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Racial Discrimination and the Death Penalty in the Post-Furman Era: An Empirical and Legal Overview with Recent Findings from Philadelphia

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RACIAL DISCRIMINATION AND THE DEATH PENALTY IN THE POST-*FURMAN* ERA: AN EMPIRICAL AND LEGAL OVERVIEW, WITH RECENT FINDINGS FROM PHILADELPHIA

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INTRODUCTION

Racial discrimination and the death penalty has been a matter of scholarly interest since the 1930s. The nation's legal system has been aware of the issue since the civil rights movement of the 1960s. Every court that has addressed the issue has condemned the idea of race influencing the administration of the death penalty. The courts agree that this practice has no place in a society dedicated to the rule of law. Nevertheless, in this century, no American court has upheld a legal claim alleging racial discrimination in the use of the death penalty.[1] Only one American legislative body has adopted a law that would give murder defendants the right to advance claims of racial discrimination in the same manner available to racial minorities in the employment, housing, and public accommodations contexts.[2]

This Article focuses on the following four issues related to racial discrimination in the use of the death penalty in post-*Furman* America: (1) the link between discretion and discrimination; (2) ethical, moral, and legal concerns associated with racial discrimination in the administration of the death penalty; (3) evidence of this discrimination with special reference to recent empirical findings from Philadelphia, Pennsylvania; and (4) judicial and legislative responses to claims of racial discrimination.

I
DISCRETION AND DISCRIMINATION

The potential influence of race in the administration of the death penalty takes root in the broad exercise of discretion that state laws grant prosecutors and juries. State laws give prosecutors and juries the power to treat similarly situated "death-eligible"[3] defendants differently because of either their race or the race of the victim in the case.[4]

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1 By contrast, courts have sustained claims of discrimination in the selection of capital juries.

2 In 1998, Kentucky passed legislation that permits a capital defendant to challenge a prosecutorial decision to seek a death sentence on the ground that it was "sought on the basis of race." 1998 Ky. Acts 252.

3 The term "death-eligible" refers to a case in which the facts are sufficient under state law to sustain a capital murder conviction and death sentence, whether or not the state actually seeks a death sentence or the jury actually imposes a death sentence in the case.

4 During slavery, state criminal codes explicitly authorized stronger punishments for slaves and for emancipated blacks than for whites. In addition, state laws permitted stronger punishments for crimes against whites than for crimes against blacks.

In legal parlance, we refer to discrimination that is expressly authorized by state law as "facial" discrimination. Facially discriminatory laws continued even after the Civil War and until the adoption of the Fourteenth Amendment in 1868. Moreover, even after the war, courts continued to treat crimes against blacks more leniently (if the prosecutor decided to

The law gives prosecutors complete discretion either to seek a death sentence in death-eligible cases or to waive the death penalty—unilaterally or by way of a negotiated plea bargain. For cases that advance to a penalty trial, the typical jury exercises virtually complete discretion on the life or death decision once it finds a statutory aggravating circumstance present in the case. In addition, the governor or board of pardons and parole generally has complete discretion to commute a death sentence to either life without possibility of parole or a term of years.

The scope of prosecutorial and jury discretion in current systems is illustrated in Figure 1, which presents a flow chart of the capital charging and sentencing system in Philadelphia during the period 1983-93. The Pennsylvania death-sentencing statute that structures the Philadelphia system is fairly typical of statutes found in "weighing" death penalty jurisdictions.[5]

The Pennsylvania legislature has listed eighteen statutory aggravating circumstances, at least one of which must be found by the sentencing authority before the Commonwealth can impose a death sentence.[6] This limitation on prosecutorial and jury discretion satis-

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prosecute at all). This was especially true if the defendant was white. Crimes by black defendants, on the other hand, received harsher punishment, especially if the victim was white. A scholar of the reconstruction period, Professor Leon Litwack noted:

> The double standard of white justice was nowhere clearer, in fact, than in the disparate punishments meted out to whites and blacks convicted of similar crimes .... [A] Freedmen's Bureau officer in Georgia despaired of any early or mass conversion to [the] principle [that killing a black person amounted to murder]. "The best men in the State admit that no jury would convict a white man for killing a freedman, or fail to hang a negro who had killed a white man in self-defense."

LEON F. LITWACK, BEEN IN THE STORM SO LONG: THE AFTERMATH OF SLAVERY 285-86 (1979). Although the Fourteenth Amendment put an end to facial discrimination, it did not completely sever the link between the death penalty and race, even at the legislative level. The death penalty's potential for both intimidating and subordinating the black community was clearly realized and contributed to the strong community support that is still present today in some parts of the South for the use of the death penalty. *See* Steven E. Barkan & Steven F. Cohn, *Racial Prejudice and Support for the Death Penalty by Whites*, 31 J. OF RES. IN CRIME AND DELINQ. 202, 206-08 (1994). Furthermore, a highly discretionary death penalty was an effective substitute for lynching, a practice that tarnished the image of many states, both northern and southern, well into this century. A jury's (usually all white) "lawful" conviction and sentencing of a black, followed by a swift execution, substituted for the more unseemly lynching, with the same practical effect. Lawful "executions" also reduced pressure on Congress to enact federal antilynching legislation in the 1920s.

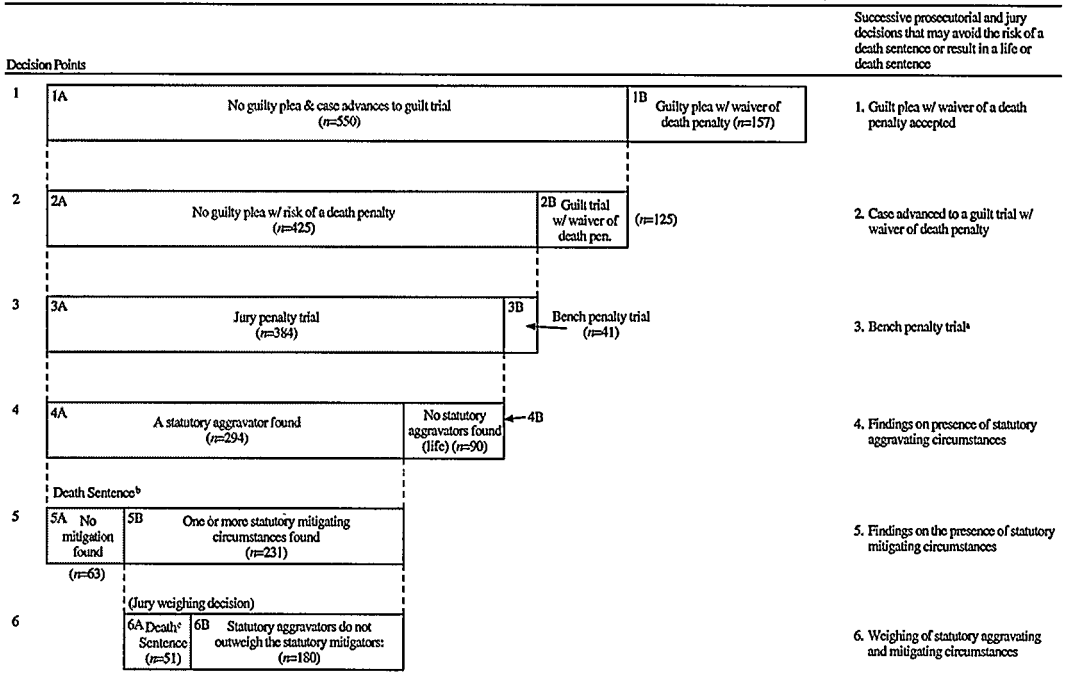
With the substantial decline of such blatant racism in the 20th century, the link between race and the death penalty has become much more subtle. Nevertheless, the broad powers of discretion present in the late 19th century systems of justice continue to this day with only slight modification. Therein lies the continuing risk of racial discrimination in contemporary death-sentencing systems.

5 *See infra* text accompanying notes 19-20 for a discussion of "weighing."

6 These statutory circumstances are listed in Appendix A.

FIGURE 1

DECISION POINTS IN PHILADELPHIA CAPITAL CHARGING AND SENTENCING SYSTEM (PHILADELPHIA: 1983-93) ($N = 707$)



[a] A bench penalty trial carries a slight risk of a death penalty; 10% (4/41) resulted in a death sentence. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.
[b] When no mitigation is found a death sentence is required by law.
[c] A death sentence is required when the statutory aggravators are found to outweigh the statutory mitigators.

fies *Furman v. Georgia*'s[7] requirement that death-sentencing systems must provide standards to guide the exercise of discretion if they are to satisfy the requirements of the Eighth Amendment.[8]

Pennsylvania also specifies eight statutory mitigating circumstances that the sentencing authority may consider if it finds a statutory aggravating circumstance present.[9] The most important of the mitigating circumstances is "e8," the catchall factor, which allows the sentencing authority to consider any additional mitigating circumstances that pertain to the circumstances of the crime or the character and record of the defendant.[10] The United States Supreme Court prescribed the broad scope of this mitigating circumstance in a series of decisions in the late 1970s and early 1980s.[11]

A defendant's conduct and mental state must also satisfy the requirements of the state's law for capital murder. Thus, in Pennsylvania, in addition to the presence of a statutory aggravating circumstance, a case is not death-eligible unless the facts of the case are also sufficient to support a finding of liability for first-degree murder.

Decision points 1 and 2 on Figure 1 indicate two points at which a prosecutor can choose to eliminate a defendant's risk of receiving a death sentence. At decision point 1, the prosecutor may either consent to a guilty plea and waive the death penalty or advance the case to a guilt trial.[12] At decision point 2, the prosecutor may unilaterally waive the death penalty, meaning that the case advances to trial strictly on the issue of liability for first-degree murder.[13] In the remaining cases, which constituted 60% (425/707) of all the death-eligible cases, the case advanced to trial with the Commonwealth seeking a death sentence. In these cases, the defendant, at decision point 3, will have the option of waiving a jury trial before the guilt trial has com-

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7 408 U.S. 238 (1972).

8 Justices Stewart, Powell, and Stevens explicitly state this in *Gregg v. Georgia*, 428 U.S. 153, 197-98 (1976) (opinion of Stewart, Powell, and Stevens, JJ.).

9 Appendix A lists the mitigators that juries are supposed to consider.

10 Mitigator e8, listed in Appendix A, allows a jury to use almost any factor it wants to as a mitigator.

11 *See, e.g.*, Eddings v. Oklahoma, 455 U.S. 104 (1982); Lockett v. Ohio, 438 U.S. 586 (1978).

12 At this stage, 53% of the pleas are to life without possibility of parole (first-degree murder), 18% are to second-degree murder, which is also without parole, and 29% are to third-degree murder, which offers the possibility of parole when the minimum is served.

13 Forty-nine percent (61/125) of these trials are before a judge without a jury. Under Pennsylvania law, the defendant had a right, with the consent of the trial judge, to waive a jury and to have his case tried to the court. Pa. R. Crim. Proc. 1101. In 1998, the electorate approved a constitutional amendment granting the Commonwealth the right to a jury trial.

menced.[14] A significant number (30-40%) of capital defendants take this option in the hope of avoiding a capital murder conviction. Also, when a defendant waives a jury at the guilt stage, prosecutors often agree not to empanel a penalty-trial jury if the defendant is convicted of first-degree murder (even though the Commonwealth has the right to do so).[15] For the few jury waiver cases that do advance to a penalty trial before a judge, the risk of a death sentence is much lower than it is before a jury, i.e., the bench trial death sentencing rate is only 10% (4/41) versus a 30% (114/384) jury trial rate.[16]

For jury cases that result in a first-degree murder conviction, decision points 4-6 show the jury's penalty-trial decisions. They focus on three specific issues. The first, at decision point 4, is whether the case includes one or more aggravating circumstances. If the jury finds none present, which occurs 23% (90/384)[17] of the time, the jury must sentence the defendant to life without the possibility of parole.

For the cases in which the jury finds at least one aggravating circumstance, the jury then determines whether a statutory mitigating circumstance is also present in the case (decision point 5). If the jury finds a mitigating circumstance, which requires the affirmative vote of only a *single* juror, the jurors move on to the final weighing decision (decision point 6).[18] In spite of this low threshold, the jury failed to find any mitigation present 21% (63/294) of the time.

At this point the law of Pennsylvania differs from the law of many other weighing jurisdictions. In Pennsylvania, if the jury fails to find mitigation at this stage, the court instructs the jury that it *must* return a death sentence, whether or not it considers a death sentence appropriate or just.[19] Thus, each finding of no mitigation present at decision point 5 resulted in the mandatory imposition of a death sentence. This decision point is important because 55% (63/114) of the Philadelphia jury death sentences resulted from this mandatory imposition.

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14 The proportion of cases in which the Commonwealth originally sought a death sentence is unknown because during most of the period covered by this study, there was no requirement that the Commonwealth file written notice. This situation is no longer the case.

15 42 Pa. C. S. Sec. 971(b).

16 Homicide defense practitioners have indicated that, in many instances, their experiences with a particular judge permit them to reliably predict the extent to which a client is at risk of being convicted of capital murder and receiving a death sentence should the client choose to waive a jury.

17 *See* Figure 1, boxes 4A, 4B.

18 *Mills v. Maryland*, 486 U.S. 367, 374-75 (1988), requires individual jurors in weighing jurisdictions to consider any mitigation *they* perceive to be present in the case, regardless of how other jurors perceive the facts of the case.

19 The Supreme Court has sustained this procedure despite allegations that this limitation on the jury's discretion results in unlawful "mandatory" death sentencing. *See* Blystone v. Pennsylvania, 494 U.S. 299, 305 (1990).

For the cases in which juries find mitigation, the jury weighs, at decision point 6, the aggravating and mitigating factors, and the court instructs it to return a death sentence if it finds that the aggravating circumstances outweigh the mitigating circumstances. In 22% (51/231) of the weighing cases, the jury returned a death sentence.[20]

Most striking about the exercise of both prosecutorial and jury discretion in this process is that the decisions to seek and impose death sentences are essentially unreviewable with respect to the issue of discrimination. In the absence of an admission by the prosecutor or individual jurors that race was a factor in their decision (which is virtually unheard of), discriminatory behavior by either of these actors is essentially outside the scope of review in the numerous appeals that generally follow the imposition of a death sentence.

As noted above, the third possible actor on the life/death issue is either the governor or another statewide body, such as a board of pardons and paroles. These actors can exercise complete discretionary power to commute death sentences to either life or a term of years. This discretion is also beyond any sort of meaningful review by appellate courts. In the not-so-recent past (pre-1970), governors in death-sentencing states routinely commuted up to a third of the death sentences that they reviewed.[21] Today, however, commutations of death sentences by governors and review boards are rare events.[22]

A. Early Questions About, and Challenges to, the Scope of Discretion in Death Cases, Including *Furman v. Georgia*

In the 1960s, concerns about the link between broad discretion in the administration of the death penalty and the risk of arbitrariness, especially racial discrimination, prompted proposals to limit the discretion of sentencing juries. For example, the American Law Institute ("ALI") (a distinguished group of lawyers, judges, and academics) proposed in the *Model Penal Code* that the death penalty be limited to narrow, statutorily-defined categories of cases.[23] The ALI also proposed that juries be empowered to impose death sentences only after they had first made "factual" findings about the presence of statutory aggravating circumstances, such as the presence of an armed robbery

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20 When the focus is on the total death-sentencing output from all of the jury penalty trials, the death-sentencing rate is 30% (114/384). Among all of the death-eligible cases, the jury death-sentencing rate is 17% (114/666).

21 *See* Hugo Adam Bedau, *The Decline of Executive Clemency in Capital Cases*, 18 N.Y.U. REV. L. & SOC. CHANGE 255, 262 & 265 tbl.2 (1990-1991); Victoria J. Palacios, *Faith in Fantasy: The Supreme Court's Reliance on Commutation to Ensure Justice in Death Penalty Cases*, 49 VAND. L. REV. 311, 347-48 (1996).

22 *See* Bedau, *supra* note 21, at 266; Palacios, *supra* note 21, at 348.

23 MODEL PENAL CODE § 210.6(1) (Proposed Official Draft 1962).

or rape, and statutory mitigating circumstances, such as the defendant's youth or the absence of a prior criminal record.[24]

Despite these recommendations, the Supreme Court rejected the argument that the Constitution required those procedures.[25] Nevertheless, in the following year, *Furman v. Georgia*[26] invalidated the death-sentencing systems of every American jurisdiction because of the "untrammeled" discretion that they delegated to sentencing juries combined with the arbitrary pattern of death-sentencing decisions that they produced.[27] The Court held this discretion unacceptable under the cruel and unusual punishments provision of the Eighth Amendment.[28]

Although some perceived *Furman* as the end of the death penalty in America,[29] the decision had the opposite effect. It galvanized state legislative support for the death penalty, especially in the South. Within two years of the decision, over thirty states had amended their statutes in an effort to address the concerns expressed in *Furman.* Shortly thereafter, the Supreme Court approved state-law procedures that either adopted the "weighing" procedures that the ALI had recommended or required the jury to find at least one statutorily-defined aggravating circumstance as a predicate to the imposition of a death sentence.[30] The upshot of these procedures was that the jury's discretion was limited to a narrower group of murder cases than before *Furman.* The procedures also required the jury to consider any mitigating circumstances that the defendant presented.[31] Beyond these changes, however, the jury's discretion on the question of whether the defendant should live or die remained unlimited and essentially unreviewable by appellate courts.

The Court did not explicitly consider the issue of prosecutorial discretion in *Furman,* but four years later, it did in *Gregg v. Georgia.*[32] In *Gregg,* the Supreme Court ruled that the Constitution did not re-

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24 *See id.* § 210.6(2)-(4).

25 *See* McGautha v. California, 402 U.S. 183, 202-08 (1971).

26 408 U.S. 238 (1972).

27 *Id.* at 248 (Douglas, J., concurring).

28 *See id.* at 239-40; *see also* Gregg v. Georgia, 428 U.S. 153, 197 (1976) (opinion of Stewart, Powell, and Stevens, JJ.) (explaining *Furman's* holding).

29 *See* Carol S. Steiker & Jordan M. Steiker, *Sober Second Thoughts: Reflections on Two Decades of Constitutional Regulation of Capital Punishment,* 109 HARV. L. REV. 355, 362-63 (1995) ("Some participants in the debate, both on and off the Court, no doubt believed that *Furman* was the end, not the beginning, of the Supreme Court's involvement in the issue of capital punishment.").

30 *See* Proffitt v. Florida, 428 U.S. 242, 247-53 (1976) (discussing Florida's capital-sentencing procedures and comparing them with Georgia's); *Gregg,* 428 U.S. at 197-98 (opinion of Stewart, Powell, and Stevens, JJ.) (discussing the finding of an aggravating circumstance as a requirement in Georgia's capital-sentencing procedures).

31 *See* Lockett v. Ohio, 438 U.S. 586, 604 (1978) (opinion of Burger, C.J.).

32 428 U.S. 153 (1976).

quire limits on prosecutorial discretion beyond the statutory classifications that defined the classes of cases in which the State could impose death sentences.[33]

By the end of 1976, the Supreme Court had approved a series of state death-penalty statutes because their newly enacted procedural standards appeared capable of reducing the risks of arbitrariness and discrimination to constitutionally acceptable levels.[34] In none of those cases, however, did the Court consider empirical evidence about how the systems actually operated. The big issues at the end of the 1970s, therefore, were whether the post-*Furman* reforms had altered the levels of discrimination that many suspected existed pre-*Furman* and whether the new systems were constitutionally acceptable on this issue.

B. Ethical, Moral, and Legal Concerns Implicated by Racial Discrimination in the Administration of the Death Penalty

1. *Ethical and Moral Concerns*

The issue of racial discrimination in the administration of the death penalty is not whether juries sentenced *factually innocent* defendants to death because of their race. To be sure, there is evidence that many of these miscarriages of justice both before and after *Furman* were racially motivated. For example, in the famous recent case *McMillian v. State*,[35] Walter McMillian, an African American, was framed and sentenced to death in Alabama for the murder of a white woman based on false testimony generated by law enforcement officials.[36]

It is clear that both McMillian's race, his history of dating a white woman, and his victim's race made him an easier target. Nevertheless, the best research suggests that both white and black defendants who are factually innocent of any crime are at *equal* risk of being falsely convicted and sentenced to death.[37]

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33 Specifically, the Court explained that "[n]othing in any of our cases suggests that the decision to afford an individual defendant mercy violates the Constitution." *Id.* at 199 (opinion of Stewart, Powell, and Stevens, JJ.).

34 *See, e.g.*, *Proffitt*, 428 U.S. at 247-53; *Gregg*, 428 U.S. at 197-98 (opinion of Stewart, Powell, and Stevens, JJ.).

35 616 So. 2d 933 (Ala. Crim. App. 1993) (overturning the defendant's conviction).

36 *See* Michael L. Radelet et al., *Prisoners Released from Death Rows Since 1970 Because of Doubts About Their Guilt*, 13 T.M. COOLEY L. REV. 907, 949-50 (1996).

37 *See id.* at 917. The author notes that:

> [h]lacks today make up about 40 percent of those on death row in America, and also approximately 40 percent of the cases in which people are released from death row because of douhts about their guilt. In short, the racial breakdown of [these] cases is quite similar to the racial breakdown of America's condemned population.

In contrast to the factual-innocence issue, the principal concern about racial discrimination in the administration of the death penalty relates to the unequal treatment of similarly situated defendants who are *in fact guilty* of capital murder. The core ethical concern is fairness—treating like cases alike—especially when the consequences of the decision are so severe. Governments, in particular, have a profound duty to treat all defendants with equal care and concern and without regard to factors that have no bearing on their criminal culpability.[38] Given the legacy of slavery and race discrimination in our history, this concern has special force with respect to discrimination based on the defendant's race, a factor over which he has no control.[39] However, when a defendant alleges discrimination based on the *victim's* race, the claim's moral appeal may weaken with a simple reminder that the defendant, not society, selected the victim.

Concerns about racial discrimination may also resonate at the group level. Claims of race-of-victim discrimination (for example, that nonblack-victim cases are treated more punitively than black-victim cases) raise an ethical concern that the state's failure to allocate resources equally in the prosecution of both black and nonblack cases denies the black community equitable access to any possible benefits the death penalty may provide.[40] Even if it were clear that America's death-sentencing system treated black and nonblack defendants fairly and consistently, concerns remain about the substantial overrepresentation of blacks on death row in America. While blacks make up only thirteen percent of the nation's civilian population, blacks make up forty-one percent of the nation's death row population.[41] Many consider it insensitive and unseemly, if not immoral, for a country with our historical record on slavery and racial discrimination to persist in using a punishment that whites almost exclusively administer and control, that serves no demonstrated penological function, and has a profound adverse impact—physically, psychologically, and symbolically—on its black citizens.

Id.

38 *Cf.* RONALD DWORKIN, TAKING RIGHTS SERIOUSLY 180 (1977) (stating that "individuals have a right to equal concern and respect in the design and administration of the political institutions that govern them").

39 *See* Stephen Nathanson, *Does It Matter if the Death Penalty Is Arbitrarily Administered?*, 14 PHIL. & PUB. AFF. 149, 155 (1985) (arguing that officials' and jurors' judgments may be "influenced by deep-seated racial or social attitudes").

40 *See* Randall L. Kennedy, *McCleskey v. Kemp: Race, Capital Punishment, and the Supreme Court*, 101 HARV. L. REV. 1388, 1391-93 (1988).

41 *See* KYMBERLY DEBARROS & CLAUDETTE BENNETT, U.S. DEP'T OF COMMERCE, THE BLACK POPULATION IN THE UNITED STATES: MARCH 1997 (UPDATE) 1 (1998) ("In 1997, the Black population was estimated at 34.2 million and represented 12.8 percent of the total population."); NAACP LEGAL DEFENSE AND EDUC. FUND, DEATH ROW U.S.A. (1998) (noting that 41% of those on death row are black).

For others, ethical concerns about race discrimination relate strictly to the extent to which the death-sentencing system treats equally culpable defendants differently because of either their race or the race of the victim. Moreover, for some people within this group, the level of ethical and moral concern depends on the extent to which the cause of the unequal treatment is the product of conscious racial animus, the influence of stereotypical or non-conscious perceptions of the comparative dangerousness of black and nonblack defendants, or the influence of community perceptions of the heinousness of crimes that happen to be correlated with the racial aspects of the cases.

Proponents of the death penalty respond to these concerns with several ethical arguments. Principally, they argue that society's interest in retribution, justice, and concern for the victims of crime and their families trump equal treatment concerns.[42] They further argue that racial discrimination in no way diminishes either the culpability of the defendants who are sentenced to death or society's justification for executing them.[43]

Proponents of the death penalty offer two additional arguments, which proceed from quite different premises. First, they assert that concerns about racial discrimination are misplaced because no convincing evidence suggests that race is an influence in the system.[44] Second, they argue that racial discrimination is inevitable and endemic in all of our social institutions (the death penalty being no exception), and the law can do nothing about it, short of abolishing the death penalty,[45] which in their view, cannot be morally justified on this ground. Advocates of this second argument believe that the costs of eliminating the death penalty clearly outweigh any harms caused by racial discrimination. This belief no doubt explains why most citizens who support the death penalty in opinion polls would maintain that support even if they believed that the system were racially discriminatory.[46]

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42 *Cf.* Ernest van den Haag, *Refuting Reiman and Nathanson*, 14 PHIL. & PUB. AFF. 165, 166-67 (1985).

43 *See id.* at 173-74.

44 *See* David C. Baldus et al., *Reflections on the "Inevitability" of Racial Discrimination in Capital Sentencing and the "Impossibility" of Its Prevention, Detection, and Correction*, 51 WASH. & LEE L. REV. 359, 362 (1994).

45 *See id.*

46 For example, a 1991 Gallup Poll found that 73% of blacks and 41% of whites agreed that blacks are more likely to receive the death penalty than whites in similar cases, yet 76% of Americans favor the death penalty. *See* WENDY KAMINER, IT'S ALL THE RAGE: CRIME AND CULTURE 102-03 (1995); *see also* Phoebe C. Ellsworth & Samuel R. Gross, *Hardening of the Attitudes: Americans' Views on the Death Penalty*, 50 J. OF SOC. ISSUES 19, 35-36 (1994) (reviewing poll results and concluding that "a large proportion of the American public already believes the death penalty is unfair, but supports it nonetheless").

2. *Legal Concerns*

At a strictly doctrinal level, the law is less conflicted than ethical and moral opinion on the question. First, the Supreme Court has repeatedly stated that the Fourteenth Amendment forbids "purposeful" discrimination by all public officials,[47] which includes prosecutorial and jury decisions to seek and impose death sentences. This position rests on the proposition that the Fourteenth Amendment prohibits consideration of race as a basis for official decisions unless the consideration can be justified by a compelling state interest. (One could never establish a compelling state interest to justify race discrimination in the death-sentencing context.)

