs. .26) in prosecutorial strike rates against black and non-black venire members, or a ratio between the two rates, e.g., 2.4 (.51/.26). In our judgment, these measures focus sharply on the impact of the disparities on each venire member's chance of being peremptorily struck by each side.

As Professor Melilli has demonstrated, the courts, in their administration of such claims, never use these measures, and the ones that are applied are often quite weak, e.g., the number of blacks struck by the prosecutor without taking into account the number of blacks in the venire. *Id.* at 470-78; see *id.* at 471 for a summary of the measures. He also pointed out that the courts have failed to establish standards for determining how large and/or statistically significant a disparity must be to establish a prima facie case of discrimination. However, it is apparent that at the trial level, judges are not in a position to apply the comparative strike rates that we consider to be optimal, for the simple reason that the process is a moving target for the judge requiring successive snapshots of the action as the selection process proceeds.

Professor Melilli correctly, we believe, identified two of those snapshot measures as carrying the least risk of error. His first endorsement is of his "Method E"—the proportion or representation rate of the target group's members among those struck by each side. *Id.* at 476. For example, the court's finding that men represent 70% of defense counsel's first ten strikes will likely raise a red flag and call for a neutral explanation. At first blush, this measure may appear to be flawed because it does not involve a comparison to defense counsel's strike rate against the other group, in this example, the women. However, on closer examination, the concern will be misplaced if the judge has a rough idea of the proportion of men and women among the venire members, say 50% women. In this situation, the judge will intuitively compare the proportion of men among the struck jurors with their proportion on the venire. If the strikes are even-handed, the proportion of target group members among those struck will roughly approximate their percentage on the venire. When men constitute 70% of those struck, the men are obviously being struck at a much higher rate than the women.

Professor Melilli's second endorsement is of his measure, "Method G"—"the percentage of members of the targeted group on the venire who have been removed" by the side whose strikes are challenged, e.g., the prosecution's strike rate against women. *Id.* at 471. Here again there is no explicit comparison with the strike rate against the other group, e.g., men. However, an experienced judge is likely to sense what the average strike rate for each side is likely to be, which enables him or her to assess whether the strike rate under challenge raises a red flag.

The measure most preferred by Melilli, "Method H," comes closest to our comparative strike rate measure. As he points out, it is rarely used, presumably because it involves an explicit comparison of the representation rate of the target group on the venire with its representation rate among those actually struck by the side whose strikes are under challenge. *Id.* at 478 (reporting that in an exhaustive survey, it was used in only 4-5% of the cases). It might, for example, involve a comparison of 50% blacks among the prosecution's strikes with the 25% blacks on the venire. This measure simply makes the underpinnings of the Melilli "Method E" more explicit, and the disparity can also be tested for statistical significance in the same way the differences in the strike rates in individual cases can be tested. One weakness of the measure is that the venire side of the comparison is not limited to the strike eligible venire members that each side considered (recall that each side considers distinct but overlapping groups of strike eligible venire members). In addition, the venire representation rate may include venire members who were struck for cause.

We also estimated the pervasiveness of *Batson*, *McCullum*, and *J.E.B.* claims in the capital cases in our study. For this purpose, we first examined the post-trial court papers in 167 post-*Batson* cases for evidence that one or more prosecutorial peremptory strikes had been challenged.<sup>210</sup> The inquiry revealed that defense counsel raised *Batson* challenges in twenty cases, thirteen at trial and seven on appeal. In nine of the trial claims, no prima facie case was found. In two, a prima facie case was found but rebutted. In another two cases, no prima facie case was found, but the prosecutor nevertheless offered reasons for the strikes that the court accepted. The trial court rulings denying relief were upheld on direct appeal in all thirteen cases.<sup>211</sup>

In the seven post-*Batson* cases in which appellate counsel pre-

To test the comparative validity of these three alternative measures, we first applied each of them to all of the cases in the sample. In doing so, we limited each application to strike eligible venire members. We then correlated the quantitative measure of the disparity produced by each measure with the comparative strike rate measure used in this Article. We considered this to be the most valid measure because: (a) it focuses on the average probability of each side's strike eligibles being struck, (b) it is based on an explicit comparison of each side's treatment of two groups of strike eligibles, and (c) it includes a test of statistical significance. The results confirmed Melilli's endorsements. For his Method E, the correlation between the two measures was .75 ( $p = .0001$ ) for the prosecutorial strikes and .65 ( $p = .0001$ ) for defense counsel strikes. For his Method G, the correlation was .77 ( $p = .0001$ ) for prosecutorial strikes and .60 ( $p = .0001$ ) for defense counsel strikes. And for his Method H, the correlation was .81 ( $p = .0001$ ) for prosecutorial strikes and .79 ( $p = .0001$ ) for defense counsel.

These results suggest that it is possible for the courts to detect discrimination during the heat of jury selection using the straightforward intuitively-based measures recommended by Professor Melilli. In the post-trial setting, Melilli's Method H is also quite valid, although if the data are available to apply that measure, the parties and the reviewing court may also have the foundation to apply the preferred measure—a comparison of strike rates among strike each side's strike eligibles with the disparity fully evaluated for its statistical significance, in the same manner as such disparities are evaluated in Title VII employment discrimination cases involving systemic claims of race or gender discrimination. See generally, DAVID C. BALDUS & JAMES W. L. COLE, *STATISTICAL PROOF OF DISCRIMINATION* (1980); RAMONA L. PAETZOLD & STEVEN L. WILLBORN, *THE STATISTICS OF DISCRIMINATION* (1994).

<sup>210</sup> Court papers were unavailable in fifty-three of the cases. A limitation of our reliance on post-trial court papers is the possibility of missing *Batson* claims that the trial court granted and that the Commonwealth did not appeal, or that were made by defense counsel and denied, but not pursued on appeal. However, a survey of three experienced death penalty trial defense lawyers (conducted August 8-10, 2000) indicated that, since 1986, only a handful of *Batson* claims were granted by the trial court.

<sup>211</sup> *Commonwealth v. Barrett*, 0232 ED 99 (2000) (unreported memorandum); *Commonwealth v. Clark*, 710 A.2d 31 (Pa. 1998); *Commonwealth v. Thomas*, 717 A.2d 468 (Pa. 1998); *Commonwealth v. Gibson*, 688 A.2d 1152 (Pa. 1997); *Commonwealth v. Wilson*, 672 A.2d 293 (1996); *Commonwealth v. Bond*, 652 A.2d 1152 (Pa. 1995); *Commonwealth v. Johnson*, 668 A.2d 87 (Pa. 1995); *Commonwealth v. Wilson*, 649 A.2d 435 (1994); *Commonwealth v. Wyatt*, 2072 PHL 93 (1994) (unreported memorandum); *Commonwealth v. Harris*, 2945 PHL 92 (1993) (unreported memorandum); *Commonwealth v. Torres*, 1180 PHL 91 (1992) (unreported memorandum); *Commonwealth v. Myrick*, 1165 PHL 88 (1989) (unreported memorandum); *Commonwealth v. Feliverty*, 3570 PHL 88 (1989) (unreported memorandum). We also screened sixty-seven pre-*Batson* cases for evidence of claims of discrimination having been raised. We found no *Swain* claims, but we did find that in two cases *Batson* claims were made pre-*Batson*; but they were treated as preserved because the cases were still on direct appeal when *Batson* was decided. *Commonwealth v. Wilson*, 0804 PHL 89 (1987) (unreported memorandum); *Commonwealth v. Brinson*, 541 A.2d 1148 (Pa. Super. 1988).



sented a *Batson* claim for the first time on appeal, relief was denied in all cases resolved on the merits.<sup>212</sup> We found two instances of *McCullum* claims (both rejected),<sup>213</sup> and two cases in which defense counsel raised an unsuccessful *J.E.B.* claim.<sup>214</sup>

For each of the unsuccessful *Batson* claims, we examined prosecutorial strike rates in the case for evidence of race disparities in the use of peremptories (strike rates against black vs. non-black venire members). In 60% (12/20) of the cases, the analysis revealed race disparities against black venire members that were statistically significant beyond the .05 level. We conducted a similar analysis for the cases in which it appeared that no *Batson* claim had been raised. In 49% (75/154) of these cases, we documented a statistically significant race effect against black venire members.<sup>215</sup>

We also analyzed defense counsel strikes. Specifically, among the ninety-six post-McCollum cases in our sample, we documented statistically significant race effects against non-black venire member in 45% (43/96) of the cases.

Finally, we focused on the gender effects in our sample of cases. In one case in our database in which a *J.E.B.* claim was raised by the defendant we did not observe a gender effect on the part of the Commonwealth. Also, in fifty-one other post-*J.E.B.* cases in our sample, we observed statistically significant gender effects in prosecutorial strikes against women 32% (17/53) of the time and similar effects in defense counsel strikes against men 47% (25/53) of the time.

It appears, therefore, that while evidence of systemic discrimination across cases is strong at the individual case level, i.e., statistically significant race and gender disparities in about one-half of the cases, defense counsel and prosecutors infrequently raise *Batson* and *McCullum* claims. This pattern may reflect incompetence on the part of counsel. It is more likely, however, that the two sides tolerate one another's discriminatory use of peremptories to reduce the risk that a

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<sup>212</sup> Commonwealth v. Holloway, 739 A.2d 1039 (Pa. 1999); Commonwealth v. Williams, 732 A.2d 1167 (Pa. 1999); Commonwealth v. Dennis, 715 A.2d 404 (Pa. 1998); Commonwealth v. Shaw, 3347 PHL 96 (1997) (unreported memorandum); Commonwealth v. Rush, 646 A.2d 557 (Pa. 1994); Commonwealth v. Basemore, 58 A.2d 861 (Pa. 1990); Commonwealth v. Rollins, 580 A.2d 744 (Pa. 1990).

<sup>213</sup> Commonwealth v. Carson, 741 A.2d 686 (Pa. 1999); Commonwealth v. Harris, 703 A.2d 441 (Pa. 1998). These two cases are the only capital cases of which we are aware in which *McCullum* claims were raised. Given that our sources of information on the cases were post-trial pleadings and court opinions, we would be unlikely to see evidence of *McCullum* claims having been made by prosecutors. The reason is that if such a claim were made and denied, as is the case in the majority of *Batson/McCollum* motions, the Commonwealth could not appeal the adverse ruling. See PA. R. APP. P. 311(d) (permitting interlocutory appeal by Commonwealth only where pre-trial order "will terminate or substantially handicap the prosecution"). We would see evidence of the claims having been made only if it had been granted by the court and the defendant appealed the adverse ruling following conviction.

<sup>214</sup> Commonwealth v. Clark, 710 A.2d 31 (Pa. 1998); Commonwealth v. Anderson, 837 PHL 94 (1995) (unreported memorandum).

<sup>215</sup> Further, in the fifty-three cases for which it was unknown whether a *Batson* claim was raised, we documented a statistically significant disparity 47% (25/53) of the time.

successful retaliatory claim will be brought by the other side.<sup>216</sup> Moreover, when a peremptory strike strategy is challenged, our data indicate that the challenge is rarely successful. Indeed, we did not record a single successful challenge. The reason for this situation appears to be either that the standards applied by the Pennsylvania courts are too high, or that they are not enforced with sufficient rigor.

## 2. *The Perceived Importance of Race and Gender Discrimination in the Use of Peremptories*

The second plausible explanation for noncompliance with the law regulating the use of peremptories is that both sides strongly believe that the race and gender composition of the juries have an important impact on the outcomes of both the guilt and penalty trials. Moreover, they also appear to strongly believe that their discriminatory peremptory strike strategies are necessary to protect their client's interests against what they perceive to be an equally discriminatory strategy on the other side.

Although we have no data in this study on the impact of jury composition on jury guilt trial decisions, our data do permit us to estimate the possible impact of the racial composition of juries on penalty trial outcomes. Our data suggest that in Philadelphia, the impact of black juror representation on penalty trial juries becomes noticeable when the number of black jurors exceeds the median for all cases, i.e., five or more. Specifically, the data in Figure 6 reveal a 9-percentage point decline (from .34 to .25) in the death-sentencing rate (after adjustment for case culpability) when the number of black jurors is above the median.

The data in Figure 6 further support the expectation, based on the literature and the strike rates of both sides in Philadelphia, that predominantly non-black juries are more punitive in sentencing black defendants than they are in sentencing non-black offenders, i.e., .37 vs. .26 (an 11-percentage point higher rate). Also predominantly non-black juries were on average a shade more punitive in sentencing non-black defendants than were the predominately black juries (the difference in adjusted death-sentencing rates was only 3 percentage points, .18 for juries with more blacks versus .21 for juries with fewer blacks—Column C).

Figure 7 reformats the data in Figure 6 to illustrate more explicitly the impact that the racial composition of the jury had on race-of-defendant disparities in capital sentencing. The figure distinguishes between the adjusted race-of-defendant death-sentencing disparity observed in cases with predominantly non-black juries (Column A)

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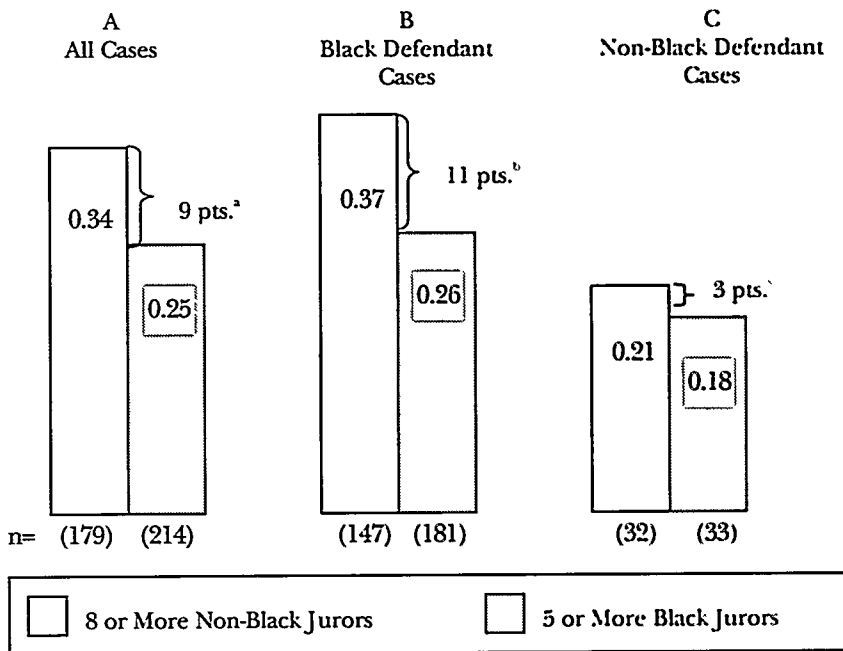
<sup>216</sup> This concern is likely to be of real significance if counsel believes that even with claims of equal strength, the other side may prevail.

(16 points), and the race-of-defendant disparity observed in the decisions of predominantly black juries (Column B) (8 points). For each set of juries, black defendants were sentenced to death at a higher rate. However, when juries were predominantly non-black, the race of defendant disparity was 2.0 (16/8) times higher than it was when the juries were predominantly black.<sup>217</sup>

FIGURE 6

THE IMPACT OF JURY RACIAL COMPOSITION ON PENALTY TRIAL DEATH SENTENCING OUTCOMES CONTROLLING FOR DEFENDANT CULPABILITY AND RACE: PHILADELPHIA 1981-1997

(The bars indicate the average death sentencing rates for each subgroup of cases after adjustment for defendant culpability.)<sup>1</sup>



<sup>1</sup>See Appendix A, Section V for a description of the adjustment procedure.

<sup>a</sup>Significant at the .02 level

<sup>b</sup>Significant at the .01 level

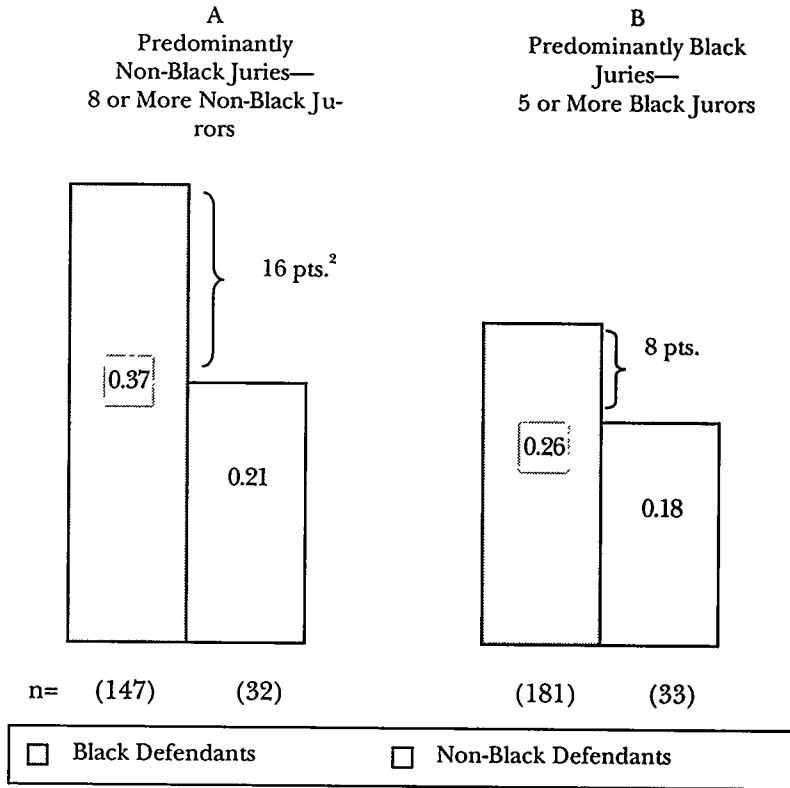
<sup>c</sup>Not Significant (*p*=.68)

<sup>217</sup> Cf. Johnson, *supra* note 29, at 1621 (discussing a study of 24,100 bench trials in which both white and black judges convicted black defendants at a higher rate than white defendants, but where the disparity was higher for the white judges).

FIGURE 7

RACE OF DEFENDANT DISPARITIES IN CAPITAL SENTENCING OUTCOMES,  
CONTROLLING FOR THE RACIAL COMPOSITION OF THE JURY:  
PHILADELPHIA 1981-1997

(The bars indicate the average death sentence rate for each subgroup  
of cases after adjustment for defendant culpability.)<sup>1</sup>



<sup>1</sup> See Appendix A, Section V for a description of the adjustment procedure.  
<sup>2</sup> Statistically significant at the .03 level

We did not find a similar relationship between the number of women on the penalty trial juries and the sentencing outcomes. As in our race analyses, we compared the sentencing outcomes when the number of women on the jury was above and below the median representation rate for women (0-7 vs. 8+ women jurors). Among all cases, there was a 4-percentage point women juror sentencing rate disparity that was not significant (a .34 death-sentencing rate when the number of women jurors was above the median and a .30 rate when the number of women was below the median).<sup>218</sup> This disparity is explained in important part by the race of the women jurors involved. When non-black women jurors are above the median in number (5+), there is a +8-point disparity in the adjusted death sentencing rates ( $p = .07$ ). However, when black women jurors are above the median in number (5+), there is a -4-point disparity in the rates ( $p = .37$ ). These results hold for both the black and non-black defendant cases.<sup>219</sup> Additional analysis in this Article, for example Figure 10, clearly suggest that gender alone is not a determinative factor. Rather, it is the combinations of race, gender, and age that make the key differences in death-sentencing rates. Specifically, gender cuts differently among black and non-blacks in the same way as age.

We focused next on the impact of the race of the victim on jury sentencing. Recall that data presented in Figure 3 (Section V above) indicated that both prosecutors and defense counsel anticipated racially motivated responses based on both the race of the defendant and the victim. Specifically, the peremptory strike data in Figure 3 suggest that prosecutors expected that the most punitive response from non-black jurors would be in BD versus NBV cases (black defendant / non-black victim) cases, and that the degree of punitiveness for non-black jurors would progressively decline in the BD/BV cases, the NBD/NBV cases, and, with the least punitive response, the NBD/BV cases. We called this the "non-black jury" model, and it explains why we observed the lowest prosecution strike rate against non-blacks in the BD/NBV cases and the highest in the non-black defendant cases. Defense counsel strikes against non-black venire members mirrored this response.

As for black venire members, the strike rate data in Figure 3 indicate that both prosecutors and defense counsel expected that the punitiveness of black jurors would run in exactly the opposite direction, i.e., the most punitive black juror response was expected in the

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<sup>218</sup> The level of significance of the difference in the adjusted death sentencing rates for the two groups of cases was  $p = .30$ .

<sup>219</sup> Among the black defendant cases, the adjusted sentencing rate disparity when non-black women jurors are above the median in number is 5 points ( $p = .27$ ), while the comparable black women disparity is -4 points ( $p = .43$ ). Among the non-black defendant cases, the adjusted disparity when non-black women jurors are above the median in number is 8 points ( $p = .30$ ), while the comparable black women disparity is -5 points ( $p = .41$ ).

non-black defendant/black victim cases and the least punitive response was expected in the black defendant/non-black victim cases. We call this the “black jury” model.

We next examined the extent to which the actual death-sentencing behavior of the Philadelphia juries conformed to the black and non-black models referred to above. The data in Part I of Figure 8 suggest that juries with a strong representation of non-blacks conformed quite closely to the non-black jury model, with adjusted death-sentencing rates of .45 for the BD/NBV cases, .34 for the BD/BV cases, .17 for the NBD/NBV cases, and .22 for the NBD/BV cases. (The .22 rate for NBD/BV category is higher than the rate of the NBD/NBV cases, but the sample size of the NBD/BV group is small—only ten cases.) The data in Part II of Figure 8 indicate, however, that expectations associated with the “black jury” model were only weakly met for the juries with black representation rates above the median. For those juries, the death-sentencing rates were higher in the black defendant cases rather than lower. However, among the black defendant cases, the death-sentencing rate was slightly higher (5 points) when the victim was black, consistent with the black jury model.

Figure 9 reformats the data in Figure 7 to display the impact of jury racial composition in each defendant/victim racial combination of cases. The data indicate that the predominantly non-black juries were more punitive in every case category, but particularly so in the BD/NBV cases.

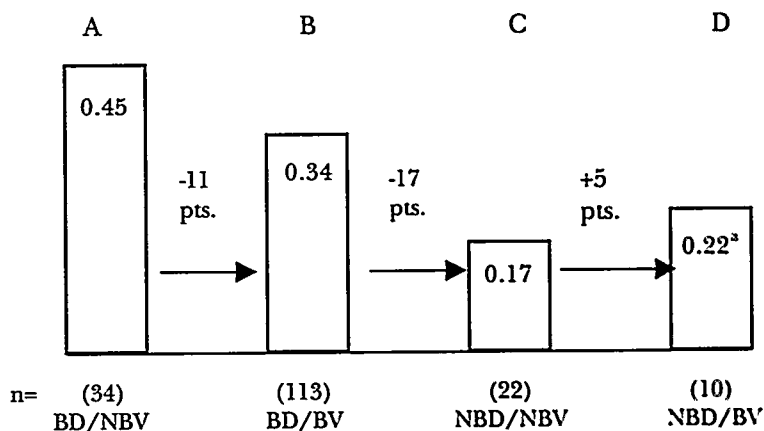
We sought next to explain why the sentencing decisions of the non-black jurors appeared to fit the non-black jury model so much better than the decisions of the black jurors appeared to fit the black jury model. We did this by examining the death-sentencing decisions associated with each of our race, gender, and age subgroups. The results, presented in Figure 10, reflect the death-sentencing outcomes of the cases in which each of the subgroups had above the median level of representation. Because of small sample sizes in the NBD/BV category of cases, Figure 10 presents the non-black defendant cases as a group.

FIGURE 8

THE IMPACT OF JURY RACIAL COMPOSITION ON PENALTY TRIAL DEATH-SENTENCING OUTCOMES CONTROLLING FOR THE DEFENDANT/VICTIM RACIAL COMBINATION: PHILADELPHIA 1981-1997

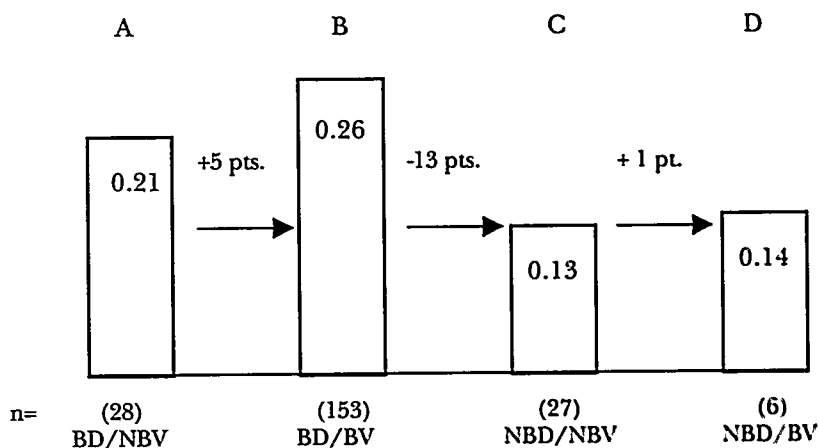
(The bars indicate the average death sentencing rates for each subgroup of cases after adjustment for defendant culpability.)<sup>1</sup>

Part I. Predominately Non-Black Juries—8 or More Non-Black Jurors



(Defendant/Victim Racial Combination)

Part II. Predominately Black Juries—5 or More Black Jurors



(Defendant/Victim Racial Combination)

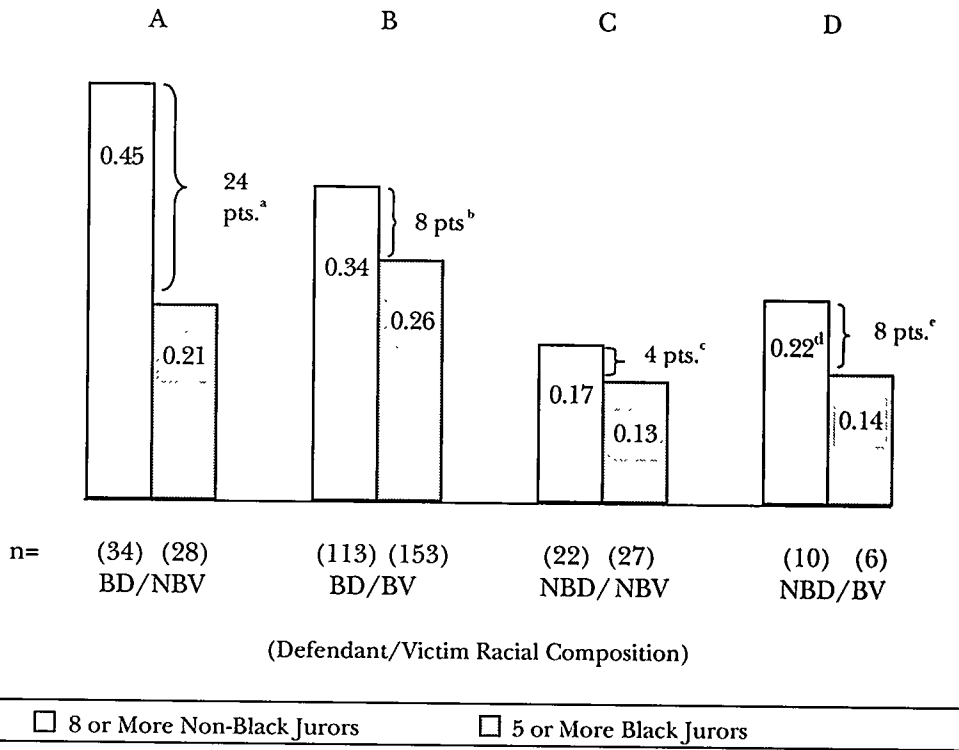
<sup>a</sup> This estimate may be unreliable because of missing data (no cases) at three culpability levels. See Appendix A, Section V.