The Court has explicitly ruled that this standard applies to purposeful race-of-defendant and race-of-victim discrimination.[48] Thus, even though defendants claiming race-of-victim discrimination may not be able to show a nexus between *their* race and the adverse decision in their particular case, they may raise the issue because they are entitled to decisions that are not influenced by any person's race, including the victim's.

Legal consensus also exists that decisions to either seek or impose the death penalty that are consciously motivated by racial animus qualify as purposeful discrimination under the Fourteenth Amendment. At issue, however, is whether decisions that treat black defendants more punitively than similarly situated nonblack defendants constitute purposeful discrimination under the Fourteenth Amendment when stereotypical ideas about black defendants and white victims drive those decisions. A similar issue arises when the decisions of prosecutors or juries to seek or to impose the death penalty represent a response to the community's demand for more punitive action in cases involving, for example, black defendants and white victims.

The Supreme Court has also implied that purposeful racial discrimination violates the Eighth Amendment's "cruel and unusual punishments" provision.[49] Indeed, the Court has held that even a demonstrated "risk" that racial considerations may have influenced a death-sentencing decision suffices as a basis for judicial relief.[50] The theory underlying this rule is that a decision either to seek or impose a death sentence that bears a substantial risk of being influenced by the race of the defendant or victim is arbitrary within the meaning of the

47 *See, e.g.*, Washington v. Davis, 426 U.S. 229, 239 (1976).

48 *See* McCleskey v. Kemp, 481 U.S. 279, 292 (1987).

49 *See* McCleskey v. Kemp, 481 U.S. 279, 306-13 (1987) (rejecting a racial discrimination claim under the Eighth Amendment because "the Baldus study does not demonstrate a constitutionally significant risk of racial bias affecting the Georgia capital sentencing process").

50 *See* Turner v. Murray, 476 U.S. 28, 36 (1986) (opinion of White, J.).

Eighth Amendment because it is not based on the criminal culpability of the defendant (the only constitutionally permissible basis for a sentence of death).

II
POST-*FURMAN* EVIDENCE OF ARBITRARINESS AND DISCRIMINATION

A. Issues of Proof and Interpretation

It is useful to draw a threshold distinction between claims of purposeful "systemic" racial discrimination and claims of purposeful discrimination in individual cases. A claim of systemic discrimination alleges that race is a factor in prosecutorial decisions to seek or jury decisions to impose the death sentence. Normally, one proves systemic discrimination with statistical evidence demonstrating that, on average, the system treats black defendants or defendants with nonblack victims more punitively than similarly situated nonblack defendants or defendants with black victims. This proof is circumstantial, and its inferential power depends on (1) the magnitude of the disparities in the treatment of the different, racially defined groups of cases and (2) the plausibility that the differences in treatment are not the product of either chance or different case characteristics within the two racial groups that could reasonably explain the disparities on legitimate grounds.[51]

One proves discrimination in an individual case by establishing that the race of the defendant or victim was a "motivating factor," a "substantial or significant factor," or a "but-for factor" in the claimant's case.[52] This proof may be accomplished by presenting (1) "direct," smoking-gnn evidence (for example, an admission or racial slur by a prosecutor or juror) or (2) a combination of both quantitative and qualitative evidence. Proof of discrimination in individual cases finds its best illustration in class-wide employment discrimination cases alleging claims of race or gender discrimination in either hiring or promotion. Proof in these cases typically commences with a statistical demonstration of systemic discrimination among a large group of cases (including the cases of the plaintiffs in the particular lawsuit). The evidence of systemic discrimination supports an inference of purposeful discrimination in the case of each minority or woman who experienced adverse effects from a decision of the defendant in hiring

51 *See* DAVID C. BALDUS & JAMES W.L. COLE, STATISTICAL PROOF OF DISCRIMINATION §9 (1980); RAMONA L. PAETZOLD & STEVEN L. WILLBORN, THE STATISTICS OF DISCRIMINATION § 4.13 (1996); 1 KENT SPRIGGS, REPRESENTING PLAINTIFFS IN TITLE VII ACTIONS § 11.9 (1994).

52 *See* Baldus et al., *supra* note 44, at 389 & n.126.

or promotion. At this point, Title VII,[53] a federal law that prohibits racial and gender discrimination in employment, shifts the focus to the individual claimants and places on the defendant-employer the burden of establishing that neither race nor gender was a factor in each adversely affected case. This final inquiry, therefore, focuses on the legitimate facts of the individual case that are offered to rebut the inference of discrimination. In other words, it asks whether these facts plausibly explain the adverse decision in the plaintiff's case. For example, if a rejected minority-group member demonstrated very weak qualifications for the job, the "rival" nondiscriminatory hypothesis would likely appear quite plausible, and a court would deny relief. On the other hand, if the minority group member demonstrated qualifications exceeding those of most of the whites hired, the rival nondiscriminatory hypothesis would appear implausible, and a court probably would grant relief.

When considering claims of systemic purposeful discrimination in the application of the death penalty, one must distinguish between evidence of "gross unadjusted" racial disparities and "adjusted" racial disparities. Adjusted disparities account for the presence of aggravating and mitigating factors that clearly influence the decisions of prosecutors and juries.[54] Adjusted disparities permit one to compare the treatment of offenders who share similar levels of aggravation and mitigation, which, when considered together, determine a defendant's criminal culpability and blameworthiness. The failure of a statistical analysis to use adjusted disparities introduces a siguificant risk of erroneous inferences about the influence of race in the system.

A well-known study of sexual discrimination in the graduate programs of a leading university illustrates this risk.[55] A large, unadjusted statistical "disparity" indicated that the university admitted women to graduate school at a much lower rate than men. This disparity suggested the possibility of sexual discrimination. However, on closer examination, it became apparent that the great bulk of women applied to departments with very low admission rates (e.g., English and history), while most of the men applied to departments with very high admission rates (e.g., science and engineering). Thus, the "independent" variable—department of application—was strongly correlated

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53 Title VII of Civil Rights Act of 1964, 42 U.S.C. § 2000e (1994).

54 Again, aggravating circumstances refer to the particularly serious features of a case. These circumstances can include evidence of extensive premeditation and planning or torture. Mitigating circumstances, in contrast, refer to features of a case that help explain or partially justify the defendant's behavior, even though they do not provide a defense. These circumstances include things such as the youth, immaturity, or mental retardation of the defendant. *See supra* notes 8-10 and accompanying text; Appendix A, section B.

55 *See* Peter J. Bickel et al., *Sex Bias in Graduate Admissions: Data from Berkeley, in* STATISTICS AND PUBLIC POLICY 113 (William B. Fairley & Frederick Mosteller eds., 1977).

with *both* the sex of the applicants and the probability of admission. The failure to "control" for department of application fatally undercut the validity of the unadjusted disparity as a basis for inferring the presence of systemic gender discrimination. Moreover, when the researchers did control for the department of application, the evidence showed that, on average, the university was more likely to admit women to graduate school than men applying to the same department. The moral of the story is that a failure to control for a legitimate case characteristic introduces a risk of error in the analyses if, and only if, the omitted variable has the following two properties: (1) it is correlated with the outcome of interest, and (2) it is correlated with either the gender or race of the affected claimants. The graduate school example met both of these conditions because the department of application was correlated with both the probability of admission *and* the gender of the applicants.

Unadjusted gross racial disparities in death sentence rates are a highly suspect basis for inferring racial discrimination in the treatment of similarly situated defendants, especially when one bases the disparities on the entire nation. For example, some occasionally offer evidence that blacks constitute thirteen percent of the national population, but forty-one percent of the nationwide death row population,[56] to prove systemic race-of-defendant discrimination. However, this unadjusted disparity is highly misleading because it fails to control for the disproportionately high percentage of blacks (about fifty-five percent) among citizens arrested for homicide nationally.[57] As a result, the comparison fails to control for the differential rates at which black and nonblack citizens commit death-eligible homicides.

Apologists for the current system make a similarly misleading argument when they assert that the system discriminates nationally against nonblack defendants because blacks constitute fifty-five percent of homicide arrestees but only forty-one percent of the death-row population. This argument fails to compare the treatment of similarly situated black and white defendants in death-eligible cases. (In most death sentencing states, only about ten to fifteen percent of defendants arrested for homicide have committed death-eligible crimes.) Moreover, the comparison fails to control for the widely different levels of criminal culpability among death-eligible defendants. Finally, the argument fails to account for race-of-victim discrimination. Race-of-victim discrimination also reduces the overall rate of death sentencing for black defendants because they commit the vast majority of black-victim murders. Only by comparing the differential treatment of black and nonblack defendants whose victims are of the same

56 *See supra* note 41.

57 *See* 1996 U.S. DEP'T OF JUSTICE UNIFORM CRIME REPORTS 232 (1997).

race, can one accurately test for race-of-defendant discrimination in the system.[58]

Thus, unadjusted disparities are suggestive at best, and one should use them with caution. Also, experience indicates that when one adjusts the disparities in death-sentencing rates for legitimate case characteristics, the unadjusted disparities often, but not always, decline. The most reliable evidence of discrimination, therefore, consists of racial disparities that are adjusted to reflect the different levels of culpability of the cases in the different racial groups. But, here one must beware of the "average overall culpability" fallacy, which can be illustrated with two examples.

First, assume the evidence reveals that the death-sentencing rate is higher for black defendants than for nonblack defendants. However, some allege that one can refute the suggested inference of discrimination with evidence that, overall, the black-defendant cases are more aggravated than the nonblack-defendant cases. This difference in average culpability for the two groups allegedly explains the unadjusted racial disparity in death-sentencing rates. Second, assume there is evidence that the death-sentencing rate is greater in nonblack-victim cases than in black-victim cases. However, evidence shows that the nonblack-victim cases are more aggravated than the black-victim cases, which allegedly explains the unadjusted race-of-victim disparity.

Both of these arguments are flawed because no necessary correlation exists between the average culpability level for the different racial groups of cases and the extent to which similarly situated defendants in the different racial groups are treated similarly or differently. For example, the average culpability level of the black- and nonblack-victim cases may be quite different, but that disparity sheds no light on the question of whether the system treats similarly or differently black- and nonblack-victim cases with the same level of culpability. Nor does evidence that black-defendant cases are on average more aggravated than nonblack-defendant cases tell us anything about the extent to which the system treats similarly or differently subgroups of black and nonblack defendants with, for example, high or low levels of culpability.

Evidence from Georgia clearly revealed that white-victim cases were, on average, more aggravated than black-victim cases.[59] Nevertheless, when comparing similarly culpable cases, the defendants in white-victim cases were more likely to receive a death sentence than

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58 In the Pennsylvania study, the number of white-on-black death-eligible homicides is currently too small to permit a similar comparison of black-on-black and white-on-black homicides.

59 *See* DAVID C. BALDUS ET AL., EQUAL JUSTICE AND THE DEATH PENALTY 154 tbl.32 & 322 tbl.53 (1990).

the defendants in black-victim cases. The strongest race-of-victim effects were observed among the cases with average levels of defendant culpability.[60]

Good practice suggests, therefore, that the results of statistically controlled studies which estimate racial disparities among cases with similar levels of criminal culpability are the most reliable. Unfortunately, well-controlled studies are expensive and time consuming. As a result, researchers have conducted relatively few. It is necessary, therefore, in speculating about the American system as a whole, to consider all of the available evidence, including unadjusted disparities and anecdotal testimony provided by the principal participants in the process—defense lawyers, prosecutors, and judges. However, the small number of systematic studies of any kind encourages skepticism about sweeping claims concerning the level of racial discrimination, especially in jurisdictions in which no one has conducted systematic studies.

B. An Overview of the Post-*Furman* Data

The best overview of the post-*Furman* evidence about race discrimination and the death penalty appeared in 1990. The General Accounting Office ("GAO"), at the request of the United States Senate, published the results of a systematic review of the empirical studies conducted by a variety of investigators in the 1970s and 1980s.[61] The GAO initially considered conducting one or more empirical stud-

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60 *See id.* at 163 fig.23, 164 fig.24, 321 fig.32 & 322 tbl.53.

61 *See* U.S. GEN. ACCT. OFF., DEATH PENALTY SENTENCING: RESEARCH INDICATES PATTERN OF RACIAL DISPARITIES (1990) [hereinafter DEATH PENALTY SENTENCING]. A comparison of pre- and post-*Furman* data suggests improvement in the South. Detailed pre-*Furman* data are limited. However, a study of southern capital-rape trials from 1945-65 showed strong race-of-defendant and race-of-victim effects. Specifically, black defendants with white victims were at much greater risk of receiving a death sentence than any other racial category of cases. *See* Marvin E. Wolfgang & Marc Riedel, *Race, Judicial Discretion, and the Death Penalty*, ANNALS AM. ACAD. POL. & SOC. SCI., May 1973, at 119, 129-30; Marvin E. Wolfgang & Marc Riedel, *Rape, Race, and the Death Penalty in Georgia*, 45 AM. J. OF ORTHOPSYCHIATRY 658, 662 (1975). Those results were consistent with unadjusted data from 1930-1970 indicating that 89% of the 455 total defendants states executed for rape were black. Most were executed in the South, which should come as no surprise given the historical preoccupation in the South with the rape of white women by black men. *See* JOEL WILLIAMSON, THE CRUCIBLE OF RACE 116-17, 183-84 (1984).

The unadjusted data for murder, pre-*Furman*, indicate that 49% of the 3,334 defendants executed for murder during this same period were black. Indeed, data collected by Watt Espy indicate that from the 1910s to the 1950s, approximately 60-70% of the people executed for murder in the South were black. *See* Victoria Schneider & John Oritz Smykla, *A Summary Analysis of Execution in the United States, 1608-1987: The Espy File*, *in* THE DEATH PENALTY IN AMERICA: CURRENT RESEARCH 1, 12 tbl.1.5 (Robert M. Bohm ed., 1991). Also, a well-controlled study of Georgia just prior to *Furman* revealed strong race-of-defendant and race-of-victim effects among defendants convicted of murder. *See* BALDUS ET AL., *supra* note 59, at 140-49. However, a detailed study of pre-*Furman* California penalty trials in murder cases showed no race effects of either kind during the 1960s. *See id.* at 241; David C. Baldus

ies itself, but finally opted for "an evaluative synthesis," which consisted of a review and critique of existing research.[62] Toward that end, the agency evaluated twenty-eight empirical studies.[63] It sought, in its review, to assess the extent to which the existing literature supported claims of (1) race-of-defendant discrimination and (2) race-of-victim discrimination. On the issue of race-of-victim discrimination, the agency reported that:

> In 82 percent of the studies, race of victim was found to influence the likelihood of being charged with capital murder or receiving the death penalty, i.e., those who murdered whites were found to be more likely to be sentenced to death than those who murdered blacks. This finding was remarkably consistent across data sets, states, data collection methods, and analytic techniques. The finding held for high, medium, and low quality studies.
>
> The race of victim influence was found at all stages of the criminal justice system process, although there were variations among studies as to whether there was a race of victim influence at specific stages. The evidence for the race of victim influence was stronger for the earlier stages of the judicial process (e.g., prosecutorial decision to charge defendant with a capital offense, decision to proceed to trial rather than plea bargain) than in later stages. This was because the earlier stages were comprised of larger samples allowing for more rigorous analyses. However, decisions made at every stage of the process necessarily affect an individual's likelihood of being sentenced to death.[64]

The largest of the studies the GAO reviewed was based on a stratified sample of 1066 cases drawn from a universe of 2484 cases processed in the Georgia charging and sentencing system in the period 1973-80 ("the Baldus study"). These results, which were the basis of the petitioner's claim of racial discrimination in *McCleskey v.*

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et al., *Identifying Comparatively Excessive Sentences of Death: A Quantitative Approach*, 33 STAN. L. REV. 1 (1980).

Available post-*Furman* data show possible improvement in the South. In contrast to the nearly 70% black representation rate among persons executed pre-*Furman*, the post-*Furman* data from the South reveal the proportion of blacks, both on death row and among those actually executed, is at the national average of about 40%. *See* Schneider & Smykla, *supra*, at 12 tbl.1.5. Although the pre-*Furman* data used in this comparison with post-*Furman* data are not well controlled, it is unlikely that chance could explain differences of this magnitude (the proportion of blacks in the South has not declined sufficiently in the post-*Furman* period to explain this difference). Also, when both race of the defendant and of the victim were controlled pre- and post-*Furman* (the 1970s), the Baldus study showed a marked decline in the evidence of race-of-defendant discrimination. However, the race-of-victim effects were the same in both periods. *See* BALDUS ET AL., *supra* note 59, at 149-50 & tbl.30.

62 DEATH PENALTY SENTENCING, *supra* note 61, at 1-2.

63 *See id.* at 2.

64 *Id.* at 5-6 (footnotes omitted).

Kemp,[65] indicated that, after controlling for the presence or absence of hundreds of legitimate case characteristics,[66] defendants with white victims faced, on average, odds of receiving a death sentence that were 4.3 times higher than the odds of similarly situated defendants whose victims were black. This study also demonstrated that in Fulton County, where the jury sentenced McCleskey to death, significant race-of-victim disparities existed.[67]

On the issue of race-of-defendant discrimination, the GAO study concluded:

> The evidence for the influence of the race of defendant on death penalty outcomes was equivocal. Although more than half of the studies found that race of defendant influenced the likelihood of being charged with a capital crime or receiving the death penalty, the relationship between race of defendant and outcome varied across studies. For example, sometimes the race of defendant interacted with another factor. In one study researchers found that in rural areas black defendants were more likely to receive death sentences, and in urban areas white defendants were more likely to receive death sentences. In a few studies, analyses revealed that the black defendant/white victim combination was the most likely to receive the death penalty. However, the extent to which the finding was influenced by race of victim rather than race of defendant was unclear.[68]

C. Geographic Scope of the Post-*Furman* Race Disparities

To document the geographic scope of race disparities in the American death-sentencing system, we examined, on a state-by-state basis, both (1) the literature published prior to the GAO report[69] and

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65 481 U.S. 279 (1987).

66 *See* BALDUS ET AL., *supra* note 59, at 319 tbl.52 (showing core model controls for 39 factors related to the defendant and to the circumstances of the offense).

67 *See id.* at 332-40 & tbls.59-63.

68 DEATH PENALTY SENTENCING, *supra* note 61, at 6 (footnote omitted).

69 *See* BALDUS ET AL., *supra* note 59; SAMUEL R. GROSS & ROBERT MAURO, DEATH & DISCRIMINATION: RACIAL DISPARITIES IN CAPITAL SENTENCING (1989); BARRY NAKELL & KENNETH A. HARDY, THE ARBITRARINESS OF THE DEATH PENALTY (1987); David C. Baldus et al., *Arbitrariness and Discrimination in the Administration of the Death Penalty: A Challenge to State Supreme Courts*, 15 STETSON L. REV. 133 (1986) [hereinafter Baldus, *Arbitrariness and Discrimination*]; Arnold Barnett, *Some Distribution Patterns for the Georgia Death Sentence*, 18 U.C. DAVIS L. REV. 1327 (1985); Leigh B. Bienen et al., *The Reimposition of Capital Punishment in New Jersey: The Role of Prosecutorial Discretion*, 41 RUTGERS L. REV. 27 (1988); William J. Bowers & Glenn L. Pierce, *Arbitrariness and Discrimination Under Post-*Furman *Capital Statutes*, 26 CRIME & DELINQ. 563 (1980); Sheldon Ekland-Olson, *Structured Discretion, Racial Bias, and the Death Penalty: The First Decade After* Furman *in Texas*, 69 SOC. SCI. Q. 853 (1988); Linda Foley, *Florida After the Furman Decision: The Effect of Extra Legal Factors on the Processing of Capital Offense Cases*, 5 BEHAV. SCI. & L. 457 (1987); Stephen P. Klein & John E. Rolph, *Relationship of Offender and Victim Race to Death Penalty Sentences in California*, 32 JURIMETRICS J. 33 (1991); Elizabeth Lynch Murphy, *Application of the Death Penalty in Cook County*, 73 ILL. B.J. 90

(2) the evidence since the GAO report.[70] This survey, the results of which we present in Appendix B, reveals that relevant data are not available on charging and sentencing practices for all death-sentencing states. Nevertheless, for 78% (29/37) of the nation's death-sentencing states in which a death sentence has been imposed (no sentences have been imposed in New Hampshire), we located some relevant data for at least one period of time since 1973. In 90% (26/29) of these states, we observed some evidence of race-of-victim disparities and in 55% (16/29) of the states, we observed some evidence of race-of-defendant disparities (although not all of the disparities were in the normally observed direction).

As the GAO survey points out, considerable differences exist in the extent to which empirical studies of racial discrimination control for legitimate case characteristics. Because reasonably well-controlled[71] empirical studies are expensive and quite complex, such studies have been conducted in only nine states (California, Colorado, Georgia, Kentucky, Mississippi, New Jersey, North Carolina, Pennsylvania, and South Carolina).

Additionally, for each of these states, data are available from less-well-controlled studies. In six states (Colorado, North Carolina, New Jersey, Kentucky, Pennsylvania, and South Carolina), the racial disparities were *stronger* in the well-controlled studies than in the less-well-controlled studies. In three states (California, Georgia, and Mississippi), the race effects were *weaker* in the well-controlled studies than in the less-well-controlled studies, but remained statistically signifi-

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(1984); Raymond Paternoster & Ann Marie Kazyaka, *The Administration of the Death Penalty in South Carolina: Experiences Over the First Few Years*, 39 S.C. L. REV. 245 (1988); Michael L. Radelet & Glenn L. Pierce, *Race and Prosecutorial Discretion in Homicide Cases*, 19 L. & SOC'Y REV. 587 (1985); M. Dwayne Smith, *Patterns of Discrimination in Assessments of the Death Penalty: The Case of Louisiana*, 15 J. CRIM. JUST. 279 (1987); Hans Zeisel, *Race Bias in the Administration of the Death Penalty: The Florida Experience*, 95 HARV. L. REV. 456 (1981); Richard Berk & Joseph Lowery, Factors Affecting Death Penalty Decisions in Mississippi (June 1985) (unpuhlished manuscript described in BALDUS ET AL., *supra* note 59, at 258-60); Stephen P. Klein et al., Racial Equity in Prosecutor Requests for the Death Penalty (1987) (unpublished manuscript on file with author); Margaret Fae Klemin, The Determinants of Capital Sentencing in Louisiana, 1979-1984 (1987) (unpublished Ph.D. dissertation, University of New Orleans) (on file with the University of Iowa Law Library).

70 *See* State v. Cobb, 663 A.2d 948 (Conn. 1995); State v. Marshall, 613 A.2d 1059 (N.J. 1992); Conference, *The Death Penalty in the Twenty-First Century*, 45 AM. U. L. REV. 239, 341 (1995) (remarks of Harriet C. Ganson, Assistant Director of Tax Policy and Administration, U.S. General Accounting Office); Scott Anderson, *As Flies to Wanton Boys: Death Eligible Defendants in Georgia and Colorado*, 40 TRIAL TALK 9-16 (1991); Thomas J. Keil & Gennardo F. Vito, *Race and the Death Penalty in Kentucky Murder Trials: 1976-91*, 20 AM. J. CRIM. J. 17 (1995); Michael L. Radelet & Glenn L. Pierce, *Choosing Those Who Will Die: Race and the Death Penalty in Florida*, 43 FLA. L. REV. 1 (1991); Ted Rohrlich & Fredric N. Tulsky, *Not All L.A. Murder Cases Are Equal*, L.A. TIMES, Dec. 3, 1996, at A1.

71 We define a "reasonably well-controlled" study as one having statistical controls for ten or more legitimate nonracial case characteristics.

cant.[72] These results indicate that, while well-controlled studies are a more reliable basis for measuring race effects in a given jurisdiction, the results from less-well-controlled studies also can be relevant and instructive.

III
RECENT FINDINGS FROM PHILADELPHIA

In this section, we present recent findings from our research in the city and county of Philadelphia, where we initially have concentrated our analysis of the Pennsylvania system as a whole. We compare and contrast these findings with results from earlier research in other jurisdictions. We focus first on the pattern of systemic disparities in the outcomes of both prosecutorial and jury decision making that correlate with the race and socioeconomic status ("SES") of the defendant and of the victim. We then evaluate the most probable causes and explanations for the documented racial disparities in Philadelphia and elsewhere. Finally, we estimate the practical impact and consequences of systemic racial disparities in Philadelphia and elsewhere.[73]

A. Background

Our Philadelphia research builds on the accumulated body of research a wide variety of researchers have conducted in the post-*Furman* period. However, the study of the New Jersey capital punishment system, sponsored by the New Jersey Supreme Court since 1989, has been the most important influence on our methodology.[74]

The New Jersey project has four important strengths. First, the quality of the available data was very high. The researchers had access

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72 The reference to the less well-controlled studies is to Baldus et al., *supra* note 69, and GROSS & MAURO, *supra* note 69. The reference to the well-controlled studies are to State v. Marshall, 613 A.2d 1059 (N.J. 1992) (New Jersey); BALDUS ET AL., *supra* note 59 (Georgia); NAKELL & HARDY, *supra* note 69 (North Carolina); Anderson, *supra* note 70 (Colorado); Berk & Lowery, *supra* note 69 (Mississippi); Bienen et al., *supra* note 69 (New Jersey); Paternoster & Kazyaka *supra* note 69 (South Carolina); Keil & Vito, *supra* note 70 (Kentucky); Klein & Rolph, *supra* note 69 (California); Table 4 (Pennsylvania).

73 In a later phase of this research, we will focus on the risk that the race or SES of the victim or of the defendant influenced decision making in individual cases. In this Article, however, our focus is on the evidence of systemic race and SES effects.

74 Professor Baldus served as Special Master for the New Jersey court in the conduct of that study. *See Marshall*, 613 A.2d at 1063 (noting the court's order appointing Professor Baldus as the Special Master). Professor Woodworth was the principal statistical consultant for the study. The Criminal Practice Division of the Administrative Office of the New Jersey Courts, ("AOC") under the direction of John McCarthy, Jr., Director of the Division, was principally responsible for collecting the data and for developing the database. The AOC continues to update and develop the database, with the assistance of Dr. David Wiesburd, an experienced researcher and consultant, who has worked on the project since 1992.

to all relevant public documents concerning death-eligible cases, including Pre-Sentencing Reports ("PSIs"), which normally are not available to academic researchers.

The second distinguishing feature of the New Jersey project is the opportunity that the New Jersey court provided both the prosecutorial and criminal defense communities to critique the database and methodology as the project evolved. As a result, the researchers tailored the data collection instrument ("DCI") to the New Jersey system in response to the suggestions of the parties. The resulting database includes variables for virtually every measurable feature of the cases on which data were available.

The third strength of the New Jersey project is the close scrutiny to which the data and methodology have been subjected as death-sentenced defendants have claimed excessiveness and discrimination in their cases. In addition to the periodic reports of the Criminal Practice Division of the Administrative Office of the New Jersey Courts' own consultant, both the state and the Public Defender have had access to a regularly updated, machine-readable database and to a file of detailed narrative summaries for all of the cases. This resource has enabled the experts for each side to develop extensive analyses on a continuing basis.

The fourth strength of the project is the care with which the New Jersey Supreme Court has scrutinized the methodology, data, and results. At one point in 1996, the court, on its own motion, appointed a special master to undertake a supplementary research project that the court thought would address some of the concerns about the limits of logistic regression analysis that the state's experts had raised.[75] In short, no other empirical study of the death penalty's administration has received such close and sophisticated scrutiny.

For all these reasons, we modeled our Philadelphia research on the New Jersey project. We also hoped to develop additional approaches to alleviate some of the methodological concerns raised by the New Jersey court concerning the New Jersey research.[76]

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75 *See* Rocco Cammarere, *Court Faces Bias in Death Penalty*, N.J. LAW., Jan. 20, 1997, at 1 (reporting that in October 1996, the court asked Judge Richard Cohen to "review the reliability of the evidence that points to racial discrimination by jurors").

76 The New Jersey court has approached the evidence of disparate treatment with caution for two principal reasons. First, the sample size of death sentences is small, under 50 imposed over the 16 years since the state reinstated the death penalty in 1982. Second, the researchers have relied almost exclusively on logistic multiple regression analysis involving large numbers of independent variables to control for case culpability.

The latter approach has two drawbacks. First, regression analysis is difficult for both lawyers and judges without special training to understand, creating an understandable reluctance to rely on its results on such an important issue. Second, statistical experts the state and the public defenders hired cannot agree on technical issues that may affect the validity of the inferences the data suggest.

From a substantive perspective, the New Jersey project is important because it examined death-sentencing decisions in a northern state during the 1980s and 1990s. Most of the earlier research focused on its administration in the South during the 1970s and early 1980s.[77] Like the research from the South, the New Jersey results showed race-of-victim effects in prosecutorial decision making. However, the effects are less pronounced than those estimated in the South.[78] In contrast to the early southern research, which revealed only modest evidence of race-of-defendant discrimination against black defendants, the New Jersey evidence revealed substantial disparate treatment of black defendants by penalty-trial juries.[79] First-hand observers of southern courts have always been surprised that the statistical analyses of southern jury decisions in this earlier period did not reveal strong, black-defendant race effects. However, it may be that race effects were

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77 *See* Appendix B.

78 In the latest New Jersey multivariate analyses, which control for all statutory aggravating and mitigating circumstances, plus a number of nonstatutory aggravators and mitigators, a logistic regression analysis estimates a white-victim coefficient of .77, with an odds multiplier of 2.2, significant at the .02 level. (The coefficient for the race of the defendant was not significant.) These effects are primarily concentrated among the midrange and least aggravated cases. *See* Technical Appendix to Defendants' Joint Systemic Brief—Volume I at 69a, 72a, State v. Chew, 695 A.2d 1301 (N.J. 1997) (No. 40,693). In contrast, in the Georgia research presented in *McCleskey*, a comparable, although somewhat less well controlled, analysis of prosecutorial decision making produced a race-of-victim coefficient of 1.22, with an odds multiplier of 3.4, significant at the .0001 level. (The race-of-defendant effects were not statistically significant.) *See* BALDUS ET AL., *supra* note 59, at 356 n. tbl.6.

79 The latest New Jersey statewide results from well-controlled logistic regression analyses report a race-of-defendant coefficient of 1.8, with an odds multiplier of 6.0, significant at the .02 level. These effects are heavily concentrated in the midrange, for which the average disparity is 30 percentage points (adjusted rates of .52 for black defendants versus .22 for nonblack defendants). Although the sample size is small among these cases (i.e. only 33 hlack-defendant cases and 35 nonblack-defendant cases), the disparity is statistically significant at the .006 level. *See* Technical Appendix, *supra* note 78, at 11a, 14a. In contrast, the Georgia results presented in *McCleskey*, showed no statistically significant statewide race-of-defendant effects in jury decision making. *See* BALDUS ET AL., *supra* note 59, at 357 n. tbl.7.

The multiple regression results from the New Jersey research, which the staff of the New Jersey Supreme Court updates on an on-going basis, *see supra* note 74, are currently before the New Jersey court in connection with claims challenging the constitutionality of the New Jersey death-sentencing system as well as the legality of death sentences imposed in individual cases. While these cases have been pending, the state's experts have questioned the validity of the methodology that the staff of the New Jersey court relies on. In addition, the 1997 findings of a new special master, retired judge Richard Cohen, drew into question the findings based on the regression based research methodology used by the court's staff. *See* Kathy Barrett Carter, *Study Finds No Racial Bias in Death Penalty*, STAR-LEDGER (New Jersey), Jan. 29, 1997, at 13 (noting that Judge Cohen reported no racial bias in the New Jersey system). The New Jersey court has not yet ruled on these methodological claims.

there, but were obscured because of the less-detailed data that were available in those early studies.[80]

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80 Another important distinction between the earlier southern research and the results of the New Jersey project is the shift in contrast between black-on-white (defendants and victims) to a comparison of black versus nonblack (defendants and victims), when nonblack includes whites, Hispanics, and Asians. Typical southern communities in the 1970s and 1980s were almost exclusively black and white. However, the New Jersey research suggests that in one state at least, the critical distinction for sentencing juries is not between blacks and whites, or between whites and minorities (racial or ethnic), but rather between blacks and all others.

Researchers have conducted four other studies outside the South in the 1980s and 1990s. The first, by Keil & Vito, *supra* note 70, focused on race effects among all Kentucky death-eligible cases during the period 1976-91 ($n = 577$). The core analyses were logistic regressions that controlled for six legitimate case characteristics related to the defendant and the circumstances of the offense. The analysis of prosecutorial decisions to seek a death sentence reported an odds multiplier of 1.26 when the case involved a black defendant and white victim ($p = .05$). The overall analysis, which reflects the combined effects of both prosecutorial decisions to seek and jury sentencing decisions to impose death sentences in 158 penalty trials, estimated a 1.41 odds multiplier for black-defendant/white-victim cases, significant at the .05 level. *See* Keil & Vito, *supra* note 70, at 24-27.

The Attorney General of California commissioned the second study as part of the defense of a race-based claim presented before the Supreme Court decided *McCleskey*. It focuses on 874 death-eligible cases prosecuted for murder and tried in Los Angeles County between August 1977 and January 1986. *See* Klein et al., *supra* note 69, at 6. The object of the study is to evaluate prosecutorial decisions to seek a death sentence or a sentence of life without possibility of parole (death was sought in 41% of the cases). *See id.* at 14 tbl.2. The unadjusted data reveal a 9 point disparity in the rates at which death is sought in white- versus nonwhite-victim cases (.39 – .30). *See id.* at 14 tbl.3. A similar analysis shows no race-of-defendant effects. *See id.* at 14 tbl.4.

The authors report partial results from a logistic regression analysis that controls for six legitimate factors related to the circumstances of the crime and the victim that were screened in a stepwise regression from a list of 35 such variables. *See id.* at 15 tbl.5. The table reports no regression coefficients but does indicate the level of statistical significance of the six variables. The variable for the race of the defendant did not enter the analysis, but the variable for the race of the victim did enter at the .01 level of significance. *See id.* at 16 tbl.6.

Because of the minimal controls for legitimate case characteristics and the weak fit of the reported regression results ($R^2 = 12.7$), the results of this analysis are merely suggestive. They hardly support the conclusion of the authors that "the available data suggest prosecutor requests for the death penalty in Los Angeles County were not influenced by racial considerations." *Id.* at 12. For a similarly skeptical observation about this conclusion by one of the GAO researchers who prepared the GAO report noted above, see Conference, *supra* note 70 (remarks of Ganson). The data also contain no basis for assessing prosecutorial decisions in death-eligible cases that were not tried because they terminated in a negotiated plea bargain.

The California Attorney General also commissioned the third study, Klein & Rolph, *supra* note 69, which focuses on 496 California jury penalty trials conducted between 1977 and sometime before 1984. *See id.* at 37. Juries returned death verdicts in 29% of these cases. *See id.* app. a at 46. Because the study is limited to penalty trials, the authors make clear that their findings cannot be generalized to prosecutorial decision-making. *See id.* at 34 ("This study addresses possible racial bias ouly in the [death-sentencing] step and does not speak to possible racial biases at earlier stages.").

The unadjusted data show no race-of-defendant effects, but they reveal a 10 percentage point race-of-victim disparity (.33 – .23) in the rates at which a death penalty is imposed, significant at the .024 level (by our calculations). *See id.* at 38 tbl.1.

The authors do not present regression results, relying instead on (1) two different clusters of cases defined as similar because they share similar death-sentencing rates and (2) a multivariable case classification system known as Classification and Regressions Trees ("CART"). The results of the cluster analysis show race-of-victim effects in one subgroup of cases that are not trivial (a 13 percentage point difference in death-sentencing rates), but the disparity is not significant because of small sample sizes (only 15 nonwhite-victim cases). *See id.* at 43 tbl.3. The CART analysis, which controls simultaneously for 15 variables related to the defendant, the victim, and the circumstances of the offense, measures the impact of race in terms of the extent to which the inclusion of the race variables in the analysis increases the accuracy of the model in predicting correct sentencing outcomes. The race of the defendant had no effect and the inclusion of the race of victim increases the number of correctly predicted death sentences by only 10% and the number of correct predictions overall by only 1%. *See id.* at 43 ("The full unpruned tree achieved a 91% accuracy rate with victim race included and a 90% rate without it."). On the basis of this evidence, the authors conclude that penalty-trial outcomes in California are "not systematically related to victim or defendant race." *Id.* at 44.

It is regrettable that the authors did not use logistic regression, which would have provided a basis for comparing their results with the results reported in the broader literature. This concern is particularly true because there is a fallacy in using the increase in correct predictions as a measure of the impact of adding a factor such as race as a predictor. The reason is that the CART measure of the impact of race based on the extent to which race improves predictions has the potential to mask significant race effects that are detectable in a multiple regression analysis. Specifically, under the CART analysis, cases falling in a category for which the death rate is less than .50 are predicted to be life cases and cases falling in a category for which the death rate is greater than .50 are predicted to be death cases. Adding, say, race of defendant as a predictor to a classification system based on nonracial factors involves splitting each (nonracial) category into subcategories with black and nonblack defendants. This split will increase the number of correct predictions *only* if a category (e.g., murder-rapes) splits into one racial subcategory (viz., murder-rapes with nonblack defendants) with an under .50 death-sentencing rate and the second racial subcategory (viz., murder-rapes with black defendants) has a death-sentencing rate of more than .50. In other words, for the split, which occurs as a result of adding race to the model, to improve predictive power the death-sentencing rates for the two racial subgroups must straddle .50. Thus, there can be a substantial increase of the risk of death (say from .05 to .15 or from .80 to .95) for black defendants compared to nonblack defendants in a particular category, without any improvement in the prediction rate; in other words, as a metric, change in the correct prediction rate ignores increased risk of death associated with race, unless one race has a death-sentencing rate under .50 and the other has a death-sentencing rate over .50 in one or more (nonracial) categories. In Klein and Rolph's analysis, this scenario apparently happened in five of the over 140 death-sentenced cases in the analysis, but any other race effects that did not meet this test were ignored. *See id.* at 43 ("Including victim race therefore generated five more correct classifications.").

The fourth article, Rohrlich & Tulsky, *supra* note 70, focuses on more than 9000 intentional homicides processed through the Los Angeles criminal justice system from 1990 through 1994. The analysis starts deep in the system, with a potential to test the discrimination hypothesis at each stage of the process. The weakness of the study is that it has no controls for the death eligibility of the cases or through relative criminal culpability, and it is likely that only a small fraction of the cases included in the study are actually death eligible. *See id.*

The results show no race-of-defendant effects, but there is a strong suggestion that white-victim cases and other cases involving middle or upper socioeconomic victims are pursued more aggressively, including first-degree murder charges and requests for the death penalty. *See id.* ("In raw numbers, charges were filed about 10% more often when whites were the victims than when blacks or Latinos were."). There is also compelling evidence that media publicity, which correlates with the race and socioeconomic status of the victim, is a big influence in the system. *See id.* ("[C]ases were more likely to receive

B. A Methodological Overview of the Philadelphia Research

Like the New Jersey research, the Philadelphia project embraces all death-eligible defendants, regardless of how the prosecutor charged them and whether or not their cases advanced to a penalty trial. Second, the DCI is a modified version of the New Jersey instrument, containing two additions. First, it includes considerably more detail on jury decision making, which allows us to model the following three distinct jury decision points: (1) the finding of statutory aggravation, (2) the finding of statutory mitigation, and (3) the weighing of statutory aggravation and mitigation.

The Philadelphia DCI includes quantifiable measures of the strength of evidence for each of the statutory aggravating and mitigating circumstances.[81] These measures allow us to explore the possibility that the jury's "factfinding" concerning the presence or absence of aggravating and mitigating circumstances reflects deathworthiness judgments and/or race effects. These measures also enable us to model prosecutorial pretrial decisions and jury penalty-trial decisions based on findings that aggravating and mitigating circumstances are *not* present in the case (findings that determine a life or death sentence in a large proportion of the cases).

Like the New Jersey project, our research utilizes multiple logistic regression to measure defendant culpability and estimate race effects. It also employs three supplemental measures of defendant culpability that are more intuitively understandable. The first is a count of the number of statutory aggravating and mitigating circumstances found in each case.[82] The second is a "salient factors" measure, which classifies cases qualitatively in terms of the principal aggravating factors either found or present in the case as well as other relevant statutory aggravating and mitigating circumstances.[83] The third is a "murder severity index." This index is based on the results of a "murder sever-

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tougher treatment in the court system if there was [media] coverage."). However, it is not possible to estimate race-of-victim effects with precision because of the absence of controls for defendant culpability. Nevertheless, the analysis continues in the hands of Professor Richard Berk, an experienced sociologist who did the statistical work for the Rohrlich & Tulsky article. *See id.* (noting that Professor Berk "analyzed the data").

81 In each case to date, we evaluated the strength of this evidence. We classified the evidence supporting the aggravating factors on a four-point scale, while we classified the evidence supporting the mitigating circumstances on a three-point scale. The code for this classification system appears in Appendix C, notes 234-35.

82 This measure builds upon a similar measure researchers used in the New Jersey project.

83 The New Jersey project employs a similar measure based on the special features of New Jersey's death penalty legislation.

ity" study, in which respondents qualitatively ranked by order of severity a sample of small groups of cases in the study.[84]

Each of these supplemental measures of defendant culpability is based on a different, but legally relevant, foundation. A comparison of the race disparities estimated with each supplemental measure provides an additional basis for estimating the scope and magnitude of racial disparities in the system. The measures also provide a basis for validating the race effects estimated with the regression-based methods.

Finally, the Philadelphia research goes beyond the New Jersey project by focusing on the racial composition of the penalty-trial juries. This additional variable allows us to estimate the extent to which the racial composition of the juries affects (1) the probability that juries will impose death sentences and (2) the level of disparate treatment in the juries' decisions based on the defendant's or victim's race.[85]

1. *Sampling and Case Screening Plan*

We identified the potential universe of Philadelphia death-eligible cases through two master case lists. The first is a list of Pennsylvania first-degree murder cases the Administrative Office of the Pennsylvania Courts ("AOPC") maintains for the Pennsylvania Supreme Court.[86] The second is a master list of murder convictions that the Court of Common Pleas of Philadelphia County maintains.

Our first step was to identify all of the cases that advanced to a penalty trial, all of which we designated as death eligible. This pool

84 The study calls for each respondent to rank 15 cases described on cards in which we had purged the racial characteristics. In this Article, we report the results of our first pilot study in which law students, from Iowa and Temple law schools conducted the rankings. In a later publication, we will report the results of ratings conducted by a sample of death-qualified venire persons in the penalty-trial cases used in the 1983-93 Philadelphia research. The murder severity study builds upon the research that New Jersey Special Master Richard Cohen undertook, which called on New Jersey trial judges to rank a series of death-eligible cases in terms of their perception of the degree of defendant culpability.

85 However, the results of this aspect of our research are not sufficiently developed to report at this time. The Philadelphia research also focuses on the exercise of peremptory challenges by prosecutors and defense counsel in the penalty-trial cases. This inquiry enables us to estimate (1) the extent to which the racial characteristics of the cases influence the parties' use of peremptories and (2) the impact that the Commonwealth's and the defense attorneys' use of peremptories has on the racial composition of the juries. We will report the results of this analysis in later publications.

86 The court uses these cases in the conduct of comparative proportionality reviews of death sentences.

included 425 cases, 90% (384/425)[87] of which were sentenced by a jury.[88]

We classified the non-penalty-trial cases and the cases in which it was unknown whether the court had held a penalty trial into three time periods as follows: 1983-85, 1986-89, and 1990-93. We then developed a file of information on each of these cases that would enable us to determine which ones advanced to a penalty trial. For the non-penalty-trial cases, we determined whether they were death eligible under Pennsylvania law (i.e., whether the elements of first-degree murder were present and whether one or more statutory aggravating circumstances was present in the case). This data collection effort produced files on 992 cases.

With this information, we developed a sampling plan that aimed to include all of the death-sentenced cases,[89] eighty percent of the life-sentenced penalty-trial cases, and sixty percent of the non-penalty-trial cases. Except for the death-sentenced cases, the sampling ratios were slightly higher in the more recent years. On the basis of this information, we developed random sets of case lists for each of the three time periods, distinguishing between the three categories of cases.

We selected life-sentencing penalty trials by creating a randomly ordered case list. We checked to see if sufficient available data on a case existed. If so, we coded it. Otherwise, we passed it over and examined the next case. We repeated this procedure until we met, for each time period, the quota of life-sentenced penalty-trial cases.

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87 The number 384 comes from Box 3A in Figure 1, and the number 425 comes from Box 2A, also in Figure 1.

88 Of the 41 cases sentenced by a judge, 10% (4/41) received a death sentence. *See* Figure 1, note a. These defendants waived their right to a jury before the guilt trial. The principal focus of this research is on prosecutorial decisions to seek and jury decisions to impose death sentences. See *infra* note 128 for data on racial effects in bench-trial sentencing.

89 The total number of jury death-sentenced cases was 114. This figure includes 4 cases that were excluded from our analysis because the defendant "volunteered" for a death sentence by failing to present mitigating evidence. See Table 1, note f for detail on volunteers.

For the non-penalty-trial cases, the selection of a case triggered a screening decision on its death eligibility. However, if we had insufficient data to make that assessment,[90] we moved to the next case.[91]

As a result of this screening process we brought into the study 100% (118/118) of the death-sentenced cases, 86% (230/270) of the life-sentenced penalty-trial cases, and 62.1% (176/284) of the non-penalty-trial cases.

2. *Data Sources*

A major challenge in this type of research is obtaining reliable data on the cases. The amount of data available generally depends on the level of judicial procedure that the courts devote to the defendant's case.

For all penalty-trial cases, a crucial document is the jury verdict sheet. These sheets were available in the court records of the case or in the files of the AOPC for a substantial number of cases. Also, the AOPC's computerized database, which is based on reports that trial courts file, was helpful in filling gaps. However, in twelve percent of unanimously decided penalty-trial cases, we lack some detail on the precise statutory aggravating and mitigating circumstances that the system charged or found.[92]

For death-sentenced cases, the most important data sources were the appellate record (especially the notes of testimony at the penalty trial), the opinion of the Pennsylvania Supreme Court, and the briefs of the Commonwealth and the defendant. For the life-sentenced pen-

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90 We deemed a non-penalty-trial case death eligible only if the evidence of guilt for capital murder and the presence of a statutory aggravating circumstance was "strong," with "the elements clearly made out and no issue as to reliability of evidence." Even if these conditions were met, the case entered the study only if the defendant was convicted of first-degree murder at trial, with the death penalty waived by the Commonwealth, or the defendant entered a guilty plea with the death penalty waived by the Commonwealth. In short, we deemed a non-penalty-trial case death eligible for the purposes of this research only if the defendant avoided the risk of a death sentence solely because of a prosecutorial decision.

Our screen of guilty plea cases included all first-degree murder and second-degree murder cases, both of which carry a mandatory life sentence, and third-degree murder cases that received the higbest possible punishment of 10 to 20 years.

91 This screening process provided the basis for our ultimate estimate of the number of death-eligible, non-penalty-trial cases there were processed during the period of our study, even though we did not examine the facts of each case. For example, if we screened 100 cases, on which data were available (which was also randomly determined) and found that 25% were death eligible, we used that determination to estimate the proportion of the cases on each list, that we did not review, that were death eligible.

92 The source of the problem is incomplete court files and gaps in the AOPC's data base, particularly the failure of the reports the trial courts file to indicate whether mitigating factors that were charged were actually found by the jury. Also, 62 penalty-trial cases resulted in a hung verdict. In Appendix C, we describe in detail the missing data issue and our treatment of hung juries.

alty-trial cases, the best sources of information were the penalty-trial notes of testimony and the trial court's opinion on post-trial motions.[93]

For guilty-plea cases, the data sources included indictments, notes of testimony at sentencing, and affidavits of probable cause, which may include witness accounts and confessions.[94] Moreover, newspaper accounts, obtained on-line, were often helpful.

For the first-degree murder cases, the AOPC database generally contained information on the race of both the defendant and victim. The death certificates the Commonwealth maintains usually include information on both the race and occupation of the victim. When feasible, we examined and copied all of this information.

3. *Data Coding and Entry*

The case files described above provided the basis for the data-entry process teams of four to six law stndents undertook during the summers of 1995 and 1996. We trained the students and supervised them on a daily basis.

The DCl is a modification of the New Jersey instrument, with the addition of "strength of evidence" measures for each statutory aggravating and mitigating circumstance.[95] It contains over 500 entries for each case and takes an experienced student coder an average of two to four hours to complete. Each student completed a detailed narrative summary and a five to eight lime "thumbnail sketch" for each case.[96] Also, a law trained staff member verified the procedural coding for each statutory aggravating and mitigating circumstance and its strength of evidence measure. The Defender Association of Philadelphia handled all data entry for both the DCI and the narrative summaries.

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93 The Pennsylvania Rules of Appellate Procedure require the trial court to write an opinion explaining the bases of its ruling on all matters raised on appeal. *See* PA. STAT. ANN. tit. 42 § 1925 (1990). Even though most murder defendants who are convicted and sentenced to life challenge their guilt-trial conviction on appeal, the opinions and briefs filed in these cases generally give only scant attention to the penalty trial as any error at that stage in the proceedings would be moot.

94 One potentially valuable source of information on pled cases is the pre-sentencing report filed by a county probation officer. It usually contains police reports and the defendant's statement of the case. In many cases, however, the judge waived the pre-sentence report because the law pre-ordains the sentence. Also, the availability of the reports was limited by the Philadelphia administrative judge's decision denying us access to them even upon assurances of confidentiality.

95 *See supra* notes 81-85 and accompanying text.

96 These narrative descriptions are an invaluable resource for cleaning (detecting and correcting errors in) the machine-readable database created from the data entered in the DCI.

4. *Measures of Defendant Culpability*

As noted above, one's confidence in the inferences a study of this type suggests depends on the validity of the measures of defendant culpability that define categories of similarly situated defendants. For that reason, we developed four measures that allow for comparisons of the estimated race effects. Some refer to this procedure as "triangulation."

a. *Regression-Based Measures*

Logistic multiple regression measures allow estimation of the impact of legitimate, illegitimate, and suspect case characteristics on both capital charging and capital sentencing decisions. In this research, we developed a series of logistic regression analyses that focus on outcomes that are the product of more than one prosecutorial or jury decision ("input-output" models). For example, one model estimates race effects in all cases in which the jury imposed a death sentence in death-eligible cases. The race disparities estimated in this analysis reflect the impact of the entire series of decisions taken by both prosecutors and juries.

We also developed a series of "decision-point"[97] regression models that focus on the successive stages at which prosecutors and jurors advance the cases through the system. For example, did the prosecutor waive the death penalty pretrial (either as part of a plea bargain or unilaterally)? Did the jury weigh aggravating and mitigating circumstances that it earlier found to be present in the case?

In each of these models, we first examined the statutory aggravating and mitigating circumstances (Model 1). We then conducted systematic screening procedures to determine what other legitimate aggravating and mitigating case characteristics included in the DCI improved the predictive power of the analyses (Model 2).[98] We then added variables for the race and SES of both the defendant and victim (Model 2RS). The regression coefficients estimated for the race and SES variables (after controlling for all of the other variables included in the analysis) provided the first measure of their average impact on outcomes. For example, the estimated "odds multiplier" for the race of the defendant indicated that, on average, a defendant's odds of

97 In the parlance of statistics these are referred to as "continuation" models.

98 We screened hundreds of variables drawn from the DCI for possible inclusion in the models. In such a procedure, there is a risk that some variables will enter the models at statistically significant levels, by chance, even though they do not impact the decisions. To reduce this risk, we excluded variables that entered with a sign that was not in the expected direction (e.g., a nonstatutory aggravator that entered the model with a negative sign, suggesting that it had a mitigating effect).

receiving a death sentence in a penalty trial are enhanced by a factor of 9.3 if he is black.[99]

One may depict the results of the logistic-regression analysis with a plot that estimates death-sentencing rates for defendants from different racial subgroups of cases with varying levels of criminal culpability. The results provide a useful insight into the magnitude of and relationship between multiple race effects, and how the magnitude of the effects interacts with the defendant's level of culpability.[100]

Finally, one may depict the results of the regression with scales that indicate, for example, the magnitude of the race-of-victim effects observed among six to eight subgroups of cases with ascending levels of culpability (estimated without regard to the race or SES of the defendant or of the victim). The results will also indicate the overall average difference in death-sentencing rates (e.g., eight percentage points) between two subgroups (such as black and nonblack defendants) after controlling for the defendant culpability that we estimated in the regression analysis. This approach will also indicate the ratio between the death sentencing rates for the two groups of cases after adjustment for the levels of defendant culpability.[101] An advantage of this measure is that it is both easier to interpret than the "odds multiplier" referred to above.[102]

b. *The Number of Statutory Aggravating and Mitigating Circumstances Found by Juries in the Cases*

Our first supplemental measure of defendant culpability, drawn in part from the proportionality decisions of the Pennsylvania Supreme Court in the 1980s,[103] is the number of statutory aggravating

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99 For a presentation of the model on which this estimate is based, see Table E1 of Appendix E. The other principal models we used in this research appear in Tables 5 and 6 and in Table E2 of Appendix E.