<sup>1</sup> See note Appendix A, Section V for a description of the adjustment procedure.

FIGURE 9

JURY PENALTY TRIAL DEATH-SENTENCING OUTCOMES AND DISPARITIES  
 CONTROLLING FOR THE RACIAL COMPOSITION OF THE JURY AND  
 DEFENDANT/VICTIM RACIAL COMBINATION: PHILADELPHIA 1981-1997

(The bars indicate the death sentencing rates for each subgroup of cases after adjustment for defendant culpability.)<sup>1</sup>



<sup>1</sup>See Appendix A, Section V for a description of the adjustment procedure.

<sup>a</sup>Significant at the .001 level

<sup>b</sup>Significant at the .09 level

<sup>c</sup>Not significant ( $p = .20$ )

<sup>d</sup>This estimate may be unreliable because of missing data at three culpability levels. See Appendix A, Section III.

<sup>e</sup>Not significant ( $p = .18$ )



Part I of Figure 10 presents the results for the non-black jurors with the data for each subgroup presented in descending order of its death-sentencing rate for the BD/NBV cases. It reveals a fairly consistent pattern of conformity to the non-black jury model, except for the young women (Part I, Row F) who are associated with a slightly *lower* (one percentage point) death-sentencing rate in the BD/NBV cases than in the BD/BV cases.

Part II presents the results for the black jurors with the data for each group presented in ascending order of its death-sentencing rate for the BD/NBV cases. None of the black subgroups conformed closely to the black jury model, and all had higher death-sentencing rates for black than for non-black defendants. However, for the first three groups (Rows A–C), we observed a race-of-victim effect in the expected direction (i.e., in black defendant cases, a higher death-sentencing rate when the victim was black). Most striking are the results for the older black men (Row F), young black women (Row E), and middle-age black men (Row D). Their data conformed strikingly to the *non-black* jury model, suggesting that these jurors either reflected the values of the non-black jurors or they had little or no influence on their fellow jurors.

The small impact of black jurors on sentencing outcomes comes as a surprise because we know that, theoretically very small differences in the levels of black representation on juries can have a significant impact on both death-sentencing rates and the race disparities that are observed. For example, consider the many death sentences imposed in Philadelphia for failure to find mitigation in the case after an aggravating circumstance has been found by the sentencing jury.<sup>220</sup> The vote of a single juror who finds a mitigating circumstance present in such a case will avoid a death sentence at this stage in the process, and advance the case to the weighing stage. Also, in both the first decision stage (finding aggravation present or absent) and in the third and final stage (weighing aggravation and mitigation), only a single dissenting vote is required to block momentum toward a death sentence by hanging the jury, in which event a life sentence is automatically imposed by the court.

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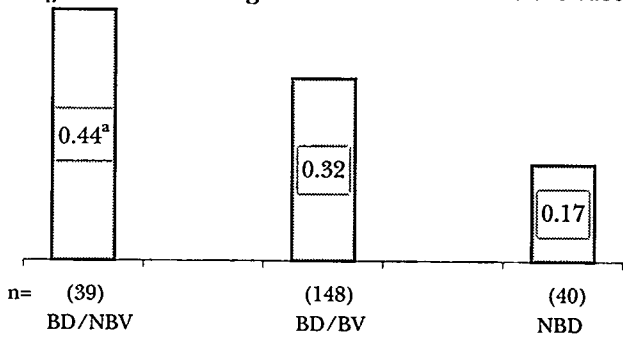
<sup>220</sup> Baldus, et al., *Charging and Sentencing Study*, *supra* note 160, at 1645 fig.1 (indicating that 61% (63/104) of death sentences imposed between 1983 and 1993 were imposed for this reason).

FIGURE 10

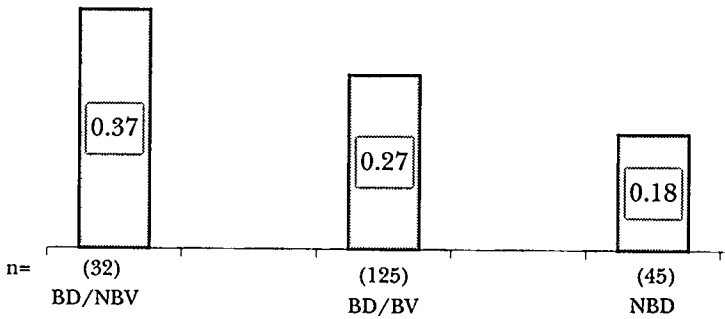
DEATH SENTENCING OUTCOMES ASSOCIATED WITH SUBGROUPS OF JURORS DEFINED BY RACE, AGE, AND SEX

Part I. Non-Black Juror Representation

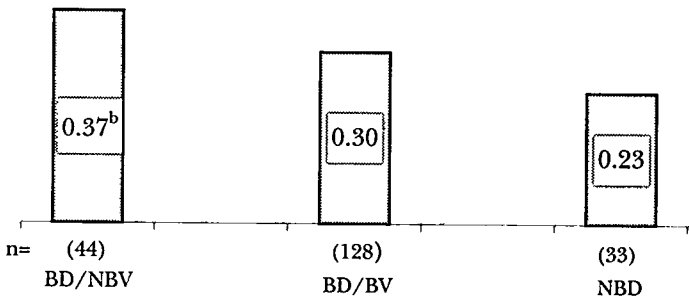
A. Juries With Young Non-Black Men Above the Median (1 or more)



B. Juries With Older Non-Black Men Above the Median (1 or More)



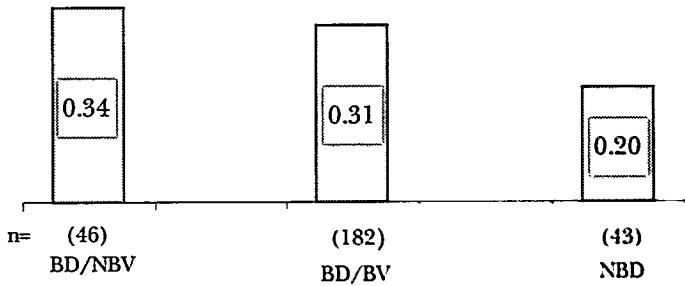
C. Juries With Middle-Age Non-Black Men Above the Median (2 or More)



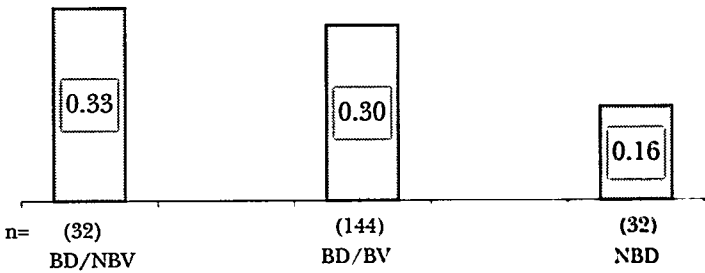
<sup>1</sup> See Appendix A, Section V for a description of the adjustment procedure.

<sup>a</sup> Significantly higher than juries with no young non-black men in black defendant/non-black victim cases (n = .001)

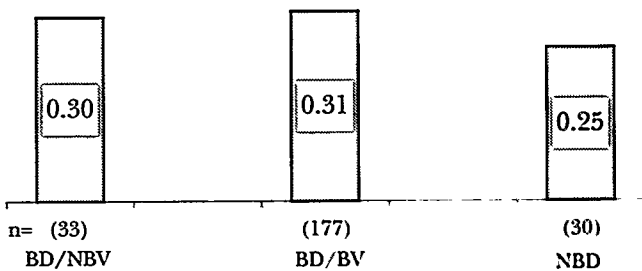
D. Juries With Middle-Age Non-Black Women Above the Median (2 or More)



E. Juries With Older Non-Black Women Above the Median (1 or More)

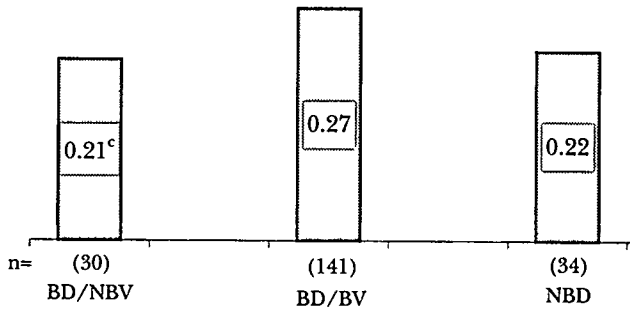


F. Juries With Young Non-Black Women Above the Median (1 or More)

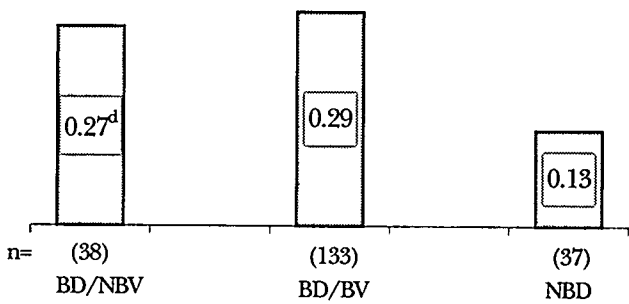


**Part II. Black Juror Representation**

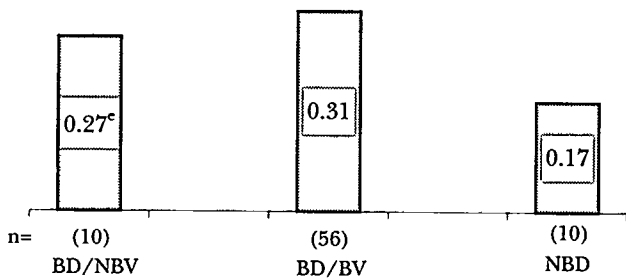
**A. Juries With Middle-Age Black Women Above the Median (2 or More)**



**B. Juries With Older Black Women Above the Median (1 or More)**



**C. Juries With Young Black Men Above the Median (1 or More)**

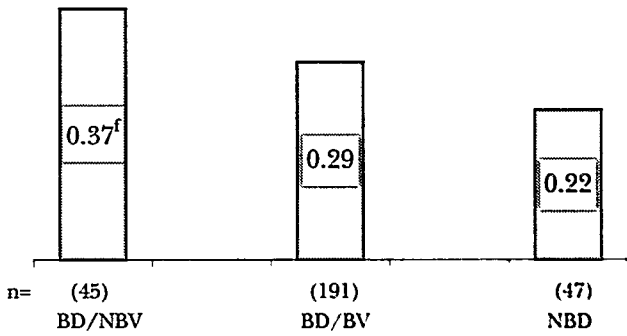


<sup>c</sup>Significantly lower than juries with 0-1 middle-age black women in black defendant/non-black victim decisions (p=.001).

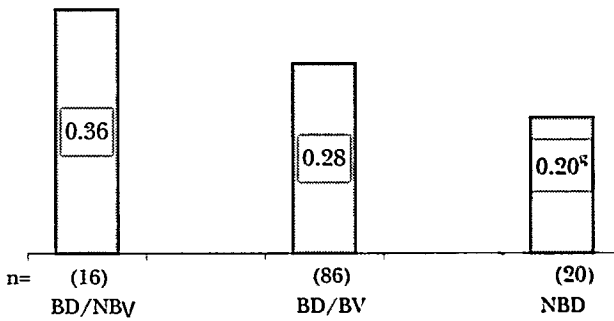
<sup>d</sup>Significantly lower than juries with no older black women in black defendant/non-black victim decisions (p=.005).

<sup>e</sup>Significantly lower than juries with no young black men in black defendant/non-black victim decisions (p=.001).

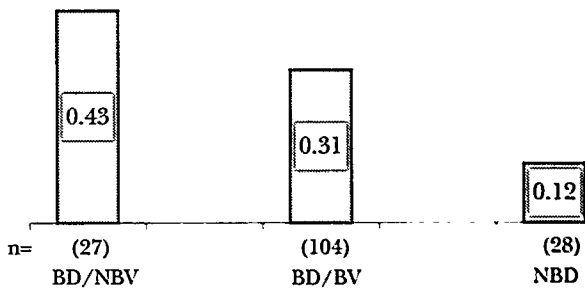
D. Juries With Middle-Age Black Men Above the Median (1 or More)



E. Juries With Young Black Women Above the Median (1 or more)



F. Juries With Older Black Men Above the Median (1 or More)



<sup>f</sup> Significantly higher than juries with no middle-age black men in black defendant/non-black victim cases (p=.09).

<sup>g</sup> This estimate may be unreliable because of missing data at three culpability levels. See Appendix A, Section III.

## VII. THE COMPARATIVE EFFECTIVENESS OF PROSECUTORS AND DEFENSE COUNSEL IN THE USE OF PEREMPTORIES

### A. The "Canceling Out" Hypothesis

When the use of peremptories by the Commonwealth and defense counsel is viewed in the aggregate, a reasonable argument can be made that the efforts of the two sides cancel one another out, and even that defense counsel have the upper hand.<sup>221</sup> For example, defense counsel use a larger proportion of their peremptories than do prosecutors,<sup>222</sup> which explains their overall higher strike rates. Further, on average, the proportions of blacks and women serving on capital juries were slightly higher than their proportions among all the strike eligible venire members.

The net effect of prosecutorial and defense counsel peremptory strikes also supports the, canceling out hypothesis. Column D of Table 8 indicates that during the period of this study, the net gender and race effects of the system were quite small—precisely because each side's peremptories tended to offset the effects of the other side's strikes. Specifically, Column D indicates that, over the sixteen years covered by this study, only 142 more men would have served on Philadelphia's capital juries if peremptories had been applied evenhandedly (i.e., at the average overall rate by each side). This represents a deficit of only 2% (142/7,636) over the entire period and an annual shortfall of only about eight men per year, a seemingly trivial number.<sup>223</sup> The impact of race is even smaller, less than 1% (65/8,849),<sup>224</sup> with an annual shortfall of four non-blacks and a total shortfall of only sixty-five non-blacks during the entire sixteen-year period.

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<sup>221</sup> The canceling out hypothesis is suggested in both literature and Supreme Court opinions. See *supra* notes 97-102 and accompanying text.

<sup>222</sup> See *tbl.1*.

<sup>223</sup> The 142 male shortfall is the numerator and the total number of strike eligible men is the denominator.

<sup>224</sup> The sixty-five non-black shortfall is the numerator and the denominator is the total number of non-black death eligible venire members.

TABLE 8

THE IMPACT OF THE DISCRIMINATORY USE OF PEREMPTORIES ON  
MALE AND FEMALE VENIRE MEMBERS IN  
PHILADELPHIA CAPITAL CASES 1981-1997

(The statistics indicate the percentage of all strikes in excess of the overall strike rate and the numbers of venire members excluded by the excess strikes.)

A Venire Members	B % of Prosecution Strikes in Excess of Their Overall Rate <sup>1</sup>	C % of Defense Counsel Strikes in Excess of Their Overall Rate <sup>1</sup>	D Net Depletion Ef- fect (% and #) of Pros. and De- fense Strikes <sup>2</sup>
1. Men		12% (514/4186)	2% (142/7636)
2. Women	8% (336/3971)		
3. Black	27% (1057/3846)		
4. Non-Black		18% (1097/6205)	1% (65/8849)

<sup>1</sup>The numerators are the excess strikes, while the denominators are the total number of strikes.

<sup>2</sup>The numerators are the net numbers depleted over 17 years, while the denominators are the total number of strike-eligible men and non-blacks as the case may be.

However, an exclusive focus on the "net effect" ignores the number of venire members who would have served if prosecutors and defense counsel had even-handedly struck venire members. Columns B and C of Table 8 suggest much more substantial effects. Specifically, Column C indicates that during the period of the study, defense counsel struck 12% (514/4,186) more men than would have been struck in a system of even-handed selection,<sup>225</sup> while Column B indicates that prosecutors struck 8% (336/3,971) more women than would have been struck in a system of even-handed selection.

Columns B and C also indicate that prosecutors struck 27% (1,057/3,846) more blacks than would have been struck in an even-

<sup>225</sup> The denominator represents the total number of defense counsel strikes against women while the numerator represents the excess strikes, i.e., the total number struck minus the number that would have been struck in an even-handed system. As we note below, we also calculated the impact of a fair system of selection in which both sides base their peremptories strictly on legitimate factors.

handed system, and that the comparable figure for non-blacks struck by defense counsel was 18% (1,097/6,205). In terms of the United States Supreme Court's interest in protecting the rights of venire members to even-handed treatment with respect to their race and gender, these are substantial effects.

The canceling out hypothesis is also drawn into question if one examines the extent to which prosecutors and defense counsel are able to reduce the number of their prime target group members that are ultimately seated on the jury. We used two sets of measures for this purpose. The first set, presented in Table 9, examined the comparative effectiveness of the two sides in the elimination of their prime targets from their respective pools of death eligible cases. Column B indicates each side's peremptory strike rates against its prime targets, Part I lists the rates for the prosecution's prime targets, and Part II lists the rates for defense counsel's prime target groups. Column C indicates the average number of target group members among the strike-eligible venire members each side faced. Column D indicates the rate at which each side completely eliminated the target group members from its pool of strike eligibles. For example, the prosecution was able to eliminate all young black men from its pool of strike eligibles 56% of the time when one or more was present. Column E presents the overall depletion rates for each prime target group. It indicates that the Commonwealth was more successful than defense counsel in excluding its prime targets from jury service, an outcome that reflects the different size pools of each side's prime target groups (Column C).



TABLE 9

**COMPARATIVE EFFECTIVENESS OF PROSECUTORS AND DEFENSE  
COUNSEL IN STRIKING DEATH ELIGIBLE VENUE MEMBERS  
(THE DEPLETION MODEL)**

(Part I is the impact of prosecutorial strikes on prime strike-eligible targets. Part II is the impact of the defense on prime strike targets.)

A	B	C	D	E
	Peremptory Strike Rate (Prosecution & Defense)	Avg. # Of Strike Eligibles	Total Elimination Rate Of Strike Eligibles	Depletion (-) or Enhancement (+) Rate  $\left\{ \frac{\text{Accepted \% - Strike Eligible \%}}{\text{Strike Eligible \%}} \right\}$
<b>I. Prosecution Three Primary V.M. Targets (priority order)<sup>1</sup></b>				
A. Young Black Women	.63	2.3	.41	-.42*
B. Young Black Men	.61	1.5	.56	-.40*
C. Mid-Age Black Women	.49	5.3	.06	-.20*
<b>II. Defense Three Primary V.M. Targets (priority order)<sup>1</sup></b>				
A. Older Non-Black Men	.65	3.3	.30	-.37*
B. Mid-Age Non-Black Men	.58	6.6	.05	-.26*
C. Older Non-Black Women	.55	2.8	.26	-.19*

<sup>1</sup> Rows I A-C are prosecutorial strike rates. Row II A-C are defense counsel strike rates. V.M. means venire members.

\* means the depletion rate was significant beyond the .05 level.

Table 10 presents the results of our bottom-line jury representation analysis. It expands upon the results in Table 9 by documenting the combined effects of both sides' peremptory strike strategies. Column B repeats each side's strike rates, while Columns C and D indicate the original levels of representation for each target group on the venire. Column E reports the rate of total elimination from the

venire, while Column F reports the overall depletion rate for each subgroup. For example, when the two prime Commonwealth targets, young black men and women, were present in a venire, they were completely eliminated 78% and 67% of the time, respectively, and their overall depletion rates were .36 and .30. For defense counsel's targets (Part II, Column F), the results are much less impressive (.18 and .12). Column H, which reports the percentage of cases with no target group jury representation tells the same story. For example, young black women and men, the Commonwealth's top two prime targets, were totally excluded 69% and 82% of the time (Part I), while defense counsel's top two prime targets (Part II) were totally excluded 50% and 14% of the time.

Together, Tables 9 and 10 clearly document the greater effectiveness of the Commonwealth in excluding its prime targets from the juries that were finally seated.

TABLE 10

COMPARATIVE EFFECTIVENESS OF PROSECUTORS AND DEFENSE COUNSEL IN CONTROLLING JURY COMPOSITION (THE JURY REPRESENTATION MODEL): PHILADELPHIA 1981-1997

(Part I reflects the impact of prosecutorial and defense counsel strikes on the representation of the prosecution's prime targets. Part II reflects the combined impact of defense counsel and presentation strikes on the representation of defense counsel's prime targets.)

A	B	C	D	E	F	G	H
	Strike Rate (Pros. & Defense)	Avg. # of Target V.M. on Venire	Cases w/ No Target V.M. on Venire	Total Elimination Rate of Prime Target Group	Venire % vs. Jury % Depletion Rate  $\left\{ \begin{array}{l} \text{Jury \% - Ven.} \\ \text{Strike Eligible \%} \\ \hline \text{Strike Eligible \%} \end{array} \right\}$	Avg. # of Target V.M. on Jury	Cases w/ No Target V.M. on Jury
<b>Part I</b> Prosecution (targets) <sup>1</sup>							
A. Young Black Women	.63	2.6	5%	.67	-.30*	.46	69%
B. Young Black Men	.61	1.6	18%	.78	-.36*	.26	82%
C. Mid-Age Black Women	.49	5.9	0%	.12	+.12*	1.7	12%
<b>Part II</b> Defense (targets) <sup>1</sup>							
A. Older Non-Black Men	.65	3.6	3%	.48	-.18*	.80	50%
B. Mid-Age Non-Black Men	.58	7.5	0%	.14	-.12*	1.8	14%
C. Older Non-Black Women	.55	3.2	5%	.43	-.03(ns)	.83	46%

<sup>1</sup> Prosecution and Defense Counsel three primary V.M. target groups are listed in order of priority. Rows I A-C are prosecutorial strike rates. Rows II A-C are defense counsel strike rates. V.M. means venire members.

\* means the depletion rate was significant beyond the .05 level.

*B. The Comparative Effectiveness of Prosecutors and Defense Counsel in Target Group Selection*

In his advice on jury selection, Jack McMahon cautioned prosecutors not to consider all black venire members as “bad” potential jurors, suggesting that the real problems were the young blacks. Less problematic were middle-aged and older women. McMahon considered older and middle-aged black men to be the best candidates, especially those over 70 years of age. The data suggest that Philadelphia prosecutors generally followed his prescription. But how accurate was the advice?

As for the top two prosecutorial target groups, young black men and women,<sup>226</sup> the advice was generally accurate for the young men, who were particularly lenient and influential in the small sample of black defendant/non-black victim cases in which they served ( $n = 10$ ) (Figure 10, Part II, Row C). However, in black defendant/black victim cases, young black men appeared generally to have been either quite punitive, or ineffectual in influencing the outcome (Figure 10, Part II, Row C). This suggests that the Commonwealth often overstruck these jurors when the victim was black. The young black women (Part II, Row E) appear to have been a relatively weak threat to the Commonwealth’s interests, either because they entertained a non-black perspective on the cases or had no influence if they urged a black perspective on their colleagues. In fact, the death-sentencing rates of the juries in which their representation rate was above the median closely conformed to the non-black jury model.

The Commonwealth’s concerns about middle-aged and older black women<sup>227</sup> (Figure 10, Part II, Rows A & B) appear to have been reasonably well placed, as their presence was associated with low death-sentencing rates in black defendant/non-black victim cases. However, like the young black men, their presence was associated with higher death-sentencing rates in black defendant/black victim cases.

Jack McMahon’s assessment of the other black male age groups also appears to be accurate. The middle-aged blacks<sup>228</sup> were far from the black juror model and the older black males<sup>229</sup> appear to have conformed more to the non-black than to the black jury model (Figure 10, Part II, Rows D & F).

The picture is less clear for defense counsel, as we do not have a defense counterpart of the McMahon tape. Nevertheless, the pattern of defense counsel strikes reflected a distinct concern about older non-black men followed by middle-aged non-black men and older

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<sup>226</sup> The prosecutorial strike rates were .61 and .63, respectively (tbl.5, Part I, Col. C).

<sup>227</sup> The prosecutorial strike rates were .49 and .48 respectively. *Id.*

<sup>228</sup> The prosecutorial strike rate was .43. *Id.*

<sup>229</sup> The prosecutorial strike rate was .38. *Id.*

non-black women.<sup>230</sup> These concerns appear to be well placed especially in the black defendant/non-black victim cases (Figure 10, Part I). However, the young non-black men, defense counsel's fourth priority, were associated with the highest death-sentencing rates (Figure 10, Part I, Row A). Nevertheless, the generally low death-sentencing rates in non-black defendant cases with above the median representation of black jurors suggests that defense counsel may have overstruck black venire members in those cases. Overall, defense counsel's selection of targets appeared a bit more accurate than the Commonwealth's because the behavior of the non-black jurors appears to have been more consistent with the assumptions underlying the peremptory strike strategy of defense counsel.

*C. The Comparative Effectiveness of Prosecutors and Defense Counsel  
in Influencing Sentencing Outcomes:  
The Outcome Enhancement Model*

The analysis presented in Section VI, B.2 above documents a distinct relationship between the race, gender, and age composition of the jury, and the penalty trial outcomes. What remains to be tested is the extent to which the variations in jury composition that correlated with the sentencing outcomes were an artifact of chance (e.g., the racial composition of the venire) or were a product of prosecutorial or defense counsel peremptory strike strategies.

*1. Strike Effort and Jury Racial Composition*

We first tested the relationship between the strike rate effort of each side on the representation of blacks on Philadelphia's juries. For prosecutors, our focus was on the strike effort against black venire members; for defense counsel, our focus was on the strike effort against non-black venire members. Figure 11 presents the strike effort of each side in terms of the strike rate against black and non-black venire members, as the case may be. Part I indicates the prosecutorial effort against black venire members and Part II indicates defense counsel's effort against non-black venire members.<sup>231</sup> For example, the level of prosecutorial strike effort against black venire members ranges from 0-.09 (at Level 1) to .80 and higher (at Level 9), and the defense counsel strike effort against non-black venire members ranges from 0-.24 (Level 1) to .70 and higher (at Level 9). The bar heights indicate the number of blacks on the affected juries.<sup>232</sup> The histograms show at Level 1, for example, that on average,

<sup>230</sup> The defense counsel strike rates were .65, .58, and .55, respectively. *Id.*

<sup>231</sup> The level of peremptory strike effort at each point on the horizontal axis differs for the prosecution and defense counsel.

<sup>232</sup> Note that at each level of effort the sample of cases affected by the two sides is different.