100 Plots of the four principal models used in the research are presented in Figures 2 & 3 and F1 & F2 (Appendix F).

101 The method we used to produce comparable, standardized rates for different subgroups (e.g., black- and nonblack-victim cases) is called direct adjustment and the resulting rates are said to be directly standardized. *See* YVONNE M.M. BISHOP ET AL., DISCRETE MULTIVARIATE ANALYSIS, § 4.3.1, at 131-32 (1975). We report these standardized rates in the applicable tables as "Adjusted rates." *See, e.g.*, Table 7, the last line.

102 The scales for the four principal regression models in this research are presented in Tables 7 & 8 and Tables G1 & G2 (Appendix G).

103 As used by the Pennsylvania court, this measure defines similar cases as those in which the sentencing jury found the same aggravator or the same combination of aggravators. *See* Commonwealth v. Pirela, 507 A.2d 23, 32 (Pa. 1986) ("Our review of cases wherein the aggravating circumstance set forth in § 9711(d)(10) and mitigating circumstance in § 9711(d)(4) were present discloses that the death penalty has been imposed in six of eight cases."); Commonwealth v. Morales, 494 A.2d 367, 379 (Pa. 1985) ("Our review of cases wherein the aggravating circumstance set forth in subsection (d)(10) was presented discloses that the death penalty has been imposed in seven of seven cases."). The New Jersey court in *State v. Marshall*, 613 A.2d 1059 (N.J. 1992), expanded the mea-

and mitigating circumstances found by the penalty trial jury in each case.[104] As noted above, the New Jersey Supreme Court uses this scale as a supplemental measure in its comparative proportionality reviews of death sentences. Once one classifies the cases using this measure, it is possible to estimate a race effect within each subgroup of cases, as well as an average overall effect that controls for the number of aggravating and mitigating circumstances found in the cases. This classification system is easily understood, is firmly grounded in the substantive law, and rests on none of the technical assumptions of multiple regression analyses that have attracted criticism.

c. *The Salient Factors Measure*

Another supplemental measure of culpability state courts commonly use in their proportionality reviews of death-sentenced defendants is the "salient factors" measure. This straightforward measure classifies the cases in terms of their most prominent statutory aggravating circumstance(s) and other relevant aggravators and mitigators.[105] Unfortunately, most courts use the measure in an ad hoc manner, giving little insight into the operation of the system as a whole.[106] This measure also enables courts and researchers to estimate race effects within subgroups of cases and overall.

d. *The Murder Severity Index*

Building upon the New Jersey Supreme Court's recent effort to conduct a qualitative evaluation of offender culpability,[107] we have designed a comparable study that calls on respondents to rank, in terms of defendant culpability, groups of fifteen Philadelphia death-eligible cases. The respondents base their judgments on narrative descriptions of the cases from which we have redacted all references to the race and SES of each defendant and victim. We ranked a total of

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sure to embrace a count of both the statutory aggravating and mitigating circumstances found by the jury.

104 Table 9 shows the results based on this measure.

105 *See* State v. Marshall, 613 A.2d 1059, 1077-78 (N.J. 1992) (describing the salient-factors measure). Table 10 presents the results based on this measure.

106 The New Jersey court is an exception.

107 As noted above, the New Jersey Supreme Court recently conducted, through a special master, a qualitative study of New Jersey death-eligible cases. *See supra* note 74 and accompanying text. Specifically, the special master called on a group of New Jersey trial judges to rank a series of cases in terms of defendant culpability. The special master then used these rankings to produce an alternative measure of defendant culpability. The New Jersey Court appears to have conducted this study partly because it was concerned about the continuing "battle of experts" concerning the validity of logistic regression analysis as a measure of defendant culpability.

184 cases in this study. In this Article, we report the results of a pilot study in which law students ranked the cases.[108]

C. The Results

1. *Unadjusted Race and Socioeconomic Effects*

In this section, we present evidence of unadjusted disparities, which rest on the assumption that all of the defendants are of equal culpability and therefore would be equally likely to receive death sentences and that the system is evenhanded with respect to the race and SES of both the defendant and victim.[109] In such a system, therefore, one would expect to see the same proportion of black defendants at each stage in the process. One also would expect this result in cases with nonblack victims and with victims having a low SES.

The data in Table 1 provide a basis for testing this hypothesis.[110] The data indicate the proportion of cases with different characteristics

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108 Tables 11 and 12 and Tables H1 and H2 (Appendix H) present these results. Later stages of this research involve rankings by capital defense attorneys and a sample of the death-qualified venire persons and jurors in the penalty-trial cases included in the Philadelphia research.

109 The universe consists of 78% black defendants (a small fraction of whom are Hispanic), 21% white defendants (47% of whom are Hispanic), and 1% Asian defendants.

110 When reading the Tables and Figures in this Article, the reader should be aware that case counts (n's) for the same groups of cases in different tables and figures may vary (usually plus or minus one case but up to a four case variation in Appendix H, Table H2) because of rounding among constituent subgroups of cases. Rounding is required because the sample does not include all life sentenced cases and the reported counts for those cases include fractions of cases. Also, case counts may vary depending on whether the analysis includes or excludes hung cases ($n = 62$). *See* Appendix C for a discussion of hung cases, and four volunteers who presented no mitigating evidence and made no argument that the jury find mitigation in his case (four were death sentenced at decision point 5, Figure 1). Where applicable, the exclusion of the hung cases and volunteers is noted in the footnotes of the Tables, Figures, and Appendices. The principal models reported in this Article focus on the following decision points or combinations of decision points (with applicable tables, figures, and appendices noted).

1. Jury death sentences imposed at decision point 5, Figure 1, for failure to find mitigation after finding statutory aggravation in the case (n = 234 without volunteers and bung cases and n = 294 with hung cases and volunteers included): Tables: Table 1 (Rows 6 & 8); Table 2 (Row 5); Table 4 (Column B); Table 5; Table 7; Table 10 (Column B); Table 11; Figures: Figure 2; Appendices: Appendix D (Table D1, Column B).

2. Jury death-sentencing weighing decisions at decision point 6, Figure 1 (n = 175 without hung cases and n = 231 with hung cases included; there are no volunteers at this decision point): Tables: Table 1 (Rows 7 & 8); Table 2 (Row 6); Table 4 (Column C); Table 6; Table 8; Table 9; Table 10 (Column C); Table 12; Figures: Figure 3; Appendices: Appendix D (Table D1, Column C).

3. Death sentencing among all jury penalty trials, reflecting the combined effects of decision points 4-6, Figure 1 (n = 318 without hung cases and volunteers and n = 384 with hung cases and volunteers included): Tables: Table 3 (Row 1); Table 4 (Column D); Table 10 (Column D); Appendices: Appendix D (Table D1, Column D); Appendix E (Table E1); Appendix F (Figure F1); Appendix G (Table G1); Appendix H (Table H1).

before and after each of the key decision points at which a defendant can avoid or greatly reduce the risk of a death sentence. Row 1 at Column B indicates, for example, the representation rate of black defendants (.78) among all death-eligible cases in the study. Row 4 at Column B indicates the representation rate of black defendants (.81) among the cases that advanced to a jury penalty trial. This comparison shows an increase of 3 percentage points,[111] indicating that black-defendant cases were more likely to advance to a jury penalty trial than cases with nonblack defendants. A similar comparison for the cases with low-SES victims, shown in Column E, indicates that these defendants were less likely than other defendants to advance to a penalty trial.

Comparing the proportion of black defendants among all death-eligible cases (.78), with their proportion among all defendants sentenced to death in a jury penalty trial (.85) (Row 8), provides a good insight into the overall black defendant effect. This 7 percentage point disparity suggests that, on average, black defendants are treated more punitively than other defendants. A similar comparison focused on nonblack-victim cases (Column C, Row 1 v. Row 6) suggests those defendants are more likely to receive a death sentence because a jury failed to find mitigation after finding an aggravating circumstance present. As noted earlier, this decision results in a mandatory death sentence.[112] A similar analysis (in Column D) holds for black defendants with nonblack victims. In contrast, the data suggest that defendants with low-SES victims (Column E) are less likely to receive a death sentence than other defendants.[113]

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4. Jury death sentencing among all death-eligible cases (n = 600 without hung cases and volunteers and n = 666 with hung cases and volunteers included): Tables: Table 3 (Row 3); Table 4 (Column E); Table 10 (Column E); Appendices: Appendix D (Table D1, Column E); Appendix E (Table E2); Appendix F (Figure F2); Appendix G (Table G2); Appendix H (Table H2).

111 The comparison is .78 (550/707) in pool 1 versus .81 (311/384) in pool 4.

112 *See supra* note 19 and accompanying text; *see also* Table 1 note f (explaining why we deleted four death sentenced cases in which the defendant "volunteered" for a death sentence).

113 Victims classified as follows were low SES: 1. Unskilled laborer; 2. Custodian; 3. Unstable or extralegal: a. drifter; b. professional criminal (organized crime); c. prostitute or pimp; d. thief (individual criminal); e. drug dealer; f. sporadic odd jobs, no particular skill; g. chronically unemployed (includes recipient of public assistance); 4. Extralegal: a. was a drug dealer as suggested by the file although not specifically indicated (e.g., *D*, known drug dealer, killed *V* because he interfered with *D*'s drug business); b. lived in home where drug deals were openly conducted, although not implicated in drug dealing; c. was known drug user and murder was drug-related (e.g., killing over unpaid drug debt); d. was identified as a gang member; e. had prior arrests and qualified for appointment of counsel; f. had prior arrests for theft crimes (including robbery and burglary) or drug dealing; g. was involved in ongoing illegal enterprise other than organized crime or drug trade (e.g., illegal lottery, gambling, speakeasy); 5. Low socioeconomic status: a. lived in public housing or in conditions clearly indicative of poverty (e.g., rat infested or dilapi-

TABLE 1

EVIDENCE OF RACE AND SOCIOECONOMIC DISCRIMINATION IN THE PHILADELPHIA CAPITAL CHARGING AND SENTENCING SYSTEM (PHILADELPHIA: 1983-1993)

(as reflected in unadjusted representation rates at successive stages in the process, specifically representation rates by column: (B) black-defendant cases, (C) nonblack-victim cases, (D) black defendant with nonblack victim cases, and (E) low-SES-victim-status cases)

A Successive case pools narrowed at each stage beyond #1	B Black-defendant representation rate	C Nonblack-victim representation rate	D Black defendant with nonblack victim representation rate	E Low-SES-victim-status representation rate
1. All death-eligible cases[a]	.78 (550/707)	.33 (236/707)	.16 (106/707)	.56 (397/707)
2. Cases that advanced to a guilt trial[b]	.78 (430/550)	.31 (169/550)	.12 (69/550)	.55 (301/550)
3. Cases that advanced to a guilt trial in which the Commonwealth sought a death sentence[c]	.80 (341/425)	.30 (129/425)	.14 (61/425)	.52 (222/425)
4. Cases that advanced to a jury penalty trial[d]	.81 (311/384)	.29 (112/384)	.14 (54/384)	.54 (208/384)
5. Cases in which the jury finds one or more statutory aggravating circumstances present[e]	.83 (244/295)	.30 (88/295)	.16 (48/295)	.50 (149/295)
6. Cases in which the jury finds no mitigating circumstances present (death sentence imposed)[f]	.81 (48/59)	.44 (26/59)	.24 (14/59)	.42 (25/59)
7. Cases in which the jury finds that statutory aggravating circumstances outweigh statutory mitigating circumstances (death sentence imposed)	.90 (46/51)	.24 (12/51)	.16 (8/51)	.43 (22/51)
8. All death-sentenced cases in pools 6 & 7	.85 (94/110)	.35 (38/110)	.20 (22/110)	.43 (47/110)

[a] A case is death eligible if it contains the elements of capital murder and one or more statutory aggravating circumstances is present in the case. Cells 1A and 1B in Figure 1 embrace all death-eligible cases. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[b] 157 cases (pool 1B in Figure 1) avoid the risk of a death sentence because the defendant pled guilty and the state waived the death penalty.

[c] 125 cases (pool 2B in Figure 1) avoid the risk of a death sentence because the state waived the death penalty prior to the guilt trial.

[d] 41 cases (pool 3B in Figure 1) avoid significant risk of a death sentence by waiving a jury trial.

[e] 90 cases (pool 4B in Figure 1) avoid the risk of a death sentence because the jury fails to find a statutory aggravating circumstance present in the case.

[f] 231 cases (pool 5B in Figure 1) avoid the risk of a death sentence at this point in the process because the jury finds one or more mitigating factors present in the case, in which event the case advances to the final decision point in which the jury weighs statutory aggravating and mitigating circumstances. Row 6 does not include four cases in which the defendant volunteered for a death sentence by failing to present either mitigating evidence or an argument to support a finding of mitigation. In each such case, a death sentence was returned at decision point 5.

Table 2 sharpens the focus on the sources of these overall disparities by highlighting differential selection rates, by race of both the defendant and victim and by the victim's SES, at each stage in the process at which a defendant can avoid or reduce the risk of a death sentence.[114] Juries actually impose death sentences at decision points 5 and 6, making them the most important. Column C, Row 5 reveals a 14 percentage point race-of-victim disparity (.30 v. .16). This indicates that, when the victim is nonblack, a death sentence is much more likely because of the jury's failure to find mitigation after it has found aggravation. The 11 percentage point disparity in Column B, Row 6 indicates that when the defendant is black, a jury is substantially more likely to impose a death sentence in the weighing stage of its deliberations.

The data in Column B, with the single exception of Row 5, reveal a black-defendant disparity at each decision point. Column E also reveals a pattern of consistent effects for defendants with low-SES victims, but in the opposite direction. Column C reveals a substantially more punitive treatment of defendants with nonblack victims only at the critical decision point (Row 5) when the jury's failure to find mitigation after finding aggravation results in a mandatory death sentence.

Table 3 shifts the focus to three input-output models that present an overview of the combined effects of two or more decisions in the system. These models allow us to test a hypothesis that the disparity documented at a later stage in the process might be compensated by a countervailing disparity at earlier points in the process.[115] These models may provide a simplified overview of the impacts of the entire system or of its important parts. However, for the purposes of inferring systemic purposeful discrimination at discrete stages in the process, we consider the input-output models of a multistage system to be much less probative than the models that focus separately and exclusively on discrete stages of the decision-making process.

Row 1 of Table 3 presents an input-output penalty-trial model, which reflects the impact of all three decision points in jury penalty-trial deliberations.[116] It shows race-of-defendant (Column B) and

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dated; low income neighborhood alone insufficient); b. apparently resided in public housing although not specifically stated in file (e.g., killed in common area of public housing); c. spouse, paramour, or other immediate relative of individual known to be of low socioeconomic status; d. was high school dropout; e. was mentally retarded or identified in file as low functioning.

114 As Figure 1, note a indicates, at decision point 5, the defendant's waiver of a jury in favor of a bench trial sharply reduces, but does not eliminate, the risk of a death sentence.

115 We believe a cancellation effect of this type occurs rarely and only by coincidence.

116 Again, these are (1) finding statutory aggravation, (2) finding statutory mitigation, and (3) weighing the two.

TABLE 2

UNADJUSTED DEFENDANT AND VICTIM RACE AND SOCIOECONOMIC EFFECTS AT SUCCESSIVE DECISION OUTCOMES IN THE PHILADELPHIA CAPITAL CHARGING AND SENTENCING SYSTEM (PHILADELPHIA: 1983-1993)

A Decision Outcomes	B Black-defendant disparity	C Nonblack-victim disparity	D Black defendant with nonblack victim disparity	E Low-SES-victim disparity
1. No plea bargain and case advances to a guilt trial .78(550/707)[a]	BD .78 (431/551) NBD .76 (119/156) Diff. 2 pts. Ratio 1.03 (p=.71)[c]	NBV .72 (170/237) BV .81 (380/470) Diff. −9 pts. Ratio 0.89 (p=.009)	BD w/NBV .64 (68/107) Other .80 (482/600) Diff. −16 pts. Ratio 0.80 (p=.001)	LowSES V .76 (301/397) Other .80 (249/310) Diff. −4 pts. Ratio 0.95 (p=.21)
2. Guilt trial with death penalty sought rather than waived by Commonwealth .77 (425/550)[a]	BD .79 (342/431) NBD .70 (83/119) Diff. 9 pts. Ratio 1.1 (p=.04)	NBV .76 (130/170) BV .78 (295/380) Diff. −2 pts. Ratio 0.97 (p=.85)	BD w/NBV .91 (62/68) Other .75 (363/482) Diff. 16 pts. Ratio 1.2 (p=.006)	LowSES V .74 (222/301) Other .81 (202/248) Diff. −7 pts. Ratio 0.9 (p=.04)
3. Penalty trial held before jury rather than a judge .90 (384/425)[a]	BD .91 (312/342) NBD .87 (72/83) Diff. 4 pts. Ratio 1.05 (p=.24)	NBV .87 (113/130) BV .92 (271/295) Diff. −5 pts. Ratio 0.95 (p=.13)	BD w/NBV .89 (55/62) Other .91 (329/363) Diff. −2 pts. Ratio 0.98 (p=.64)	LowSES V .94 (208/222) Other .87 (177/203) Diff. 7 pts. Ratio 1.1 (p=.04)
4. Jury finds one or more aggravating circumstances present .77 (295/384)[a]	BD .78 (244/312) NBD .71 (51/72) Diff. 7 pts. Ratio 1.1 (p=.19)	NBV .78 (89/114) BV .76 (206/271) Diff. 2 pts. Ratio 1.03 (p=.66)	BD w/NBV .93 (51/55) Other .74 (245/329) Diff. 19 pts. Ratio 1.3 (p=.007)	LowSES V .72 (149/208) Other .82 (146/177) Diff. −12 pts. Ratio 0.88 (p=.02)
5. Jury fails to find a statutory mitigating circumstance present, with death sentence imposed[b] .20 (59/291)[a]	BD .20 (48/242) NBD .22 (11/49) Diff. −2 pts. Ratio 0.91 (p=.46)	NBV .30 (26/87) BV .16 (33/204) Diff. 14 pts. Ratio 1.9 (p=.01)	BD w/NBV .29 (15/51) Other .18 (44/241) Diff. 11 pts. Ratio 1.6 (p=.09)	LowSES V .17 (25/148) Other .24 (34/143) Diff. −7 pts. Ratio 0.71 (p=.18)
6. Jury finds that statutory aggravating circumstances outweigh statutory mitigating circumstances, with death sentence imposed .22 (51/232)[a]	BD .24 (46/194) NBD .13 (5/38) Diff. 11 pts. Ratio 1.8 (p=.18)	NBV .20 (12/61) BV .23 (39/171) Diff. −3 pts. Ratio 0.87 (p=.65)	BD w/NBV .22 (8/36) Other .22 (43/197) Diff. 0 pts. Ratio 1.0 (p=.95)	LowSES V .18 (22/123) Other .27 (29/109) Diff. −9 pts. Ratio 0.7 (p=.12)

[a] Column A rates are the average selection rates for all of the cases in the row. Detailed counts of cases within cells may vary due to rounding. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[b] Row 5 omits four cases in which the defendant volunteered for a death sentence by presenting no mitigating evidence and making no argument in favor of a finding of mitigation. In each such case the jury returned a death sentence.

[c] "p" indicates the level of statistical significance of the disparity in each cell.

TABLE 3

UNADJUSTED RACE OF DEFENDANT AND VICTIM EFFECTS AND VICTIM SOCIOECONOMIC EFFECTS IN THREE MULTISTAGE INPUT-OUTPUT MODELS (PHILADELPHIA: 1983-1993)

A Input-output models	B Black-defendant disparity	C Nonblack-victim disparity	D Black defendant with nonblack victim disparity	E Low-SES-victim disparity
1. Death sentences imposed among all jury penalty trials[a] (n=110)[b] .29 (110/380)	BD .30 (94/310) NBD .23 (16/70) Diff. 7 pts. Ratio 1.3 (p=.25)	NBV .34 (38/112) BV .27 (72/269) Diff. 7 pts. Ratio 1.30 (p=.17)	BD w/NBV .42 (23/55) Other .27 (87/325) Diff. 15 pts. Ratio 1.6 (p=.03)	LowSES V .23 (47/203) Other .36 (63/177) Diff. −13 pts. Ratio .64 (p=.01)
2. Death sentences imposed by juries among all death eligible cases based on a finding of statutory aggravation present but no mitigation present[c] (n=59)[b] .09 (59/662)	BD .09 (48/519) NBD .08 (11/143) Diff. 1 pt. Ratio 1.1 (p=.64)	NBV .12 (26/219) BV .07 (33/444) Diff. 5 pts. Ratio 1.7 (p=.10)	BD w/NBV .15 (15/100) Other .08 (44/562) Diff. 7 pts. Ratio 1.9 (p=.05)	LowSES V .07 (25/382) Other .12 (34/281) Diff. −5 pts. Ratio .58 (p=.03)
3. Death sentences imposed by juries among all death-eligible cases (including both penalty and nonpenalty trial cases)[d] (n=110)[b] .17 (110/662)	BD .18 (94/519) NBD .11 (16/143) Diff. 7 pts. Ratio 1.6 (p=.09)	NBV .17 (38/219) BV .16 (72/444) Diff. 1 pt. Ratio 1.1 (p=.70)	BD w/NBV .23 (23/100) Other .15 (87/562) Diff. 8 pts. Ratio 1.5 (p=.11)	LowSES V .12 (47/378) Other .22 (63/284) Diff. −10 pts. Ratio .55 (p=.003)

[a] This model reflects the combined effects of jury decision points 4-6 in Table 2. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[b] This count indicates the number of death sentences imposed. However, the table omits four cases in which the defendant volunteered for a death sentence by failing both to present any mitigating evidence and to argue in favor of a finding of mitigation. In each such case, the jury imposed a death sentence, on a finding of no mitigation. Detail in Columns B-E may not sum to the case total in Column A due to rounding. The table includes 56 hung cases.

[c] This model reflects the combined effects of decision points 1-5 in Table 2 leading to the imposition of a mandatory death sentence at decision point 5 based on the jury's failure to find mitigation after one or more statutory aggravating circumstances has been found in the case.

[d] This model reflects the combined effects of decision points 1-6 in Table 2 leading to the imposition of a death sentence at decision points 5 or 6.

race-of-victim (Column C) effects that are consistent with, but weaker than, the disparities estimated at decision points 5 and 6 in Table 2. Column E, however, suggests a strong victim-SES effect.

The input-output models in Rows 2 and 3 of Table 3 represent the combined impact of both prosecutorial and jury penalty-trial decisions among all death-eligible cases in the study. The Row 2 disparities reflect all decisions leading up to and including jury death sentences imposed for want of a finding of mitigation after a finding of aggravation. Although the race-of-victim effect shown in Column C is sharply lower than that observed at decision point 5 in Table 2,[117] the victim-SES effect is still present.

The model in Row 3 reflects the combined impact of prosecutorial and jury decisions leading to all 110 jury death sentences.[118] The race-of-defendant disparity in Column B is smaller than its counterpart at decision point 6 in Table 2. This decline reflects the complete absence of a race-of-defendant effect at decision point 5 as shown in Table 2, Column B. However, a black-defendant effect is evident at all earlier stages in the process.[119] The victim-SES effect remains strong, reflecting its salience at each step in the process as illustrated in Table 3, Column E.

2. *Adjusted Race Disparities*

As noted above, unadjusted race effects are merely suggestive, especially when some of the effects are small and fail to achieve statistical significance.[120] The key disparities in death-sentencing rates shown in Table 2 imposing death for failure to find mitigation after finding aggravation (Column C, Row 5) and imposing death in the weighing stage (Column B, Row 6) are each substantial in size (14 and 11 percentage points, respectively). However, the latter effect is not statistically significant ($p = .18$). Similarly, most of the disparities estimated in the input-output models reported in Table 3 were smaller

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117 The race-of-victim effect in Column C is lower because there are no significant race-of-victim effects at earlier stages in the system, except at the plea-bargaining stage, and there defendants with nonblack victims are more likely to negotiate a plea with a waiver of the death penalty.

118 As explained in Table 3, note a, this model excludes four defendants who volunteered for a death sentence. This model is the equivalent of the core model presented in *McCleskey v. Kemp*, 481 U.S. 279, 287 (1987), which indicated that defendants with white victims faced odds of receiving a death sentence that were 4.3 times higher than the odds faced by similarly situated defendants with black victims. We conducted the logistic regression procedures reported in this Article with SAS program PROC LOGISTIC described in SAS/STAT USERS GUIDE (version 6, 1990). The results of an alternative approach are reported *infra* note 132.

119 The race-of-defendant effect is particularly strong in the prosecutorial decisions to unilaterally waive the death penalty before trial, as Table 2, Column B, Row 2 shows.

120 *See supra* text accompanying notes 56-57.

TABLE 4

SUMMARY OF UNADJUSTED AND ADJUSTED SYSTEMIC RACE OF DEFENDANT AND VICTIM DISPARITIES IN THE PHILADELPHIA CAPITAL CHARGING AND JURY SENTENCING SYSTEM (PHILADELPHIA: 1983-1993)

A	B	C	D	E	F
	Race-of-victim disparity	Race-of-defendant disparities			Race-of-victim disparity (*McCleskey* Georgia research)
Measure of defendant culpability	Jury decision to impose a death penalty for failure to find mitigation	Jury death sentence imposed after weighing aggravating and mitigating circumstances	All death sentences imposed at jury penalty trial (decisions in Columns B & C combined)	Death sentences imposed by jury among all death-eligible cases	Death sentences imposed among all death-eligible cases
1. Unadjusted estimated disparity (without volunteers and without adjustment for defendant culpability)	NBV .34 (26/76) BV .21 (33/157) Diff. 13 pts. Ratio 1.6 (.05)[a]	BD .32 (46/145) NBD .16 (5/31) Diff. 16 pts. Ratio 2.0 (.11)	BD .37 (94/256) NBD .26 (16/62) Diff. 11 pts. Ratio 1.4 (.14)	BD .20 (94/465) NBD .12 (16/134) Diff. 8 pts. Ratio 1.7 (.06)	10 pts. (.01)
2. Adjusted regression coefficient/odds multiplier[b]	1.4/4.1 (.22)	3.4/29.9 (.01)	2.2/9.3 (.01)	1.1/3.1 (.02)	1.45/4.3 (.02)
3. Adjusted disparity estimated in a scale based on logistic regression model[c]	NBV .31 BV .22 Diff. 9 pts. Ratio 1.4 (.02)	BD .33 NBD .12 Diff. 21 pts. Ratio 2.7 (.005)	BD .37 NBD .23 Diff. 14 pts. Ratio 1.6 (.002)	BD .21 NBD .12 Diff. 9 pts. Ratio 1.7 (.01)	—
4. Adjusted disparity estimated with a scale based on the number of aggravating and mitigating circumstances found by the jury[d]	—	BD .30 NBD .11 Diff. 19 pts. Ratio 2.7 (.37)	—	—	—
5. Adjusted disparity estimated with a scale based on the salient factors of the case[e]	NBV .31 BV .18 Diff. 13 pts. Ratio 1.7 (.006)	BD .33 NBD .09 Diff. 24 pts. Ratio 3.7 (.02)	BD .38 NBD .24 Diff. 14 pts. Ratio 1.6 (.04)	BD .21 NBD .12 Diff. 9 pts. Ratio 1.7 (.04)	—
6. Disparity estimated with a scale based on the results of the murder severity study[f]	NBV .33 BV .21 Diff. 12 pts. Ratio 1.6 (.05)	BD .31 NBD .16 Diff. 15 pts. Ratio 1.9 (.17)	BD .37 NBD .25 Diff. 12 pts. Ratio 1.5 (.10)	BD .20 NBD .11 Diff. 9 pts. Ratio 1.8 (.05)	—
7. Average rate	.26 (63/238)	.29 (51/175)	.35 (114/322)	.19 (114/603)	.08 (128/1620)

Continued on next page

Table 4—*Continued*

NOTE: All of the analyses in this table exclude life sentenced cases that concluded with a hung verdict in the penalty trial. A table identical to this one that includes the hung cases is presented in Appendix D. Appendix C presents our rationale for giving differential weight to the hung cases as contrasted with the cases that were unanimously decided. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

The last row of this table, "Average Rate," includes four "volunteers" who presented no mitigation and made no request for a jury finding of mitigation and were sentenced to death for failure of the jury to find mitigation after it found statutory aggravation in case. Rows 1-6 exclude the volunteers because the claims of the defendant left little or no room for the meaningful exercise of jury discretion, which is the focus of this inquiry.

Except for the odds multipliers reported in Row 2, all of the disparities reported below are percentage point differences or ratios between death sentencing rates that have been adjusted for defendant culpability, either (black-defendant rate versus nonblack-defendant rate) or (nonblack-victim rate versus black-victim rate), as the case may be.

[a] The level of statistical significance of the reported disparities is in parenthesis.

[b] The odds multipliers reported in this Row indicate, on average, the factor by which the *odds* of receiving a death sentence are enhanced when the defendant is black or the victim is nonblack, as the case may be. Odds multipliers do *not* measure the enhancement or the ratio of *probabilities*. *See infra* note 171 and accompanying text. The enhancement of the average probability of receiving a death sentence is reflected in the ratio measures in rows 3-6. Detail on the logistic regression analyses on which the results in this row are based are described *infra* note 123 and accompanying text.

[c] The scales underlying the estimates reported in this row are described *infra* Part III.C.2(a)(iii).

[d] The scale underlying the estimate reported in this row is described *infra* Part III.C.2(b).

[e] The scales underlying the estimates reported in this row are described *infra* Part III.C.2(c).

[f] The scales underlying the estimates reported in this row are described *infra* Part III.C.2(d).

and failed to achieve statistical significance. The overall model embracing all jury-imposed death sentences (Table 3, Column B, Row 3) revealed a 7 percentage point disparity, significant only at the .09 level. However, the overall jury penalty-trial model (Table 3, Column D, Row 1) revealed a 15 percentage point disparity in cases involving black defendants with nonblack victims that was significant at the .03 level.

We estimated adjusted overall race and SES effects using four independent measures of defendant culpability. We summarize in Table 4 the estimated race effects in analyses that include non-penalty-trial cases and unanimously decided jury penalty-trial cases.[121] Row 1, Columns B-E, repeat four of the unadjusted disparities shown in Tables 2 and 3. Rows 2 and 3 report the disparities estimated with the regression-based measures of culpability, while Rows 4-6 report the disparities estimated after adjustment for the three supplemental measures. Also, for comparative purposes, Column F presents selective results from the Georgia research that were used in *McCleskey*. In the remainder of this section, we report the results summarized in Table 4 in more detail.

a. *Race Effects Estimated with Logistic Regression Methods*

i. *Logistic Regression Coefficients and Odds Multipliers*

The most commonly used method for estimating race effects after adjusting for defendant culpability levels is logistic multiple regression analysis. The logistic models for this research include all of the statutory aggravating and mitigating circumstances and other conceptually important variables that added additional explanatory power to the models in the expected direction.[122] Tables 5 and 6 present the models estimated for the two key jury death penalty decision points.[123]

Table 5 focuses on the jury death sentences imposed after the jury has found one or more statutory aggravating circumstances present in the case, and further concludes that there is no mitigation present in the case. At item D2, the table reports a regression coefficient of 1.4 for the race-of-victim variable that is not statistically significant

121 A comparable tabulation based on analyses that include the hung penalty-trial cases is presented in Appendix D. A description of and rationale for our differential treatment of the hung cases is presented in Appendix C.

122 *See supra* text accompanying notes 97-101 for a discussion of how we constructed the models.

123 Again, these two points are: (1) when juries find aggravation, but no mitigation and (2) when juries weigh aggravation and mitigation. The results of the diagnostic procedures we conducted on the regression analyses reported in this Article are reported *infra* note 132.

($p = .22$).[124] However, when the cases that hung at the weighing stage are included in the analysis, the race-of-victim coefficient is 1.47, significant at the .03 level.[125] Moreover, for the reasons stated in section D.1 below and in Appendix C (section C), we consider the latter results, which are based on an analysis that includes hung cases, to be more reliable than the race-of-victim estimate based on the model that excludes the hung cases.

Overall, therefore, these results suggest that defendants whose victims are nonblack face an enhanced risk of receiving a death sentence at this stage in the process compared to defendants whose victims are black. However, because of the marginal significance of the race-of-victim coefficient estimated in the analysis that excludes the hung cases, the results of these regression analyses are only suggestive. As a result, the race-of-victim effects estimated with our alternative measures assume particular significance.

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124 The core analysis reported in Table 5 is based on the aggravators found by the jury and the mitigating circumstances found by the juries or present in the cases if the factor was not found by the jury. When the variable for "Victim was killed at his/her place of employment," which is highly correlated with the victim's race ($r = .23$, $p = .0001$), is excluded from the analysis, the race-of-victim coefficient rises to 1.7, significant at the .07 level.

As noted in Appendix C, we also conducted alternative analyses to the core models reported in Table 5. In alternative model 1, which treats unknowns on aggravating circumstances as not found, the race-of-victim coefficient was 1.6 (.14), while in the model that excluded altogether the 8 cases in which unknowns on aggravation were reported, the coefficient was 1.2 (.33). There are no unknowns on statutory mitigation because the variables used in the model treat mitigation as found if it is present in the case but not found by the jury. (The logistic regression model will not converge if the actual finding of the juries are used at this stage in the process since each death sentence at this stage was based on a failure to find any of the mitigating factors presented in the case.)

125 The inclusion of the hung cases enhances the race-of-victim effect because the hung cases disproportionately include black-victim cases. This generally has the effect of lowering the death-sentencing rate in the black-victim cases more than it lowers the rate in the nonblack-victim cases, thereby increasing the disparity between the two rates. Also, because the hung cases are disproportionately located among the midrange cases, in terms of defendant culpability, the inclusion of the hung cases disproportionally affects the disparities in the midrange where they are particularly strong. *See* Figure 2 and Table 7 *infra.*

In our alternative analyses, the coefficient is 1.4 (.06) when the unknowns for aggravators are considered not found, and the coefficient is 1.1 (.37) when the cases with unknowns on aggravators are deleted from the analysis. (This had the effect of deleting all but six of the hung case from the analysis.) When the aggravators are coded as found if they were either found by the jury or present in the cases the race-of-victim coefficient is 1.4 (.04).

TABLE 5
LOGISTIC REGRESSION MODEL OF JURY PENALTY-TRIAL DECISIONS THAT RESULTED IN A MANDATORY DEATH SENTENCE FOR FAILURE OF THE JURY TO FIND STATUTORY MITIGATION AFTER FINDING ONE OR MORE AGGRAVATING CIRCUMSTANCES (PHILADELPHIA: 1983-1993)

(This model controls for the statutory aggravating circumstances that the jury found and the mitigating circumstances that either were present in the case or the jury found.)

A Circumstance	B Death-odds multiplier	C Adjusted logistic regression coefficient (with level of statistical significance)
A. Statutory aggravating circumstances (statutory section numbers in parenthesis)[a]		
1. The victim was a police officer (d1)	0.03	–3.5 (.03)
2. Defendant was paid to kill or paid another to kill (d2), or ransom or hostage victim (d3)	2.0	0.69 (.85)
3. Victim was a prosecution witness (d5), or an informant (d15)	0.32	–1.1 (.25)
4. Contemporaneous robbery, rape, kidnapping or arson (d6), or the murder occurred during the perpetration of a drug trafficking crime (d13), or the victim was a competitor in the illegal drug trade(d14)	0.22	–I.5 (.02)
5. Defendant knowingly created a grave risk of death to another (d7)	0.55	–0.60 (.50)
6. Torture involved (d8)	0.48	–0.74 (.53)
7. Defendant had a significant history of violent felony convictions (d9)	3.9	1.4 (.07)
8. Defendant serving a life sentence, etc. (d10)	1.2	0.19 (.85)
9. Multiple murder victims or defendant had a prior murder conviction (d11), or a prior conviction for voluntary manslaughter (d12)	3.4	1.2 (.22)
B. Statutory mitigating circumstances (statutory section numbers in parenthesis)[a]		
1. Defendant had no significant history of prior criminal convictions (e1)	0.08	–2.5 (.01)
2. Defendant under extreme mental or emotional disturbance (e2)	0.03	–3.4 (.002)
3. Defendant's capacity to appareciate the criminality of his conduct or to conform his conduct to the requirements of the law was impaired (e3)	1.4	0.34 (.78)
4. The defendant's youth or advanced age mitigated the offense (e4)	0.17	–1.8 (.04)
5. Defendant acted under duress or the substantial domination of another person (e5), or victim participated in the homicidal acts (e6), or defendant's role was minor (e7)	0.02	–3.9 (.04)
6. There were other mitigating aspects of the defendant's character, record or the offense (e8)	0.0004	–7.7 (.0001)

Continued on next page

Table 5—*Continued*

A Circumstance	B Death-odds multiplier	C Adjusted logistic regression coefficient (with level of statistical significance)
C. Nonstatutory aggravating circumstances		
1. Multiple stabbings	11.9	2.5 (.01)
2. Victim was kidnapped	36.4	3.6 (.07)
3. Victim was killed at his or her place of employment	97.0	4.6 (.001)
D. Race and socioeconomic status (SES) of the defendant and the victim		
1. Defendant was black	.87	–0.14 (.91)
2. One or more victims was nonblack	3.9	1.4 (.22)
3. Victim with low SES	0.28	–1.3 (.14)
4. Defendant with high SES	1.1	0.11 (.94)
5. Defendant with low SES	1.7	0.51 (.53)
6. Defendant SES missing	1.1	0.07 (.97)
7. Victim SES missing	1.4	0.32 (.79)
E. Time period of the case[b]		
1. 1986-89	2.2	0.77 (.26)
2. 1983-85 (1990-93 is the comparison period)	5.1	1.60 (.06)
N = 234 (59 death sentences imposed)		

NOTE: This analysis does not include 56 penalty trial cases that hung on the sentence. When these cases are included in the analyses, the race-of-victim regression coefficient at item D.2 is 1.47 (p = .03) with an odds multiplier of 4.4. See Appendices C and D for detail on the differential treatment of the hung and unanimously decided cases in this research. The analyses also excludes four volunteers who presented no mitigation and did not argue in favor of a jury finding of mitigation. Each volunteer received a death sentence at this stage in the process. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[a] The statutory aggravating and mitigating circumstances are described in Appendix A. Items A2, A3, A4, A9, and B5 in the table embrace more than one statutory factor. Without these combinations, the logistic model would not run, i.e., it would not "converge" because of the distribution of the outcome variable for the cases with these case characteristics. The odds multipliers in Column B are calculated from the original regression coefficients rather than the rounded coefficients reported in Column C.

There are no cases in the study implicating the d4 (airplane hijacking), the d16 (victim under 12 years) aggravating factors.

[b] Two variables to identify the time period of the cases are included in the regression to correct for imbalances created in differential sampling between the time periods. In the sampling scheme, a higher percentage of cases were sampled from the most recent time period, fewer from the 1983-1985 time period, and the fewest from 1986-1989. In general, jury death-sentencing rates among all death-eligible cases bave been decreasing: 23% in 1983-1985; 20% in 1986-89; and 13% in 1990-1993.

The model for the jury weighing decisions presented in Table 6 reveals a strong statistically significant race-of-defendant effect. Specifically, the odds multiplier for the black-defendant variable is 29.0, significant at the .01 level. No other racial or SES variable achieves significance in the model.[126]

126 The model reported in Table 6 excludes 56 cases that appear to have hung on the weighing decision. In an alternative analysis, that includes hung cases, the odds multiplier for the black-defendant variable was 13.5, significant at the 0.04 level, see Appendix D, Table D1, Column C, Row 2.

The race-of-defendant effects at the weighing stage remain strong and stable when the hung cases are included in the analysis. Specifically, when hung cases are added, the race-of-defendant coefficient in the core model is 2.6 with a 13.5 odds multiplier, significant at the .04 level.[127] These results strongly support an inference of systemic race-of-defendant discrimination in the jury weighing decisions.[128]

TABLE 6
LOGISTIC MULTIPLE REGRESSION MODEL OF JURY PENALTY-TRIAL DECISIONS BASED ON A WEIGHING OF STATUTORY AGGRAVATING AND MITIGATING CIRCUMSTANCES (PHILADELPHIA: 1983-1993)

(this model controls for the statutory aggravating and mitigating circumstances that the jury found)

A Circumstance	B Death-odds Multiplier	C Adjusted logistic regression coefficient (with level of statistical significance)
A. Statutory aggravating circumstances (statutory section numbers in parenthesis)[a]		
1. The victim was a police officer (d1)	350.4	5.9 (.02)
2. Defendant was paid to kill or paid another to kill (d2), or ransom or hostage victim (d3)	20.0	3.0 (.08)
3. Victim was a prosecution witness (d5), or an informant (d15)	102.4	4.6 (.001)
4. Contemporaneous robbery, rape, kidnapping or arson (d6)	4.2	1.4 (.04)
5. Defendant knowingly created a grave risk of death to another (d7)	4.7	1.5 (.08)
6. Torture involved (d8)	15.2	2.7 (.02)
7. Defendant had a significant history of violent felony convictions (d9)	10.4	2.3 (.01)
8. Defendant serving a life sentence, etc. (d10)	14.2	2.7 (.05)
9. Multiple murder victims or defendant had a prior murder conviction (d11)	11.6	2.4 (.002)

Continued on next page

127 The inclusion of the hung cases reduces the race-of-defendant effect somewhat because the hung cases disproportionately include black-defendant cases which has the effect of lowering the death-sentencing rate in the black-defendant cases vis-a-vis the rate in the nonblack-defendant cases. Also the hung cases are disproportionately located in the midrange of cases in terms of defendant culpability, where the race effects are strongest when the analyses is limited to the unanimously decided cases.

In alternative analyses that included the hung cases, the race-of-defendant coefficient was 2.3 ($p = .02$) when the unknowns were set to 0 and 1.9 ($p = .08$) when the 34 cases with unknowns were deleted from the analysis. Also, in the analysis that treats a factor as present if it is either found or present, the coefficient was 3.1 (.0006).

128 In contrast to the jury penalty trial decisions, the bench (judge) penalty trial decisions reveal no significant race effects. The unadjusted overall bench trial death sentencing rates were as follows: black defendant cases = .03 (1/30) versus nonblack defendant cases .27 (3/11) ($p = .04$); nonblack-victim cases = .18 (3/17) versus black-victim cases = .04 (1/24) ($p = .20$). Because of the absence of significant race effects in the bench trial decisions, when the jury and bench trials are analyzed together, the estimated race-of-victim and race-of-defendant effects are somewhat lower than those in our two core models. Specifically, in the analysis of death sentences imposed for failure to find mitigation, as in Table 5, the coefficient for nonblack victims is 1.2 ($p = .25$), while the black-defendant coefficient estimated for the final weighing stage, as in Table 6, is 1.05 ($p = .16$).

Table 6—*Continued*

A Circumstance	B Death-odds Multiplier	C Adjusted logistic regression coefficient (with level of statistical significance)
10. A prior conviction for voluntary manslaughter (d12)	520.0	6.3 (.0005)
11. Victim was a competitor in the illegal drug world (d14)	35.4	3.6 (.02)
B. Statutory mitigating circumstances (statutory section numbers in parenthesis)[a]		
1. Defendant had no significant history of prior criminal convictions (e1)	0.64	–0.44 (.47)
2. Defendant under extreme mental or emotional disturbance (e2)	4.5	1.5 (.10)
3. Defendant's capacity to appreciate the criminality of his conduct or to conform his conduct to the requirements of the law was impaired (e3)	0.42	–0.88 (.48)
4. The defendant's youth or advanced age mitigaged the offense (e4)	0.68	–0.39 (.44)
5. Defendant acted under duress or the substantial domination of another person (e5)	0.006	–5.06 (.01)
6. Victim participated in the homicidal acts (e6)	15.0	2.7 (.08)
7. Defendant's role was minor (e7)	0.24	–1.4 (.12)
8. There were other mitigating aspects of the defendant's character, record, or the offense (e8)	0.21	–1.5 (.01)
C. Nonstatutory aggravating circumstances		
1. Previous assault on victim or victim a sex rival	66.2	4.2 (.0001)
2. Victim mutilated or dismembered	549	6.3 (.0005)
3. Defendant committed additional crimes after the homicide	14.8	2.7 (.10)
D. Race and socioeconomic status (SES) of the defendant and the victim		
1. Defendant was black	29.0	3.4 (.01)
2. One or more victims was nonblack	1.1	.12 (.86)
3. Victim with low SES	.39	–0.93 (.19)
4. Defendant with high SES	.44	–.82 (.71)
5. Defendant with low SES	.35	–1.0 (.19)
6. Victim SES missing	1.6	.46 (.61)
E. Time period of the case[b]		
1. 1986-89	.24	–1.4 (.10)
2. 1983-85 (1990-93 is the comparison period)	.99	–0.002 (.99)
N = 175 (51 death sentences imposed)		

NOTE: This analysis does not include 56 penalty-trial cases that hung on the sentence. When those cases are included in the analyses, the race of defendant coefficient (at item D1, Column C) is 2.6 ($p = .04$) with an odds multiplier of 13.5. See Appendices C and D for detail on the differential treatment of the hung and unanimously decided cases in this research. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[a] The statutory aggravating and mitigating circumstances are described in Appendix A. Items A2 and A3 in the table embrace more than one statutory circumstance. Without these combinations, the logistic model would not run, i.e., it would not "converge" because of the distribution of the outcomes for the cases with these case characteristics. The odds multipliers in Column B are calculated from the original regression coefficients rather than the rounded coefficients reported in Column C.

Continued on next page

Table 6—*Continued*

There are no cases in this analysis implicating the d4 (airplane hijacking), the d13 (murder during the perpetration of a drug trafficking crime), or the d16 (victim under 12 years) aggravating factors.

[b] Two variables to identify the time period of the cases are included in the regression to correct for imbalances created in differential sampling between the time periods. In the sampling scheme, a higher percentage of cases were sampled from the most recent time period, fewer from the 1983-1985 time period, and the fewest from 1986-1989. In general, jury death-sentencing rates among all death-eligible cases have been decreasing: 23% in 1983-1985: 20% in 1986-89: and 13% in 1990-1993.

The input-output penalty-trial model that embraces all jury death-sentencing decisions estimated a black-defendant coefficient of 2.2 (with an odds multiplier of 9.3), significant at the .01 level (Table 4, Column D, Row 2). None of the other racial or SES variables achieved statistical significance. This model is presented in Appendix E.[129] When the hung cases were added to the analysis, the race effects declined somewhat, but remained substantial and statistically significant with a race-of-defendant coefficient of 1.3 (with an odds multiplier of 3.7), significant at the .05 level.[130]

Finally, the model embracing jury death sentences imposed among death-eligible cases (which reflects the impact of both prosecutorial and jury decisions) estimated a black-defendant coefficient of 1.1 (with a 3.1 odds multiplier), significant at the .02 level. The model is also presented in Appendix E, Table E2.[131]

The race-of-defendant effects in this model remained strong and stable when the hung cases were added with the core model reporting a coefficient of 1.1 and odds multiplier of 3.0, significant at the .02 level.[132]

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129 The analysis reported in Appendix E is based on the core variables. In alternative analyses, the race-of-defendant effects remains stable and statistically significant. In the alternative that sets unknowns to 0, the race-of-defendant coefficient was 2.0 (.007), while in the analysis that deletes cases with unknowns, the coefficient was 1.9 (.02). In the analysis that treats factors as found if they were either found or present, the race-of-defendant coefficient was 2.0 (.007).

130 In the alternative analyses, the model which treated unknowns as not found estimated a race-of-defendant coefficient of 1.7 (.02), and in the model that deleted cases with unknowns, the estimate was 1.7 (.03). In the analysis which treats a factor as having been found if it was either found by the jury or present, the coefficient was 1.5 (.03).

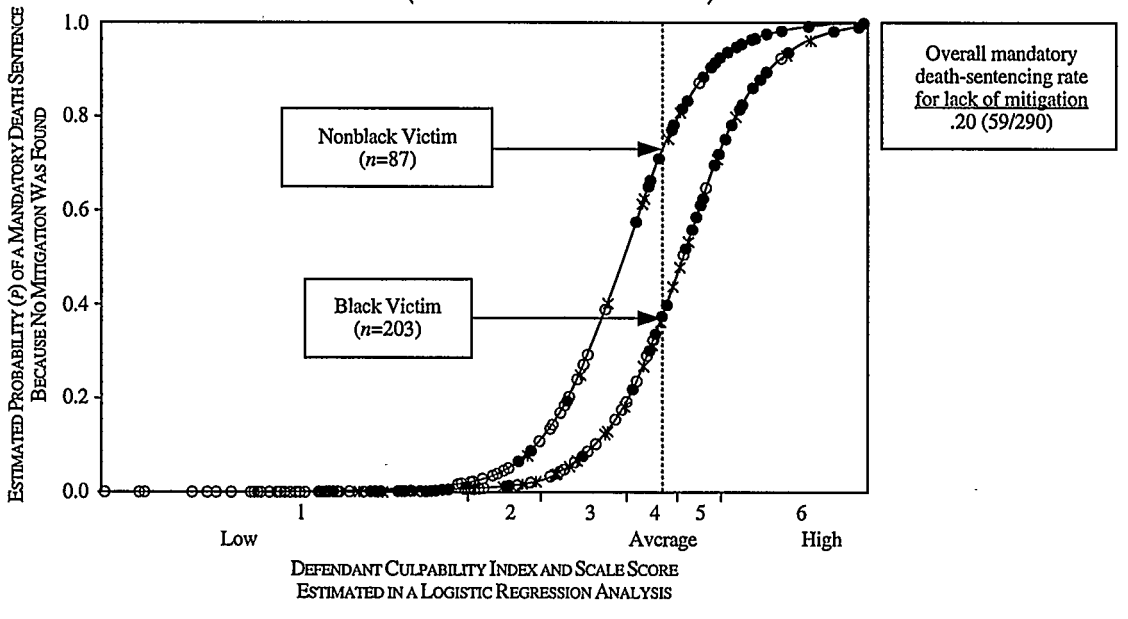
131 The model reported in Appendix E is based on the core variables. In alternative analyses, the race-of-defendant effects are stable and statistically significant. In the alternative that sets unknowns to 0, the race-of-defendant coefficient was 1.2 ($p = .02$), and in the model that deleted all cases with unknowns, the coefficient was .99 ($p = .053$). Finally, in the model that treated statutory factors as found if they had either been found by the jury or were present in the case, the coefficient was 1.5 ($p = .01$).

132 In the alternative analyses, the race-of-defendant effects are 1.2 ($p = .01$) in the model that sets unknowns to 0 and 1.0 ($p = .05$) in the analysis that deletes all cases with unknowns coded. In the analysis that treated a factor as found if it had either been found by the jury or is present in the case, the race-of-defendant coefficient was 1.4 ($p = .02$).

The stagewise nature of the charging and sentencing system, *see* Figure 1, and the complex sampling design used to select cases for inclusion in the data base preclude the exact application of standard statistical procedures such as logistic regression. For the analyses reported in this Article, we used methods which generally yield reliable approxi-

FIGURE 2

ESTIMATED RACE-OF-VICTIM EFFECTS IN THE FAILURE OF PENALTY-TRIAL JURIES TO FIND A STATUTORY MITIGATING CIRCUMSTANCE PRESENT IN THE CASE AFTER FINDING ONE OR MORE AGGRAVATING CIRCUMSTANCES PRESENT (PHILADELPHIA: 1983-93)



NOTE: This plot does not reveal the outcome for each case. When multiple sentences are imposed in cases with the same level of culpability, death sentences are plotted over any other applicable sentences. Similarly, hung cases are plotted over unanimously decided life cases. Both multiple death sentence cases and unanimously decided life cases are plotted as a single point. For an overview of the cases involved in this Article's Tables and Figures, see *supra* note 110.

* The subgroups of cases specified on the horizontal axis (1-6) correspond to the subgroups of cases in Table 7.

ii. *Plots of Death-Sentencing Rates Correlated with Racial Characteristics and the Culpability of the Defendants*

These logistic regression models allowed us to plot the estimated probabilities of a death sentence as a function of different racial characteristics (after controlling for the measure of criminal culpability estimated in the regression models). The scale markers on the horizontal axis (from 1-6) in Figures 2 and 3 correspond to the scale marks in Tables 7 and 8 and Figures F1 and F2 (from 1-8) in Appendix F. The first plot (Figure 2) depicts the race-of-victim effects estimated in the model of jury decisions to impose death sentences for failure to find mitigation (decision point 5). It reveals a strong association between the culpability level of the cases and the magnitude of the estimated race-of-victim effects. Specifically, in terms of the arithmetic difference in death-sentencing rates, the race-of-victim dispari-

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mations to inferential statistics (*p*-values and standard errors); in particular, the "safe" standard errors, *t*-ratios, and *p*-values which we report are identical to those produced by another approximation: the well-established Taylor expansion method described and implemented in the statistical package SUDAAN, which is designed for the analysis of complex samples. Lisa M. LaVange et al., *SUDAAN: A Comprehensive Software Package for Survey Data Analyses*, *in* STATISTICAL ASSOCIATION, PROCEEDINGS OF THE SECTION ON SURVEY RESEARCH METHODS 761-66 (1988). Nevertheless, wishing even more confirmation of the accuracy of our analyses, we conducted an analysis by maximum likelihood.