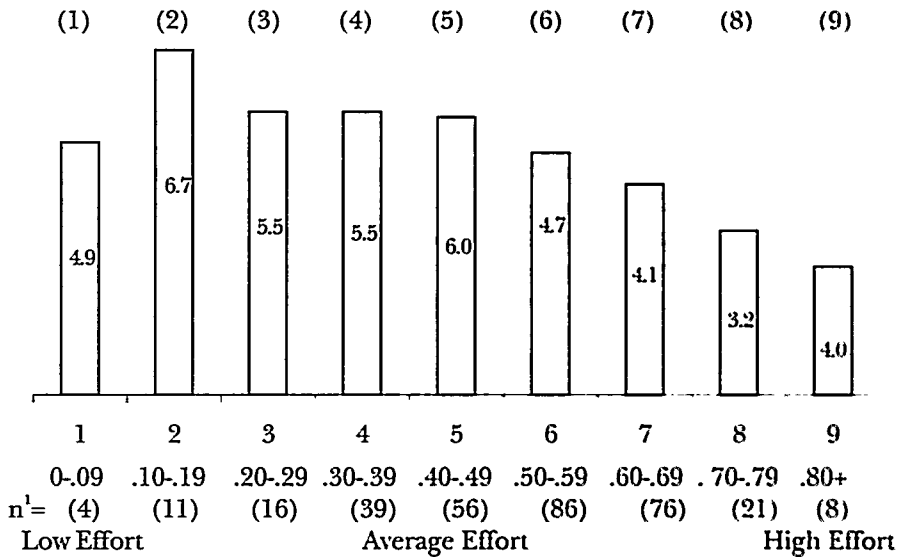
a low effort by the prosecution resulted in 4.9 black jurors; a low effort for defense counsel yielded 4.8 black jurors. In contrast, at Level 9 (maximum effort) the prosecution yield was an average of 4.0 black jurors, and for defense counsel, the yield was 7.2 black jurors. The histograms indicate that until effort Level 7 was reached, the ascending strike rate levels appear to have had no effect—presumably because they were offset by the other side. But at Levels 7, 8, and 9, the effort for each side appears to have had its intended effect—fewer black jurors when the prosecutorial effort against black venire members was strong (Levels 7, 8 & 9), and a significant increase in black jurors when the defense counsel effort against non-black venire members was strong (Levels 8 & 9).

Figure 11

THE IMPACT ON JURY COMPOSITION OF VARYING DEGREES OF PEREMPTORY STRIKE EFFORT AGAINST BLACK AND NON-BLACK VENIRE MEMBERS

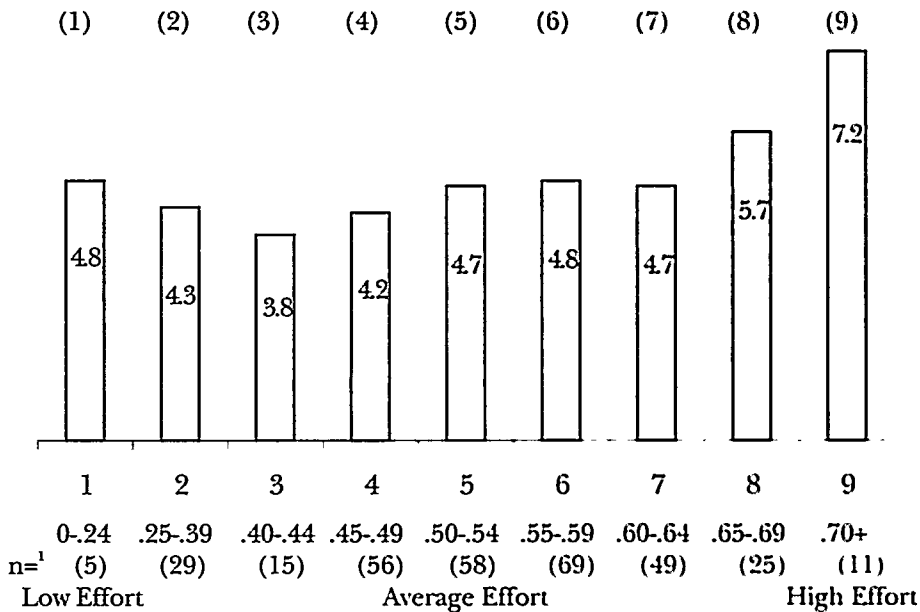
(The bars indicate the average number of black jurors.)

Part I. Prosecutorial Peremptory Strike Effort Against Black Venire Members



Prosecutor's Strike Rate

Part II. Defense Counsel Strike Effort Against Non-Black Venire Members



Defense Counsel Strike Rate

<sup>1</sup>n refers to the sample size of cases in each category.

## 2. Strike Effort and Sentencing Results

To address the connection between the strike rate efforts of both sides and the sentencing outcomes, we developed two measures of prosecutorial and defense counsel strike effort. As in Figure 11, each measure focused on prosecutorial peremptory strikes against black venire members and defense counsel strikes against non-black venire members. The first measure of effort classified cases in terms of whether each side's strike rate was above or below the median rate (.53 for prosecutorial strikes against black venire members and .55 for defense counsel strikes against non-black venire members). We called this the median split measure of peremptory strike effort.

The second measure of effort focused on the extent to which each side's strikes were characterized by a statistically significant disparity in the strike rates against the two groups of venire members, i.e., black versus non-black. For example, if defense counsel struck non-black venire members at a significantly higher rate than black venire members, that case was classified as involving a high peremptory strike effort. We call this the discriminatory strike measure of peremptory strike effort.

Figure 12 presents the results for the prosecutors using the median split measure of effort. The white bars represent the cases with a prosecutorial strike effort above the median; the darker bars represent the cases in which that effort was below the median. Column A indicates that the death-sentencing rate was ten percentage points higher when the prosecutorial strike rate against black venire members was above the median. Column B documents that this difference reflects a twelve point higher death-sentencing rate in the black defendant cases when the prosecutorial strike rate was above the median. In contrast, Column C indicates that in non-black defendant cases, a high strike effort against black venire members decreased rather than increased the death-sentencing rate, although the 16 percentage point disparity was not statistically significant ( $p = .36$ ).

Figure 13 looks at these results from the perspective of how similarly situated black and non-black defendants were sentenced by juries when the Commonwealth's strike effort against black venire members was above (Column A) and below (Column B) the median. The data demonstrate that, when the prosecution's strike effort was high, the race of defendant death-sentencing disparity was substantial (+24 percentage points,  $p = .007$ ), while it reversed (-4 points) when the strike effort was below the median ( $p = .72$ ).

Figures 14 and 15 present similar analyses of defense counsel's strike efforts using the median split measure of effort. Figure 14, Column A indicates that a high defense counsel effort against non-black venire members was associated with a slightly *higher* (one percentage point) rather than lower overall death-sentencing rate. This contrasts with the data in Figure 12, which documents a ten percent-



age point higher death-sentencing rate when the prosecution's strike effort against black venire members was above the median. The contrast clearly suggests that the prosecution was more effective in identifying and striking life prone black venire members than was defense counsel in identifying and striking death prone non-black venire members.<sup>233</sup> Finally, Column C indicates that in the non-black defendant cases, an enhanced effort by defense counsel to strike non-blacks was associated with a fourteen percentage point higher, but not significantly, death-sentencing rate.

Figure 15 focuses on jury sentencing of similarly situated black and non-black defendants when the defense strike rate against non-black venire members was high and low. These data indicate that a strong strike effort against non-black venire members did tend to minimize race-of-defendant effects. Specifically, Column A documents that when the strike effort against non-blacks was high, the race of defendant effect was only one percentage point ( $p = .89$ ), in contrast to sixteen percentage points when the strike effort against non-black venire members was below the median (Column B).

We conducted comparable analyses with our second discriminatory strike measure of prosecutorial and defense counsel preemptory strike effort, with comparable results.<sup>234</sup>

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<sup>233</sup> More circumstantial, but in some ways more reliable, evidence of the impact of preemptory strike rates on death-sentencing outcomes are the correlations between the death-sentencing outcomes and prosecutorial strikes against black venire members and defense counsel strike rates against non-blacks. (The associations are important because they are based on quite reliable strike estimates and sentencing outcomes about which there is no question.) Specifically, the prosecutorial strike rates against black venire members significantly correlated with the overall death-sentencing rate ( $r = .13, p = .02$ ) while the defense counsel strike rate against non-black venire members shows a much weaker association with the death-sentencing outcome ( $r = .007, p = .90$ ).

<sup>234</sup> We replicated the analysis presented in Figures 12-15 using the high and low discrimination measure of effort by both sides. In these analyses, we limited the samples of venire members to those for which we had a 98% reliable race estimate. *See supra* note 165 and accompanying text for a discussion of these estimates and our "primary" race estimates. When the focus was on the prosecution, the data revealed a death-sentencing rate six percentage points higher when the prosecutorial strike rate against black venire members was high. This difference reflects a seven point higher death-sentencing rate in the black defendant cases when the prosecutorial strike effort was high. In contrast, the data indicate that in non-black defendant cases, a high strike effort against black venire members decreased rather than increased the death-sentencing rate.

Examining the results from the perspective of how similarly situated black and non-black defendants were sentenced by juries, the data indicated that when the Commonwealth's strike effort against black venire members was high, the race of defendant death-sentencing disparity was twenty percentage points (.35 vs. .15) ( $p = .05$ ), while it was only six points (.29 vs. .23) ( $p = .31$ ) when the discriminatory strike effort was low.

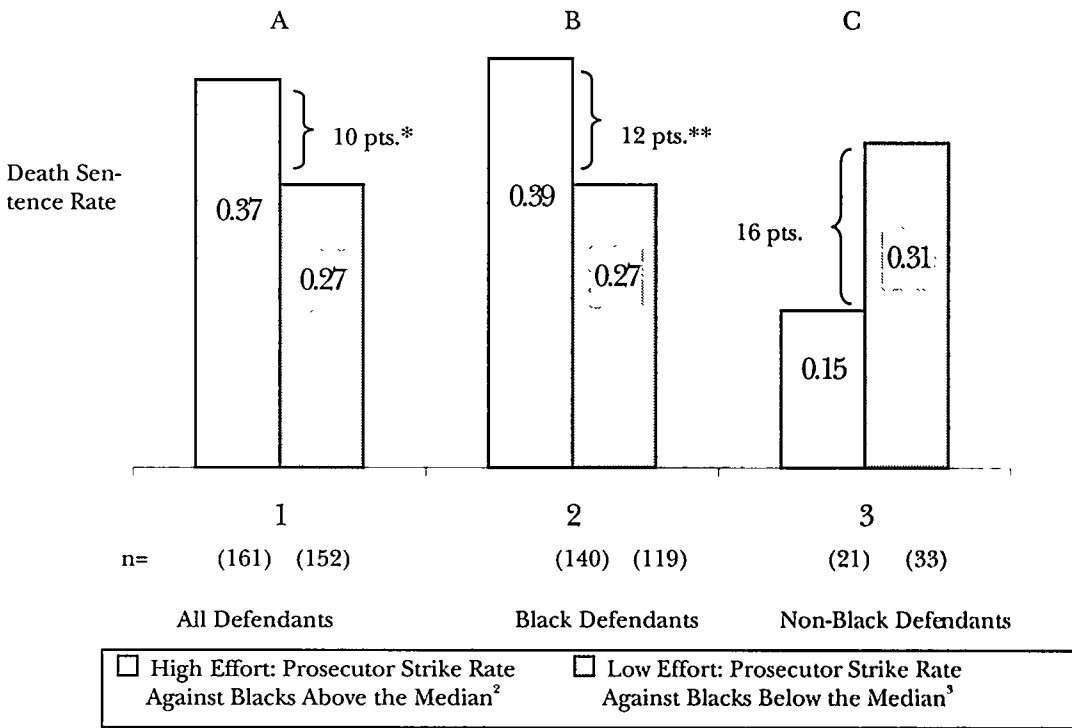
We conducted similar analyses of defense counsel's strike efforts using the discriminatory measure of preemptory strike effort. The results indicated that a highly discriminatory defense counsel effort against non-black venire members was associated with a five percentage point lower overall death-sentencing rate, which primarily reflects a thirteen-point lower death-sentencing rate in black defendant/non-black victim cases ( $p = .08$ ).

We also focused on jury sentencing of similarly situated black and non-black defendants when the defense strike rate against non-black venire members was high and low in terms of the

FIGURE 12

THE IMPACT OF PROSECUTORIAL STRIKE RATE EFFORT AGAINST BLACK VENIRE MEMBERS WITH EFFORT MEASURED IN TERMS OF STRIKE RATES ABOVE AND BELOW THE MEDIAN LEVEL FOR ALL CASES: PHILADELPHIA 1981-1997

(The bars indicate the death sentencing rate for each subgroup of cases after adjustment for defendant culpability.)<sup>1</sup>



<sup>1</sup> See Appendix A, Section V for a description of the adjustment procedure.

<sup>2</sup> In the high effort condition, the juries had an average of 4.1 blacks.

<sup>3</sup> In the low effort condition, the juries had an average of 5.3 blacks.

\*Denotes significance at the .05 level

\*\* Denotes significance at the .01 level.

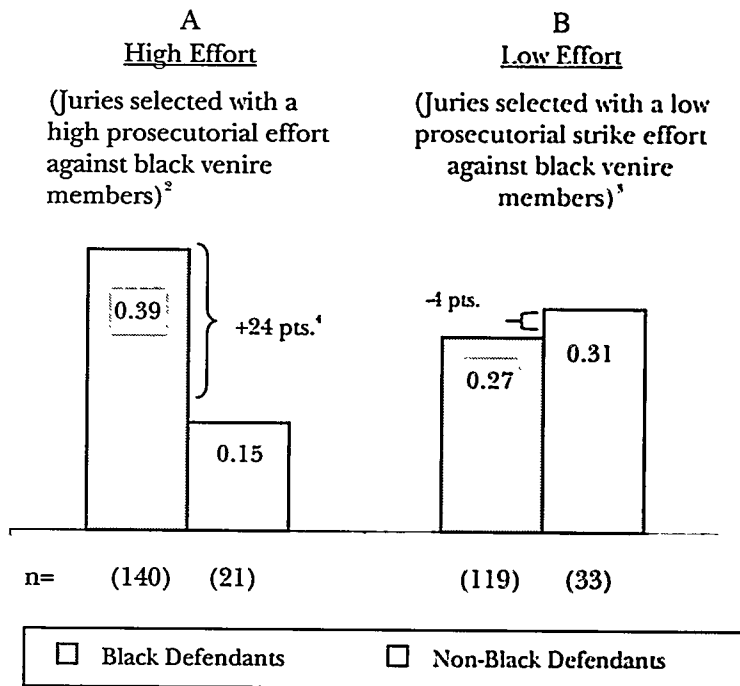
level of discrimination. These data indicated that a strong defense counsel strike effort against non-black venire members was associated with a sixteen point (.28 vs. .12) ( $p = .27$ ) black defendant effect and an eleven point effect (.34 vs. .23) ( $p = .03$ ) when the strike effort against non-black venire members was low.

These results are consistent with the results shown in Figures 12-15; that is, an enhanced preemptory strike effort by the Commonwealth produced the intended results while a similar effort by defense counsel was less effective.

FIGURE 13

RACE OF DEFENDANT DISPARITIES IN CAPITAL SENTENCING,  
 CONTROLLING FOR THE PROSECUTOR'S EFFORT IN STRIKING BLACK  
 VENIRE MEMBERS: PHILADELPHIA 1981-1997

(The bars indicate the average death sentence rate for each subgroup  
 of cases after adjustment for defendant culpability.)<sup>1</sup>

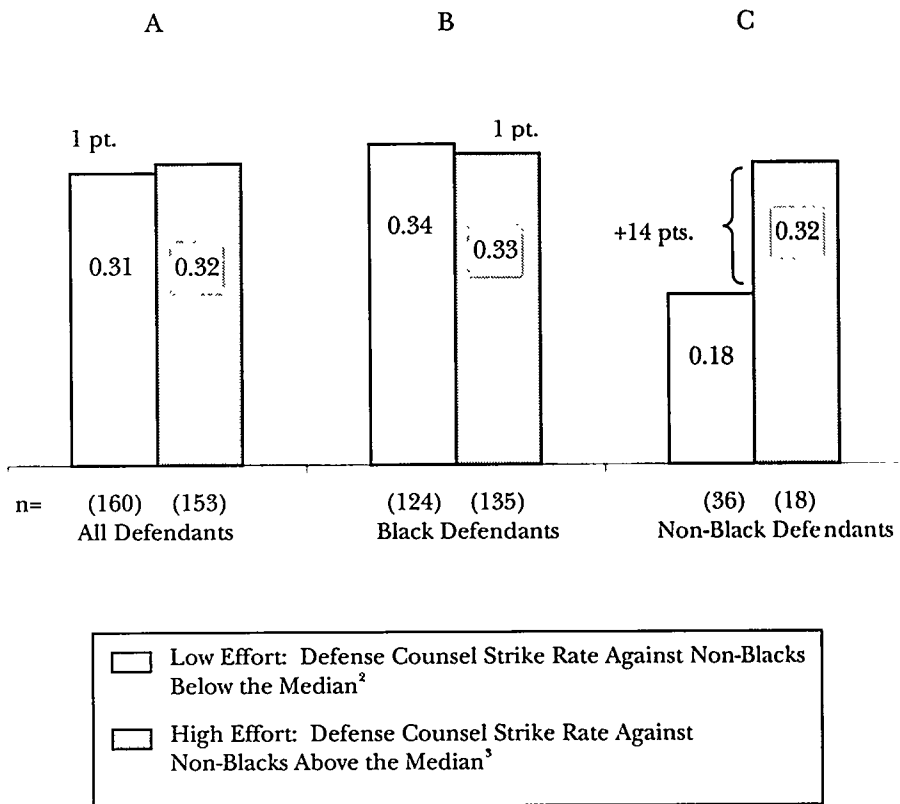


<sup>1</sup> See Appendix A, Section V for a description of the adjustment procedure.  
<sup>2</sup> The prosecutorial strike rate against black venire members was above the median rate.  
<sup>3</sup> The prosecutorial strike rate against black venire members was below the median rate.  
<sup>4</sup> Statistically significant at the .007 level.

FIGURE 14

THE IMPACT OF DEFENSE COUNSEL STRIKE EFFORT AGAINST NON-BLACK VENIRE MEMBERS WITH EFFORT MEASURED IN TERMS OF DEFENSE CASE STRIKE RATES ABOVE AND BELOW THE MEDIAN LEVEL FOR ALL CASES: PHILADELPHIA 1981-1997

(The bars indicate the death sentencing rate for each subgroup of cases after adjustment for defendant culpability.)<sup>1</sup>



<sup>1</sup> See Appendix A, Section V for a description of the adjustment procedure.

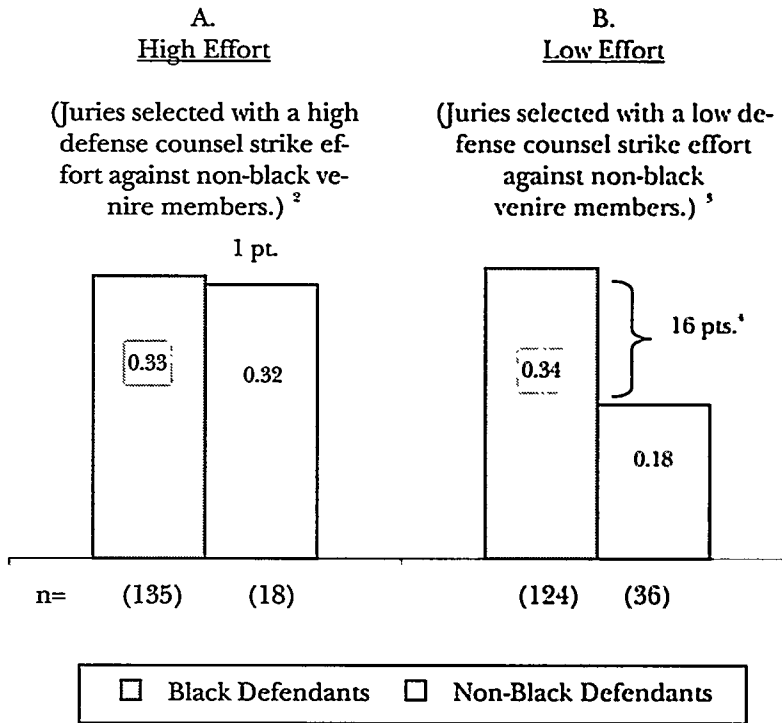
<sup>2</sup> In the high effort condition, juries had an average of 5.1 blacks.

<sup>3</sup> In the low effort condition, juries had an average of 4.4 blacks.

FIGURE 15

RACE OF DEFENDANT DISPARITIES IN CAPITAL SENTENCING OUTCOMES,  
CONTROLLING FOR DEFENSE COUNSEL EFFORT IN STRIKING NON-  
BLACK VENIRE MEMBERS: PHILADELPHIA 1981-1997

(The bars indicate the average death sentencing rates for each sub-group of cases after adjustment for defendant culpability.)<sup>1</sup>



<sup>1</sup> See Appendix A, Section V for a description of the adjustment procedure.  
<sup>2</sup> The defense counsel strike rate against non-black venire members was above the median.  
<sup>3</sup> The defense counsel strike rate against non-black venire members was below the median.  
<sup>4</sup> The disparity is statistically significant at the .02 level.

*D. The Jury of One's Peers Issue*

Another consequence of the peremptory strike strategies of the Commonwealth and defense counsel is that a large number of defendants appear to have been denied a trial by a jury that includes one or more of their "peers." We recognize that defendants have no legal right to a jury of their peers. However, in terms of fairness, it is an important issue.

In Table 11, Column A, we classify the defendants according to their age, race, and gender; Columns B and C further indicate the average level of representation of the defendant's "closest peers," as well as the racial composition of the entire jury that heard their cases. For young black male defendants (Row 1.a), 79% had no "closest peer" on the jury, and an average of only 3% of such peers sat on their panels, along with a majority of 60% non-blacks (Column E) sitting in judgment. Although the Commonwealth seemed loath to strike all blacks in black defendant cases, it appears to have been quite willing to strike virtually all of the close peers of young black males, who constituted 65% (209/324) of the defendants. Because there were more middle-aged black males in the venires, Row 1.c indicates that the Commonwealth was less successful in excluding the close peers of those defendants, although 33% of them had no middle-aged black males on the jury and, overall, their juries were 61% non-black.

A comparison of Parts I and II under Columns B and C in Table 11 indicates that the non-black defendants clearly had more "closest peers" sitting in judgment and juries with clear non-black majorities. The reason, of course, is that with the considerably larger number of non-black venire members, neither side was able substantially to reduce their representation on juries.

#### VIII. THE LIKELY IMPACT OF REFORMS IN THE USE OF PEREMPTORY CHALLENGES

The final step in this project was to estimate the likely impact of what we call a "fair" system on juror composition in Philadelphia during the time period covered by this project. We also estimated the likely impact of four alternative systems that have been proposed in the literature. The results are summarized in Table 11.

The first alternative, styled a "fair" system, selects hypothetical juries in the same way the Philadelphia juries were actually chosen, but with the impact of race and gender purged. Our regression analyses enable us to calculate "aversion" scores that permitted us to identify the venire members each side would probably have viewed as "clear choice" strikes if the effects of venire member race and gender were eliminated. These likely strikes reflect the impact of the age, occupation, and education on each venire member's chance of being struck,

as well as their answers to questions during voir dire—but not race or gender.<sup>255</sup> On the basis of these scores, we rank-ordered each venire member in terms of her probability of being struck peremptorily by each side. We assumed that each side would strike in turn its clearest choices—until there remained twelve “least worst” venire members, whom we designated the “fair jury.”

TABLE 11

JURY REPRESENTATION OF DEFENDANT'S PEER GROUP MEMBERS AND  
OTHER GROUP MEMBERS IN CAPITAL JURY TRIALS:  
PHILADELPHIA 1981-1997

A	B	C	D	E
Defendant's Race/Age/ Gender	Defendant's Closest Peer Groups <sup>1</sup>		Estimated Jury Composition	
			Black	Non-Black
Part 1. <i>Black Defendants</i>	% Cases w/ None on Jury	Avg. % on All Juries		
a. Young Male (18-30 yrs.) (n=209)	79%	3%	40%	60%
b. Young Female (18-30 yrs.) (n=6)	68%	3%	36%	64%
c. Mid-Age Male (31-55 yrs.) (n=60)	33%	9%	39%	61%
			Non-Black	Black
Part 2. <i>Non-Black Defendants</i>	% Cases w/ None on Jury	Avg. % on All Juries		
a. Young Males (18-30 yrs.) (n=33)	50%	7%	61%	39%
b. Mid-Age Male (31-55 yrs.) (n=16)	12%	15%	64%	36%

<sup>1</sup> A defendant's "closest peer group" consists of jurors with same race/age/sex characteristics as the defendants listed in Column A. Thus the "closest peer group" of the young black male defendants in Row A are young black male jurors.

<sup>255</sup> The model on which the fair strikes were based also did not contain variables for the race of the defendant and victim, and therefore did not reflect their influence in prosecutorial and defense counsel decision making.

The second alternative involved a “restricted strike” system. In it we reduced the prosecution’s strikes to five (unless fewer were actually used in the case), while defense counsel were allowed ten strikes (unless fewer were actually used in the case). These choices were also informed by an aversion measure for each side based on the results of the multiple regression analysis in Table 7, which reflected the effects of both legitimate factors and venire member race and gender.<sup>236</sup> We knew the sequence of the venire members that each side would have considered for a possible strike under this system. Accordingly, we assumed that the allocated peremptories would have been used against the venire members that the aversion scores suggested they would fear the most. In this way we simulated how the prosecution and defense counsel would have used their allowable strikes.

The third system was based on an “affirmative” selection model recommended in the literature. This system rank-ordered each venire member in terms of his or her desirability from the prosecution and defense perspective (as suggested in our regression analyses of the strike strategies of each side). In contrast to the “fair” system, however, this system took into account venire person race and gender, as well as the race of the defendant and victim. Based on the score generated with our Table 7 multiple regression results, the top six hypothetical picks for the Commonwealth tended to be non-black, older, and male; while the top six hypothetical picks for defense counsel tended to be black, younger, and female. (Although the pattern varied somewhat depending on the race of the defendant and the victim.) From each side’s list of top six choices, we first placed on the hypothetical jury any venire person who was on both lists. In fact, there were only twenty-seven (0.2%) such venire members out of the 14,532 venire members in the study. We then filled out the jury with the remaining top picks from each side.

The fourth alternative system was styled “British” because it abolishes peremptories and seats the first twelve jurors who survive challenges for cause. Our records indicate the order in which the venire members in each case were questioned, after surviving any challenges for cause. The hypothetical British juries, therefore, consisted of the first twelve venire members questioned. These jurors were the fruit of a random selection system, as the order in which the venire members are questioned in Philadelphia voir dire is random.<sup>237</sup>

The project has taught us that, in considering the operation of the actual system in Philadelphia, a focus limited to average race effects

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<sup>236</sup> The model on which these aversion scores were based also reflects the influence of the race of the defendant and the victim. The scores, therefore, reflect the impact of these case characteristics. The model used to create the affirmative selection system described in the next section also includes variables for the race of the defendant and the victim.