Likelihood-based inference involves the calculation of a mathematical expression (called the likelihood function) for the probability that the sampling method used in the study would yield the data which was actually observed. *See* MICHAEL O. FINKELSTEIN & BRUCE LEVIN, STATISTICS FOR LAWYERS § 5.17 (1990). For the multi-stage charging and sentencing system and the complex endogenously stratified sampling plan, that expression is quite complex. To obtain maximum likelihood estimates, logistic regression coefficients are "optimized" by, in effect, trying all possible combinations of values for them until we find a set that maximizes the likelihood function, i.e., maximizes the probability of obtaining the observed data. Standard errors are a byproduct of the optimization process. We used a program called NMNL, "Nested Multinomial Logistic Choice Models Under Exogenous and Mixed Endogenous-Exogenous Stratification," to do the maximum likelihood computations. *See* George Woodworth & Jordan J. Louviere, *Nested Multinominal Logistic Choice Models Under Exogenous and Mixed Endogenous-Exogenous Stratification*, *in* AMERICAN STATISTICAL ASSOCIATION PROCEEDINGS OF THE BUSINESS AND ECONOMIC STATISTICS SECTION 121-29 (1988).

Likelihood-based inference is a gold standard for most statisticians and therefore agreement between likelihood-based estimates and other approximate modes of estimation strengthens our confidence in the approximate methods. The following table shows the logistic regression coefficients (and their standard errors) for race of victim, race of defendant and socioeconomic status of defendant and victim, controlling for statistically significant and conceptually important nonracial variables at each stage of the charging and sentencing tree. The models for decision points 5-6 are presented in Tables 5 and 6. For each analysis, we report below the logistic regression coefficient (with the standard error in parenthesis) for the race of the defendant (blacks) and the race of victims (nonblack victim) variables. A positive logistic regression coefficient for the race of defendant or victim indicates that the presence of that factor increases the chances of the first named outcome, while a negative coefficient signifies a reduction in those chances. Coefficients greater than two standard errors (hence significant at about the .05 level) are marked with an asterisk.

1. Case Advances to Guilt Trial vs. Guilty Plea with Waiver of Death Penalty		
BLACKD	.07	(.39)
NONBLVIC	–.32	(.35)
2. Guilt Trial with Risk of a Death Penalty vs. Prosecutor Waives Death Penalty Before Trial		
BLACKD	1.34*	(.49)
NONBLVIC	.46	(.49)
3. Jury Penalty Trial vs. Bench Penalty Trial		
BLACKD	–.06	(.75)
NONBLVIC	–.78	(.61)
4. Statutory Aggravator Found vs. No Statutory Aggravator Found with Life Sentence Imposed		
BLACKD	.20	(.74)
NONBLVIC	.14	(.67)
5. Statutory Mitigating Circumstance Not Found—Death Sentence vs. Mitigating Factor Found		
BLACKD	–.31	(.81)
NONBLVIC	1.38*	(.69)
6. Aggravators Outweigh Mitigators—Death Sentence vs. Life Sentence Imposed		
BLACKD	2.71*	(1.01)
NONBLVIC	.35	(.60)

For the four core models reported in Table 4, we conducted diagnostics for "multicollinearity" and "influence." The multicollinearity diagnostics are designed to identify extreme collinearity (statistical covariation between the "independent" explanatory variables, which include both legitimate, illegitimate and suspect variables). Extreme multicollinearity is a concern because it can affect the size and stability of the standard errors and thus the reliability and accuracy of estimates of the statistical significance of the affected independent variables. *See* BALDUS & COLE, *supra* note 51, § 8A.1; PAETZOLD & WILLBORN, *supra* note 51, § 6.14.

Multicollinearity can be diagnosed through a variety of techniques. We analyzed working logits using the PROC REG procedure in SAS with the COLLIN option, 2 SAS/STAT USER'S GUIDE 1416-17 (version 6, 1990). For all four models, the "condition index" value, a flag for the existence of numerical instability, ranged between 16.95 and 25.04, which is well below the recommended cutoff of 30 recommended as a general threshold. *See* DAVID A. BELSLEY ET AL., REGRESSION DIAGNOSTICS 153 (1980).

Influence analysis is designed to determine if the characteristics of individual cases in the sample have significantly impacted the coefficients estimated for important variables in the models, specifically coefficients for the race of victim and the race of defendant estimated in the core reported in Table 4. For this analysis, we used the SAS INFLUENCE option and identified the top ten cases in terms of their influence on individual coefficients. None of the results suggested that influence was a concern with respect to any of the estimated race effects in the core models.

Finally, before one can interpret the race of defendant and race of victim as having independent (i.e., additive) influences on death-sentencing rates, one first needs to rule out the possibility that the two "interact" with one another in a nonindependent (i.e., nonadditive) way. Specifically, in the models in which the race-of-defendant effects are important (Table 6 and Tables E1 & E2, Appendix E), one needs to determine if the magnitude of the race-of-defendant effects varies depending on the race of the victim. For example, one's interpretation of the results could be influenced by a finding that all of the black-defendant effects were concentrated in the black-victim cases and that no such effects were documented among the nonblack-victim cases. Similarly, in the model in which the race of the victim is important (Table 5), one needs to determine if the magnitude of the race-of-victim effects depends on the race of the defendant.

We first compared defendant death-sentencing rates, controlling for defendant culpability and the race of the victim. For the core jury weighing model (Table 6), after adjustment for defendant culpability, there was a 9 percentage point difference between (1) the black versus nonblack-defendant disparity estimated among the nonblack-victim cases (18

ties are heavily concentrated in the midrange cases in terms of the culpability of the defendants. For example, Figure 2 shows that the estimated disparity for a case with an average level of culpability is approximately 40 percentage points (roughly .35 for the black-victim cases versus .75 for the nonblack-victim cases), while the disparities among the cases that are considerably more or less aggravated are much less pronounced. However, in terms of relative risk, the disparities are greatest among the more mitigated cases. For example, at the low end of the culpability scale, the difference between death-sentencing rates of .06 and .02 represents an arithmetic difference of only 4 percentage points but the relative ratio of the rates is 3.0 (.06/.02).

Figure 3 depicts jury decisions to impose death sentences after weighing the statutory aggravating and mitigating circumstances. It suggests a midrange disparity of about 55 percentage points between the treatment of black and nonblack defendants (approximately .65 – .10) at the average culpability level.

Figure F1 presents comparable data estimated with the input-output model for all jury penalty-trial decisions, while Figure F2 presents the plot for jury death sentences imposed among all death-eligible cases.[133]

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percentage points, .31 – .13), and (2) the black versus nonblack disparity estimated among the black victim cases (27 percentage points, .33 – .06). However, in a logistic regression analysis that controlled for defendant culpability and included a defendant/victim interaction term, the interaction effect was significant at only the .47 level, principally because of the small sample sizes for the different defendant/victim racial combinations.

A similar analysis of all jury penalty trials also revealed a 9 percentage point difference in the black-defendant disparities for the two victim racial subgroups, i.e., a .17 percentage point disparity (.41 – .24) for the nonblack-victim cases versus a .26 percentage point disparity (.37 – .11) for the black-victim cases. A logistic multivariate analysis that controlled for defendant culpability estimated an interaction effect significant at the .10 level. The principal source of these interaction effects is the very low death-sentencing rate in the cases involving nonblack defendants with black victims.

We conducted a similar analysis of race-of-victim effects estimated for death sentences imposed for failure to find mitigation after controlling for defendant culpability (Table 5). After adjustment for defendant culpability, the race-of-victim disparity was 8 percentage points (.30 – .22) among the black defendant cases and 33 percentage points (.33 – .0) among the nonblack-defendant cases. The principal source of this 25 percentage point (.33 – .08) interaction effect is also the extremely low (.0) death-sentencing rate among cases with nonblack defendants and black victims. (We were unable to test the statistical significance of this interaction effect in a logistic regression analysis because no death sentences were imposed in the cases involving nonblack defendants with black victims and, as a consequence, the estimation procedure would not converge.)

Our conclusion is that at both key points in the Philadelphia system at which death sentences are actually imposed, the race of the victim and the race of the defendant have an influence that is generally independent of the race of the defendant or the race of the victim, as the case may be. The one exception to this pattern is that the extremely low death-sentencing rates in cases involving nonblack defendants and black victims disproportionately enhances both the race-of-defendant effect in the black-victim cases and the race-of-victim effect in the nonblack-defendant cases.

133 The models on which Fignres F1 and F2 are based are presented in Appendix E.

iii. *Race Effects Estimated with Regression-Based Scales*

Another method used to estimate overall average race-of-victim and race-of-defendant effects is to: (1) partition the cases into six to eight levels based on the probability of each defendant's receiving a death sentence that has been estimated on the basis of the legitimate case characteristics included in the logistic regression analyses; (2) estimate overall death-sentencing rates for the two racial subgroups that have been adjusted for the culpability level of the cases in each subgroup; and (3) calculate the arithmetic difference and ratio between the two adjusted rates.

Table 7 presents such an analysis of the jury death sentence decisions based on a failure to find mitigation and reveals a 9 percentage point race-of-victim disparity (.31 – .22) and a 1.4 (.31/.22) ratio of the death-sentencing rates, significant at the .02 level.[134] Table 8 presents a similar analysis of the jury weighing decisions. It reports a race-of-defendant disparity in death-sentencing rates of 21 points (.33 – .12) and a ratio of 2.7 (.33/.12), significant at the .004 level.[135]

b. *Racial Effects Estimated at the Weighing Stage Controlling for the Number of Aggravating and Mitigating Circumstances Found by the Juries*

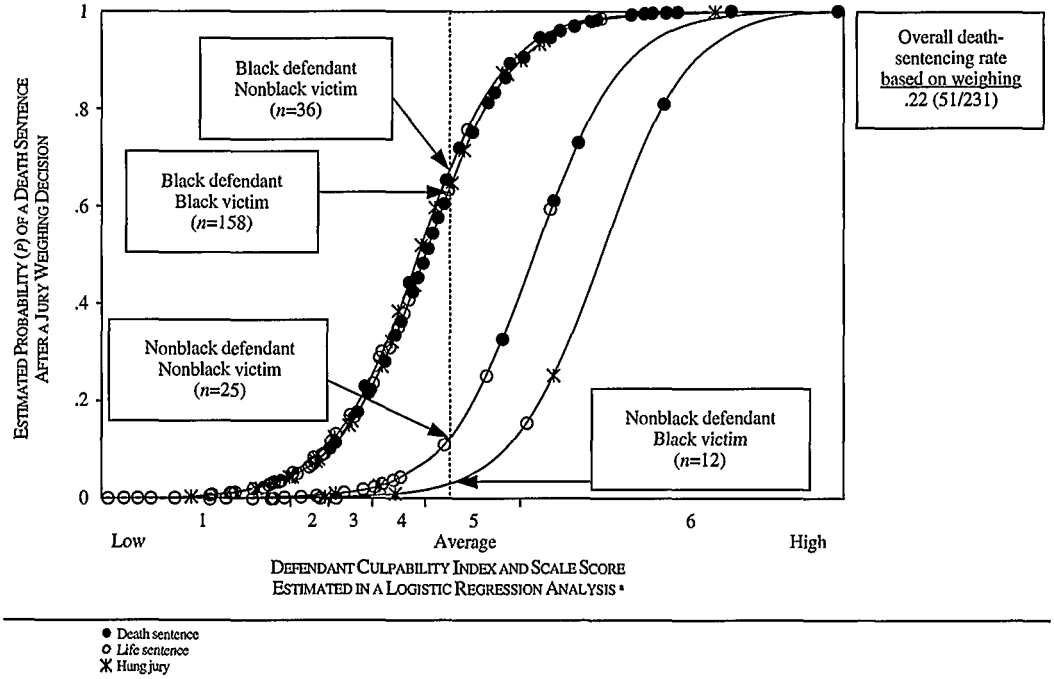
Our first supplemental measure of defendant culpability is the number of statutory aggravating and mitigating circumstances in each case. Table 9 presents the results for the penalty-trial weighing decisions. When the hung cases are excluded from the analyses, the overall estimated race-of-defendant effect is 19 percentage points (.30 – .11), significant at the .37 level. When the hung cases are included, the disparity is 14 percentage points (.23 – .09), significant at the .42 level. Table 9 also indicates that the race effects are concentrated in the midrange of cases where the choice for the jury is difficult.

134 An identical analysis that includes the hung cases, with their case characteristics estimated on the basis of the strength of the evidence in the cases, reveals a 14 percentage point disparity (.30 – .16) and a ratio of 1.9 (.30/.16), significant at the .01 level.

135 An identical analysis that includes the hung cases reports a disparity of 11 percentage points and a ratio of 1.8, significant at the .18 level.

FIGURE 3

ESTIMATED RACE-OF-DEFENDANT AND VICTIM EFFECTS IN JURY PENALTY-TRIAL DEATH-SENTENCING DECISIONS BASED ON A WEIGHING OF STATUTORY AGGRAVATING AND MITIGATING CIRCUMSTANCES (PHILADELPHIA: 1983-93)



NOTE: This plot does not reveal the outcome for each case. When multiple sentences are imposed in cases with the same level of culpability, death sentences are plotted over any other applicable sentences. Similarly, hung cases are plotted over unanimously decided life cases. Both multiple death sentence cases and unanimously decided life cases are plotted as a single point. The difference between the estimated death-sentencing rates for the (1) nonblack-victim cases versus (2) the black-victim cases is not statistically significant within either the black-defendant cases or the nonblack-defendant cases. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

* The subgroups of cases specified on the horizontal axis (1-6) correspond to the subgroups of cases in Table 8.

TABLE 7
RACE-OF-VICTIM EFFECTS IN JURY DEATH-SENTENCING DECISIONS

(decisions based on a failure to find a statutory mitigating circumstance present after finding one or more statutory aggravating circumstances present, controlling for the level of defendant culpability estimated in a logistic regression analysis)

A	B	C	D	E	F
Culpability level from low (1) to high (6)	Death sentence rate for all cases	Rate for nonblack-victim cases	Rate for black-victim cases	Percentage point disparity in death sentencing rates[a] (Column C - Column D)	Ratio of rates (Column C/Column D)
1	.0 (0/88)	.0 (0/23)	.0 (0/65)	0 pts.	1.0
2	.06 (2/32)	.13 (2/15)	.0 (0/17)	13 pts.	Infinite
3	.05 (2/39)	.08 (1/13)	.04 (1/26)	4 pts.	2.0
4	.52 (12/23)	.86 (6/7)	.37 (6/16)	49 pts.	2.3
5	.77 (17/22)	.80 (8/10)	.75 (9/12)	5 pts.	1.1
6	.87 (26/30)	1.0 (9/9)	.81 (17/21)	19 pts.	1.2
Unadjusted rates	.25 (59/234)	.34 (26/77)	.21 (33/157)	—	—
Adjusted rates and disparities[a]	—	.31	.22	9 pts.	1.5

NOTE: The analysis does not include 56 hung cases or volunteers. When the hung cases are included in the analysis, the overall race-of-victim effect is 14 percentage points (.30 versus .16) with a ratio of rates of 1.9 (.30/.16) significant at the .001 level. See Appendices C and D for a description of our treatment of hung cases in this research. This analysis also excludes four volunteers who presented no mitigating evidence and made no argument in favor of a finding of mitigation. Each of those defendants received a death sentence at this stage in the process. This table is based on the logistic regression model presented in Table 5 after the race and socioeconomic effects were purged from it. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[a] The overall race of victim disparity, estimated in a Mantel-Haenszel procedure, controlling for the level of defendant culpability, is nine percentage points (significant at the .02 level).

TABLE 8
RACE OF DEFENDANT DISPARITIES IN JURY PENALTY-TRIAL WEIGHING DECISIONS
(controlling for the level of defendant culpability estimated in a logistic regression analysis)

A	B	C	D	E	F
Culpability level from low (1) to high (6)	Death sentence rate for all cases	Rate for black-defendant cases	Rate for nonblack-defendant cases	Percentage point disparity in death sentencing rates[a] (Column C-Column D)	Ratio of rates (Column C/Column D)
1	.02 (1/41)	.03 (1/32)	.0 (0/9)	3 pts.	Infinite
2	.0 (0/33)	.0 (0/29)	.0 (0/4)	0 pts.	1.0
3	.26 (6/23)	.30 (6/20)	.0 (0/3)	30 pts.	Infinite
4	.29 (10/34)	.34 (10/29)	.0 (0/5)	34 pts.	Infinite
5	.67 (14/21)	.72 (13/18)	.33 (1/3)	39 pts.	2.2
6	.87 (20/23)	.94 (16/17)	.67 (4/6)	27 pts.	1.4
Unadjusted rates	.29 (51/175)	.32 (46/145)	.17 (5/30)	—	—
Adjusted rates and disparities[a]	—	.33	.12	21 pts.	2.7

NOTE: This analysis excludes 56 hung cases. When the hung cases are included in the analysis, the overall race of defendant effect is 13 percentage points (.24 versus .11) with a ratio of rates of 2.2 (.24/.11) significant at the .04 level. See Appendices C and D for a description of our treatment of hung cases in this research. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[a] The overall race-of-defendant disparity, estimated in a Mantel-Haenszel procedure, controlling for the level of defendant culpability, is 21 percentage points (siguificant at the .005 level).

TABLE 9
BLACK-DEFENDANT DISPARITIES IN JURY DEATH-SENTENCING RATES (BLACK VERSUS NONBLACK DEFENDANT CASES) IN JURY WEIGHING DECISIONS (PHILADELPHIA: 1983-1993)

(controlling for the number of statutory aggravating and mitigating circumstances found by the jury)

Overall average death sentence rate: .29 (51/175)						
Number of statutory mitigating circumstances	Number of statutory aggravating circumstances					Row totals (sum of Columns 1-5 for each row)
	1	2	3	4	5	
1	(.23) BD .25 (7/28) NBD .0 (0/3) Diff. 25 pts. Ratio Infinite	(.41) BD .43 (6/14) NBD .33 (1/3) Diff. 10 pts. Ratio 1.3	(1.0) BD 1.0 (10/10) NBD — Diff. — Ratio —	(1.0) BD 1.0 (1/1) NBD 1.0 (1/1) Diff. 0 pts. Ratio 1.0		(.43) BD .45 (24/53) NBD .29 (2/7) Diff. 16 pts. Ratio 1.6
2	(.18) BD .19 (5/27) NBD .14 (1/7) Diff. 5 pts. Ratio 1.4	(.45) BD .50 (5/10) NBD .0 (0/1) Diff. 50 pts. Ratio Infinite	(1.0) BD 1.0 (2/2) NBD 1.0 (1/1) Diff. 0 pts. Ratio 1.0	(.67) BD .67 (2/3) NBD — Diff. — Ratio —		(.31) BD .33 (14/42) NBD .22 (2/9) Diff. 11 pts. Ratio 1.5
3	(.10) BD .12 (3/25) NBD .0 (0/4) Diff. 12 pts. Ratio Infinite	(.0) BD .0 (0/8) NBD .0 (0/2) Diff. 0 pts. Ratio 1.0	(.50) BD .50 (2/4) NBD — Diff. — Ratio —			(.11) BD .14 (5/37) NBD .0 (0/10) Diff. 14 pts. Ratio Infinite
4	(.25) BD .0 (0/3) NBD 1.0 (1/1) Diff. –100 pts. Ratio .0	(.50) BD .50 (2/4) NBD — Diff. — Ratio —	(1.0) BD 1.0 (1/1) NBD — Diff. — Ratio —			(.44) BD .37 (3/8) NBD 1.0 (1/1) Diff. –63 pts. Ratio .37
5	(.0) BD .0 (0/2) NBD .0 (0/1) Diff. 0 pts. Ratio 1.0	(.0) BD .0 (0/2) NBD .0 (0/1) Diff. 0 pts. Ratio 1.0				(.0) BD .0 (0/4) NBD .0 (0/2) Diff. 0 pts. Ratio 1.0

Continued on next page

Table 9—*Continued*

Overall average death sentence rate: .29 (51/175)						
Number of statutory mitigating circumstances	Number of statutory aggravating circumstances					Row totals (sum of Columns 1-5 for each row)
	1	2	3	4	5	
Column totals (Sum of Rows 1-5 for each column)	(.17) BD .18 (15/85) NBD .11 (2/18) Diff. 7 pts. Ratio 1.6	(.30) BD .34 (13/38) NBD .11 (1/9) Diff. 23 pts. Ratio 3.1	(.89) BD .88 (15/17) NBD 1.0 (1/1) Diff. –12 pts. Ratio .88	(.80) BD .75 (3/4) NBD 1.0 (1/1) Diff. –25 pts. Ratio .75		ALL CASES (.31) BD .32 (46/144) NBD .17 (5/29) Diff. 17 pts.[1] Ratio 2.0

NOTE: Each cell indicates (a) the average death sentencing rate for all cases in the cell (in parenthesis), (b) the death sentencing rates for black defendants (BD) and non-black defendants (NBD), and (c) the arithmetic difference ("Diff.") between and the ratio ("Ratio") of those rates. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

The average overall weighted black defendant disparity estimated in a Mantel-Haenszel procedure is 19 percentage points significant at the .37 level. The adjusted death sentencing rate for the black defendants is .30 while the adjusted rate for the nonblack defendants is .11. The ratio between the two average rates is 2.7 (.30/.11). Forty-one bench penalty-trial cases, in which four death sentences were imposed, are not included in this table, which focuses exclusively on the exercise of jury discretion.

[a] This table does not include 56 hung decisions in the sample. When the hung cases are included, the overall black defendant effect is 14 percentage points (.23-.09) significant at the .42 level. See Appendices C and D for a description of our treatment of hung cases in this research.

c. *Race Effects Estimated Controlling for a Salient Factors Measure of Defendant Culpability*

The second supplemental measure of defendant culpability used is the "salient factors" measure which controls for either thirteen case categories that are based on the most prominent statutory aggravating circumstances of each case or nineteen case categories which, when sample sizes permit, further subdivide the cases according to the presence of additional aggravating and mitigating circumstances.[136] Table 10 (Column B, last row) indicates that the average race-of-victim effect estimated for death-sentencing decisions imposed for failure to find a statutory mitigating circumstance is 13 percentage points (.31 – .18) after controlling for the nineteen level scale, significant at the .006 level. When the hung cases are included, the disparity is 17 percentage points (.31 – .14), significant at the .001 level.

The race-of-defendant effect for the jury weighing decisions (Column C, last row) is 24 percentage points (.33 – .09), significant at the .01 level. When the hung cases are included, the disparity is 18 percentage points (.25 – .07), significant at the .05 level.

Table 10 reports similar results for all jury penalty-trial decisions (Column D) and jury decisions imposed among all death-eligible cases (Column E). For all jury penalty-trial decisions (Column D, last row), the race-of-defendant effect is 14 points, significant at the .04 level (without hung cases) and 10 points, significant at the .22 level (with hung cases included). For the jury death sentences imposed among all death-eligible cases (Column E, last row), the race-of-defendant effect is 9 percentage points, significant at the .04 level (without hung cases) and 6 percentage points, significant at the .15 level (with the hung cases included).

136 For each decision point, the adjusted rates for the respective racial subgroups and the disparities between them are reported on the last row of data in Table 10.