<sup>237</sup> The results with this system closely approximate a system of purely random selection, which we also estimated.



across all cases presents quite a different picture from one that distinguishes between cases in which each side makes a substantial effort to eliminate its primary targets. As we demonstrated above, in terms of race disparities and their effects on sentencing outcomes, the principal problems are confined to the cases in which either side made an above-average effort to eliminate black or non-black venire members from the jury.<sup>238</sup>

Therefore, our first analysis considered the likely effects of the alternative systems among the cases in which we documented high and low peremptory strike efforts against blacks and non-black venire members by Philadelphia's prosecutors and defense counsel. The data in Figure 16 permit such a comparison. Part I presents the cases in which we documented above and below the median *prosecutorial* strike efforts against black venire members. Column A, which reports the average black representation rates of 38% and 39% in the venires for each set of cases, indicates that those rates do not explain the prosecution's peremptory strike strategy in the two sets of cases.

Column B presents the average percentage of blacks on the actual Philadelphia juries selected with high and low prosecutorial strike efforts against blacks. Consistent with the results of a comparable analysis presented earlier in this Article,<sup>239</sup> the enhanced prosecutorial strike effort produced a ten percentage point (44% vs. 34%) lower level of black representation on the juries selected in this manner.<sup>240</sup>

Columns C-F replicate the Column B analysis for each of the four alternative jury selection systems. They document that in none of these hypothetical systems is there a significant difference in the black representation rate among the juries with high and low prosecutorial strike strategies in the actual Philadelphia cases. This suggests that any of the four alternatives would eliminate or substantially reduce the adverse impact that aggressive prosecutorial strike strategies have on black jury representation.

The reasons are straightforward. In the fair system, because race is not a factor, the impact of the enhanced strike rates against blacks is eliminated. In the hypothetical restricted system, the outcomes continue to reflect the impact of race (of the venire members, defendant, and victim), but with the number of permitted Commonwealth strikes reduced from twenty to five, the capacity of the Commonwealth to adversely affect jury composition is greatly reduced. For the

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<sup>238</sup> For example, Figure 11 documents the extent to which the level of peremptory strike effort of prosecutors and defense counsel against blacks and non-blacks respectively influences the number of blacks on juries. Figures 12 to 15 indicate how those enhanced strike efforts, particularly on the part of prosecutors, impact death sentencing rates and race of defendant disparities in jury sentencing decisions.

<sup>239</sup> See fig.12 and accompanying text.

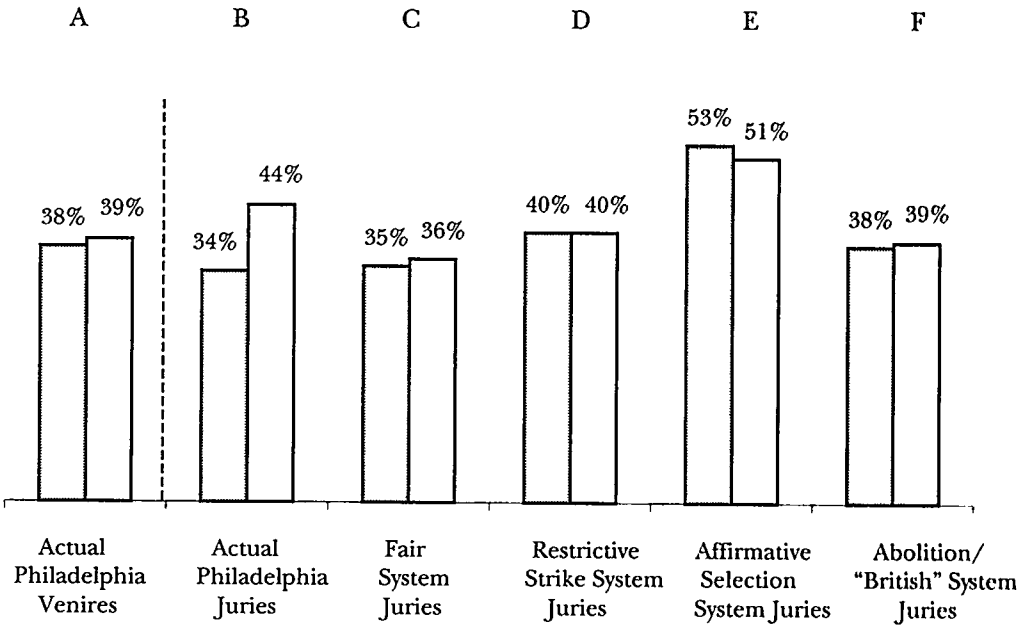
<sup>240</sup> The average number of black jurors in the high effort condition was 4.1 versus 5.3 in the low effort condition. ( $p = .0001$ )

affirmative selection system, race is also a factor influencing the hypothetical decisions, but is uniform across all cases.

FIGURE 16

JURY RACIAL COMPOSITION DOCUMENTED IN PHILADELPHIA CASES AND ESTIMATED IN FOUR HYPOTHETICAL SYSTEMS, CONTROLLING FOR THE PEREMPTORY STRIKE EFFORT BY PROSECUTORS AND DEFENSE COUNSEL IN THE PHILADELPHIA CASES

Part I: Prosecution Strike Effort Against Black Venire Members:  
Above and Below the Median (53%)<sup>1</sup>  
(bars indicate average percentage of blacks on jury)

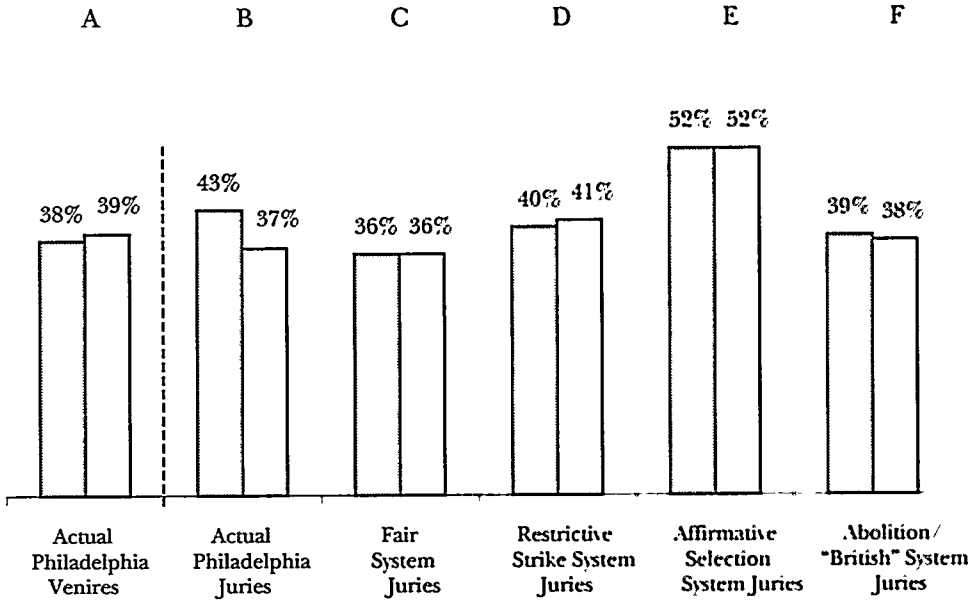


High Effort: prosecutor strike rate v. blacks (Part I) or defense counsel strike rate v. non-blacks (Part II) above the median  
 Low Effort: prosecutor strike rate v. blacks (Part I) or defense counsel strike rate v. non-blacks (Part II) below the median

<sup>1</sup> 164 cases with a prosecution strike rate against black venire members above the median.

FIGURE 16 (continued)

Part II: Defense Counsel Strike Effort Against Non-Black Venire Members:  
 Above and Below the Median (55%)<sup>2</sup>  
 (bars indicate average percentage of blacks on jury)



High Effort: prosecutor strike rate v. blacks (Part I) or defense counsel strike rate v. non-blacks (Part II) above the median

Low Effort: prosecutor strike rate v. blacks (Part I) or defense counsel strike rate v. non-blacks (Part II) below the median

<sup>2</sup> 157 cases with a defense counsel strike rate against non-black venire members above the median.

Part II of Figure 16 tells a similar, although less striking, story with respect to the impact of aggressive *defense counsel* strikes against non-blacks. Recall that aggressive peremptory strike strategies by defense counsel had the effect of reducing somewhat the representation rates of non-blacks on juries but that the reduced proportion of non-blacks on the juries had little impact on sentencing outcomes.<sup>241</sup> As in Part I, Column A of Part II indicates that the percentage of blacks on the venires in the two sets of cases was nearly identical, 38% versus 39%. Column B of Part II indicates that the enhanced defense counsel strike rate against non-black venire members was associated with a six percentage point (43% vs. 37%) higher black representation rate on those juries.<sup>242</sup> Also, the data in Columns C-F indicate that in none of the hypothetical systems is there a significant difference in the black representation rates among the juries with high and low defense counsel strike strategies in the actual Philadelphia cases.

Our second focus was on the differences in jury composition estimated for the four hypothetical alternatives and how well those results mirrored the race, gender, and age representation of the actual venires in the cases (i.e., how closely they approximated what one would expect to see in a system of random selection that gives each venire member who survives challenges for cause an equal opportunity for selection). In this section we summarize our findings, which are documented in detail in Appendix E. We also supplement our finding with respect to jury representation with data on the frequency with which various groups are completely eliminated from the venire under the alternative hypothetical systems, a figure that ranged in the actual Philadelphia system from a high of 78% for young black males to 6% for middle aged non-black women.

We note at the outset that we conducted these analyses separately for black and non-black defendant cases, but the results were comparable. Thus, we present here only the overall results for all cases.

The data on the fair system indicate that its primary effect would be to increase by about one-third<sup>243</sup> the representation rates of middle-aged venire members, especially non-black men and women, followed by middle-aged black women and men.<sup>244</sup> The reason for the enhanced representation of middle aged venire members is that, while race and gender are no longer a factor in the selection process, age still is, with the Commonwealth and defense counsel targeting respectively the young and the older venire members. These strategies thus have the overall effect of enhancing the representation of the middle-aged venire members at the expense of all of the other cate-

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<sup>241</sup> See figs. 14 & 15.

<sup>242</sup> The difference in actual black jurors was 5.1 in the high effort condition and 4.4 in the low effort condition. ( $p = .0002$ ).

<sup>243</sup> See App. E, Part I, Row 6, Cols. C & D.

<sup>244</sup> See App. E, Part II, Rows B2, B5, A3, & A5.

gories.<sup>245</sup>

Ironically, the hypothetical fair system, which eliminates racial considerations in the selection process, has the effect, on average, of reducing black representation on the juries. This effect appears to be an artifact of the impact of age as a permissible basis for the use of peremptory challenges. Specifically, under the fair system, we see a 46% (14.9/32.5) increase in the proportion of middle-aged non-blacks among all jurors, while the increase for the middle aged black jurors is only 18% (4.3/23.4).<sup>246</sup> Also, the decline for older black venire members (58%, 5.9/10.2) is sharper than the decline for older non-blacks (33%, 4.5/13.6),<sup>247</sup> which leads to the decline in the proportion of black jurors compared to the current system. In addition, under the fair system, each side's target groups of young and older venire members would be totally eliminated in higher proportions relative to the actual system.<sup>248</sup>

The estimated results of the hypothetical restricted system (with defense counsel limited to ten peremptories and the Commonwealth to five) suggest that on average, the representation of women would increase significantly and the representation of blacks would increase slightly over the actual system.<sup>249</sup> Both of these changes appear to reflect defense counsel's larger number of authorized peremptory strikes. For the same reason, defense counsel would be able to reduce the representation of their prime targets (older and middle-aged non-black men) more successfully than they could under the actual system.<sup>250</sup> Nevertheless, even though the Commonwealth would have only a quarter of the peremptory strikes currently available, it could continue to use them in a manner that suppresses the representation of young black venire members well below what one would see in a system of random selection.<sup>251</sup>

The estimated results for the affirmative selection system suggest that it would substantially expand the jury representation of each side's primary target groups. This effect would be particularly apparent for blacks, with the representation of black women rising from 24% in the actual system to 40% in the juries affirmatively selected. More specifically, the average representation rate of young black women would treble, while for young black men, the average increase would be twofold, and for middle-aged black women, the average in-

<sup>245</sup> See App. E, Part I, Rows 5-7, Cols. C & D.

<sup>246</sup> See App. E, Part I, Rows 13 & 16, Cols. C & D.

<sup>247</sup> See App. E, Part I, Rows 14 & 17, Cols. C & D.

<sup>248</sup> The proportion of total eliminations for the young black men and women would increase from 78% and 67% respectively, to 82% and 80%; the total elimination rates for older non-black men and women would increase from 48% and 43% respectively, to 65% and 67%.

<sup>249</sup> See App. E, Part I, Rows 2 & 4, Cols. C & E.

<sup>250</sup> Also, the rates of total elimination for older non-black males, defense counsel's number one target, would increase from 48% to 70%, and for middle aged non-black males, defense counsel's number two target, the increase would be from 14% to 15%.

<sup>251</sup> See App. E, Part I, Row 15, Cols. B & E.

crease would be by about 60%.<sup>252</sup> The bottom line would be that, on average, black representation on Philadelphia's capital juries would rise from 4.7 to 6.2. Our analysis of the impact of the racial composition of the jury penalty trial sentencing decisions suggests that such a change in the level of black representation could have a significant impact on sentencing decisions, especially in black defendant cases.

For non-blacks, we would also see, under an affirmative selection system, a substantive increase in the representation rate of defense counsel's target groups—older non-black males would see more than a 100% increase in their average levels of representation, from 6.6% to 14.7%, while middle-aged non-black men and older non-black women would see slight increases from 14.7% to 15.8% and from 6.9% to 7.8%, respectively.<sup>253</sup> However, all other non-black groups would experience a decline in their jury representation. The bottom line for the non-blacks would be an average decline in jury representation from 7.3 to 5.8 jurors.

When compared to a system of random selection, an affirmative selection system would result in a slight over-representation of women in general and a substantial and significant over-representation of black women in particular.<sup>254</sup> It would also result in the under-representation of non-black young men, as well as non-black young and middle-aged women.<sup>255</sup>

Our fourth alternative system calls for the abolition of peremptories, as the British have done. The data in Appendix E indicate that the juries selected in such a system very closely approximate a system of random selection, i.e., the race, gender, and age of the first twelve jurors who survive challenges for cause, on average, look very much like the venires from which they were selected.<sup>256</sup> As a result, such a system would eliminate the under-representation of the prime target groups that we have documented in the actual system. For example, the representation of young black men and women would increase about 50%, with a slightly smaller increase in the proportion of older non-black men.<sup>257</sup> At the same time, the British system would create offsetting declines for middle-aged and older black men of 18% and 19%, respectively.

The results estimated for the four hypothetical alternative per-

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<sup>252</sup> For young black men, the rate of total exclusion would drop from 78% to 52%; for young black women, the total exclusion rate would decline from 67% to 59%; and for middle-aged black women, the decline would be from 12% to 3%.

<sup>253</sup> For the older non-black males, the change in the total exclusion rate would be from 48% to 16%.

<sup>254</sup> See App. E, Part I, Rows 4 & 11, Cols. B & F.

<sup>255</sup> See App. E, Part II, Rows B4, B5, & B6, Cols. B & F.

<sup>256</sup> Compare App. E, Part I, Cols. B & G with App. E, Part II, Cols. B & G.

<sup>257</sup> See App. E, Part I, Row 15, Cols. C & G; Part II, Row B1, Cols. C & G. Also, for total elimination from jury service, that rate for young black men and women would decline from 78% and 67% respectively, to 65% and 51%; the decline for older non-black men would be from 48% to 40%.

emptory strike systems support the following conclusions. First, the elimination of race and gender discrimination from the system, through full compliance with *Batson*, *McCollum*, and *J.E.B.*, would cure the worst problems of the current system caused by the overly aggressive peremptory strike strategies of both sides. However, a substantial pattern of age discrimination against young and older venire members would likely have an adverse impact on black venire members, especially young black men and women.

Second, a dramatic reduction in the number of strikes available to each side, plus a larger share for defense counsel (10 vs. 5) would also eliminate the adverse effects of overly aggressive strike strategies by the two sides. And even though this alternative contemplates the continued influence of race and gender as substantial factors in the use of peremptories, the significant reduction in the number of authorized strikes would limit their possible damage. Also, the two-to-one advantage for defense counsel would offset somewhat the comparative advantage the Commonwealth currently enjoys in the competition to influence jury composition.

Third, a system of affirmative selection would fundamentally alter the present pattern of jury representation in that the currently under-represented prime target groups would be over-represented and the presently over-represented groups would be under-represented.

Fourth, the abolition of peremptory challenges would result in a system of random selection that would eliminate the current pattern of under-representation of young blacks and older non-black males. On average, it would result in the proportional representation of all subgroups.

## IX. SUMMARY OF FINDINGS AND CONCLUSIONS

Our findings on the use of peremptory strikes in Philadelphia capital cases support much of the argument in the literature and in judicial opinions about racial and gender disparities in the use of peremptories, the motivations driving their discriminatory use, the effectiveness of *Batson*, *McCollum*, and *J.E.B.* in limiting the influence of race and gender in their use, and the impact they are having on the participation of jurors and the outcomes of penalty trials. The following summary of our findings and conclusions is presented in the order of the research questions presented in Section III.

### A. *Peremptory Strike Patterns*

Our findings indicate that venire member race was a major determinant in the use of peremptories by both prosecutors and defense counsel, with the prosecution disproportionately striking black venire members and defense counsel disproportionately striking non-

blacks.<sup>258</sup> In addition, the racial make up of a venire member's neighborhood of residence was also an important factor, especially in prosecutorial strikes against non-black venire members who resided in a neighborhood with more than 1% black residents.<sup>259</sup>

Gender was also a significant influence, but much less so than race, with prosecutors favoring men and defense counsel favoring women.<sup>260</sup>

Overall, defense counsel's use of peremptories was a mirror image of the Commonwealth's strike pattern except that, on average, prosecutors exercised about three fewer peremptories per case.<sup>261</sup> Venire member race and gender effects were evident in both unadjusted analyses and logistic multiple regression analyses that controlled for the venire member's age, occupation, education, answers to voir dire questions, and the race of the defendant and victim in the case.<sup>262</sup>

The data clearly indicate that both prosecutors and defense counsel were influenced by their perceptions of how the race of the defendant and victim will interact with the venire member's race.<sup>263</sup> In this regard, our findings validated the perception of the United States Supreme Court that the facts of the case are an important influence on how venire member race and gender influence the use of peremptories. Our data also indicate that both sides' peremptory strike strategies were heavily driven by racially based prosecutorial and defense counsel beliefs that have nothing to do with the possibility of juror identification with, or hostility toward, defendants and victims on the basis of their race or gender. Instead, the strike patterns document race- and gender-based stereotypes that reflect fundamental differences in perceptions of how male and female and black and non-black jurors view issues of criminal responsibility, culpability, and punishment (i.e., the stereotypes cogently captured in Jack McMahon's training tape and widely shared among defense counsel).

The pattern of race discrimination in these cases reflects the kind of motivation condemned by the United States Supreme Court in *Swain v. Alabama*, because it was often unrelated to the facts of the cases in which the venire members were struck.

Venire member age was another factor of great importance to both sides in their use of peremptories. Specifically, prosecutors had a strong preference for older jurors and a distinct aversion toward

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<sup>258</sup> The race of venire member disparity for prosecutorial strikes was +25 percentage points and was -28 points for defense counsel. See tbl.2, Col. B.

<sup>259</sup> See tbl.3.

<sup>260</sup> The venire member gender disparity for prosecutorial strikes was +7 percentage points and was -11 points for defense counsel. See tbl.2, Col. C.

<sup>261</sup> See tbl.1, Col. A, Rows A.2 & B.2.

<sup>262</sup> Table 6 lists the factors screened for inclusion in the regression analysis, and Table 7 reports the regression results. For the prosecutors the odds multiplier for black venire members was 4.5 (.0001), and for women it was 1.2 (.0001). For defense counsel the odds multiplier for non-black venire members was .20 (.0001), and for women it was .72 (.0001).

<sup>263</sup> See tbl.4; fig.3; App. D.



young jurors; the preferences of defense counsel were the opposite.<sup>264</sup>

In terms of race, gender, and age, the prime targets and clearest choices for the Commonwealth strikes were young black women and men and middle-aged black women.<sup>265</sup> The prime targets and clearest choices for defense counsel strikes were older non-black men, middle-aged non-black men, and older non-black women.<sup>266</sup> The pervasive impact of race in the system was demonstrated by the fact that none of the Commonwealth's top six targets (defined in terms of race, gender, and age) was non-black and none of defense counsel's top six targets was black.

### B. *The Impact of United States Supreme Court Decisions on the Discriminatory Use of Peremptories*

Our data indicate that in Philadelphia capital trials, the *Batson*, *McCollum*, and *J.E.B.* prohibitions against the use of race and gender as the basis for the use of peremptories have had, at best, only a marginal impact on the peremptory strike strategies of each side.<sup>267</sup> One reason for the small impact of the Supreme Court's decisions is that, in spite of evidence of statistically significant race disparities in about half the cases, prosecutors and defense counsel appeared to raise race discrimination claims very infrequently. One possible explanation for this pattern is that each side tolerates the other side's discriminatory use of peremptories out of fear that if they raise a claim, the other side will reciprocate with a claim, with the outcome uncertain for both sides. Our data suggest that such claims are raised in fewer than 10% of cases.

Another possible explanation for the infrequent claims, in spite of evidence that the discrimination is widespread, is that counsel for both sides have little expectation that the courts will sustain a claim of discrimination even if it is based on solid evidence. Among the twenty-four capital cases in this study in which claims appear to have been made, appellate relief does not appear to have been granted in a single case.<sup>268</sup>

<sup>264</sup> In the regression model for prosecution strikes, the odds multiplier for older venire members was .81 (.002) and for young venire members it was 1.8 (.0001). In the defense counsel model, the odds multipliers were .72 (.0001) for the young and 1.3 (.0002) for the older venire members. See tbl.7 Part A.4(a), (c).

<sup>265</sup> The average prosecutorial strike rate was .37; against these groups the rates were .63, .61, and .49, respectively. See tbl.5, Part I.

<sup>266</sup> The average defense counsel strike rate was .44; against these three groups the rates were .65, .58, and .55, respectively. See tbl.5, Part II.

<sup>267</sup> See figs.4 & 5.

<sup>268</sup> See *supra* notes 205-06 and accompanying text. However, as we point out above, we do not have information on cases in which claims may have been successfully raised at trial, with relief granted, and where the defendant prevailed, foreclosing the possibility of an appeal that would have brought the matter to our attention. Further, relief may be granted at the trial court level upon the exercise of a *Batson* or *McCollum* challenge. See, e.g., *Commonwealth v. Garrett*, 689 A.2d 912, 915 (reinstating challenged juror to venire).

This finding is something of a surprise, given the strong predictions of many members of the Supreme Court that the system would be inundated with claims of race and gender discrimination.<sup>269</sup>

It also appears that both sides believe that their discriminatory use of peremptories is based on a rational assessment of human behavior, and is essential for the protection of their client's interests given the use of such strategies by the other side. The lack of judicial oversight further suggests that the courts implicitly concur with this assessment. Our findings strongly support Professor Ogletree's argument that in *Batson*, the United States Supreme Court completely misunderstood the conviction of both prosecutors and defense counsel that race and gender discrimination are rational, ethical, and necessary strategies to protect the interests of their clients.

### *C. The Impact of the Race and Gender Composition of Juries on Penalty Trial Outcomes*

The literature provides some support for the validity of prosecutorial and defense counsel race-based perceptions concerning both guilt trial outcomes (non-black jurors are generally more conviction prone than black jurors) and penalty trial outcomes (non-black jurors are more prone to give a death sentence than are black jurors).<sup>270</sup> Moreover, our Philadelphia findings indicate that predominantly black juries (ones with five or more blacks) were less likely to impose death sentences than were juries with four or fewer black jurors.<sup>271</sup> That disparity was principally explained by a substantially higher death-sentencing rate in black defendant cases—eleven percentage points—when the jury was predominantly non-black than when it was predominantly black.<sup>272</sup> The data also indicate that predominantly non-black juries sentenced black and non-black defendants to death at quite different rates—a sixteen percentage point black defendant disparity. For the predominantly black juries, black defendants were also sentenced at a higher rate than non-blacks, but the disparity was smaller—eight percentage points.<sup>273</sup>

Our data did not reveal a similar relationship between the gender composition of juries and death-sentencing outcomes. The data indicate that predominantly female juries (with eight or more women)<sup>274</sup> were associated with a slightly higher overall death-sentencing rate (four percentage points) that was not statistically sig-

<sup>269</sup> See *supra* note 104 and accompanying text.

<sup>270</sup> See *supra* note 29 and accompanying text.

<sup>271</sup> For all cases, the gap in the two death-sentencing rates was nine percentage points (.34 vs. .25) ( $p = .02$ ). See fig. 6, Col. A.

<sup>272</sup> The rates respectively are .37 and .26 ( $p = .01$ ). The gap in the non-black defendant cases is only one point (lower when the jury is predominantly non-black).

<sup>273</sup> See fig. 7.

<sup>274</sup> The median number of women jurors was 7.5.

nificant. This disparity reflects a five point higher rate in black defendant cases and a seven point lower rate in non-black defendant cases. In fact, gender had much less effect on jury sentencing behavior than did race and age, the two factors that joined gender in defining each side's prime strike target groups. The slightly higher death-sentencing outcomes associated with the predominantly female juries is explained by the fact that these juries were also predominantly non-black.<sup>275</sup>

*D. The "Canceling Out" Hypothesis and the Comparative Effectiveness of the Commonwealth and Defense Counsel in Their Use of Peremptory Challenges*

A major focus of this research has been on the "canceling out" hypothesis, which suggests that the use of peremptories is not an important problem because both sides discriminate and any harm caused by one side is immediately canceled or offset by the reciprocal strikes of the other side. At one level, our findings can be viewed as supporting this hypothesis, because the strike rates of both sides mirrored each other and the proportions of blacks and women on the juries we studied were almost identical to their proportions on the venires from which they were selected.

However, closer examination of the system indicates that the effects of the two sides' use of the peremptories in fact did not offset each other. The reason for this imbalance in impact is that the principal targets of the Commonwealth and defense counsel were not defined simply in terms of race and gender. For example, the McMahon tape draws sharp distinctions between older and younger black men, which are reflected in the Commonwealth's strike rates against these groups. Instead, each side's target populations were defined in terms of a combination of race, age, and gender, and these characteristics defined target groups of quite different sizes. Specifically, the prime targets of the Commonwealth typically were substantially smaller in number than were defense counsel's prime targets.<sup>276</sup>

As a result of this disparity in the sizes of their respective target groups, the Commonwealth was more effective than defense counsel in depleting target group members from the pools of death eligible cases that each side considered.<sup>277</sup> In addition, in terms of the combined impact of each side's peremptory strike strategies on jury representation, the Commonwealth enjoyed a distinct advantage over defense counsel in terms of the representation of the target groups

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<sup>275</sup> Further evidence on this point was the black defendant disparity in the death-sentencing rates of the predominantly female juries (.35 for black defendants vs. .14 for non-black defendants, a 21-percentage point disparity ( $p = .02$ )). For the juries with female representation below the median level, the disparity was only nine points ( $p = .32$ ).

<sup>276</sup> See tbl.5.