TABLE 10

BLACK-DEFENDANT AND NONBLACK-VICTIM RACE EFFECTS IN SELECTIVE CAPITAL CHARGING AND SENTENCING DECISIONS (PHILADELPHIA: 1983-1993)

(controlling for salient factor categories based on both statutory and nonstatutory aggravating and mitigating circumstances)

A	Race-of-victim disparities	Race-of-defendant disparities		
	B	C	D	E
Salient factor categories[a]	Penalty trial death sentence based on finding statutory aggravator(s) but no mitigator[b]	Penalty trial death sentence after jury weigbed statutory aggravating and mitigating circumstances[c]	Death sentence imposed at jury penalty trial[d]	Death sentence imposed by a jury among all death-eligible cases[e]
Overall Average Selection Rate	.25 (59/234)	.29 (51/175)	.35 (110/318)	.18 (110/600)
A. Multiple-victim murder—(d11), d12)[a]	(.15) NBV .0 (0/6) BV .18 (5/28) Diff. –18 pts. Ratio .0	(.52) BD .61 (14/23) NBD .17 (1/6) Diff. 44 pts. Ratio 3.6	(.56) BD .68 (19/28) NBD .12 (1/8) Diff. 56 pts. Ratio 5.7	(.30) BD .36 (19/53) NBD .08 (1/13) Diff. 28 pts. Ratio 4.5
A1. Multiple victims with sex assault or particular violence	(.08) NBV .0 (0/2) BV .09 (1/11) Diff. –9 pts. Ratio .0	(.58) BD .60 (6/10) NBD .50 (1/2) Diff. 10 pts. Ratio 1.2	(.62) BD .64 (7/11) NBD .50 (1/2) Diff. 14 pts. Ratio 1.3	(.44) BD .50 (7/14) NBD .25 (1/4) Diff. 25 pts. Ratio 2.0
A2. Multiple-victims with less than two significant mitigating circumstances	(.31) NBV .0 (0/1) BV .33 (4/12) Diff. –33 pts. Ratio .0	(.78) BD .87 (7/8) NBD .0 (0/1) Diff. 87 pts. Ratio Infinite	(.69) BD .92 (11/12) NBD .0 (0/4) Diff. 92 pts. Ratio Infinite	(.34) BD .42 (11/26) NBD .0 (0/6) Diff. 42 pts. Ratio Infinite
A3. Multiple victims with two or more mitigators	(.0) NBV .0 (0/2) BV .0 (0/5) Diff. 0 pts. Ratio 1.0	(.14) BD .20 (1/5) NBD .0 (0/2) Diff. 20 pts. Ratio Infinite	(.14) BD .20 (1/5) NBD .0 (0/2) Diff. 20 pts. Ratio Infinite	(.06) BD .08 (1/13) NBD .0 (0/4) Diff. 8 pts. Ratio Infinite

Continued on next page

Table 10—*Continued*

A	Race-of-victim disparities B	Race-of-defendant disparities C	D	E
Salient factor categories[a]	Penalty trial death sentence based on finding statutory aggravator(s) but no mitigator[b]	Penalty trial death sentence after jury weighed statutory aggravating and mitigating circumstances[c]	Death sentence imposed at jury penalty trial[d]	Death sentence imposed by a jury among all death-eligible cases[e]
B. Murder by a defendant with a prior murder or manslaughter—(d11), (d12)	(.53) NBV .83 (5/6) BV .33 (3/9) Diff. 50 pts. Ratio 2.5	(.57) BD .67 (4/6) NBD .0 (0/1) Diff. 67 pts. Ratio Infinite	(.80) BD .82 (9/11) NBD .75 (3/4) Diff. 7 pts. Ratio 1.1	(.57) BD .60 (9/15) NBD .50 (3/6) Diff. 10 pts. Ratio 1.2
C. Murder by a defendant with significant history of violent offenses or other prior criminal life—(d9), (d10)	(.57) NBV .67 (4/6) Bvic .56 (19/34) Diff. 11 pts. Ratio 1.2	(.35) BD .35 (6/17) NBD — Diff. — Ratio —	(.51) BD .51 (27/53) NBD .50 (2/4) Diff. 1 pts. Ratio 1.02	(.31) BD .32 (27/84) NBD .18 (2/11) Diff. 14 pts. Ratio 1.8
C1. With two or more additional aggravating circumstances or particular violence/terror	(.40) NBV .0 (0/1) Bvic .50 (2/4) Diff. –50 pts. Ratio .0	(1.0) BD 1.0 (3/3) NBD — Diff. — Ratio —	(1.0) BD 1.0 (5/5) NBD — Diff. — Ratio —	(.83) BD .83 (5/6) NBD — Diff. — Ratio —
C2. With a single additional aggravating circumstance or particular violence/terror	(.81) NBV .50 (1/2) Bvic .86 (12/14) Diff. –36 pts. Ratio .58	(.67) BD .67 (2/3) NBD — Diff. — Ratio —	(.65) BD .68 (15/22) NBD .0 (0/1) Diff. 68 pts. Ratio Infinite	(.31) BD .36 (15/42) NBD .0 (0/6) Diff. 36 pts. Ratio Infinite
C3. With no other aggravating circumstances or particular violence	(.42) NBV 1.0 (3/3) Bvic .31 (5/16) Diff. 69 pts. Ratio 3.2	(.09) BD .09 (1/11) NBD — Diff. — Ratio —	(.31) BD .27 (7/26) NBD .67 (2/3) Diff. –40 pts. Ratio .40	(.22) BD .19 (7/36) NBD .40 (2/5) Diff. –21 pts. Ratio .47

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Table 10—*Continued*

A	Race-of-victim disparities B	Race-of-defendant disparities C	D	E
Salient factor categories[a]	Penalty trial death sentence based on finding statutory aggravator(s) but no mitigator[b]	Penalty trial death sentence after jury weighed statutory aggravating and mitigating circumstances[c]	Death sentence imposed at jury penalty trial[d]	Death sentence imposed by a jury among all death-eligible cases[e]
D. Sexual assault murder—(d7)	(.67) NBV .67 (2/3) Bvic — Diff. — Ratio —	(1.0) BD — NBD 1.0 (1/1) Diff. — Ratio —	(1.0) BD 1.0 (1/1) NBD 1.0 (2/2) Diff. 0 pts. Ratio 1.0	(.20) BD .08 (1/13) NBD 1.0 (2/2) Diff. –92 pts. Ratio .08
E. Victim a public servant—(d1)	(.20) NBV .20 (1/5) Bvic — Diff. — Ratio —	(.50) BD 1.0 (1/1) NBD .33 (1/3) Diff. 67 pts. Ratio 3.0	(.60) BD 1.0 (2/2) NBD .33 (1/3) Diff. 67 pts. Ratio 3.0	(.60) BD 1.0 (2/2) NBD .33 (1/3) Diff. 67 pts. Ratio 3.0
F. Robbery/burglary/other felony murder—(d6)	(.15) NBV .24 (8/34) Bvic .06 (2/32) Diff. 18 pts. Ratio 4.0	(.20) BD .21 (10/47) NBD .11 (1/9) Diff. 10 pts. Ratio 1.9	(.28) BD .29 (18/63) NBD .27 (3/11) Diff. 2 pts. Ratio 1.1	(.13) BD .14 (18/129) NBD .10 (3/31) Diff. 4 pts. Ratio 1.4
F1. Residential forced or unauthorized entry robbery/murder/with particular violence/terror	(.50) NBV .80 (4/5) Bvic .0 (0/3) Diff. 80 pts. Ratio Infinite	(.50) BD .50 (2/4) NBD — Diff. — Ratio —	(.75) BD .71 (5/7) NBD 1.0 (1/1) Diff. –29 pts. Ratio .71	(.29) BD .31 (5/16) NBD .20 (1/5) Diff. 11 pts. Ratio 1.5
F2. Other robbery/murder with particular violence/terror or victim vulnerability	(.12) NBV .11 (1/9) Bvic .12 (1/8) Diff. –1 pt. Ratio .92	(.14) BD .17 (2/12) NBD .0 (0/2) Diff. 17 pts. Ratio Infinite	(.24) BD .27 (4/15) NBD .0 (0/2) Diff. 27 pts. Ratio Infinite	(.14) BD .17 (4/23) NBD .0 (0/6) Diff. 17 pts. Ratio Infinite

Continued on next page

Table 10—*Continued*

A	Race-of-victim disparities B	Race-of-defendant disparities C	D	E
Salient factor categories[a]	Penalty trial death sentence based on finding statutory aggravator(s) but no mitigator[b]	Penalty trial death sentence after jury weighed statutory aggravating and mitigating circumstances[c]	Death sentence imposed at jury penalty trial[d]	Death sentence imposed by a jury among all death-eligible cases[e]
F3. Other forced or unauthorized entry robbery/murder	(.0) NBV — Bvic .0 (0/2) Diff. — Ratio —	(.0) BD .0 (0/2) NBD — Diff. — Ratio —	(.0) BD .0 (0/4) NBD — Diff. — Ratio —	(.0) BD .0 (0/12) NBD .0 (0/3) Diff. 0 pts. Ratio 1.0
F4. Other holdup murder involving a stranger victim	(.09) NBV .0 (0/3) Bvic .12 (1/8) Diff. –12 pts. Ratio .0	(.30) BD .33 (3/9) NBD .0 (0/1) Diff. 33 pts. Ratio Infinite	(.36) BD .40 (4/10) NBD .0 (0/1) Diff. 40 pts. Ratio Infinite	(.14) BD .17 (4/23) NBD .0 (0/6) Diff. 17 pts. Ratio Infinite
F5. Other forced or unauthorized entry where perpetrator surprised by victim	(.50) NBV 1.0 (1/1) Bvic .0 (0/1) Diff. 100 pts. Ratio Infinite	(.0) BD .0 (0/1) NBD — Diff. — Ratio —	(.50) BD .0 (0/1) NBD 1.0 (1/1) Diff. –100 pts. Ratio .0	(.25) BD .0 (0/3) NBD 1.0 (1/1) Diff. – 100 pts. Ratio .0
F6. Other robbery/murder in the course of a business holdup	(.11) NBV .14 (1/7) Bvic .0 (0/2) Diff. 14 pts. Ratio Infinite	(.0) BD .0 (0/8) NBD — Diff. — Ratio —	(.09) BD .09 (1/10) NBD — Diff. — Ratio —	(.05) BD .05 (1/20) NBD — Diff. — Ratio —
F7. Robbery/murder between acquaintances or friends without special violence/terror	(.14) NBV .20 (1/5) Bvic .0 (0/2) Diff. 20 pts. Ratio Infinite	(.20) BD .25 (1/4) NBD .0 (0/1) Diff. 25 pts. Ratio Infinite	(.33) BD .40 (2/5) NBD .0 (0/1) Diff. 40 pts. Ratio Infinite	(.09) BD .09 (2/22) NBD .0 (0/1) Diff. 9 pts. Ratio Infinite

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Table 10—*Continued*

A	Race-of-victim disparities B	Race-of-defendant disparities C	D	E
Salient factor categories[a]	Penalty trial death sentence based on finding statutory aggravator(s) but no mitigator[b]	Penalty trial death sentence after jury weighed statutory aggravating and mitigating circumstances[c]	Death sentence imposed at jury penalty trial[d]	Death sentence imposed by a jury among all death-eligible cases[e]
F8. Robbery/murder in the course of an illiegal drug transaction	(.0) NBV .0 (0/3) Bvic .0 (0/1) Diff. 0 pts. Ratio 1.0	(.50) BD .66 (2/3) NBD .0 (0/1) Diff. 66 pts. Ratio Infinite	(.40) BD .50 (2/4) NBD .0 (0/1) Diff. 50 pts. Ratio Infinite	(.18) BD .33 (2/6) NBD .0 (0/5) Diff. 33 pts. Ratio Infinite
F9. Murder in the perpetration of other felony (including robbery)	(.0) NBV .0 (0/1) Bvic .0 (0/5) Diff. 0 pts. Ratio 1.0	(.20) BD .0 (0/2) NBD .33 (1/3) Diff. −33 pts. Ratio .0	(.11) BD .0 (0/6) NBD .33 (1/3) Diff. −33 pts. Ratio .0	(.11) BD .0 (0/6) NBD .33 (1/3) Diff. −33 pts. Ratio .0
G. Arson murder—(d6)	(.0) NBV — Bvic .0 (0/1) Diff. — Ratio —	(.0) BD .0 (0/1) NBD — Diff. — Ratio —	(.0) BD .0 (0/1) NBD — Diff. — Ratio —	(.0) BD .0 (0/1) NBD — Diff. — Ratio —
H. Murder with a kidnapping not involving a robbery or sexual assault—(d6)	(.0) NBV .0 (0/1) Bvic .0 (0/1) Diff. 0 pts. Ratio 1.0	(.50) BD 1.0 (1/1) NBD .0 (0/1) Diff. 100 pts. Ratio Infinite	(.33) BD .50 (1/2) NBD .0 (0/1) Diff. 50 pts. Ratio Infinite	(.25) BD .50 (1/2) NBD .0 (0/2) Diff. 50 pts. Ratio Infinite
I. Murder for hire—(d2)	(.18) NBV .50 (2/4) Bvic .0 (0/7) Diff. 50 pts. Ratio Infinite	(.11) BD .11 (1/9) NBD — Diff. — Ratio —	(.21) BD .15 (2/13) NBD 1.0 (1/1) Diff. −.85 pts. Ratio 0.15	(.10) BD .14 (2/14) NBD .07 (1/15) Diff. 7 pts. Ratio 2.0

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Table 10—*Continued*

A	Race-of-victim disparities B	Race-of-defendant disparities C	D	E
Salient factor categories[a]	Penalty trial death sentence based on finding statutory aggravator(s) but no mitigator[b]	Penalty trial death sentence after jury weighed statutory aggravating and mitigating circumstances[c]	Death sentence imposed at jury penalty trial[d]	Death sentence imposed by a jury among all death-eligible cases[e]
J. Torture—(d8)	(.33) NBV .33 (1/3) Bvic .33 (2/6) Diff. 0 pts. Ratio 1.0	(.83) BD .80 (4/5) NBD 1.0 (1/1) Diff. .20 pts. Ratio .80	(.33) BD .46 (6/13) NBD .18 (2/11) Diff. 28 pts. Ratio 2.6	(.21) BD .25 (6/24) NBD .14 (2/14) Diff. 11 pts. Ratio 1.8
L. A murder in which the defendant knowingly created a grave risk of death to another person in a case not involving another primary statutory aggravating circumstance—(d7)	(.06) NBV .17 (1/6) Bvic .03 (1/30) Diff. 14 pts. Ratio 5.7	(.09) BD .12 (3/26) NBD .0 (0/8) Diff. 12 pts. Ratio Infinite	(.07) BD .09 (5/55) NBD .0 (0/13) Diff. 9 pts. Ratio Infinite	(.04) BD .05 (5/109) NBD .0 (0/33) Diff. 5 pts. Ratio Infinite
L1. Defendant attempted to murder another person	(.07) NBV .0 (0/1) Bvic .07 (1/14) Diff. −7 pts. Ratio .0	(.07) BD .08 (1/12) NBD .0 (0/2) Diff. 8 pts. Ratio Infinite	(.08) BD .10 (2/20) NBD .0 (0/4) Diff. 10 pts. Ratio Infinite	(.04) BD .05 (2/41) NBD .0 (0/12) Diff. 5 pts. Ratio Infinite
L2. Defendant randomly fired multiple shots into a crowd with no particular victim in mind	(.0) NBV — Bvic .0 (0/1) Diff. — Ratio —	(.0) BD .0 (0/1) NBD — Diff. — Ratio —	(.0) BD .0 (0/1) NBD — Diff. — Ratio —	(.0) BD .0 (0/4) NBD — Diff. — Ratio —
L3. Defendant's intentional attack on his or her victim knowingly created a great risk of death to another within the zone of danger to whom defendant was otherwise indifferent	(.05) NBV .25 (1/4) Bvic .0 (0/15) Diff. 25 pts. Ratio Infinite	(.11) BD .15 (2/13) NBD .0 (0/6) Diff. 15 pts. Ratio Infinite	(.07) BD .09 (3/33) NBD .0 (0/9) Diff. 9 pts. Ratio Infinite	(.04) BD .05 (3/63) NBD .0 (0/21) Diff. 5 pts. Ratio Infinite

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Table 10—*Continued*

A	Race-of-victim disparities B	Race-of-defendant disparities C	D	E
Salient factor categories[a]	Penalty trial death sentence based on finding statutory aggravator(s) but no mitigator[b]	Penalty trial death sentence after jury weighed statutory aggravating and mitigating circumstances[c]	Death sentence imposed at jury penalty trial[d]	Death sentence imposed by a jury among all death-eligible cases[e]
L4. After killing or mortally wounding the victim, defendant intended to injure or terrify another person and employed force in a manner which created a grave risk of death	(—) NBV — Bvic — Diff. — Ratio —	(—) BD — NBD — Diff. — Ratio —	(—) BD — NBD — Diff. — Ratio —	(.00) BD .0 (0/1) NBD — Diff. — Ratio —
M. A murder committed in which the defendant killed a witness or informant—(d5), (d15)	(.25) NBV .67 (2/3) Bvic .0 (0/5) Diff. 67 pts. Ratio Infinite	(.17) BD .17 (1/6) NBD — Diff. — Ratio —	(.33) BD .29 (2/7) NBD .50 (1/2) Diff. −21 pts. Ratio 0.58	(.27) BD .22 (2/9) NBD .50 (1/2) Diff. −28 pts. Ratio 0.44
N. Drug-related murder—(d13), (d14)	(.33) NBV — Bvic .33 (1/3) Diff. — Ratio —	(.50) BD .50 (1/2) NBD — Diff. — Ratio —	(.33) BD .33 (2/6) NBD — Diff. — Ratio —	(.16) BD .20 (2/10) NBD .0 (0/2) Diff. 20 pts. Ratio Infinite
Overall Adjusted Rates and Disparities	NBV .31 BV .18 Diff. 13 pts Ratio 1.7 (.006)[f]	BD .33 NBD .09 Diff. 24 pts. Ratio 3.7 (.02)[f]	BD .38 NBD .24 Diff. 14 pts. Ratio 1.6 (.04)[f]	BD .21 NBD .12 Diff. 9 pts. Ratio 1.7 (.04)

NOTE: Each cell indicates (a) the overall death sentencing rate (in parenthesis) for all cases in the cell, (b) the selection rates for the black (BD) and nonblack (NBD) cases, and (c) the arithmetic difference between (BD-NBD) and the ratio of (BD/NBD) these rates.

The average weighted overall adjusted black defendant disparities for each decision(s) in Columns C - E are reported in the text accompanying notes 2-5. This table does not include hung cases and four defendants who volunteered for a death sentence by offering no mitigating evidence and by presenting no argument urging a finding of mitigation. Each of the volunteers received a mandatory death sentence when the jury failed to find any mitigation in the case.

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Table 10—*Continued*

[a] The statutory aggravating circumstances implicated by each salient factor category are identified with their designation in the Pennsylvania death penalty statute, e.g., (d11), (d12).

[b] The overall Column B nonblack-victim disparity (NBV-BV) in the rates at which death sentences are imposed for failure of the penalty trial jury to find mitigation present, estimated in a Mantel-Haenszel procedure is 13 percentage points significant at the .006 level. These estimates are based on the disparities observed in the main salient factor categories B, D, E, G, H, I, J, M, N and the 19 subcategories under salient factors A, C, F, L. Case subcategories were used when the sample sizes were sufficient to estimate meaningful disparities. When the race-of-victim disparity is estimated among the 13 main categories, the overall effect is 14 percentage points significant at the .007 level. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[c] The overall Column C black defendant disparity (BD-NBD) in death sentencing rates in penalty trials in which jurors weighed aggravating and mitigating circumstances is 24 percentage points significant at the .02 level. This estimate is based on the disparities observed in the main salient factor categories B, D, E, G, H, I, J, M, N and the 19 subcategories under salient factors A, C, F, L. When the racial disparity is estimated among the 13 main categories, the overall effect is 22 percentage points significant at the .02 level. These analyses do not include 56 hung penalty-trial jury cases.

[d] The overall Column D penalty-trial black-defendant disparity in death sentencing rates (BD-NBD) estimated in a Mantel-Haenszel procedure is 14 percentage points significant at the .04 level. This estimate is based on the disparities observed in the main salient factor categories B, D, E, G, H, I, J, M, N and the 19 subcategories under salient factors A, C, F, L. Case subcategories were used when sample sizes were sufficient to estimate meaningful disparities. When the racial disparity is estimated among the 13 main categories the overall effect is 11 percentage points significant at the .03 level. Those analyses do not include 62 hung penalty-trial jury cases.

[e] The overall Column E black-defendant race disparity in death sentencing rates (BD-NBD) estimated in a Mantel-Haenszel procedure is nine percentage points significant at the .04 level. This estimate is based on the disparities observed in the main salient factor categories B, D, E, G, H, I, J, M, N and the 19 subcategories under salient factors A, C, F, L. Case subcategories were used when sample sizes were sufficient to estimate meaningful disparities. When the racial disparity is estimated among the 13 main categories, the overall black-defendant effect is eight percentage points significant at the .05 level. These analyses do not include 62 hung penalty-trial jury cases.

[f] The level of statistical significance of the overall adjusted disparity is in parentheses.

d. *Race Effects Estimated with Controls for a Murder Severity Scale*

The third supplemental measure is the murder-severity index. This measure is based on rankings of separate groups of 15 cases on the basis of the defendant's culpability. Table 11 presents the first set of results from a pilot study that we conducted using law students to rate the cases.[137] It divides the cases into 12 levels based on the severity of the estimated culpability and reports race-of-victim effects for jury death sentences based upon the jury's failure to find mitigation.[138] Columns C, D, and E, which indicate the magnitude of the nonblack-victim disparity at each level, reveal a consistent pattern of effects. The overall average race-of-victim effect is 12 percentage points, significant at the .05 level. When the hung cases are included, the disparity is 11 percentage points, significant at the .03 level.

Table 12 presents the second set of results from the pilot study for the jury weighing decision. Columns C, D, and E also reveal a persistent pattern of race-of-defendant effects. The overall average disparity is 15 percentage points, significant at the .17 level. When the hung cases are included, the disparity is 10 percentage points, significant at the .30 level.

D. Inferences, Possible Explanations, and Consequences

What do these adjusted disparities tell us about the likely influence of the race of the defendant and victim and victim SES in Philadelphia's death-sentencing system? How likely is it that the system is treating similarly situated defendants differently because of both defendant and victim characteristics? What are the most likely explanations for the racial disparities observed in Philadelphia and elsewhere in the United States? Finally, what is the practical significance of those racial disparities?

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137 The final scale will be based on the ratings of Philadelphia death-qualified venire persons, those who served on a capital jury or were struck from the venire by the exercise of a peremptory cballenge. *See supra* note 84.

138 We purged the narrative descriptions used by the student raters of all references to the race or SES of the defendant and of the victim. There is a risk, however, that the facts of the cases suggested the race and SES, and thus may have subtly influenced the ratings. To test for this possibility, we conducted a series of multiple regression analyses in which we used the severity scores as the outcome measure. The statutory aggravating and mitigating circumstances plus many other nonstatutory aggravators and mitigators, along with the race and SES of the defendant and of the victim, were the independent explanatory variables. The coefficients estimated for the legitimate case characteristics were of both a magnitude and a direction that one would expect, and many were statistically significant. In contrast, the coefficients estimated for the race and SES variables showed no statistically significant relationship with the severity scores. In addition, the simple correlation between the severity score and the black-defendant variable was –.06 ($p = .44$), and the relationship with the black-victim variable was .07 ($p = .35$). These results give us confidence that the raters' perceptions of the race of the defendants and of the victims in the cases did not bias their scores.

TABLE 11

RACE-OF-VICTIM DISPARITIES IN JURY PENALTY-TRIAL DEATH DECISIONS IMPOSED FOR FAILURE OF A JURY TO FIND STATUTORY MITIGATION AFTER IT FOUND ONE OR MORE STATUTORY AGGRAVATING CIRCUMSTANCES PRESENT IN THE CASE

(controlling for the level of defendant culpability estimated in the murder severity study)

A	B	C	D	E	F
Culpability level from low (1) to high (12)	Death sentence rate for all cases	Rate for nonblack-victim cases	Rate for black-victim cases	Percentage point disparity in death sentencing rates[a] (Column C - Column D)	Ratio of rates (Column C/Column D)
1	.0 (0/18)	.0 (0/10)	.0 (0/8)	0 pts.	1.0
2	.06 (1/18)	.0 (0/4)	.07 (1/14)	−7 pts.	.0
3	.06 (1/18)	.0 (0/6)	.08 (1/12)	−8 pts.	.0
4	.09 (1/11)	.33 (1/3)	.0 (0/8)	33 pts.	Infinite
5	.07 (2/28)	.14 (1/7)	.05 (1/21)	6 pts.	2.2
6	.11 (2/19)	.20 (1/5)	.07 (1/14)	13 pts.	2.9
7	.35 (8/23)	.45 (5/11)	.25 (3/12)	20 pts.	1.8
8	.25 (5/20)	.17 (1/6)	.29 (4/14)	−12 pts.	.59
9	.33 (6/18)	.60 (3/5)	.23 (3/13)	37 pts.	2.6
10	.43 (10/23)	.57 (4/7)	.37 (6/16)	20 pts.	1.5
11	.72 (18/25)	.80 (8/10)	.67 (10/15)	13 pts.	1.2
12	.38 (5/13)	.67 (2/3)	.30 (3/10)	37 pts.	2.2
Unadjusted rates	.25 (59/234)	.34 (26/77)	.21 (33/157)	—	—
Adjusted rates & disparities[a]	—	.33	.21	12 pts.	1.6

NOTE: This table, which is based on the results of the law student pilot from the murder severity study, does not include hung cases or volunteers. See Appendix C for a description of our treatment of hung cases. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[a] The overall race-of-victim disparity, estimated in a Mantel-Haenszel procedure, controlling for the level of defendant culpability, is 12 percentage points (significant at the .05 level). When the hung cases are included in the analysis, the race-of-victim disparity is 11 points, significant at the .03 level.

TABLE 12

RACE-OF-DEFENDANT DISPARITIES IN JURY PENALTY-TRIAL DEATH-SENTENCING DECISIONS BASED ON A WEIGHING OF STATUTORY AGGRAVATING AND MITIGATING CIRCUMSTANCES

(controlling for the level of defendant culpability estimated in the murder severity study)

A	B	C	D	E	F
Culpability level from low (1) to high (12)	Death sentence rate for all cases	Rate for black-defendant cases	Rate for nonblack-defendant cases	Percentage point disparity in death sentencing rates[a] (Column C - Column D)	Ratio of rates (Column C/Column D)
1	.05 (1/19)	.08 (1/13)	.0 (0/6)	8 pts.	Infinite
2	.12 (2/17)	.12 (2/16)	.0 (0/1)	12 pts	Infinite
3	.18 (3/17)	.20 (3/15)	.0 (0/2)	20 pts.	Infinite
4	.40 (4/10)	.40 (4/10)	—	—	—
5	.19 (5/26)	.20 (4/20)	.17 (1/6)	3 pts.	1.2
6	.41 (7/17)	.47 (7/15)	.0 (0/2)	47 pts.	Infinite
7	.20 (3/15)	.30 (3/10)	.0 (0/5)	30 pts.	Infinite
8	.21 (3/14)	.17 (2/12)	.50 (1/2)	−33 pts.	0.34
9	.42 (5/12)	.45 (5/11)	.0 (0/1)	45 pts.	Infinite
10	.62 (8/13)	.64 (7/11)	.50 (1/2)	14 pts.	1.3
11	.57 (4/7)	.60 (3/5)	.50 (1/2)	10 pts.	1.2
12	.75 (6/8)	.71 (5/7)	1.0 (1/1)	−29 pts.	.71
Unadjusted rates	.29 (51/175)	.32 (46/145)	.17 (5/30)	—	—
Adjusted rates & disparities[a]	—	.31	.16	15 pts.	1.9

NOTE: This table, which is based on the results of the law student pilot from the Murder Severity Study, does not include hung cases or volunteers. See Appendix C for a description of and rationale of our differential treatment of hung case. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[a] The overall race-of-defendant disparity, estimated in a Mantel-Haenszel procedure, controlling for the level of defendant culpability, is 15 percentage points (significant at the .17 level). When the hung cases are included in the analysis the race-of-defendant disparity is 10 points, significant at the .30 level.

The results in comparable analyses that included (a) all jury penalty trial decisions and, (b) all jury death sentencing decisions imposed among all death eligible cases are presented in Appendix G.

1. *Is There Differential Treatment in Philadelphia?*

Among the unanimously decided cases, the race-of-defendant effects were substantial, consistent, and statistically significant, or nearly so, in both the overall models of jury death-sentencing and in the analyses of jury weighing decisions.[139] In all of these analyses, the race effects were strongest in the logistic regression analyses and the analyses based on the salient factors measure of defendant culpability. We consider these to be highly probative measures of culpability.[140] Because of the independent basis of our four measures of defendant culpability—logistic regression, the number of aggravating and mitigating circumstances found by the jury, the salient factors of the

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139 For the results estimated in the overall analyses, see Table 4, Columns D & E, Rows 2-5, and Column C, Rows 2-5 for the results of the weighing analyses.

140 We used four kinds of analyses of discretionary decision making in this article: (1) logistic regression, (2) salient factors, (3) murder severity scale, and (4) a frequency count of statutory aggravating and statutory mitigating factors. Each method has its special strengths—technical, legal, and interpretative. The results indicate a consistent and convergent pattern of systemic race effects across the four analyses.