<sup>277</sup> See tbl.8.

each side favored and feared.<sup>278</sup>

In terms of target selection, defense counsel appears to have been somewhat more successful. When its prime target groups were represented on juries at above their median rate, death-sentencing rates were distinctly higher, suggesting that they were accurately selected targets. Also, the Commonwealth's prime targets, middle-aged and older women, were associated with lower than average death-sentencing rates in black defendant cases with non-black victims. However, our data suggest that the prime target of the Commonwealth, young black women, posed no significant threat to it in terms of death-sentencing. It further appears that in cases involving non-black defendants, black jurors were quite willing to impose death sentences, suggesting that the Commonwealth may have overstruck black venire members when the defendant was non-black.

One distinct advantage enjoyed by the Commonwealth is that its prosecutors appear to have been more successful in striking life-prone black venire members than were defense counsel in striking death-prone non-black venire members. The data indicate that when both sides made a substantial strike effort—the prosecution against black venire members and defense counsel against non-black venire members—each had a substantial effect on the racial composition of the jury.<sup>279</sup> However, the consequences of the enhanced strike effort of the two sides were different. A strong prosecutorial strike effort against black venire members resulted in a significantly elevated death-sentencing rate (ten percentage points higher)<sup>280</sup> as well as significant race-of-defendant disparities in the rates at which black and non-black defendants received a death sentence (a 24-percentage point effect).<sup>281</sup>

Although a strong defense counsel effort to strike non-black venire members did influence the number of blacks on the juries, this additional defense effort did not have as dramatic an effect in reducing the overall death-sentencing rate as did the prosecution's enhanced effort had in increasing the rate.<sup>282</sup> However, the enhanced effort of defense counsel did substantially reduce the black defendant death-sentencing disparity—to only one percentage point, a sharp contrast to the sixteen point disparity observed when defense counsel's effort to strike non-black venire members was below the median.<sup>283</sup>

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<sup>278</sup> See tbl.9.

<sup>279</sup> See fig.11.

<sup>280</sup> See fig.12.

<sup>281</sup> See fig.13.

<sup>282</sup> See fig.14 (a one-point increase associated with enhanced defense counsel effort). However, an alternative measure of effort based on the magnitude and statistical significance of race of venire member disparities revealed a five-point decline in the overall death-sentencing rate associated with the high defense counsel effort.

<sup>283</sup> See fig.15.

The prosecution's greater effectiveness in influencing sentencing outcomes was likely explained in part by the fact that support for capital punishment was probably stronger among non-black than black jurors. In addition, on average, prosecutors appear to have had greater experience in trying capital cases and to have been more skillful at identifying and striking life-prone black venire members than defense counsel were at identifying and striking death-prone non-black venire members.

A final point on the canceling out issue is that the contrast between the percentages of blacks and women on Philadelphia's juries and their percentages on the venires from which they are selected overlooks the substantial numbers of venire members struck each year on the basis of their race and gender. Specifically, we estimate that during the 17-year period covered by this study, over 800 strikes against men and women, and over 2,000 strikes against blacks and non-blacks, were in excess of what we would have seen if peremptories had been applied even-handedly, i.e., without reliance on venire member race and gender.<sup>284</sup> From the standpoint of the interest of venire members in even-handed treatment, these are not trivial effects.

#### *E. Effects on the Defendant's Chances of Drawing a Jury of His Peers*

Our data indicate that another consequence of Philadelphia's system of peremptory strikes is that black men, especially young black men, had a distinctly lower chance of being tried by their "peers" than did non-black defendants. Again, however, we note that criminal defendants have no explicit legal right to be tried by a jury of their "peers."

#### *F. Conclusions*

The law that has developed in America since *Batson v. Kentucky* in 1986 has had limited effectiveness in controlling race and gender discrimination in the use of peremptory challenges because of its inability to resolve a basic tension apparent in *Batson* itself. On one side, as a nation, we embrace the goal of eradicating race and gender discrimination in the administration of justice, a goal eloquently stated by the Supreme Court's majority opinion. On the other side, trial lawyers perceive their reliance on race and gender stereotypes to be a long-standing, appropriate, and necessary means of promoting the legitimate interests of their clients, a position earnestly argued in the *Batson* dissent.

The regulatory system that has evolved in Philadelphia capital cases, the subject of this study, represents a symbolic compromise of

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<sup>284</sup> See tbl.8.

those goals. In spite of compelling evidence of systemic disregard for *Batson*, *McCullum*, and *J.E.B.*, the system appears to be acquiesced in both by litigants (who raise few claims) and by courts (who rarely grant relief for violations). The consequence is that race and gender discrimination continue to flourish with corrective judicial action likely in only the most extreme circumstances. Moreover, because the issue has little visibility beyond the professionals who administer the system, it is not a matter of public concern or general political interest.

Our Philadelphia research has demonstrated, however, that in spite of the general acceptance of the current system, it carries serious costs. First, many venire members are routinely rejected for jury service because of their race and gender.<sup>285</sup> Second, the system of peremptory strikes affects jury sentencing decisions in two important ways that arise from the Commonwealth's comparative advantage in its competition with defense counsel to influence the composition of the juries. This advantage flows in part from the simple fact that each side has an equal number of peremptory challenges, but the prime target groups of the prosecution are smaller in number than those of defense counsel. The advantage also appears to reflect greater experience and expertise in jury selection on the part of the Commonwealth's prosecutors during the period of this study.

One result of the Commonwealth's comparative advantage is that in many cases, we saw an under-representation of black jurors, who, on average, were more life sentence prone than their non-black counterparts. Another result is that, in general, Philadelphia prosecutors appeared to be more successful in identifying and striking life sentence prone jurors than were defense counsel in identifying and striking death sentence prone jurors. The upshot of the Commonwealth's comparative advantage in its use of peremptory strikes appears to be enhanced death-sentencing rates, particularly in cases involving black defendants.

The connection between the Commonwealth's comparative advantage in jury selection and race of defendant discrimination in jury sentencing decisions is of obvious moment for black defendants, who comprised 80% of the defendants in our sample.<sup>286</sup>

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<sup>285</sup> Age discrimination against young and older venire members is also widespread. Although not prohibited by law, it is also arbitrary and morally objectionable.

<sup>286</sup> One issue raised by our research is the extent to which jury selection preferences exhibited by prosecutors and defense counsel in Philadelphia are common to other jurisdictions. We would expect to see similar patterns of race and gender discrimination in most jurisdictions, given the combination of widely-shared perceptions of how gender and race influence jury behavior and what appear to be uniformly ineffective systems for the enforcement of *Batson* and its progeny throughout the United States.

Another, more difficult question concerns the likely impact of these discriminatory practices on jury composition (and secondarily, outcomes) in other jurisdictions. Philadelphia, like most major northeastern cities, has a large black population (approximately 40%). One of our key findings is that despite the larger than average black population, the prosecution was still able

When we consider alternatives, one obvious question is whether the current system is better or worse than the pre-*Batson* system, in which claims under *Swain v. Alabama* were even more difficult to establish than they are now under *Batson* and its progeny. We believe that in spite of its limitations, the current system is better because it appears at least to inhibit strategies designed to exclude nearly all blacks from the juries. It is worth noting in this regard that Philadelphia prosecutors used on average three fewer strikes than defense counsel in capital cases.

In deciding whether the current system is the "least worst" available, consider the prospect of total abolition suggested by Justice Marshall. Our data indicate that abolition would result in a system of random selection and therefore would end the systematic exclusion of venire members on the basis of race and gender as well as age and other arbitrary factors that are frequently offered to justify strikes that have been challenged. It would result, on average, in the proportional representation of all subgroups on the venires. It would also eliminate the adverse effects on jury decision making, which are a by-product of the current system. Finally, it would clear the courts of a time-consuming intractable issue that the judiciary seems unable or unwilling to resolve. We find the justification for the current system—each side's felt necessity to exclude what it considers to be "bad" jurors—wholly insufficient in the face of the substantial costs associated with the status quo.

However, as noted above, this is a low visibility issue and only a few criminal law practitioners appear willing to counter the strong and widespread belief on both sides that peremptories are critical to protect their clients' interests.

Judicial abolition, therefore, seems unlikely, as the United States Supreme Court and most state and federal courts appear content with the symbolic compromise they have created. The prospects of abolition by State legislatures seem equally unlikely. So also is the prospect of the United States Supreme Court's limiting the prohibitions of *Batson* and *J.E.B.* only to the prosecution.

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to eliminate its primary target groups (all of which were black) with greater efficiency than defense counsel (whose primary target groups were all non-black). Prosecutors were consequently able to parlay this relatively small differential in venire representation into a substantial influence over outcomes. In jurisdictions with smaller black populations, and smaller target groups, we expect that prosecutors would enjoy even greater control over jury composition. With comparable weapons, the smaller "target groups" can be dispatched that much more easily. Enforcement of *Batson* is more difficult as well. Where a smaller number of strikes are directed against blacks (because that is all that was needed), it is more difficult to draw inferences of discriminatory purpose. We conclude, therefore, that while our Philadelphia research is likely representative of jury selection practices nationwide, it probably under-represents the consequence of these practices in other jurisdictions. We expect comparable jury selection practices in jurisdictions with small black populations to yield juries more skewed toward non-black representation than what we documented in Philadelphia.

However, our findings suggest that change short of complete abolition would be desirable. On the issue of enhanced enforcement of *Batson*, *McCullum*, and *J.E.B.*, our findings suggest that more systematic forms of data analysis of the type we have applied in this study may facilitate the detection of race and gender discrimination.<sup>287</sup>

Also, our findings document that most of the adverse impact of the current system on jury decision making flows from the aggressive use of peremptories by prosecutors against blacks and defense counsel against non-blacks. Courts might usefully consider creating a strike rate limit against these groups, say 50%, that neither side could exceed.<sup>288</sup>

Our hypothetical affirmative selection analysis indicates that if applied in Philadelphia, it would have resulted in significantly enhanced jury representation of each side's prime targets. In the interest of fairness, therefore, it is worth considering an alternative system that would give each side the option of picking the jury through a system of affirmative selection.

Our hypothetical restricted selection analysis, which would limit the Commonwealth's peremptories to five and defense counsel's strikes to ten, would have significantly reduced race and gender discrimination and limited its adverse impact on the jury decision making system. If peremptories are critical to protect each side against truly oddball jurors, then fewer than five strikes should be enough. Also, an imbalance in authorized strikes favoring the defendant would counteract somewhat the Commonwealth's comparative advantage in its competition to control the racial composition of the jury with peremptory strikes.

Our final judgment is that the empirical findings of this project document a significant source of injustice in the peremptory strike system currently used in Philadelphia capital trials. We do not believe such a system can be justified legally or morally. We hope, therefore, that the findings presented in this Article will help focus the debate on the problems associated with such systems and the possibilities for meaningful reform.

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<sup>287</sup> In this regard, enforcement could be facilitated if trial courts were given the responsibility for collecting and maintaining information on venire member demographics and attitudes, gathered with questionnaires of the type used in a number of jurisdictions, including Philadelphia. Under the current system, claimants often carry the responsibility for documenting the race and gender of venire members, including who was struck by whom. Making this information available to interested scholars and to the media could also shed light on the operation of the system.

<sup>288</sup> In the alternative, if one side exceeded the limit, it could trigger a heavier than normal burden of justification for all strikes of the challenged party.



## APPENDIX A: METHODOLOGY

I.	UNIVERSE AND SAMPLE .....	132
II.	DATA SOURCES.....	135
	A. The Court Crier's Tally Sheet.....	135
	B. Trial Court Demographic and Biographical Data .....	135
	C. Case Level Information .....	136
III.	PROCEDURES FOR DESIGNATING VENIRE MEMBER AND JUROR RACE, GENDER, AND AGE .....	136
	A. Overview.....	136
	B. Record Linkage .....	137
	C. Census-Based Imputations of Venire Member/Juror Race.....	141
	D. Decision Rules for Filling in Race, Gender, and Age Designations at the 98% Level of Reliability.....	143
	E. Validity of the Census-Based Race Estimates.....	147
	F. Imputation Procedures to Support Composite Estimates of the Race, Gender, and Age Composition of Individual Venires and Juries.....	149
	1. <i>The Issue</i> .....	149
	2. <i>The Imputation Procedure</i> .....	151
	a. <i>Missing Race</i> .....	152
	b. <i>Missing Gender or Age</i> .....	153
	c. <i>A Summary</i> .....	154
	3. <i>The Validity/Stability of the Composite Estimates             of Race, Gender, and Age</i> .....	158
IV.	LOGISTIC REGRESSION DIAGNOSTICS .....	161
V.	DIRECT STANDARDIZATION PROCEDURES FOR ADJUSTMENT OF DEATH-SENTENCING RATES IN SUBPOPULATIONS OF CASES (TO ACCOUNT FOR DIFFERENCES IN THE DISTRIBUTION OF DEFENDANT CULPABILITY LEVELS) .....	162

Conducting this study required the identification of a sample of venire members from which juries were selected in Philadelphia between 1981 and 1997. It also required the selection of a sample of defendants who were sentenced in a jury penalty trial during this period. We present details on our universe and sample in Section I below.

This study also required the collection of information concerning the 14,532 venire members who served on the 317 venires included in our sample, which we describe in Part I. We needed to ascertain how each venire member was processed by the court, including the exercise of any peremptory strikes by the Commonwealth or defense counsel. In addition, we needed demographic information on each venire member that may have influenced the use of peremptory strikes by each side.

In Section II, we describe the data sources, while Section III describes the procedures we used to fill in the race, gender, and age of venire members when it was not available in court records. Section IV describes our logistic regression diagnostics and Section V explains the direct standardization methods that we used to present our analysis of the impact of defendant race and jury composition on penalty trial sentencing outcomes.

## I. UNIVERSE AND SAMPLE

As we described in the Article text,<sup>289</sup> we were unable to include all of the venires in our universe because records listing the names of the venire members and the peremptory strikes in their cases (the crier sheets) or the entire file were unavailable in 31% (144/461) of the cases. Table 1 indicates for the three time periods into which we classified the venires, the number of venires in the universe and the sample broken down by the defendant's race and the sentencing outcome (Table 1, Cols. B-E).<sup>290</sup> For example, for the most recent period (1991-98), Column F indicates that we located crier sheets for 66% (147/223) of the cases in the universe, although the success rate in the earliest period, 1981-83, was only 60% (27/45).

We believe the set of available venires to be a substantially stratified random sample. Specifically, we found that the degree of missing data varied principally by time, with more missing data in the earlier years. Table 1 also indicates that the level of missing data was also correlated with the defendant's race and whether the sentence was

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<sup>289</sup> See *supra* Article note 160 and accompanying text. The universe builds on the cases examined in David C. Baldus, et al., *Racial Discrimination and the Death Penalty in the Post-Furman Era: An Empirical and Legal Overview, With Recent Findings From Philadelphia*, 83 CORNELL L. REV. 1638 (1998) [hereinafter Baldus et al., *Charging and Sentencing Study*].

<sup>290</sup> The time period stratification reflects the circumstance that during the first two periods fewer data were available and the sampling fractions were smaller. The stratification on the race of the defendant and the sentencing outcome reflects their importance in the venire member selection process.

life or death. These findings guided our analysis, with different sampling fractions calculated on the basis of a case's classification in terms of three time periods, the race of the defendant, and whether the sentence was life or death. This is shown in Table 1. This stratification procedure gives us confidence that within the categories defined by this sampling plan, the venirees that entered the sample (because data were available on them) represented a random sample of the cases within each category.<sup>291</sup>

## APPENDIX A TABLE I

## SAMPLING PROPORTIONS FOR VENIREES

(Number of Venirees in Sample/Number of Venirees in Universe)

A	B	C	D	E	F
Sentence Year	Black Defendants Death Sent.	Nonblack Defendants Death Sent.	Black Defendants Life Sent.	Nonblack Defendants Life Sent.	All Defendants
1981-83	.43 (6/14)	.25 (1/4)	.70 (14/20)	.86 (6/7)	.60 (27/45)
1984-90	.81 (48/59)	.43 (3/7)	.73 (71/97)	.70 (21/30)	.74 (143/193)
1991-98	.69 (35/51)	.36 (4/11)	.66 (88/134)	.74 (20/27)	.66 (147/223)
Total	.72 (89/124)	.36 (8/22)	.69 (173/251)	.73 (47/64)	.69 (317/461)

In conducting our statistical analyses, we used SUDAAN,<sup>292</sup> a program which takes the varying sampling rates into account and computes the level of statistical significance on the basis of the actual sample rather than the weighted sample.

For the sentencing outcome phase of this study, in which the defendant and his or her jury sentencing decision was the unit of observation, our sample selection was also determined by the availability of

<sup>291</sup> MICHAEL O. FINKELSTEIN & BRUCE LEVIN, STATISTICS FOR LAWYERS 365-66 (1990) [hereinafter FINKELSTEIN & LEVIN]. The authors point out that when "data are missing at random, one can usually proceed with standard analyses on the observed data, on the theory that those data form a random subsample from the random sample, which of course is still a random sample." When this assumption may not hold, the missing at random assumption may still be valid by "sampling within strata or holding the value of some covariate fixed." *Id.* This is the theory that guided our sampling design based on twelve strata defined in terms of: time period (three strata), sentence (two strata) and race of defendant (two strata).

<sup>292</sup> SUDAAN Software Release 7.54 for PC's SAS (Research Triangle Institute, Research Triangle Park, N.C. 27709).

data on the racial composition of the jury. Specifically, we were able to obtain data on the racial composition of the penalty jury for 76% (401/527) of the defendants in our universe. The stratified sampling procedure for this sample was also based on the time period of the trial, the race of the defendant, and the penalty trial sentence. Table 2 presents the sampling fractions for the twelve subcategories of cases in the stratified sampling design.<sup>293</sup>

## APPENDIX A TABLE 2

## SAMPLING PROPORTIONS FOR VENIRE STUDY JURY DECISIONS

(Number of Defendants & Codefendants in Sample/Number of Defendants & Codefendants in Universe)

A	B	C	D	E	F
Sentence Year	Black Defendants Death Sent.	Nonblack Defendants Death Sent.	Black Defendants Life Sent.	Nonblack Defendants Life Sent.	All Defendants
1981-83	.60 (9/15)	.25 (1/4)	.70 (14/20)	.86 (6/7)	.65 (30/46)
1984-90	.85 (55/65)	.63 (5/8)	.80 (94/118)	.78 (29/37)	.81 (183/228)
1991-98	.70 (37/53)	.36 (4/11)	.78 (125/160)	.76 (22/29)	.74 (188/253)
Total	.76 (101/133)	.43 (10/23)	.78 (233/298)	.78 (57/73)	.76 (401/527)

We also developed a weighting system to account for the shortfall between the universe and the sample for this part of the study. If, as we believe to be the case, data were missing at random within each subcategory of cases in Table 2, the only information necessary for the statistical adjustment is the sampling fraction for each stratum, i.e., the ratio of the sample size to the size of the universe.<sup>294</sup>

<sup>293</sup> For eight cases in the sample, the level of defendant culpability was unknown, which reduced slightly the sample size of the analyses that required adjustment for defendant culpability, e.g., Figure 6.

<sup>294</sup> See FINKELSTEIN & LEVIN, *supra* note 291.

## II. DATA SOURCES

### A. *The Court Crier's Tally Sheet*

Our most important source of information was the court crier's "tally sheet." On this form, the crier documents the jury selection process, as counsel for the Commonwealth and the defendant work their way through the individual venire members. These sheets indicate which venire members were struck peremptorily and by whom. In 67% of these cases, the tally sheets also reflect the individual venire member's answers to voir dire questions asked by the judge to the entire venire as a group, particularly those designed to uncover potential bias. In these cases, the crier places letters next to the names of the venire members, indicating how they answered the different questions.<sup>295</sup>

### B. *Trial Court Demographic and Biographical Data*

Two Philadelphia trial court documents provide information on demographic, biographical, and attitudinal data of venire members. The first is the juror questionnaire, which is potentially available for cases tried since 1991. It calls for yes/no answers to questions about the venire member's beliefs and personal history that may affect venire member attitudes of interest to both sides. Typical are such questions as: "Have you or anyone close to you been a victim of a crime?" It also requests information on the venire member's race, which was available for 653 venire members.<sup>296</sup>

The second source of information is the "summons" tape, a machine-readable record that includes a number of variables for each venire member that are relevant to this project, such as the date each venire member was summoned to jury service, a residential address,

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<sup>295</sup> Because of the resources required, we did not have data on the answers of venire members after the voir dire moved to the sequestered stage, when individual jurors were questioned out of earshot of the other jurors and the answers were not recorded by the crier.

The necessity for question/response record-keeping by the criers was largely obviated by the introduction of the questionnaires in 1991, a copy of which is provided to the parties for use during voir dire. However, for several years thereafter some criers continued to keep written records of juror answers to voir dire questions. The tally sheets also include an administrative venire member number for each person and the date on which the trial began, both of which enable us to match more accurately venire member names to the names on the summons tape discussed below. Unfortunately, under a newly effective rule of the Pennsylvania Supreme Court, these questionnaires—which also include the venire member's self-reported race—are destroyed after each trial unless relevant on appeal, in which case they are sealed and made part of the record. PA. R. CRIM. PROC. 1107(F)-(G).

<sup>296</sup> In addition, we have direct evidence of race for (a) 237 venire members who reported their race as part of their participation in a "murder severity" study we are conducting and (b) an additional 182 venire members whose race is reported in trial records (e.g., where race of the venireperson is identified in the notes of testimony or where contemporaneously made notations of the attorneys or judge are made part of the record). These venire members are included in Figure 1 Part I (Box 2) and Part II (Box 2).

date of birth, gender, occupation, education, and an administrative venire member number.<sup>297</sup> We had available summons tapes for the period 1988-98. This information provides a basis for ascertaining age, gender, and residence for the crier sheet names. It also provides the basis for matching the venire member's name and date of birth to corresponding variables associated with the venire member's name on the voter registration rolls—which also report the voter's race for many registrants.

As we describe below, we also used census race data to estimate venire member and juror race.<sup>298</sup> We describe the procedure in detail in Section III(C) below.

### C. Case Level Information

In a number of analyses, we focused on the characteristics of the capital cases for which the juries in this study were selected, such as the race of the defendant and victim, and the penalty trial sentencing outcome. For these data, we relied on data in our underlying study of Philadelphia's capital charging and sentencing study from which we initially developed our sample of venires.<sup>299</sup> The case level data included information on the racial and demographic characteristics of defendants and victims, the identity and race of the prosecutor, and estimates of the severity/culpability levels of the cases.

## III. PROCEDURES FOR DESIGNATING VENIRE MEMBER AND JUROR RACE, GENDER, AND AGE

### A. Overview

In this research, we used four procedures to obtain information on venire member race, gender, and age.

The first procedure was record linkage to locate information on venire member race, gender, and age in public records, i.e., in trial court documents, a trial court summons tape, and Philadelphia voter registration rolls.<sup>300</sup> With this procedure, we obtained race data for 59% of the venire members, gender data for 81% of the venire mem-

<sup>297</sup> This administrative venire member number matches the venire member number on the crier sheet.

<sup>298</sup> Our two supplemental sources of information for the purpose were (a) the 1992 Philadelphia voter registration list (all venire members are drawn from such lists) and (b) United States census "tract" and "block" information, indicating the racial composition of each census tract and block in Philadelphia. We also obtained census tract data but relied on it rather than block data less than 1% of the time for these estimates. See *infra* note 312.

<sup>299</sup> Baldus et al., *Charging and Sentencing Study*, *supra* note 289. That study covered the period 1983-93, while the venire study covers the period 1981-97.

<sup>300</sup> These record matches were all based on a unique name match in two or more records.

<sup>301</sup> See Race Source Codes 1-5, App. A., tbl.4; Gender Source Codes 1-4, App. A., tbl.5; and Age Source Codes 1-4, App. A., tbl.6.

bers, and age data for 82% of the venire members.<sup>301</sup>

The second procedure involved the imputation of venire member race on the basis of the racial composition of the census block in which the juror resided.<sup>302</sup> With this procedure we obtained race data for an additional 16% of the venire members at the 98% reliability level.

The third procedure involved the imputation of gender on the basis of a first name frequency analysis of other venire members in this study. With it we filled in gender for 13% of the venire members at the 98% level of reliability.

The fourth procedure involved the imputation of venire member race, gender and age on the basis of (a) census block racial data and first name frequency data that were less than 98% reliable, and (b) race, gender, and age information on other venire members in the study. With this procedure, we filled in race data for the remaining 25% of the venire members, gender data for the remaining 6% of the venire members, and age data for the remaining 18% of venire members.<sup>303</sup>

With these results, we estimated the race, gender, and age composition of each venire member. On the basis of these estimates, we estimated strike rates against subgroups of venire members defined in terms of their race, gender, and age.

### B. Record Linkage

Our first strategy was to match the name of a venire member on the court's crier sheet to:

- an identical name or names in court-administered juror response questionnaires, in attorney and judge recorded observations, and in the juror responses questionnaires for a homi-

<sup>302</sup> See FINKELSTEIN & LEVIN, *supra* note 291, at 270-71:

Missing information and nonresponse are endemic problems in statistical samples and surveys. When the sampling technique is proper and there is indication from a covariate that the sample is not skewed, studies with substantial missing data and nonresponse have been accepted by the courts. See, e.g., *Vuyanich v. Republic National Bank*, 505 F. Supp. 224, 255-58 (N.D. Tex. 1980) (party challenging data should demonstrate that errors and omissions are not distributed randomly and bias the results; despite challenges, data base was accepted); *Rosado v. Wyman*, 322 F. Supp. 1173 (E.D.N.Y. 1970) (due to the passage of time only 62.6% of the welfare records in a random sample of 5344 could be found; the court accepted the sample after noting that the average payment and family size approximated those known characteristics of the whole population); *compare*, *E.E.O.C. v. Eagle Iron Works*, 424 F. Supp. 240, 246-47 (S.D. Ia. 1946 [sic]) (data for 60% of current and former employees rejected where all the missing racial data were from former employees); *Bristol Meyers v. F.T.C.*, 185 F. 2d 58 (4th Cir. 1950) (survey with 20% response rate rejected; no follow-up study of the nonrespondents).

<sup>303</sup> For 12% (1718/14,532) of the venire members in the sample, we had no information on race, App. A, Table 3, Source Code 10; for 14% (1998/14,532), we had no age information, App. A, Table 6, Source Code 5; and for 2% (219/14,532) we had no gender information, App. A, Table 5, Source Code 7. For these venire members, the race, gender, and age estimates were based on the characteristics of the other venire members in the study.

side severity study we are conducting;

- an identical name or names on the court's summons tape, which reports age and gender; and
- an identical name or names on the voter rolls, which often report race, age, and gender.

Figure 1 presents the process by which we matched venire member names to names on the trial court summons tape and the voter registration rolls.<sup>304</sup> In that regard, we note the distinction between Parts I and II of Figure 1. For each venire member indicated in Part I, we have an initial match of his or her name and identification number on the court crier sheet to his or her name and identification number on the summons tape. This match gives us high confidence in the validity of the gender, date of birth, and street address listed for that venire member on the summons tape. Two of these variables (name and date of birth) in turn are matched to the voter lists.

For the venire members in Part II, we have no match to the summons tape. Therefore, beyond the estimates that are based on court records (Row A), there is a slight risk that the name match to the voter lists is to a different person who happens to have the same name as the venire member, in which event, the race, age, and gender designation and/or residential street address that we take from the voter list may be incorrect.

Figure 1 also indicates how we used the residential addresses of venire members obtained from the summons tape or the voter rolls to identify the census block/tract in which they resided, as shown in Part I, Row D and Part II, Row E.

The first step in matching venire member names to these sources was to search the voters list for the exact name of each venire member. We were able to match venire member names to the 1992 voters list 54% of the time.<sup>305</sup> These matches are indicated in Figure 1, Parts I and II, as Boxes 8 and 10, and in Table 3 as Race Source Codes 4-6.

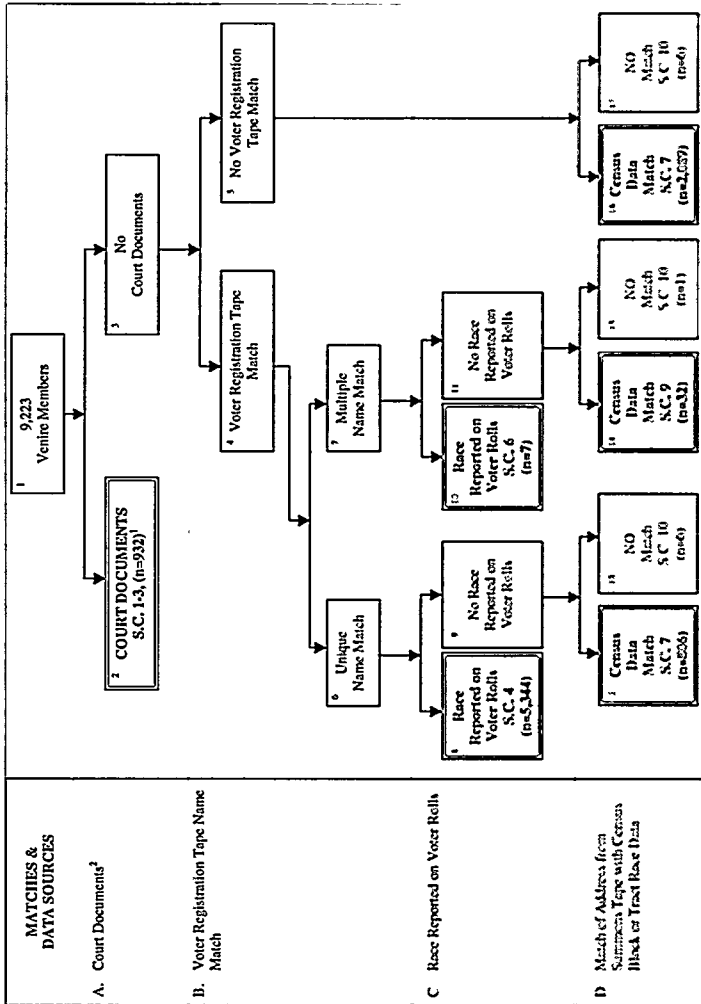
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<sup>304</sup> In Figure 1, the sources of the different estimates of venire member race are in the boxes bounded in bold.

<sup>305</sup> The reason for this shortfall is that even though all venire members are selected from the voters list, by 1992, the names of many voters who had served on juries years earlier, back to 1981, had been purged from the list for non-voting or having moved from Philadelphia. The only way to obtain information on these omitted voters who had earlier served as venire members would be to gain access to voter registration lists from earlier years. Ideally, we would need access to each of the voter registration lists from which the Philadelphia court officials periodically selected their lists of venire members. Thus far we have been unsuccessful in obtaining this information. The voter registration officials have not archived computerized data from earlier years, retaining only "street lists" of voters, indexed by ward and division.



APPENDIX A FIGURE 1  
 DATA SOURCES CONSULTED FOR VENIRE-MEMBER RACE DESIGNATIONS IN 317 VENIRES<sup>1</sup>  
 Part 1. Venire Members Whose Citer Sited Name and Identification Number Match the Same Name and Identification Number on the Juror Summons Tape





### C. Census-Based Imputations of Venire Member/Juror Race

When the search of the voter rolls did not yield a match of the venire member's name that linked it to an identical name on the voters list (or there was a match, but the voter's race was not indicated on the voters list), we used the venire member's residential address<sup>306</sup> to estimate his or her race on the basis of the racial composition of the census block or tract of the venire member's residence. Census based estimates of the characteristics of persons living in census tracts and block groups is a generally accepted procedure in a number of fields.<sup>307</sup> In Figure 1, these matches are indicated in Part I, Row D and Part II, Row E. In Table 3 they are listed as Race Source Codes 7-9.

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<sup>306</sup> The address was obtained from the summons tape, the voters roll, or phone/property records when available.

<sup>307</sup> See, e.g., Brandon S. Centerwall, *Race, Socioeconomic Status, and Domestic Homicide, Atlanta, 1971-72*, 74 AM. J. PUB. HEALTH 813, 814 (1984) (a study of the determinants of domestic homicide in 1971-72 using census data to impute "% crowded households"); Howard P. Greenwald et al., *Detecting Survival Effects of Socioeconomic Status: Problems in the Use of Aggregate Measures*, 47 J. CLINICAL EPIDEMIOLOGY 903, 905 (1994) (a validation study of census imputation methodology for individual patients' median income, high school graduation, and race, which reviews the general use of the methodology); Nancy Krieger, *Overcoming the Absence of Socioeconomic Data in Medical Records: Validation and Application of a Census-Based Methodology*, 82 AM. J. PUB. HEALTH 703, 709 (1992) [hereinafter Krieger, *Overcoming the Absence*] (reviewing the use of census-based estimates of the socioeconomic characteristics of individual patients in epidemiological studies, concluding that "the census-based methodology presented in this study provides a valid and useful approach to overcoming the absence of socioeconomic data in most US medical records."); Nancy Krieger, *Social Class and the Black/White Crossover in the Age-Specific Incidence of Breast Cancer: A Study Linking Census-Derived Data to Population-Based Registry Records*, 131 AM. J. EPIDEMIOLOGY 804, 806-07 (1990) (application of census-based methodology to estimate "working class" status and poverty indicators); David Savage et al., *Race, Poverty, and Survival in Multiple Myeloma*, 54 CANCER 3085, 3086 (1984) (census-based imputation for individual patients concerning income, unemployment, education, separation or divorce and overcrowding in housing).

## APPENDIX A TABLE 3

## SOURCE OF RACE ESTIMATE FOR ALL VENIRE MEMBERS

A	B	C
Race Source Code	Frequency	Percent
1. Questionnaire Race	656	4.51%
2. Juror Severity Study	238	1.64%
3. Trial Records	184	1.27%
4. 1988-98 Summons & Voter Registration (Single Matches)	5344	36.77%
5. Voter Registration Only (Single Matches)	2140	14.73%
6. Voter Registration (Multiple Matches)	324	2.23%
7. Summons or Voter Registration: Census (Single Matches)	3404	23.42%
8. Phone or Property Records: Census	236	1.62%
9. Voter Registration and/or Census (Multiple Matches)	283	1.95%
10. No Race Estimate	1723	11.86%
TOTAL	14,532	100%

The first step in this matching process was to link the venire member's address to a census tract and/or block. To provide the basis for this task, we engaged the services of a geocoding firm, Geographic Data Technology (G.D.T.), in Lebanon, New Hampshire, that specializes in matching procedures of this type.<sup>308</sup> We sent G.D.T. the file of street addresses and they returned to us a listing of the census tract and block numbers for each address. They were able to link our street addresses to a census tract or block number for all but eleven of the addresses we sent them.

The second step in the imputation process involved the collection

<sup>308</sup> Reliance on commercial firms for geocoding in this type of research is generally accepted practice. See, e.g., Krieger, *Overcoming the Absence*, *supra* note 307 at 704 (author sent residential addresses on a membership tape to be 'geocoded' by a commercial firm).

from 1990 Census Bureau sources of racial data<sup>309</sup> for census blocks and tracts. With these data in place, we were able to impute the race of each venire member for whom we had a street address. Figure 1 describes in detail the matching procedure referred to above that we used to generate the race of venire member race estimates referred to in Table 3.

These matching procedures, combined with the information from court documents that we had on 1,075 venire members, yielded race, gender, and age imputations at the 98% level of reliability for the following percentages of venire members: race, 75%; gender, 96%; age, 83%. In Section D immediately below, we explain the decision rules for imputing values for those venire members.

*D. Decision Rules for Filling in Race, Gender, and Age Designations at the 98% Level of Reliability*

1. *Race.* We constructed our principal race estimates at the 98% level of reliability on the basis of the variable CRACE98X.<sup>310</sup> Specifically, for each venire member, we assigned a value for the variable CRACE98X (1=black or 0=non-black):

a. when the juror questionnaire, other court records, or the juror severity study questionnaire indicated the venire member's race; or

b. when a unique match of the venire member's name to a name on the voter registration list produced a racial designation; or

c. on the basis of a unique name match, if the venire member's residential address, obtained from either the summons tape or the voter registration list, produced a census block/tract number; CRACE98X was coded black if the reported proportion of blacks in the census block/tract was greater than or equal to .98, and coded non-black if the estimated proportion of blacks was less than or equal to .02.<sup>311</sup> When the proportion of blacks in the venire member's neighborhood fell between these two figures, CRACE98X was coded unknown; or

d. when the procedure produced multiple name or address matches and multiple racial designations (from the voters list, census block/tract estimates, or a combination of census block/tract estimates and racial designations on the voters list), CRACE98X was coded black if the average proportion of blacks in the multiple race designations was greater than or equal to .98. For example, if multiple voter matches on the same name produced a black designation

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<sup>309</sup> We downloaded the census tract and block racial data from a United States government file. Data User Services Division, Bureau of Census, U.S. Dept. of Commerce, *1990 Census of Population and Housing Block Statistics: Mid. Atlantic Div.* (N.J., N.Y., Pa.) dBase III Format, CD 90-1 B-2 (Reissue September 1992).

<sup>310</sup> PJBLACKX is the variable describing the race estimate for all cases, i.e., the estimated probability of each venire member being black from .0 to 1.0.

<sup>311</sup> 99.3% of the estimates are based on block data, the smallest census area.

for 9 out of 10 names, i.e., .90 (9/10), it would not meet the .98 reliability standard. If a multiple race designation produced an estimated proportion of blacks that was less than or equal to .02, it was coded non-black.

For any estimates falling between .02 and .98 black, CRACE98X was coded unknown.<sup>312</sup>

Table 4 presents the distribution of values for the CRACE98X variable broken down by the source of estimates listed in Table 3. For example, for the unique summons and voter registration matches, Source Code 4, there were no missing values, while for Source Code 6, multiple voter registration matches, 32% were missing. The bottom line of Table 4 indicates that we had a reliable individual race estimate for 75% of the venire members/jurors.

2. *Gender.* Table 5 presents the Source Codes for gender, which we initially estimated on the basis of the gender designation on the summons tape or the voters list.

For the remaining unknowns, we further estimated gender after consulting a list of the first names of venire members from this study for whom gender was known. If the first name for an unknown gender classification was coded with a certain gender more than 98% of the time, we imputed that gender to the venire member, as shown in Table 5, Source Code 6. The bottom line of Table 5 indicates that we had a reliable gender estimate for 97% of the venire members/jurors.

3. *Age.* Table 6 presents the Source Codes for age. We estimated the date of birth of each venire member on the basis of the date of birth designation in the summons tape or the voters list. If there was a conflict between the designations in these two sources, we relied on the summons tape because it was self-reported by the venire member when called to jury service. Moreover, the information on the voter rolls may have corresponded to another person with the same name as the venire member, such as a father or son, or a person completely unrelated to the venire member.

When we had a reliable date of birth, we subtracted it from the date of trial to compute the age of the venire member. We also used this information to create an age group variable (JAGEGP) as follows: 1 = young (18-29 yrs.); 2 = middle age (30-55 yrs.); 3 = older (56 yrs. and above); 9 = unknown.<sup>313</sup> The bottom line of Table 6 indicates

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<sup>312</sup> Although we calculated as many of these race estimates as the data allowed, we adopted and used the designation or estimate in the order of priority listed in the text (1 to 4).

<sup>313</sup> We used the three-level age classification rather than the actual age for four reasons. First, prosecutors and defense counsel seem to define the relevant categories along these lines. Second, age effects are not necessarily linear, which may bias the results if actual age were used in our core regression models. Third, in crosstabular analyses, the three-level age classification not only accommodated non-linear effects of age, but also simplified the presentation. Fourth, the three-level classification reduced the impact of misclassification, i.e., it was easier to classify age correctly in a three level system than to identify the venire member's exact age.

that we had reliable age estimates for 83% (Columns 1-3) of the venire members.

## APPENDIX A TABLE 4

SOURCE OF RACE BY ESTIMATED RACE (98%)<sup>1</sup>

Race Source Code	RACE			Total
	Missing	Non-black	Black	
1. Questionnaire Race	0 0%	365 56%	291 44%	656
2. Juror Severity Study	0 0%	150 63%	88 37%	238
3. Trial Records	0 0%	96 52%	88 48%	184
4. 1988-98 Summons & Voter Reg. (Single Match)	0 0%	3405 64%	1939 36%	5344
5. Voter Registration Only (Single Matches)	0 0%	1412 66%	728 34%	2140
6. Voter Registration (Multiple Matches)	102 32%	119 37%	103 32%	324
7. Summons or Voter Reg.: Census (Single Matches)	1533 45%	1366 40%	505 15%	3404
8. Phone or Property Records: Census	90 38%	110 47%	36 15%	236
9. Voter Reg. and/or Census (Multiple Matches)	183 65%	37 13%	63 22%	283
10. No Race Estimate	1723 100%	0 0%	0 0%	1723
<b>TOTAL</b>	<b>3631 25%</b>	<b>7060 49%</b>	<b>3841 26%</b>	<b>14,532</b>

<sup>1</sup> The Table cells include venire member frequencies and row percentages.

## APPENDIX A TABLE 5

## SOURCE OF GENDER ESTIMATE BY GENDER

Gender Source Code	GENDER			
	Unknown	Female	Male	Total
1. Summons Tape (1988-1998 Cases)	0 0%	4755 54%	4047 46%	8802
2. Crier Notes	0 0%	81 62%	49 38%	130
3. Voter Registration	0 0%	1322 54%	1118 46%	2440
4. Summons Tape (Pre-1988 Cases)	0 0%	199 59%	136 40%	335
5. Multiple Sources	28 5%	321 52%	267 43%	616
6. First Name Frequency Analysis	233 11%	1023 49%	843 40%	2099
7. No Gender Estimate	110 100%	0 0%	0 0%	110
TOTAL	371 3%	7701 53%	6460 44%	14,532

<sup>1</sup> The Table cells include venire member frequencies and row percentages.



APPENDIX A TABLE 6

SOURCE OF AGE ESTIMATE BY AGE GROUP<sup>1</sup>

Age Source Code	AGE GROUP				
	Unknown	Young (18-29)	Middle (30-55)	Older (56+)	Total
1. Summons Tape (1988-1998 Cases)	3 0%	2115 23%	4995 54%	2078 23%	9191
2. Voter Registration	27 1%	506 21%	1210 50%	673 28%	2416
3. Summons Tape (Pre-1988 Cases)	1 0%	119 37%	149 47%	48 15%	317
4. Multiple Sources	474 77%	28 5%	83 13%	31 5%	616
5. No Age Estimate	1992 100%	0 0%	0 0%	0 0%	1992
TOTAL	2497 17%	2768 19%	6437 44%	2830 19%	14,532

<sup>1</sup> The Table cells include venire member frequencies and row percentages.

*E. Validity of the Census-Based Race Estimates*

To estimate the validity of the census-based race estimates, we identified the venire members for whom we had both estimates with a high level of validity and estimates based on census data. For this purpose, we placed Source Codes 1-5 in Table 3 in the “highly reliable” category. The estimates with the highest level of validity were based on trial court and severity study questionnaires and other trial court records (Table 3, Source Codes 1-3). The second-best estimates were based on the voter rolls data with a name and date of birth match from the summons tape to the voter rolls (Table 3, Source Code 4), and the third-best estimates were based on unique matches to the voter list (Table 3, Source Code 5). This hierarchy of the validity of the estimates reflects our degree of confidence that the race imputations produced by each was based on information about the venire member and not some other person.<sup>314</sup>

<sup>314</sup> In the first category of matches, we know that we have the right person. The only risk of error is that the venire member incorrectly reported his or her race. In the second category, race is also self-reported on the voter rolls, but there was a remote possibility that the match on

## APPENDIX A TABLE 7

VALIDATION ANALYSIS OF CENSUS BASED IMPUTATIONS  
OF VENIRE MEMBER RACE

(Statistics are Correlations, all Significant Beyond the  $p = .001$  Level, Between Census Based Race Imputations of Venire Member Race (Column A) and Highly Reliable Race Estimates (Columns B & C))<sup>1</sup>

A	B	C
Type of Census Based Imputation	Court Documents and Voter Rolls	Court Documents
Table 3 Source Codes 7-9	Table 3 Source Codes 1-5	Table 3 Source Codes 1-3
1. 98% Reliable Imputation	.99 <sup>a</sup> (n=5315)	.99 <sup>a</sup> (n=607)
2. All Census Based Estimates; Above and Below 98% Reliability Level	.89 (n=8511)	.84 (n=1048)
3. Imputations Below 98% Reliability Level Only	.76 (n=3196)	.70 (n=441)

<sup>1</sup> The venire members in this analysis are limited to those for which we had both a highly reliable race designation (Table 3, Source Codes 1-5) and a census based imputation (Table 3, Source Codes 7-9).

<sup>2</sup> The highly reliable race estimates are based on Source Codes 1-5, Appendix Table 3.

<sup>a</sup> Tetrachoric correlation coefficient. The other statistics are Pearson correlation coefficients.

For these three groups of venire members, we also created 12,758 census-based race estimates (Table 3, Source Code 7-9), and for 8511 of these venire members, we were able to compare the census-based imputation to the race designations that were available for these individuals from a highly reliable source (Table 3, Source Codes 1-5). A comparison of the census based imputation and the highly reliable race designations for these 8511 venire members indicated an overall error rate in the census-based estimates of 1.7% (93/5315), with a

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the voter rolls is to another person with the same name and date of birth, or that some of the data were incorrectly entered by court or voter registration personnel. In the third category, because the match is limited to name, there is a greater possibility that the name on the voter roll was not the venire member but another person with the same name.

higher error rate for the black venire members, 4% (54/1227), than for the non-black venire members, .9% (39/4034).

We also conducted a correlation analysis between the census based estimates and the more reliable estimates. The results are presented in Table 7. The first analysis (Row 1, Column C) correlated the highly reliable estimates with the census-based race estimates above the 98% reliability level (n = 5315). The resulting coefficient was .99. The correlation in Row 3, Column C, of the more reliable estimates with the census-based race estimates below the 98% reliability level was .76 (n = 3196). Row 2, Column C, indicates a coefficient of .89 with all the census-based estimates in Rows 1 & 3 included in the analysis.<sup>315</sup>

It is useful to compare these results with those reported in a comparable 1994 validation study in which the author imputed the race, median income, and education level of 536 patients on the basis of census "tract" data.<sup>316</sup> The validation analysis correlated the census tract imputations with the individual-level information obtained from the patients' files. For the race variable, the correlation on a "continuous" variable for race was .668, while the correlation was .528 on a dichotomous variable. For the economic variables the correlations ranged from .22 to .40.<sup>317</sup> Our results suggest substantially more reliable imputations. The much greater validity of our census-based race imputations is no doubt explained by our use of the census "block" data as the basis for estimation, while the Greenwald et al. study used the census "tract," a much larger unit of population, as the basis for its race imputations.<sup>318</sup>

#### *F. Imputation Procedures to Support Composite Estimates of the Race, Gender, and Age Composition of Individual Venires and Juries*

##### *1. The Issue*

We also used an imputation procedure to produce "composite estimates" of the race, age, and gender composition of each venire and jury for which there was information missing for one or more venire member's or juror's race, age, or gender. It is on the basis of these composite estimates that we calculated what we consider to be our

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<sup>315</sup> Column C of Table 7 presents similar results for the smaller pool of venire members for whom we had race designations based on court records and race imputations based census data.

<sup>316</sup> Greenwald et al., *Detecting Survival Effects*, *supra* note 307, at 905 tbl.1.

<sup>317</sup> *Id.*

<sup>318</sup> Specifically, in 1990, Philadelphia consisted of 13885 census blocks (with an average population of 114) and 367 census tracts (with an average population of 4320 people). Also, there is a high level of residential race segregation in Philadelphia.

best and most reliable strike rate estimates.<sup>319</sup>

Our final estimation procedure was an important part of the research; at the conclusion of our matching procedures linking documents and estimating race on the basis of census data, we were left with the following percentages of venire members for whom our estimates did not meet the 98% level of reliability: race (25%), gender (3%), and age (17%). For the juries, the pattern was: race (25%), gender (2%), and age (20%).<sup>320</sup>

One approach to this missing data problem would be to ignore it. With this strategy, our strike rate analyses would be limited exclusively to the venire members for whom we have 98% reliable estimates. We would have treated the venire members for whom we had such data as a random sample of all of the members of each venire. The problem with this approach is that we had evidence that data were not missing randomly with respect to venire member race. Specifically, the regression analysis reported in Table 7 of the Article strongly suggests that venire members with missing race data were more likely to be black than non-black. We also saw evidence of this in the analyses of strike rates in individual cases, i.e., the prosecutorial strike rates against the missing race venire members were generally well above the strike rates against the non-black venire members. We saw exactly the opposite effect with the defense counsel strike rates. As a consequence, reliance solely on the venire members with known race would have created a possible risk of bias in our analysis of strike rates against black and non-black venire members.<sup>321</sup>

Another reason not simply to ignore such missing data was that we were not completely lacking information about the race of the venire members who were coded unknown under the 98% level of reliability. Specifically, for an additional 1914 venire members, we had census data that did not support an estimate of race at the 98% level,<sup>322</sup> but the results of our validation study indicated that these data were a reliable source of information on race.<sup>323</sup> In addition, there is a generally accepted methodology, known as a "conditional mean imputation" procedure, that supports reasonably reliable estimates in studies of this type even when there is no information at all available on

<sup>319</sup> For example, if the venire composite estimates that twenty non-blacks were on the venire and that ten were seated on the jury, the overall estimated strike rate for non-blacks would be .50 (10/20).

<sup>320</sup> These missing data issues are compounded when we subdivided venire members and jurors into twelve categories based on all three of these characteristics. The source of the problem is that the missing information varies from case to case. The result was that the missing data problem on this scale ranged, for all venire members, from a low of 2% to high of 83%. For the juries, the range was from 0% to 92%.

<sup>321</sup> The missing data on gender and age were not a problem because gender was missing for only a handful of cases (4%) and there appeared to be no correlation between prosecutorial and defense counsel strike rates.

<sup>322</sup> See App. tbl.4, Source Codes 6-9 (missing).

<sup>323</sup> See App. tbl.7, Row 3, Col. 3 (documenting correlations of these estimates with the highly-reliable race designations in the .70-.76 range).

some of the relevant characteristics of the subjects of the investigation. For example, in this study, we had no race information at all on 12% of the venire members. This procedure, which we describe in detail below, imputes race on the basis of the mean race among the cases when we know race on the basis of our most reliable data—.44 black.

For these reasons, we believed that the composite race estimates produced with a combination of these race imputations and the 98% reliable estimates described above provide a basis for estimating race-based strike rates that were more reliable than the race-based strike rates based solely on strikes against venire members with known race.

## 2. *The Imputation Procedure*

The two-stage estimation procedure we developed produced estimates of the race, age, and gender composition of juries and venires (composite estimates) when we lacked what we considered to be a 98% reliable individual level estimate for jurors and venire members on one or more of these three characteristics. These supplemental estimates were based partly on less than 98% reliable race and gender estimates. When we had no information at all on the venire member's race, gender, or age, the imputations were based on what we knew about the race, age, and gender characteristics of the other jurors and venire members in the study for whom our data were more complete. As noted above, the procedure is known as a "conditional mean" system of imputation, which substitutes, for the missing values, "means" for the other venire members in the study that are conditioned on the presence of values that are known for those venire members.<sup>524</sup>

In Table 8, we illustrate the procedure for a typical case (922). Column A lists the jurors by number, Columns B-D indicate what we know about the race, gender, and age of each juror, and Columns E-I report the race, age, and gender estimates for each juror (Part I) and the composite estimates for the jury as a whole (Part II).

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<sup>524</sup> RODERICK J.A. LITTLE & DONALD B. RUBIN, *STATISTICAL ANALYSIS WITH MISSING DATA* 44-45 (1987) ("The filled-in data from [this] method yield reasonable estimates of means . . ."); see also Roderick J.A. Little, *Regression With Missing X's: A Review*, 87 J. AM. STAT. ASS'N. 1227, 1231 (1992) (discussing the use of the method in multiple regression analysis); Michael Schemper & Georg Heinze, *Probability Imputation Revisited for Prognostic Factor Studies*, 16 STAT. MED. 73, 74-75 (1997) (reviewing recent applications of conditional probability imputation technique (PIT) and concluding that the "results . . . support recommendation of PIT in the context of prospective [epidemiological] studies on prognostic factors").

The "mean" in the description of this imputation procedure is actually a proportion when estimating a yes/no variable. Thus, our use of the overall proportions of men, etc., in comparison populations is the basis for our estimates when gender, etc., was missing.

## APPENDIX A TABLE 8

ILLUSTRATION OF THE IMPUTATION PROCEDURE USED TO ESTIMATE THE RACE, AGE, AND SEX COMPOSITION OF JURIES AND VENIRES: CASE 922

A	B	C	D	E	F	G	H	I
Juror No.	Known Juror Characteristics <sup>1</sup>			Individual Juror Estimates <sup>2</sup>				
	Race	Sex	Age	Race	Age			Sex
				Black	Young	Mid-Age	Older	Male
<b>Part I. Indiv. Juror Estimates</b>								
1	NB	M	YNG	0.00	1.00	0.00	0.00	1.00
2	NB	M	YNG	0.00	1.00	0.00	0.00	1.00
3	NB	F	OLD	0.00	0.00	0.00	1.00	0.00
4	NB	F	MID	0.00	0.00	1.00	0.00	0.00
5	U	U	U	0.44	0.21	0.55	0.24	0.98
6	U	M	U	0.44	0.21	0.53	0.25	.99
7	B	F	OLD	1.00	0.00	0.00	1.00	0.01
8	NB	M	YNG	0.00	1.00	0.00	0.00	1.00
9	U	M	U	0.44	0.21	0.53	0.25	0.99
10	NB	F	OLD	0.00	0.00	0.00	1.00	0.00
11	NB	F	MID	0.00	0.00	1.00	0.00	0.00
12	U	F	U	0.80	0.21	0.56	0.23	0.00
<b>Part II. Composite Jury Estimates</b>								
A. The Estimates	—	—	—	3.1	3.8	4.2	4.0	6.0
B. 95 % Con- fidence In- tervals	—	—	—	(1-5)	(3-6)	(2-6)	(3-6)	(6-6)

<sup>1</sup> B and NB indicate black and non-black; M and F indicate male and female; yng, mid, and old indicate young, middle and old; U indicates unknown.

<sup>2</sup> For the estimate in Columns E-I, 0 = no, and 1 = yes. For example, the 0.00 for juror 1 means that he or she is non-black.

a. *Missing Race*

When the missing value was venire member/juror race (Column B), we based the race estimate on two sources of information. For venire member/jurors for whom we had either census or voter registration based estimates that were not reliable at the 98% level (i.e., the level of reliability was between .02 and .98), we used that informa-

tion to support a supplemental race estimate.<sup>325</sup> Thus, if that procedure produced an estimate of a .80 probability that a venire member/juror was black, we used that individual estimate in the composite estimation procedure. In Table 8, this is illustrated with respect to juror 12 in Column E.

For the 1718 venire persons/jurors for whom we had no race information at all (Table 3 Source Code 10), we based our estimates on the distribution of race among the venire members for whom we had evidence of race from court records (Table 3, Source Codes 1-3). In this population .44 were black. Thus, when we had no information at all on the venire member/juror's race, we used that estimate in the imputation procedure for making the composite estimate of the racial composition of the jury or venire. In Table 8, Column E, this is illustrated with jurors 5, 6, and 9.

#### b. *Missing Gender or Age*

When the missing information concerned age or gender, we looked to the other venire members and jurors for whom we had more complete information. For example, if the age of an individual juror is unknown,<sup>326</sup> but we knew his gender (male) and race (black), we could look at black male jurors in other cases on which we had information on all three variables. From these data, we estimated his age on the basis of the proportion of young, middle-aged, and older people among the black male jurors. For example, if the data for those black males showed them to be 25% young, 25% old, and 50% middle-aged, the three separate age estimates for that juror under each of these categories would reflect those figures. In Table 8, these three estimates would be entered for this venire member/juror in Columns F-H.<sup>327</sup>

Similarly, if we had information on only one venire member characteristic, say gender (the juror was a woman), we estimated age by looking at the age distribution for jurors known to be women and imputed from that distribution the proportion of young, middle-aged, and older women. In Table 8, this is illustrated by juror 12, in Column F-H.

Moreover, when we lacked information on age and gender as well as race, we based our estimates on the whole population of jurors or venire members. This is illustrated in Table 8, Columns F-H, by juror 5.

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<sup>325</sup> Reliability below the .98 level occurred with respect to census-based estimates when the proportion of blacks in the census tract/block, for either a single or multiple match, fell between .02 and .98. For multiple voter registration matches, we averaged all hits for the estimate. To meet the 98% criterion, the voter hits would all have to have had the same race recorded.

<sup>326</sup> For the age variable, a venire member could be classified young, middle-aged, or older.

<sup>327</sup> None of the venire members in Table 8 had these characteristics.

c. *A Summary*

To summarize, Table 8, Column B indicates that we had a solid race estimate for 7 jurors and those estimates are entered in Column E. For juror 12, we had a census tract estimate of a .80 probability that the juror was black, which is also reported in Column E. Race was completely unknown only for jurors 5, 6, and 9. For them the best estimate was the .44 probability that the juror was black, based on the distribution of race among the jurors for whom we had the most reliable estimates. These estimates are shown in Column E.

The estimates in Column E provide the basis for estimating the number of blacks on jury 922, by adding the values in Column E. If we had a firm estimate that each juror was black, the sum of the Column E values would be 12. In the absence of firm values for each juror, the numbers yield a probabilistic statement, providing an estimate of the number of blacks on jury 922 in Table 8—3.1. This is shown in Part II, Row A, Column E.

The same procedure was used to produce the estimates of age and race that are shown in Columns F-I of Table 8.

Table 9 presents analyses of prosecutorial (Part I) and defense counsel (Part II) strike rates and disparities based on (a) the final estimates produced with our two-stage imputation procedure (Row 1), which we considered the best evidence, and (b) the estimates limited to the venire persons for whom we have a 98% reliable race estimate (Row 2).

The principal reason for our greater confidence in the final estimates is that they are based on all of the venire members in the study, whereas, in terms of venire member race, the venire members with 98% reliable individual race estimates did not appear to be a random sample of the total population of venire members. On this point, the data suggested that the uncertain/unknown race venire members had a different distribution of black and non-black venire members than did the venire members with 98% reliable race estimates. This was strongly suggested by the .45 prosecutorial strike rate against the uncertain/unknown race group, which is much closer to the .53 prosecutorial strike rate against black venire members with known race (an 8-point difference) than it is to the .22 prosecutorial strike rate against non-black venire members with known race (a 23-point difference).<sup>328</sup> Moreover, the results of our imputation procedure suggested that the proportion of blacks among the uncertain/unknown race group was .49, whereas it was .35 among the venire

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<sup>328</sup> We also saw evidence of the overrepresentation of blacks in the uncertain/unknown race category in the Table 7 regression model of prosecutorial strikes, which showed positive and statistically significant coefficients for the uncertain and unknown race variables. The model of defense counsel strikes shows equally strong and significant effects in the opposite direction for both the uncertain and unknown race variables.



members with 98% reliable estimates.<sup>529</sup>

APPENDIX A TABLE 9

PEREMPTORY STRIKE ESTIMATES AND DISPARITIES BASED ON (A) FINAL AND BEST RACE ESTIMATES, (B) 98% RELIABLE RACE INDIVIDUAL VENIRE MEMBER ESTIMATES, AND (C) WORST CASE ANALYSES INVOLVING RECODES FOR VENIRE MEMBERS WITH UNCERTAIN AND UNKNOWN INDIVIDUAL RACE CODES: N = 317 VENIRES

PART I : PROSECUTOR PEREMPTORY STRIKE RATES AND DISPARITIES

A	B	C	D	E	F
	Avg. Prosecutor Strike Rate v. Black VM	Avg. Prosecutor Strike Rate v. Non-Black VM	Diff. of Avg. Strike Rates (Col. B - Col. C)	Ratio of Avg. Strike Rates (Col. B/ Col. C)	Statistical Significance of Disparity (t-test)
1. Final and Best Race Estimates <sup>1</sup>	.51	.26	+25 pts.	1.96	.0001
2. Indiv. VM Race Estimates at 98% Level <sup>2</sup>	.53	.22	+31 pts.	2.41	.0001
3. Uncertain/ Unknown VM Race Estimates Recoded as Black and Non-Black <sup>3</sup>	.49	.30	+19 pts.	1.63	.0001

<sup>1</sup> This analysis is based on prosecutorial strikes against 11,727 strike eligible venire members

<sup>2</sup> This analysis is based on strikes against 8700 strike eligible venire members for whom the individual venire member race estimates are 98% reliable. For the 4338 venire members for whom the individual race estimate is uncertain or unknown, the prosecutorial strike rate is .45.

<sup>3</sup> There are the 1633 strike eligible venire members for whom race is uncertain, and 1394 for whom it is unknown; the strike rate against them is .45. For the strike rate analysis against black venire members, venire members coded uncertain/unknown are recoded black, which lowers that strike rate to .49. For strike rates against non-blacks, venire members coded uncertain/unknown are recoded black, which raises that strike rate to .30.

<sup>529</sup> The explanation for the higher rate of unknown race codes for black venire members may be a greater reluctance of blacks than non-blacks to report their race on voter registration rolls, a principal source of information on venire member race. Also, it appears that in Philadelphia, blacks are more likely than non-blacks to reside in mixed race neighborhoods, which reduces the chances of obtaining a 98% accurate race estimate on the basis of census data.

## APPENDIX A TABLE 9 (continued)

## PART II: DEFENSE COUNSEL PEREMPTORY STRIKE RATES AND DISPARITIES

A	B	C	D	E	F
	Avg. Defense Strike Rate v. Black VM	Avg. Defense Strike Rate v. Non-black VM	Difference of Avg. Strike Rates (Col. B - Col. C)	Ratio of Avg. Strike Rates (Col. B / Col. C)	Statistical Significance of Disparity (t-test)
1. Final and Best Race Estimates <sup>1</sup>	.26	.54	-28 pts.	0.48	.0001
2. Individual VM Race Estimates at 98% Level <sup>2</sup>	.22	.56	-34 pts.	0.39	.0001
3. Uncertain/Unknown VM Race Estimates Recoded as Black and Non Black <sup>3</sup>	.29	.51	-22 pts.	0.57	.0001

<sup>1</sup> This analysis is based on strikes against 12092 venire members.

<sup>2</sup> This analysis is based on strikes against 9218 venire members for whom the race estimate is 98% reliable. For the 2874 venire members for whom race is uncertain (n = 1439) or unknown (n = 1435), the defense counsel strike rate is .39.

<sup>3</sup> There are 1439 strike eligible VMs for whom race is uncertain and 1455 for whom race is unknown. The defense counsel strike rate for these venire members is .39. For the strike analysis against black venire members, venire members coded uncertain/unknown are recoded black, which raises the strike rate to .29. For the strikes against non-blacks, venire members coded uncertain/unknown are recoded non-black, which lowers the strike rate to .51.

A comparison of Part I of Column D (Rows 1 and 2) indicates that the overall prosecutorial strike rate disparity against black venire members, when based on our final best estimates (25 points), was six percentage points lower than when based strictly on the 98% reliable race estimates (31 points). Part II further indicates that the defense counsel strike rate disparity against non-black venire members (-28 points) was seven percentage points lower than it is when calculated among the venire members with 98% reliable race estimates (-34 points).

The more conservative nature of the disparities estimated with our final race estimates is partly an artifact of the second stage of the imputation procedure that we used to produce them. That procedure calls for a proportional allocation of each venire member with uncertain or unknown race to the counts of black and non-black venire members. For example, if a venire member's estimated race was .90, his or her presence on the venire increased the count of blacks by .90 persons and the count of whites by .10 persons. There are inevitably

misclassifications among venire members that tend to bias each side's strike rates against black and non-black venire members toward the mean. Thus, our final prosecutorial strike estimates document a strike rate against blacks that is lower, and a strike rate against non-blacks that is higher, than what we saw in the 98% reliable data.<sup>350</sup> We saw the same effects in the analysis of defense counsel strike rates.

This biasing effect was a price we paid for these estimates. That price was outweighed, however, by the fact that our final estimates were based on the entire sample of venire members and not merely a 75% sub-sample that did not appear to be a random sample in terms of the distribution of blacks and non-blacks in it. Moreover, in some cases, by chance, the proportion of known race venire members was sufficiently low to give substantial pause about relying on the strike estimates limited to the 98% reliable estimates. In addition, the imputation procedure made use of all of the relevant data available to us on the venire members. A significant proportion of that information would be lost if we had relied solely on the 98% reliable estimates. Finally, the imputation estimates were sufficiently fine-tuned to indicate when the race estimates in a given venire may have been particularly low in terms of reliability because of the amount of information that was uncertain or unknown.

The more conservative disparities documented with our primary estimates may also partly reflect a lower prosecutorial strike rate against black venire members among the venire members with uncertain/unknown race than the rate that we documented among the venire members with 98% reliable race estimates. The same effect may also hold for the defense counsel strikes.

In any event, on balance, we believe that the disparities documented with our primary best race estimates underestimate somewhat the race and gender disparities we would document in the system if we had 98% reliable data for all venire members.

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<sup>350</sup> The biasing effect suggested above is specifically documented below, *infra* notes 334-38 and accompanying text, in an analysis that limited our analyses to estimates based on the composite estimates at the 95% level of reliability. Specifically, when the analyses were so limited, the impact of the racial composition of the jury became more pronounced than when the analysis included estimates of the racial composition of the jury without regard to the reliability of the estimate.

### 3. *The Validity/Stability of the Composite Estimates of Race, Gender, and Age*

For the reasons stated above, we believe the primary race estimates based on our two-stage imputation procedure provided the best (most reliable) basis for documenting race and gender discrimination in the use of peremptories by prosecutors and defense counsel. However, in the interest of completeness, we conducted worst case analyses in which we recoded venire members with uncertain and unknown (UC/UK) race in a manner that was likely to reduce the documented race and gender effects. The results are presented in Table 9, Row 3, in Parts I and II.

In the Part I and II analysis of strike rates, we recoded the UC/UK venire members differently for the strikes against black and non-black venire members in a manner that would most likely reduce the magnitude of the race disparities. Specifically, for the prosecutorial strike rate analysis against black venire members in Part I, we recoded the UC/UK race venire members black, because the prosecutorial strike rate against UC/UK coded venire members was lower than it was against the black venire members with 98% reliable estimates. For the strike rate against non-black venire members, we recoded the UC/UK coded venire members non-black because the strike rate against those venire members was higher than it was against the non-black venire members with 98% reliable codes. For the Part II defense counsel analysis, the recoding scheme was the same—coding the UC/UK coded venire members black for the defense counsel strikes against blacks and non-black for the strikes against non-blacks.

We clearly expected these recodes to reduce the race disparities for both sides. The question was how large the changes would be, and whether they would be sufficiently large to suggest that the actual race effects in the system were substantially lower than our final best estimates. We conducted the worst case analysis with crosstabulations, like those presented in Article Table 2, and in the logistic regression analysis presented in Article Table 7.

Row 3 of Table 9 presents the crosstabular results comparable to Article Table 2. It indicates that under the highly improbable assumptions of the worst case analysis, the race effects in the prosecutorial analysis decline by 24% (6/25),<sup>331</sup> but the disparity holds at 19-percentage points, which is substantial and statistically significant. The defense counsel analysis shows a similar decline of 21% (6/28), with a substantial and statistically significant race effect of 22-percentage points remaining.<sup>332</sup>

As expected, the contrast between the worst case results and the disparities based on the 98% reliable estimates were more substantial.

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<sup>331</sup> A comparison of Part I, Column D, Rows 1 & 3.

<sup>332</sup> A comparison of Part II, Column D, Rows 1 & 3.

In the prosecutorial analysis, the worst case results were 39% (12/31) lower, and, in the defense counsel analysis, they were 35% (12/34) lower.<sup>333</sup> We also conducted worst case analyses with variations on our Table 7 logistic regression models that focus on each side's strike rates against black and non-black venire members.

In our judgment, the results of these worst case analyses fail to draw into question the validity of the race disparities estimated on the basis of our final and best race estimates.

Of course, with less information on an individual venire member/juror, the estimates are less accurate, a characteristic that we measure in terms of how close the imputed estimates are to 0% or 100%. And, as we describe in more detail below, we took this uncertainty into account in evaluating separately the accuracy of our composite estimates for each jury and venire as a whole.

We note that in our strike rate analysis with individual venire members (Article Table 7) as the unit of observation, we did not use age and gender estimates for individual venire members if they did not meet the .98 validity standard. The reason for so limiting the Table 7 analysis is that at the individual venire-member level, the age and gender estimates lacked sufficient precision when we had no independent source of information.<sup>334</sup> However, in the Article (Table 7), we did use the census-based race estimates for the 1914 cases that did not meet the 98% reliability standard.<sup>335</sup>

Nevertheless, for the purpose of estimating the composite characteristics of a jury or venire as a whole, the imputed estimates for gender and age were adequate. They were also adequate to support strike rate estimates against specific groups of venire members, defined in terms of race, gender, and/or age. For example, if the venire composite estimate suggested that six blacks were in the pool of prosecutor strike-eligible venire members, and three of them were struck by the prosecutor, the prosecutorial strike rate against blacks for that case would be .50. This is also the procedure that we used to estimate strikes against the subgroups defined in terms of race, gender, and age that were the principal focus of this Article. Indeed, all of the strike rate analyses in the Article, except for the Table 7 regression results, were based on a comparison of venire and jury compos-

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<sup>333</sup> A comparison of Column D, Rows 2 & 3 in Parts I & II.

<sup>334</sup> We did not include the weaker (less than 98% reliable) measure for gender because gender was missing in only 4% of the cases. For age, the percent missing was higher, 17%, but we did not have a comparable estimate based on less than 98% reliability.

<sup>335</sup> In the Table 7 logistic regression analysis, the 1718 venire members for whom we had no information on race were coded as unknown. However, the 1914 venire members for whom we had census data that did not meet the 98% level of reliability were race coded with that information. See tbl.7, Part B.1.b. The validation analysis in Appendix Table 7 (Row 3) indicated a strong correlation (.76) between the census-based estimates below the 98% level of reliability and the venire member's race.

ite estimates.<sup>336</sup>

As indicated in Table 8, Part II Row B, the estimation procedure described above produced confidence intervals for the composite race, gender, and age estimates for each jury. They provide an estimate of the accuracy of the composite estimate for each jury characteristic. The confidence intervals are based on a convolution estimation procedure that calculates the probability that a given jury or venire will have, say, one black member, two black members, three black members, etc. For example, assume that we know from reliable (98% confidence level) estimates that there are ten non-blacks on a given jury, and we have census-based estimates of .30 and .80 black for two other jurors, A and B. We know from these data that there can be no more than two black jurors. It also follows that there is a 24% (.30 x .80) chance that both of these venire members are black, as well as a 62% probability that one is black and a 14% probability that neither is black.<sup>337</sup> Such estimates provided the basis for the confidence intervals.

Confidence intervals enabled us to evaluate the relative accuracy of mean estimates and to identify subgroups of cases in terms of the accuracy of their estimates. For example, we could limit one set of results to cases in which we were 95% confident that the number of black jurors on a given jury was above a certain number (we most commonly used an "above or below the median number" split). As an alternative, we could assess the results when we added to the analysis estimates in which we had less confidence. Such analyses enabled us to determine the extent to which important relationships associated with the age, race, and gender composition of the juries and venires were robust when the quality of the estimates varied. If we observed important differences in the substantive results that appeared to vary with the accuracy of the estimates used to produce them (for example, the association between the racial composition of the jury and the probability that a death sentence would be imposed), we could assess the extent to which the results estimated with the less reliable estimates appeared to be an artifact of the level of reliability in the underlying estimates.

We did conduct alternative analyses of our core findings using 95% levels of confidence in our race, age, and gender classifications. When the samples were limited to the 95% reliable estimates (i.e. in our Article Figure 6 analysis of the impact of the racial composition of the jury on penalty trial sentencing outcomes) the sample size of

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<sup>336</sup> These estimates were based on subgroups within the venires defined in terms of prosecutorial and defense counsel strike-eligibles and by which venire members were struck and accepted by each side.

<sup>337</sup> The 62% probability represents the sum of the probability (.06) that juror A is black when juror B is not, and the probability (.56) that juror B is black when juror A is not. The 14% probability represents the product of the probability (.70) that juror A is non-black and the probability (.20) that juror B is non-black.

cases declined 36% (142/393). However, the findings became stronger. For example, the impact of the racial composition of the jury on sentencing outcomes shown in Article Figure 6 (Column A) increased from 9-percentage points ( $p = .02$ ) to 12-percentage points ( $p = .04$ ) when we limited the analysis to the more reliable data. In Column B, the disparity rose from eleven points ( $p = .01$ ) to fifteen points ( $p = .02$ ).<sup>538</sup> When the disparities reported in the Figures of the Article failed to show statistical significance, they failed to do so as well when the analysis was limited to the more reliable data. In short, we believe that the results reported in the Article present a conservative picture of the influence of race and gender on the use of peremptories in Philadelphia and the impact of the racial composition of the jury on sentencing outcomes.

#### IV. LOGISTIC REGRESSION DIAGNOSTICS

We conducted two diagnostic analyses to assess the validity of our Article Table 7 regression analyses. The first was a collinearity analysis designed to identify multicollinearity (high correlation) between independent variables in the prosecutorial and defense counsel models. Multicollinearity is a potential threat to the validity of both the magnitude and statistical significance of such variables. We used generally accepted methods to test for collinearity.<sup>539</sup> In both analyses, the core variables of interest, race, gender, and age showed no evidence of multicollinearity with any other variables in the model. The tests did identify two instances of mild collinearity between less important variables,<sup>540</sup> but in our judgment, they did not create concerns about the validity of the overall model or the coefficients estimated for venire race, gender, and age variables.

We also conducted an "influence" analysis, designed to indicate whether one or a few venire members with unusual characteristics may have had an undue impact on any of the regression coefficients estimated in the model. We used generally accepted methods to test for undue influence.<sup>541</sup> The tests revealed that no single venire mem-

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<sup>538</sup> In Article Figure 9, the 24-point disparity ( $p = .001$ ) in Column A rose to 36 points ( $p = .003$ ).

<sup>539</sup> We applied the SAS REG COLLIN diagnostic procedure.

<sup>540</sup> The procedure suggests the possibility of weak collinearity if the "condition index" exceeds 10 and strong effects on the stability of the regression estimates if the "condition index" exceeds 100. The largest condition index, 21, showed mild multicollinearity between the educational categories. This effect is not surprising since the educational variables were non-overlapping categories. Thus a coding of "1" for any one of the seven education variables would mean a coding of "0" for the remaining six education variables. The second-largest condition index, 12, showed a positive relationship between "missing occupation" and "missing education." Substantial unavailability of venire member demographic information for some trials made "missing occupation" and "missing education" highly overlapping groups, hence the mild collinearity.

<sup>541</sup> We applied SAS logistic regression influence statistics, which define as a potential problem any venire member with a "DF Beta" greater than 2.

ber or group of venire members included in the analyses skewed a coefficient for any of the variables in the models.

V. DIRECT STANDARDIZATION PROCEDURES FOR ADJUSTMENT OF DEATH-SENTENCING RATES IN SUBPOPULATIONS OF CASES TO ACCOUNT FOR DIFFERENCES IN THE DISTRIBUTION OF DEFENDANT CULPABILITY LEVELS

A number of times in this Article we estimated death-sentencing rates for different subgroups of cases and compared the results of the different estimates. For example, as a basis for inferring the impact of the defendant's race on penalty trial sentencing decisions, we compared the death-sentencing rate in black defendant cases with the rate for the non-black defendant cases. As a basis for inferring the impact of the racial composition of juries on death-sentencing rates, we compared the death sentencing rate in cases with more than the median number of black jurors to the rate in cases with fewer than the median number of black jurors. A possible problem with these comparisons is that the difference in death-sentencing rates that we documented may have reflected differences in the culpability levels of the defendants in the two subgroups rather than the impact of the defendant's race or the racial composition of the jury. An extreme form of the problem would exist if the defendants in one group of cases were the most aggravated in the sample while the defendants in the other group of cases were the least aggravated. In practice, disparities in the distributions of defendant culpability levels are never this extreme, but they are often sufficiently different to present a risk of an erroneous inference. To avoid the risks, we needed a procedure to control for the culpability of the defendant in each case.

One method to control for defendant culpability in these situations is to subject the cases to a logistic multiple regression analysis that takes into account, and controls for, the culpability level of each defendant.<sup>342</sup> An alternative method, which we have found more ac-

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<sup>342</sup> We conducted such procedures for the core analyses. In these models, defendant culpability was measured with a case-specific culpability scale rather than the defendant's location on the 8-point culpability scale used to control for culpability in the Article Figures. The results from the regression analyses uniformly showed a larger impact of jury composition on death-sentencing rates and disparities than did the Figures based on the direct standardization method. First, nearly all of the statistically significant effects in the figures were statistically significant in the regressions. Second, the magnitude of the statistically significant effects was uniformly larger in the regressions. (We used a generally accepted procedure, which converts logistic death-sentencing odds based estimates to probability estimates, to transform the logistic coefficients in the regression models to percentage point disparities comparable to those reported in the Figures.) For example, in Figure 6, the regression counterpart to the 9-point disparity ( $p = .02$ ) in Column A was an 11-point disparity ( $p = .03$ ) and in Column B the counterpart to the 11-point disparity ( $p = .01$ ) was a 14-point disparity ( $p = .02$ ). In Figure 12, the regression counterpart to the 10-point disparity ( $p = .05$ ) in Column A was a 12-point disparity ( $p = .05$ ) in Column B.



cessible for this research, is a process of adjustment for case culpability known as "direct standardization."<sup>343</sup> It enabled us to estimate an overall death-sentencing rate for two or more groups of actual cases, on the assumption that the cases in each group have the same levels or distribution of defendant criminal culpability. For this purpose, our measure of defendant culpability was an eight-level scale, which built upon the result of a logistic multiple regression analysis of 318 penalty trial sentencing decisions in Philadelphia from 1983 to 1994.<sup>344</sup>

We can illustrate the risk of bias that might occur in the absence of an adjustment for offender culpability by comparing the death sentencing rate in black defendants/non-black victim cases (.42) to the death-sentencing rate for the other cases in our sample (.25). This comparison produced a 17-percentage point disparity (.42 vs. .25). Our concern with this comparison is that the culpability level of the two groups of cases may differ, which could explain why the unadjusted death sentencing rate is higher in the BD/NBV cases. In fact, analysis shows that the BD/NBV cases were more aggravated.<sup>345</sup> Specifically, in contrast to the other cases, the BD/NBV cases were

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$p = .03$ ) and in Column B the regression counterpart to the 12-point disparity ( $p = .011$ ) was an 18-point disparity ( $p = .01$ ).

<sup>343</sup> JOSEPH L. FLEISS, *STATISTICAL METHODS FOR RATES AND PROPORTIONS* 162-64 (1973) and PRITHWIS DAS GUPTA, *STANDARDIZATION AND DECOMPOSITION OF RATES: A USER'S MANUAL* 23-186 (1993) present a more technical discussion of the issues and procedures involved with the use of the standardization procedure. We prefer the directly standardized results as the principal mode for the presentation of our findings because they are easier to depict and explain than are regression coefficients and odds multipliers estimated for race of defendant and victim variables. For this reason, they are widely used. See, e.g., LESTER R. CURTIN & RICHARD J. KLEIN, U.S. DEP'T OF HEALTH AND HUMAN SERVS., *DIRECT STANDARDIZATION (AGE-ADJUSTED DEATH RATES)* (1995) (direct standardization for age); Seiji Nakata et al., *Trends and Characteristics in Prostate Cancer Mortality in Japan*, 7 *INT'L J. UROLOGY* 254 (2000) (direct standardization for age differences); R.M. Bray & M.E. Marsden, *Trends in Substance Use Among U.S. Military Personnel: The Impact of Changing Demographic Composition*, 35 *SUBSTANCE USE & MISUSE* 949 (2000) (direct standardization for differences in demographics of military personnel); Arlene C. Sena et al., *Trends of Gonorrhea and Chlamydial Infection During 1985-1996 Among Active-Duty Soldiers at a United States Army Installation*, 30 *CLINICAL INFECTIOUS DISEASES* 742 (2000) (direct standardization for age, sex, and race/ethnicity); Alexa Beiser et al., *Computing Estimates of Incidence, Including Lifetime Risk: Alzheimer's Disease in the Framingham Study; The Practical Incidence Estimators (PIE) Macro*, 19 *STAT. MED.* 1495 (2000) (direct standardization for age).

<sup>344</sup> Baldus et al., *Charging and Sentencing Study*, *supra* note 289, at 1758-59 (the regression model); *id.* at 1766 (the eight-level scale after the effects of the race and the socioeconomic status of the defendant and victim have been purged). The regression model included twenty-five aggravating and mitigating circumstances that were either conceptually important (the statutory aggravating and mitigating circumstance) or were important predictors of the defendants who were sentenced to death. These results enabled us to predict for each defendant a probability, given the specific facts of his or her case, that he or she would be sentenced to death. This estimated probability provides a measure of culpability with high culpability, associated with the high estimates and lower culpability associated with the lower predictions. In addition, we rank-ordered the predictions and grouped the defendants into eight groups of "near neighbor" in terms of their predicted probability of receiving a death sentence. These groupings underlie the eight-level culpability that we used to adjust cases for defendant culpability in this study.

<sup>345</sup> The difference between the two distributions was statistically significant at the .01 level.

more heavily concentrated in the higher levels (6-8) of the eight-level culpability scale that we used to measure defendant culpability and under-represented in the least aggravated cases (levels 1-3 of the scale), a difference that may explain why the death sentencing rate was higher for this group.<sup>346</sup> After adjustment for the difference in the culpability levels of the two groups of cases, the death sentencing rates for the two groups were .32 for the BD/NBV cases and .26 for the other cases. This 6-percentage point disparity suggests that eleven points of the initial 17-point percentage point disparity were the result of the differences in the culpability levels of the defendants in the two groups of cases.

The direct method of adjusting for differences among populations of defendants<sup>347</sup> focuses on computing the overall death-sentencing rate that would result for a subpopulation of defendants if, instead of having a different distribution of criminal culpability, both the whole population of defendants and the subpopulation of defendants being compared to the whole population had the same distribution of culpability.<sup>348</sup> Table 10 illustrates the adjustment procedure. Our purpose there is to adjust the .42 (25/60) death-sentencing rate for the hypothetical subpopulation of 60 penalty trial cases shown in Column C, Row 3.a. This rate is adjusted to the death sentencing rate we would expect to see if the distribution of defendant culpability levels for the young defendants in Column C were the same as the distribution for the whole population of defendants shown in Column B. The adjusted rate of .37 is shown in Column C, Row 3.b.

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<sup>346</sup> The eight-level scale is described above, *supra* note 344.

<sup>347</sup> To illustrate the process of direct adjustment, we draw on a presentation in a leading textbook by Professors Pagno and Gauvreau of the Harvard University Schools of Public Health and Medicine, respectively, which we have modified to fit the subject matter of this Article. MARCELLO PAGNO & KIMBERLEE GAUVREAU, *PRINCIPLES OF BIostatISTICS* 72-73 (2000).

<sup>348</sup> *Id.* at 72. The same principles apply when the death sentencing rates among multiple subgroups are being compared, as is the case in several Figures in this Article.

APPENDIX A TABLE 10

DIRECT STANDARDIZATION PROCEDURE FOR ADJUSTMENT OF DEATH SENTENCING RATES FOR A HYPOTHETICAL SUBPOPULATION OF YOUNG PENALTY TRIAL DEFENDANTS CONTROLLING FOR DEFENDANT CULPABILITY

A 1. Culpability Level	B Whole Defendant Population	C Subpopulation of Young Defendants <hr/> Actual Death Sentencing Rate	D Expected # of Death Sentences if the Whole Defendant Population (Col. B) were Sentenced at Same Rate as the Subpopulation of Young Defendants (Col. C)
a. (Low)	250	.10 (3/30)	25
b. (Med)	160	.50 (5/10)	80
c. (High)	100	.85 (17/20)	85
2. Total	510		190
3. Subpopulation Death Sentencing Rates:			
a. Unadjusted Rate		.42 (25/60)	
b. Adjusted Rate		.37 (190/510)	

The first step in applying this technique is to identify the standard distribution of culpability levels for the whole population of defendants.<sup>349</sup> Column A of Table 10 shows three levels of culpability<sup>350</sup> and Column B indicates the distribution of the whole population of defendants on that scale. We then calculate the number of death sentences that would have occurred in the subpopulation of young defendants, assuming that the defendants in it had the same culpability distribution as the whole population of defendants, while retaining its own individual death sentencing rates specific to each culpability level.<sup>351</sup>

The expected numbers of death sentences for the subpopulation of defendants are calculated by multiplying Column B by Column C, which produces a total expected pool of 190 death sentences. This is shown in Column D, Row 2. The culpability-adjusted death-

<sup>349</sup> *Id.*

<sup>350</sup> We use a three-level culpability scale here to simplify the explanation. In the actual research, we used an eight-level culpability scale.

<sup>351</sup> PAGNO & GAUVREAU, *supra* note 347, at 73.

sentencing rate for the subpopulation of young defendant is then calculated by dividing its total expected number of 190 death sentences by the whole defendant population of 510, which is shown in Column B, Row 2.<sup>352</sup> This produces the culpability adjusted death-sentencing rate of .37 (190/510) for the subpopulation of young defendants in Column C.

This culpability-adjusted death-sentencing rate is the rate that would apply if both the young defendant subpopulation in Column C and the whole defendant population in Column B had the same culpability distribution.<sup>353</sup> The .37 adjusted rate is 5-percentage points lower than the .42 unadjusted rate because, as a comparison of the distribution of cases in Columns B and C reveals, the young defendant (Column D) subpopulation is more heavily weighted toward the upper end of the culpability scale than are the cases in the whole population in Column B.<sup>354</sup>

In the Figures presented in this Article, the adjusted death-sentencing rates that we report for each subpopulation of cases were based on a comparison of its distribution of culpability scores to the distribution of culpability scores for the whole population of defendants in our universe.<sup>355</sup>

One limitation of the direct standardization adjustment procedure illustrated in Table 10 is the requirement that each subgroup of cases for which an adjustment is made contains one or more cases at each of the culpability levels involved in the analysis. This requirement becomes problematic when the subgroups being estimated are comparatively small.<sup>356</sup> When one or two "no data" gaps appeared in a subgroup's culpability distribution, we collapsed the level with missing data into the adjacent level with the smaller sample size. If there were three or more gaps overall, we considered the data too thin to support a reliable estimate using this procedure and we flagged the estimate to warn the reader of possible unreliability.<sup>357</sup> Under both those circumstances, we relied more heavily on our alternative regression based estimates.<sup>358</sup>

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<sup>352</sup> *Id.*

<sup>353</sup> *Id.*

<sup>354</sup> See App. tbl.9.

<sup>355</sup> See App. tbl.2.

<sup>356</sup> This problem is also more likely to occur in this research than in the hypothetical situation presented in Table 9, because our adjustments were based on an eight-level culpability scale, which tends to thin the data out more than does a three-level culpability scale.

<sup>357</sup> We report such data in the belief that doing so is more informative than no data, so long as the risks of unreliability are taken into account in their interpretation.

<sup>358</sup> Note that the adjustments illustrated in the Appendix A Table 9 hypothetical adjustment problem ignored the sample sizes of the cases at each culpability level of Column G. However, when we compared the adjusted death-sentencing rates of two subgroups of cases, i.e., the rate for black defendants versus the rate for non-black defendants, we used an estimation procedure that first calculated the disparity of death-sentencing rates at each level of culpability and then estimated an overall disparity weighted to reflect the different sample sizes of cases at each culpability level.

## APPENDIX B

RACE, SEX, AND AGE DISPARITIES IN PROSECUTORIAL  
OR DEFENSE COUNSEL USE OF PEREMPTORY CHALLENGES  
WITH ALTERNATIVE CONTROLS FOR RACE, SEX, OR AGE  
(All strike rate comparisons are at the case level.)

A Venire-member Characteristics	B Prosecutorial Disparities	C Defense Counsel Disparities
Part A. Race Effects Controlling for Sex and Age of Venire- Members		
1. Male, Young	Black .61 <u>Non-Black .29</u> Diff. 32 pts. Ratio 2.1 ( <i>p</i> =.0001)	Black .28 <u>Non-Black .54</u> Diff. -26 pts. Ratio .52 ( <i>p</i> =.0001)
2. Male, Middle Age	Black .43 <u>Non-Black .25</u> Diff. 18 pts. Ratio 1.7 ( <i>p</i> =.0001)	Black .30 <u>Non-Black .58</u> Diff. -28 pts. Ratio .52 ( <i>p</i> =.0001)
3. Male, Old	Black .38 <u>Non-Black .18</u> Diff. 20 pts. Ratio 2.1 ( <i>p</i> =.0001)	Black .36 <u>Non-Black .65</u> Diff. -29 pts. Ratio .55 ( <i>p</i> =.0001)
4. Female, Young	Black .63 <u>Non-Black .35</u> Diff. 28 pts. Ratio 1.8 ( <i>p</i> =.0001)	Black .23 <u>Non-Black .41</u> Diff. -18 pts. Ratio .56 ( <i>p</i> =.0001)

A Venire-member Characteristics	B Prosecutorial Disparities	C Defense Counsel Disparities
5. Female, Middle Age	Black .49 <u>Non-Black .28</u> Diff. 21 pts. Ratio 1.7 ( <i>p</i> =.0001)	Black .24 <u>Non-Black .48</u> Diff. -24 pts. Ratio .50 ( <i>p</i> =.0001)
6. Female, Old	Black .48 <u>Non-Black .31</u> Diff. 17 pts. Ratio 1.5 ( <i>p</i> =.0001)	Black .30 <u>Non-Black .55</u> Diff. -25 pts. Ratio .55 ( <i>p</i> =.0001)
Part B. Gender Effects Controlling for the Race and Age of Venire-members		
1. Black, Young	Male .61 <u>Female .63</u> Diff. -2 pts. Ratio .97 ( <i>p</i> =.57)	Male .28 <u>Female .23</u> Diff. 5 pts. Ratio 1.2 ( <i>p</i> =.11)
2. Black, Middle Age	Male .43 <u>Female .49</u> Diff. -6 pts. Ratio .88 ( <i>p</i> =.01)	Male .30 <u>Female .24</u> Diff. 6 pts. Ratio 1.2 ( <i>p</i> =.003)
3. Black, Old	Male .38 <u>Female .48</u> Diff. -10 pts. Ratio .79 ( <i>p</i> =.0001)	Male .36 <u>Female .30</u> Diff. 6 pts. Ratio 1.2 ( <i>p</i> =.05)
4. Non-Black, Young	Male .29 <u>Female .35</u> Diff. -6 pts. Ratio .83 ( <i>p</i> =.02)	Male .54 <u>Female .41</u> Diff. 13 pts. Ratio 1.3 ( <i>p</i> =.0001)

A Venire-member Characteristics	B Prosecutorial Disparities	C Defense Counsel Disparities
5. Non-Black, Middle Age	Male .25 <u>Female .28</u> Diff. -3 pts. Ratio .89 ( $p=.01$ )	Male .58 <u>Female .48</u> Diff. 10 pts. Ratio 1.2 ( $p=.0001$ )
6. Non-Black, Old	Male. .18 <u>Female .31</u> Diff. -13 pts. Ratio .58 ( $p=.0001$ )	Male .65 <u>Female .55</u> Diff. 10 pts. Ratio 1.2 ( $p=.0001$ )

C. Age Effects Controlling for Race and Gender of Venire-members	B. Prosecutorial Disparities	C. Defense Counsel disparities
1. Black, Male	Young .61 } Diff. 18 pts. Middle .43 } Diff. 23 pts. } Diff. 5 pts. Old .38	Young .28 } Diff. -2 pts. Middle .30 } Diff. -8 pts. } Diff. -6 pts. Old .36
2. Black, Female	Young .63 } Diff. 14 pts. Middle .49 } Diff. 15 pts. } Diff. 1 pt. Old .48	Young .23 } Diff. -1 pt. Middle .24 } Diff. -7 pts. } Diff. -6 pts. Old .30
3. Non-Black, Male	Young .29 } Diff. 4 pts. Middle .25 } Diff. 11 pts. } Diff. 7 pts. Old .18	Young .54 } Diff. -4 pts. Middle .58 } Diff. -11 pts. } Diff. -7 pts. Old .65
4. Non-Black, Female	Young .35 } Diff. 7 pts. Middle .28 } Diff. 4 pts. } Diff. -3 pts. Old .31	Young .41 } Diff. -7 pts. Middle .48 } Diff. -14 pts. } Diff. -7 pts. Old .55



## APPENDIX C

RACE AND GENDER EFFECTS IN THE EXERCISE OF PEREMPTORY  
CHALLENGES, BY INDIVIDUAL PROSECUTORS LISTED BY RACE,  
ETHNICITY, AND GENDER OF THE PROSECUTOR

A Prosecu- tor	B # of Cases	Race Effects			Gender Effects		
		C Black Venire Member Strike Rate	D Non- black Ve- nire Member Strike Rate	E Diff. (Cols. C-D)	F Venire Men Strike Rate	G Venire Women Strike Rate	H Diff. (Cols. F-G)
A. White Men							
	5	0.40	0.33	6 pts.	0.37	0.40	-2 pts.
	1	0.00	0.50	-50 pts.	0.00	0.33	-33 pts.
	2	0.71	0.10	61 pts.	0.28	0.31	-4 pts.
	5	0.67	0.15	52 pts.	0.34	0.42	-9 pts.
	2	0.55	0.35	21 pts.	0.42	0.45	-3 pts.
	2	0.40	0.24	17 pts.	0.24	0.36	-12 pts.
	3	0.31	0.20	11 pts.	0.15	0.29	-14 pts.
	14	0.55	0.20	35 pts.	0.22	0.46	-24 pts.
	4	0.47	0.16	31 pts.	0.24	0.44	-20 pts.
	1	0.58	0.08	50 pts.	0.20	0.56	-36 pts.
	5	0.56	0.32	24 pts.	0.42	0.39	4 pts.
	1	0.20	0.00	20 pts.	0.20	0.25	-5 pts.
	6	0.23	0.23	0 pts.	0.25	0.29	-4 pts.
	3	0.60	0.21	39 pts.	0.28	0.53	-26 pts.
	1	0.85	0.33	51 pts.	0.56	0.45	10 pts.
	4	0.51	0.14	37 pts.	0.33	0.34	-1 pts.
	1	0.67	0.55	12 pts.	0.55	0.70	-15 pts.
	12	0.39	0.22	17 pts.	0.27	0.32	-5 pts.
	6	0.68	0.12	56 pts.	0.28	0.42	-14 pts.
	3	0.47	0.18	29 pts.	0.22	0.43	-21 pts.
	5	0.47	0.21	26 pts.	0.41	0.34	7 pts.
	2	0.49	0.24	25 pts.	0.29	0.37	-8 pts.
	3	0.41	0.06	35 pts.	0.24	0.28	-4 pts.
	3	0.67	0.13	55 pts.	0.37	0.42	-5 pts.
	1	0.25	0.39	-14 pts.	0.42	0.21	20 pts.
	2	0.64	0.03	61 pts.	0.21	0.29	-8 pts.
	8	0.75	0.23	52 pts.	0.36	0.44	-8 pts.
	1	0.73	0.10	63 pts.	0.40	0.54	-14 pts.
	1	0.38	0.33	4 pts.	0.13	0.55	-43 pts.
	1	0.77	0.22	55 pts.	0.50	0.43	7 pts.
	11	0.53	0.17	36 pts.	0.28	0.35	-7 pts.
	6	0.81	0.32	49 pts.	0.45	0.45	-0 pts.
	9	0.63	0.20	43 pts.	0.37	0.45	-8 pts.
	12	0.68	0.17	51 pts.	0.30	0.47	-17 pts.

		Race Effects			Gender Effects		
A Prosecu- tor	B # of Cases	C Black Venire Member Strike Rate	D Non- black Ve- nire Member Strike Rate	E Diff. (Cols. C-D)	F Venire Men Strike Rate	G Venire Women Strike Rate	H Diff. (Cols. F-G)
	1	0.58	0.17	42 pts.	0.27	0.38	-11 pts.
	2	0.69	0.30	39 pts.	0.38	0.44	-5 pts.
	2	0.61	0.39	23 pts.	0.28	0.49	-20 pts.
	2	0.42	0.20	22 pts.	0.24	0.23	1 pts.
	1	0.53	0.32	21 pts.	0.27	0.57	-30 pts.
	3	0.54	0.27	27 pts.	0.36	0.35	0 pts.
	3	0.65	0.29	35 pts.	0.38	0.48	-10 pts.
	2	0.54	0.27	28 pts.	0.36	0.44	-8 pts.
	6	0.54	0.29	25 pts.	0.33	0.46	-14 pts.
	1	0.50	0.05	45 pts.	0.06	0.40	-34 pts.
	1	0.64	0.36	27 pts.	0.42	0.48	-6 pts.
	3	0.70	0.32	38 pts.	0.31	0.56	-25 pts.
	1	0.56	0.22	33 pts.	0.29	0.33	-4 pts.
	5	0.62	0.24	38 pts.	0.28	0.42	-15 pts.
	1	0.60	0.00	60 pts.	0.18	0.29	-10 pts.
	1	0.44	0.24	21 pts.	0.33	0.44	-11 pts.
White Men Total	181	0.56	0.22	34 pts.	0.31	0.41	-10 pts.
<b>B. Hispanic Men</b>							
	1	0.77	0.38	39 pts.	0.50	0.43	7 pts.
	7	0.30	0.19	11 pts.	0.19	0.26	-8 pts.
Hispanic Men Total	8	0.36	0.21	15 pts.	0.23	0.28	-6 pts.
<b>C. Black Men</b>							
	7	0.54	0.35	19 pts.	0.40	0.41	-0 pts.
	5	0.42	0.25	17 pts.	0.31	0.42	-11 pts.
	1	0.75	0.33	42 pts.	0.47	0.35	13 pts.
	5	0.41	0.25	16 pts.	0.42	0.34	9 pts.
	3	0.35	0.18	17 pts.	0.19	0.43	-24 pts.
	32	0.46	0.23	24 pts.	0.33	0.37	-4 pts.
	1	0.21	0.26	-5 pts.	0.33	0.37	-4 pts.
	5	0.46	0.27	19 pts.	0.38	0.34	4 pts.
	6	0.43	0.14	29 pts.	0.11	0.42	-31 pts.
	2	0.13	0.23	-10 pts.	0.25	0.23	2 pts.
Black Men Total	67	0.45	0.24	21 pts.	0.32	0.38	-6 pts.

		Race Effects			Gender Effects		
A Prosecutor	B # of Cases	C Black Venire Member Strike Rate	D Non- black Ve- nire Member Strike Rate	E Diff. (Cols. C-D)	F Venire Men Strike Rate	G Venire Women Strike Rate	H Diff. (Cols. F-G)
<b>D. White Women</b>							
	1	0.78	0.08	69 pts.	0.50	0.39	11 pts.
	1	0.09	0.26	-17 pts.	0.00	0.33	-33 pts.
	2	0.65	0.22	44 pts.	0.20	0.56	-36 pts.
	5	0.57	0.16	41 pts.	0.29	0.43	-15 pts.
	4	0.49	0.23	26 pts.	0.43	0.39	4 pts.
	1	0.50	0.11	39 pts.	0.31	0.47	-15 pts.
	6	0.53	0.18	36 pts.	0.36	0.34	3 pts.
	5	0.62	0.18	45 pts.	0.27	0.41	-13 pts.
	3	0.42	0.27	14 pts.	0.47	0.40	7 pts.
	1	0.62	0.32	30 pts.	0.64	0.32	32 pts.
	23	0.61	0.18	43 pts.	0.36	0.39	-3 pts.
	2	0.54	0.27	28 pts.	0.42	0.50	-9 pts.
	2	0.63	0.19	44 pts.	0.38	0.42	-4 pts.
	1	0.43	0.25	18 pts.	0.37	0.40	-3 pts.
<b>White Women Total</b>	<b>57</b>	<b>0.57</b>	<b>0.19</b>	<b>38 pts.</b>	<b>0.35</b>	<b>0.40</b>	<b>-5 pts.</b>
<b>E. Hispanic Women</b>							
	1	0.41	0.41	0 pts.	0.42	0.50	-8 pts.
<b>Hispanic Women Total</b>	<b>1</b>	<b>0.41</b>	<b>0.41</b>	<b>0 pts.</b>	<b>0.42</b>	<b>0.50</b>	<b>-8 pts.</b>
<b>F. Black Women</b>							
	2	0.49	0.25	24 pts.	0.44	0.35	9 pts.
<b>Black Women Total</b>	<b>2</b>	<b>0.49</b>	<b>0.25</b>	<b>24 pts.</b>	<b>0.44</b>	<b>0.35</b>	<b>9 pts.</b>



APPENDIX E  
ALTERNATIVE PEREMPTORY STRIKE SYSTEMS VERSUS THE ACTUAL PHILADELPHIA SYSTEM:  
ESTIMATED JURY REPRESENTATION RATES OF TARGET GROUPS

A	8B	C	D	E	F	G
	Venire %	Actual Philadel-phia Jury Selec-tion System	A Fair Selection System (race & sex purged)	Restricted Strike Sys-tem (five prosecution strikes and ten de-fense counsel strikes)	An Affirmative Selec-tion System (the top six picks for each side)	Abolition /British Selection System (the first 12 jurors not struck for cause)
<b>Part I</b>						
Each cell below indicates for the average jury, the number and percentage of venire members from the subgroups listed in Column A <sup>1</sup>						
<b>A. Race</b>						
1. All Non-Blacks	61.2%	(7.3) 60.4%	(7.7) 64.4%**	(7.1) 59.6%	(5.8) 48.0%**	61.5%
2. All Blacks	38.8%	(4.7) 39.6%	(4.3) 35.6%**	(4.9) 40.4%	(6.2) 52.0%**	38.5%
<b>B. Gender</b>						
3. All Men	45.8%	(5.3) 43.8%	(5.5) 45.7%*	(4.4) 36.3%**	(5.2) 43.3%	45.6%
4. All Women	54.2%	(6.7) 56.2%	(6.5) 54.3%*	(7.6) 63.7%**	(6.8) 56.7%	54.4%
<b>C. Age</b>						
5. Young	22.7%	(2.5) 20.7%	(1.4) 11.6%**	(3.1) 25.4%**	(2.2) 18.6%**	22.9%**
6. Mid-Age	53.8%	(6.7) 55.8%	(9.0) 75.1%**	(6.6) 55.1%	(6.2) 52.0%**	53.6%**
7. Older	23.4%	(2.8) 23.5%	(1.6) 13.3%**	(2.3) 19.5%**	(3.5) 29.5%**	23.5%

<sup>1</sup>The asterisks indicate the statistical significance of the difference between the alternative systems and the actual Philadelphia system.

\* Denotes significance at the .05 level

\*\* Denotes significance at the .01 level

A	B Venire %	C Actual Philadelphia Jury Selection System	D A Fair Selection System (race & sex purged)	E Restricted Strike System (five prosecution strikes and ten defense counsel strikes)	F An Affirmative Selection System (the top six picks for each side)	G Abolition/British Selection System (the first 12 jurors not struck for cause)
<b>Part I</b>						
<b>D. Race and Gender</b>						
8. Non-black Men	30.9%	(3.4) 28.1%	(3.9) 32.1%**	(2.4) 19.7%**	(3.8) 31.5%**	(3.7) 30.9%**
9. Black Men	14.9%	(1.9) 15.7%	(1.6) 13.6%**	(2.0) 16.5%	(1.4) 11.8%**	(1.8) 14.6%
10. Non-black	30.3%	(3.9) 32.4%	(3.9) 32.3%	(4.8) 39.9%**	(2.0) 16.5%**	(3.7) 30.6%*
11. Black Women	23.9%	(2.9) 23.8%	(2.6) 22.0%*	(2.9) 23.9%	(4.8) 40.2%**	(2.9) 23.8%
<b>E. Race and Age</b>						
12. Young Non-Black	13.5%	(1.7) 14.4%	(0.9) 7.9%**	(2.3) 18.8%**	(0.3) 2.1%**	(1.6) 13.5%
13. Mid-Age Non-Black	33.0%	(3.9) 32.5%	(5.7) 47.4%**	(3.9) 32.7%	(2.8) 23.4%**	(4.0) 33.3%
14. Older Non-Black	14.7%	(1.6) 13.6%	(1.1) 9.1%**	(1.0) 8.1%**	(2.7) 22.5%**	(1.8) 14.8%*
15. Young Black	9.1%	(0.7) 6.0%	(0.4) 3.6%**	(0.8) 6.4%	(2.0) 16.4%**	(1.1) 9.2%**
16. Mid-Age Black	20.9%	(2.8) 23.4%	(3.3) 27.7%**	(2.7) 22.4%	(3.4) 28.6%**	(2.4) 20.4%**
17. Older Black	8.8%	(1.2) 10.2%	(0.5) 4.3%**	(1.4) 11.6%**	(0.8) 7.0%**	(1.1) 8.9%**

A	B	C	D	E	F	G
	Venire %	Actual Philadel- phia Jury Selec- tion System	A Fair Selection System (race & gender purged)	Restricted Strike System (five prosecution strikes and ten de- fense counsel strikes)	An Affirmative Selec- tion System (the top six picks for each side)	Abolition / British Selection System (the first 12 jurors not struck for cause)
<b>Part II</b>						
A. Prosecution Primary Target Groups		Each cell below indicates for the average jury, the number and percentage of venire members from the subgroups listed in Column A.				
1. Young Black Women	5.6%	(0.5) 3.8%	(0.3) 2.2%**	(0.5) 3.9%	(1.5) 12.2%**	(0.7) 5.7%**
2. Young Black Men	3.5%	(0.3) 2.2%	(0.2) 1.5%**	(0.3) 2.5%	(0.5) 4.2%**	(0.4) 3.5%**
3. Mid-Age Black Women	12.8%	(1.7) 14.0%	(2.0) 17.1%**	(1.6) 12.9%	(2.7) 22.7%**	(1.5) 12.7%*
4. Older Black Women	5.5%	(0.7) 6.0%	(0.3) 2.7%**	(0.8) 7.1%**	(0.6) 5.3%	(0.7) 5.5%
5. Mid-Age Black Men	8.0%	(1.1) 9.4%	(1.3) 10.6%*	(1.1) 9.5%	(0.7) 5.9%**	(0.9) 7.7%**
6. Older Black Men	3.4%	(0.5) 4.2%	(0.2) 1.6%**	(0.5) 4.6%	(0.2) 1.7%**	(0.4) 3.4%*
B. Defense Counsel Primary Target Groups						
1. Older Non-Black Men	7.9%	(0.8) 6.6%	(0.6) 4.7%**	(0.3) 2.5%**	(1.8) 14.7%**	(0.9) 7.7%*
2. Mid-Age Non-Black Men	16.4%	(1.8) 14.7%	(2.8) 23.5%**	(1.1) 9.5%**	(1.9) 15.8%	(2.0) 16.5%**
3. Older Non-Black Women	6.9%	(0.8) 6.9%	(0.5) 4.3%**	(0.7) 5.6%**	(0.9) 7.8%	(0.8) 7.1%
4. Young Non-Black Men	6.6%	(0.8) 6.7%	(0.5) 3.8%**	(0.9) 7.7%**	(0.1) 1.0%**	(0.8) 6.8%
5. Mid-Age Non-Black Women	16.6%	(2.1) 17.8%	(2.9) 23.9%**	(2.8) 23.2%**	(0.9) 7.5%**	(2.0) 16.8%
6. Young Non-Black Women	6.8%	(0.9) 7.7%	(0.5) 4.1%**	(1.3) 11.0%**	(0.1) 1.1%**	(0.8) 6.8%**

\* The asterisks indicate the statistical significance of the difference between the alternative systems and the actual Philadelphia system

\* Denotes significance at the .05 level

\*\* Denotes significance at the .01 level