Multiple logistic regression analysis is the generally accepted statistical methodology for the analysis of discretionary decision making system of the type involved in this research. *See* PAETZOLD & WILLBORN, *supra* note 51, §§ 4.20, 11.05; BALDUS & COLE, *supra* note 51, §§ 8.0-8A.4. Technically, logistic regression does not require restrictive assumptions about the distribution of the independent variables and is robust. And two interpretative advantages of logistic regression are that it has easily interpreted coefficients (odds multipliers) and it is grounded in the actual decisions of prosecutors and jurors whose decision making preferences are directly reflected in the culpability measures that it produces. Another strength of the regression approach is its capacity to finely differentiate between subgroups of cases in terms of their relative culpability through the predicted scores calculated for each defendant, which can range from ".00" to "1.0." For example, Table 8, which sorts jury weighing cases into six subgroups of cases, reports a range of death-sentencing rates from .0 to .87.

The strength of the salient factors measure (Table 10) is its intuitively and legally grounded system of assessing relative culpability. It also exhibits a capacity to finely differentiate between subgroups of cases in term of their relative culpability. Column C of Table 10, for example, reports for the jury weighing decisions, a range of death-sentencing rates (in categories with 5 or more cases) ranging from .0 (Row F6) to .78 (Row A2).

The results of the murder severity study are also intuitively understandable and reflect a similar capacity for finely differentiating between subgroups of cases with differential levels of culpability. Table 12, for example, reports a range of death sentencing rates on a 12 level scale from .05 to .75. Also, the comparability in the magnitude of the race effects estimated with this measure and the regression measure, which is based on the decisions of the actual prosecutors and jurors in the cases, is striking. *Cf.* Table 4, Columns C-E, Rows 3 & 6.

The count of aggravating and mitigating circumstances found by the jury, in spite of its intuitive and legal appeal, is much less discriminating factually. In addition, five cells in the table have no nonblack defendant cases (and are statistically noninformative), and six have only one or two. In fact, only two cells contain five or more nonblack defendants. These small samples introduce instability in the tests of statistical significance thereby jeopardizing their reliability. It is for all these reasons that we place less weight on the results estimated with this counting measure than we do on the results estimated with the other three more discriminating measures. Nonetheless, the results in combination with the other three measures provide one more cause for concern.

cases, and the case rankings from the murder severity study—we are particularly impressed with the consistency of the estimated race-of-defendant effects.

When the hung cases are added to the database, the race-of-defendant effects were weaker but consistent, especially in the regression analyses and the analyses based on the salient factors.[141] For reasons described in more detail in Appendix C, we place less weight on the analyses that include hung cases. Nevertheless, we believe that together the two sets of results (with and without the hung cases included) clearly support an inference that the race of the defendant is a substantial influence in the Philadelphia capital charging and sentencing system, particularly in jury penalty trials.

The race-of-victim results are also substantial and statistically significant, or nearly so, across a range of analyses, but they are somewhat weaker than the race-of-defendant effects. Race-of-victim effects are particularly prominent in the analyses that focus exclusively on the principal source of those effects, the second stage of jury decision making at which juries impose more than one-half of all death sentences for failure to find a statutory mitigator present in the case.[142] In contrast to the race-of-defendant analysis, the race-of-victim effects are enhanced when the hung cases are included. We be-

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141 The results from the analyses that include the hung cases are reported above in footnotes that parallel the results reported for the analyses of the unanimously decided cases. These results are also summarized in Appendix D, which is a mirror of Table 4, except that the reported analyses all include hung cases.

142 These results are also summarized in Table 4 (with hung cases excluded) and Appendix D (with hung cases included). The race-of-victim disparities are also substantial, consistent, and statistically significant, or nearly so, across all of our principal measures. The only exception concerning statistical significance is our more conservative regression model, based on an analysis that excludes the hung cases. *See* Table 4, Column B, Row 2. It reports a *p*-value of only .22. As we observed above in note 124, this diminished level of significance is principally caused by the inclusion in the model of the variable for "Victim was killed at his or her place of employment," which is more properly viewed as a measure of victim SES than a factor contributing to the defendant's culpability. (The model also includes a separate variable for low-SES victims.) In the absence of this variable, the race-of-victim coefficient is 1.7, significant at the .07 level, with an odds multiplier of 5.5 rather than 3.9 as reported in Table 5 at item D.2 which includes the place of victim employment variable. If these were our only results on this issue, it would be unclear the extent to which the victim effect we see in the data should properly be attributed to the race or SES of the victims. However, we also have available the results of an identical regression analyses that includes hung cases, which we consider a more reliable basis for inferring race-of-victim effects at this stage in the jury decision making process. This judgment, which we explain in more detail in Appendix C (Section C), reflects our belief that the analysis that includes the cases that hung at the weighing stage is more appropriate than the analysis that excludes all of the hung cases. (Our analysis of death sentences imposed for failure to find mitigation reported in Table D1, Appendix D includes only the cases we estimate hung at the weighing stage.) When those hung cases are included in the analysis, (Column B, Row 2 of Table D1) the race-of-victim effect is larger, a 4.3 odds multiplier, than it was when they are excluded, and statistically significant at the .03 level. Finally, as a point of comparison, we include in Table 4, Column F, Row 2, the 4.3 race-of-victim odds multi-

lieve that both sets of results support the further conclusion that the race of victim is a substantial influence in jury sentencing decisions based on a failure to find mitigation in the case.

The evidence also indicates that overall, low victim SES status has the substantial and statistically significant effect of reducing a defendant's likelihood of receiving a death sentence.[143] In contrast to the race effects, which primarily emanate from jury decisions, the low-SES-victim effect appears to flow jointly from both prosecutorial and jury decisions,[144] a conclusion that is initially suggested by the unadjusted data in Table 2, Column E.

In light of these results and of our methodology, we consider it implausible that the estimated disparities are either a product of chance or reflect a failure to control for important omitted case characteristics. We can conceive of no legitimate factors omitted from our analyses that correlate with both the death-sentencing outcomes and the race or SES of both the defendants and victims in this study.[145] In short, we believe it would be extremely unlikely to observe disparities of both this magnitude and consistency if substantial equality existed in this system's treatment of defendants.

2. *Empirically Testable Explanations for the Philadelphia Racial and SES Disparities*

a. *Prosecutorial Decision Making vs. Jury Decision Making*

The Philadelphia results are distinguishable from those estimated in earlier studies in the South in that the principal source of the race disparities in Philadelphia is jury, rather than prosecutorial, decision making. The Philadelphia results showed no statistically siguificant race-of-victim effects whatsoever in prosecutorial decisions (in con-

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plier estimated in the *McCleskey* Georgia research, which is virtually identical to the race-of-victim effect estimated in the Table D1 analysis that includes the hung cases.

143 The evidence supporting this conclusion is the very substantial and statistically significant regression coefficient for low-SES victim estimated in the analysis of jury death-sentencing rates among all death-eligible cases (Table E2, Appendix E, item D.3)—a coefficient of -1.30, with a .27 odds multiplier, significant at the .0005 level.

144 The victim SES effect in the model of all jury penalty trials (Table E1, Appendix E, item D.3) is distinctly weaker ($b = -.96$, $p = .07$) than its effect in the overall model noted above. It is also weaker in the two jury models of the points at which death sentences are actually imposed (Table 5, item D.3 & Table 6, item D.3). Although these data suggest a probable impact in the jury decisions, the substantial size and significance of the victim SES variable in the overall model, which reflects the impact of both prosecutorial and jury decisions, is strong evidence of the important influence of victim SES in prosecutorial decision making.

145 As noted above, in the absence of such dual correlations, the inclusion of the omitted variable would have no impact on either the magnitude or the statistical significance of the estimated race or of the SES effect.

trast to the *McCleskey* research).[146] Prosecutorial race-of-defendant effects are confined to the decision to waive a death sentence before trial,[147] but the effects are much weaker than the comparable race-of-victim effects documented in the *McCleskey* research.

b. *The Midrange Effect*

The Philadelphia results are consistent with the results of earlier studies that tested the "liberation hypothesis." This theory posits that race and other arbitrary factors are likely to have the most profound effect in midrange cases in which the decision maker is "liberated" from the "grip of fact" that virtually compels a particular result when the case is very clear cut.[148] Although this midrange characteristic is intrinsic to the logistic regression model, the hypothesis is independently confirmed in the analyses based on supplemental measures of defendant culpability that are wholly independent of the assumptions and constructs of the logistic regression analysis.

c. *White, Asian, and Hispanic Effects*

The core models discussed throughout this Article (and reported in Table 4 and Appendix D) estimate race-of-defendant effects by contrasting the treatment of black defendants with the treatment of white (both Hispanic and non-Hispanic) and Asian defendants combined. Similarly, the race-of-victim effects are estimated by contrasting the treatment of black-victim cases with the treatment of white-victim (Hispanic and non-Hispanic) and Asian-victim cases. Although there are few cases with Asian defendants and/or victims, their treatment in the system is somewhat different than the treatment of white defendants. For this reason, we first conducted analyses that separate Asian defendants and victims from the categories in which they are subsumed in our core models.

In analyses that compare separately the treatment of black defendants to white (Hispanic and non-Hispanic) and Asian defendants, there is a larger gap between the treatment of blacks and Asians than there is between the treatment of blacks and whites, although the

146 Recall that the principal finding of the *McCleskey* research was contained in an input-output model that combined jury and prosecutorial decisions. One core finding was that the strong race-of-victim effects documented in the *McCleskey* research were primarily the product of prosecutorial decisions to waive the death penalty before convening the guilt trial. Although race-of-victim effects were apparent in the jury sentencing decisions, particularly in rural areas, the prosecutorial decision making played the largest role.

147 These effects were suggested by the unadjusted disparities reported in Table 2, Column B, Row 2, which indicated that before trial, prosecutors were less likely to waive the death penalty unilaterally in black-defendant cases. In our adjusted analyses, the core logistic regression model for the decision to unilaterally waive the death penalty before trial yields a black-defendant odds multiplier of 3.4, significant at the .04 level.

148 *See* BALDUS ET AL., *supra* note 59, at 145 (describing the liberation hypothesis).

small number of Asians makes the results of this analysis only suggestive.[149] A comparable analysis of death sentences imposed for failure of the jury to find mitigation, in which the treatment of black-victim cases is compared separately to white-victim (Hispanic and non-Hispanic) and Asian-victim cases, revealed that the effects were stronger for the white than for the Asian-victim cases.[150]

Hispanics constitute 47% (70/148) of all white death-eligible defendants and 49% (34/69) of the white defendants whose cases advanced to a jury penalty trial.[151] We conducted further analyses of jury penalty decisions to compare separately the treatment of black defendants vis-a-vis the treatment of non-Hispanic white and Hispanic white defendants. In both the analysis of all jury penalty trials and the analysis of the jury weighing decisions, the contrast in the treatment of these two groups versus the black defendants was more substantial

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149 There are only eight Asians in the universe, five of whom advanced to a penalty trial with two death sentences imposed. In the modified model of jury death sentencing among all death-eligible cases, as in Appendix E, Table E2, the white-defendant coefficient was –1.1 (p = .03) and the Asian-defendant coefficient was –2.8 (p = .01).

One month after final submission of this Article for publication, we learned that our Philadelphia data sources had classified as Hispanic two defendants who were black Hispanics. (These two defendants were involved as defendants in five separate murder cases.) Following our protocol, under which black trumps Hispanic, we reclassified these defendants as black. Also, in a re-evaluation of our earlier race and ethnicity classifications prompted by this earlier discovery, we learned that one white Hispanic defendant had been incorrectly classified as black, that two victims previously classified as of unknown race were white, and that one victim previously classified Hispanic was black. With these adjustments made, we re-estimated the principal models reported in Table 4, Row 2. The differences in the estimated race effects were trivial. The level of statistical significance of each disparity remained the same. The magnitude of the regression coefficients for the racial variables changed as follows: Column B (no change); Column C (no change); Column D (an increase to 2.3 from 2.2); Column E (an increase from 1.1 to 1.3) On the basis of these analyses, we are confident that these misclassifications do not affect the accuracy of the analyses reported in this Article.

150 See Table 5 for the model. There were only eight Asian-victim cases in the analysis, three of which resulted in a death sentence. The coefficient was .07 (p = .96) for the Asian-victim cases and 1.63 (p =.20) for the white-victim cases.

151 The identification of Hispanic defendants and victims in our database is problematic for two reasons. First, none of our data sources classify ethnicity independently of race. *Cf.* Directive No. 15. Race and Ethnic Standards for Federal Statistics and Administrative Reporting, 43 Fed. Reg. 1926 (U.S. Office of Mgmt. and Budget 1978) ("[I]t is preferable to collect data on race and ethnicity separately."). Moreover, we have no information on the precise criteria used by the sources of our data for classifying defendants and victims as Hispanic, i.e., the extent to which they are based on name, self-identification, language, neighborhood of residence, place of birth, or other considerations. *See* Michael Omi, *Racial Identity and the State: The Dilemmas of Classification,* 15 J. LAW & INEQ. 7 (1997) (surveying the problems associated with the racial and ethnicity classifications); Lnis Angel Toro, *A People Distinct From Other: Race and Identity in Federal Indian Law and the Hispanic Classification in OMB Directive No. 15,* 26 TEX. TECH L. REV. 1219, 1225-30 (1995) (critiquing problems associated with Hispanic classifications).

for the Hispanic white defendants than it was the non-Hispanic white defendants.[152]

The race-of-victim effects estimated in an analysis of jury death sentencing for failure to find mitigation after finding statutory aggravation suggest comparable levels of treatment of defendants whose victims are non-Hispanic whites and defendants whose victims are Hispanic whites.[153]

d. *Differential Jury "Findings" and "Weighing" of Aggravating and Mitigating Circumstances*

One possible explanation for the Philadelphia disparities is that the racial characteristics of the cases influence the willingness of juries to "find" statutory aggravating and mitigating circumstances. We style this the "finding" hypothesis. An alternative, "weighing" hypothesis states that after juries have found a series of statutory aggravating and mitigating circumstances, racial and SES considerations influence the weight they place on them.

To test the finding hypothesis, we correlated findings of statutory aggravation with the racial characteristics of the cases (controlling for the strength of evidence measure, which indicated when the facts

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152 In the analysis of all jury penalty trials, after adjustment for defendant culpability with the applicable regression based scale, as in Table 4, Column D, Row 2, and the race of the victim, the adjusted death-sentencing rates in the black-victim cases were as follows: .37 for black defendants (n = 207); .11 for non-Hispanic white defendants (n = 3), .0 for Hispanic white defendants (n = 7), with no Asian defendants in the analysis. In the nonblack-victim cases, the rates were .41 for the black defendants (n = 49); .33 for non-Hispanic white defendants (n = 27); .14 for Hispanic white defendants (n = 23); and .11 for Asian defendants (n = 2). In a comparable analysis of jury weighing decisions, as in Table 4, Column C, Row 2, the adjusted rates in the black victim cases were as follows: .33 for black defendants (n = 115); .13 for non-Hispanic white defendants (n = 3), .0 for Hispanic white defendants (n = 6), with no Asian defendants in the analysis. In the nonblack-victim cases, the rates were as follows: .31 for black defendants (n = 30); .25 for the non-Hispanic whites (n = 9); .0 for the Hispanic white (n = 12); and .0 for the sole Asian defendant.

153 After adjustment for defendant culpability with the applicable regression based scale and the race of defendant, the rates for the black-defendant cases were as follows: .31 in the non-Hispanic white-victim cases (n = 31) and .23 in the Hispanic white-victim cases (n = 5). In the nonblack-defendant cases, the rates were .30 in the non-Hispanic white victim cases (n = 19) and .22 in the Hispanic white victim cases (n = 12).

The findings reported above on the differential treatment of defendants in white Hispanic and white non-Hispanic victim cases are consistent with results reported elsewhere. *See* Robert Garcia, *Latinos and Criminal Justice*, 14 CHICANO-LATINO LAW REV. 6, 14 (1994) (reporting research in Fresno County, California by sociologist Richard Berk, which suggests that in death-eligible cases, defendants with Latino victims were much less likely to be capitally charged). However, the results concerning the comparative treatment of white Hispanic and white non-Hispanic defendants are inconsistent with evidence from California suggesting that Hispanic white defendants are treated more punitively than non-Hispanic white defendants. *Id.* These findings underscore the risk of generalizing the results of empirical studies across historically and culturally distinct jurisdictions. The Philadelphia findings also call, especially because of the small samples of white defendants (both Hispanic and non-Hispanic), for further study to better understand the race-of-defendant and race-of-victim distinctions that we observe in these data.

sufficed to support such a finding, and the level of defendant culpability).[154] We found juries more willing to find statutory aggravation present in black-defendant with nonblack-victim cases.[155] We also found that the willingness of the juries to find mitigation was significantly correlated with the victim's race although not with the race of the defendant. Specifically, when the evidence supported such a finding, juries were much less likely to find the e4 (defendant's age) factor and the e8 (catchall) factor when the victim was nonblack.[156] Furthermore, the failure to find mitigation in these cases had real consequences. In each of the 26 nonblack-victim cases that resulted in a death sentence at this stage in the process (not including the volunteer defendants), the jury failed to find the e8 factor in spite of evidence that would have supported such a finding. Moreover, in 43% (6/14) of the 14 nonblack-victim cases in which the jury failed to find the age mitigator, the defendant was sentenced to death for failure to find mitigation. These findings directly corroborate the more general finding that when the victim was nonblack, juries were more likely to impose death sentences for want of a finding of mitigation.

We also found that in cases involving low-SES victims, juries were *less* likely to find aggravation when it was present in the case and *more*

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154 Recent interviews with capital jurors indicate that the willingness of juries to find mitigation may be dependent on the aggravation level of the cases. *See* William J. Bowers & Benjamin D. Steiner, *Choosing Life or Death: Sentencing Dynamics in Capital Cases, in* AMERICAN'S EXPERIMENT WITH CAPITAL PUNISHMENT 309, 341 (James R. Acker et al. eds., 1997) ("[O]bsession with the grotesque character of the crime . . . may generally trump consideration of mitigation. . . ."). The control for defendant culpability was the overall model of defendant culpability estimated with the model presented in Table E2, Appendix E, after the race and SES variables had been purged from the model. The control for the strength of evidence for each mitigator was whether the evidence supporting it was "strong" or "sufficient." For the e8 factor, we found such evidence present for each case that did not involve a volunteer. For the e4 factor, we treated it as present if the defendant was less than 21 or greater than 55 years of age. Under this measure, the e4 factor was present in 21 of the 26 death-sentenced defendants whose victims were nonblack.

155 In cases with black defendants and nonblack victims, if the evidence supported a finding of statutory aggravation, juries found the factor present 91% of the time but only 68% of the time in other cases ($p = .001$). This correlation did not hold, however, for black defendants as a whole. Also, there was only a weak correlation between the race of the victim and jury findings on statutory aggravation, i.e., .78 for nonblack-victim cases versus .69 for black-victim cases ($p = .13$).

156 When the evidence supported the e4 factor, juries found the factor present 38% (8/21) of the time in nonblack-victim cases and 75% (48/64) of the time in black-victim cases ($p = .002$). After controlling for defendant culpability, the correlation between the race of the victim and the finding of mitigation was -.45 ($p = .0006$). In a similar analysis, the correlation between the SES of the victim and the finding of mitigation was .21 ($p = .06$), with such a finding more likely in low-SES-victim cases. For the e8 factor, the finding rates were 46% (25/55) for the nonblack-victim cases versus 64% (71/111) for the black-victim cases ($p = .03$). After controlling for defendant culpability, the correlation between the race of the victim and the finding of mitigation was -.16 ($p = .05$). In a similar analysis, the correlation between the SES of the victim and the finding of mitigation was .16 ($p = .05$), with such a finding more likely in low SES victim cases.

likely to find mitigation when it was present.[157] However, because of the fairly strong correlation between the race of the victim and the SES of the victim, the extent to which this association reflects race-of-victim effects or the impact of victim SES is not entirely clear. We believe these findings support the conclusion that the race and SES of both defendants and victims influence jury findings on statutory aggravation and mitigation.

We tested the weighing hypothesis with multiple-regression analyses of jury weighing decisions that we limited, first to the black-defendant cases and, second, to the nonblack-defendant cases. We conducted a similar analysis of the decision to impose death for failure to find mitigation that we limited first to the black-victim cases and, second, to the nonblack-victim cases. However, in this second pair of analyses, we did not consider statutory mitigation *found* by the jury because in each death case at this stage, the jury's decision is based on a failure to find any mitigation at all. Instead, we evaluated the relative weight that the juries appear to place on the mitigation that was *present* in the case (as well as the aggravation that was found). We caution, however, that because of the relatively small samples of cases involving nonblack defendants and nonblack victims, the results of this inquiry are merely suggestive.[158]

The comparative analysis of the jury weighing decisions in the black- and nonblack-defendant cases suggests that, with one exception, juries place comparable weight on the aggravating circumstances. The one exception is the d7 factor that involves the defendants' creation of a "grave risk of death to another person in addition to the victim of the offense." In the black-defendant cases, the coefficient for this factor was positive, substantial (.20), and statistically significant (.01), while in the analysis of the nonblack defendants, the coefficient had a nonsignificant *negative* sign(–.39).

The most striking finding of the comparative analysis is the weight placed on the mitigating circumstances. Recall that the logistic regression model presented in Table 6 suggests that overall mitigators have very little influence in the jury weighing decisions. Our comparative analysis suggests that what little influence the mitigators do have

157 On aggravation, the difference in finding rates was -18 points (.48 – .66) ($p = .007$). On mitigation, the difference was 24 percentage points (.83 – .59) ($p = .05$) on the e4 (age) factor and 19 percentage points (.70 – .51) ($p = .03$) on the e8 (catchall) factor.

158 Because of small sample limitations, we were unable to use logistic regression and used instead ordinary least squares models. In addition, the small samples meant that most of the variables in the smaller subgroups failed to achieve statistical significance. As an alternative, we focused on the magnitude of the coefficients even if they failed to achieve significance statistically. Finally, because of the small samples, some of the less commonly found aggravating and mitigating circumstances may have been very infrequently found and entered into the weighing process.

is found in the nonblack-defendant cases. Among the black-defendant cases, the only mitigator with a statistically significant impact is e5, "defendant under duress or substantial domination of another person." No other mitigator came even close to achieving statistical significance, and the magnitude of most of the coefficients was very low. For example, the e8 catchall factor appears to have no weight at all among the black-defendant cases. In contrast, the results for the nonblack defendants suggested considerably more impact from the mitigators, especially the e8 catchall factor, although none of them achieved statistical significance. These results suggest that the race-of-defendant effects we see in the jury weighing decisions may reflect a tendency of juries in black defendant cases to give less mitigative weight to the mitigators they find than they do in the nonblack-defendant cases.[159]

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159 The literature supports three propositions that may explain the race-of-defendant effects documented at the weighing stage in this research. First, perceived dangerousness is an important factor in jury death sentencing even if dangerous is not explicitly implicated by a statutory aggravating circumstance. Juror consideration of defendant dangerousness as a nonstatutory aggravating circumstance is constitutional even though it is not designated as a statutory aggravating circumstance. *See* Simmons v. South Carolina, 512 U.S. 154, 162 (1994); William J. Bowers, *The Capital Jury Project: Rationale, Design, and Preview of Early Findings*, 70 IND. L.J. 1043, 1091 (1995) (noting that in states with dangerousness as a nonstatutory aggravator only, "three out of ten [capital jurors] thought that the death penalty was required if they found that the defendant would be dangerous in the future"); Phyllis L. Crocker, *Concepts of Culpability and Deathworthiness: Differentiating Between Guilt and Punishment in Death Penalty Cases*, 66 FORDHAM L. REV. 21, 49-51 (1997) (noting that the Court in *Johnson v. Texas*, 509 U.S. 350 (1993), "reasoned that the jury could assess future dangerousness in light of how the defendant's age influenced his conduct"); William S. Geimer & Jonathan Amsterdam, *Why Jurors Vote Life or Death: Operative Factors in Ten Florida Death Penalty Cases*, 15 AM. J. CRIM. L. 1, 40 tbl.3 (1987-1988) (noting that, although not a factor under Florida law, the perceived dangerousness of the defendant was reported as a factor by 11% of the jurors who voted for death.); Marla Sandys, *Cross-Overs—Capital Jurors Who Change Their Minds About the Punishment: A Litmus Test for Sentencing Guidelines*, 70 IND. L.J. 1183, 1215-17 (1995) (noting that juror interviews indicate cross-overs to death often are motivated by concerns about dangerousness and how long the defendant will serve if not sentenced to death). The frequent requests of penalty-trial jurors for information about how long a defendant will remain in prison if not sentenced to death also reflects the importance that jurors place on dangerousness.

Second, in contemporary American culture much of the white community perceives (often unconsciously) African Americans, particularly lower class young men, to be crime prone and dangerous. *See* Thomas L. Dumm, *The New Enclosures: Racism in the Normalized Community*, *in* READING RODNEY KING: READING URBAN UPRISING 178, 190 (Robert Gooding-Williams ed., 1993) ("In the American version of normalized society, the least normal (and most despised) group of people are young black men."); Sheri Lynn Johnson, *Black Innocence and the White Jury*, 83 MICH. L. REV. 1611, 1643-47 (1985) (summarizing the literature demonstrating widely held perceptions of blacks as more likely to commit crime and as more violent and dangerous than others); Sheri Lynn Johnson, *Racial Imagery in Criminal Cases*, 67 TUL. L. REV. 1739, 1750-60 (1993) (providing evidence of prosecutors' exploitation of the perception of "African Americans as more violent and more criminal than whites") [hereinafter *Racial Imagery*].

Third, to some unknown degree, these negative perceptions of black men are shared between both the white and black communities, especially its middle class, which could

The analysis of the death-sentencing decisions based on the jury's failure to find mitigation suggests that in both black-victim and nonblack-victim cases, the most significant aggravating circumstance is the d9 factor, a "significant history of felony convictions involving the use or threat of violence to the person." (This factor was large and statistically significant in each analysis, and no other statutory factor achieved significance in either analysis.) Among the mitigators, the e8 catchall factor is important and statistically significant in both groups of cases. The e1 factor, "no significant criminal history," is only important in the nonblack-victim cases, while the defendant's age, the e4 factor, has a mitigating effect only in the black-victim cases. This latter finding concerning the defendant's age mirrors the earlier finding that jurors in black-victim cases were less likely to find the e4 age factor *present* in the case than when the victim was nonblack. These results suggest that the race of the victim has an *independent* aggravating effect. Since the jury is well aware that its failure to find mitigation will result in a death sentence, the presence of a nonblack victim simply enhances the average juror's perception of the deathworthiness of the offense.

3. *Theoretical Explanations for Race and SES Disparities in Philadelphia and Elsewhere*

The statistical analyses in the preceding section offer some insight into the most likely explanations for the racial and SES disparities that the Philadelphia data document. However, a considerable body of psychological, sociological, and political science literature,[160] the reported experience of legal practitioners,[161] newspaper re-

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explain why Philadelphia juries with substantial black representation may treat black defendants more punitively than similarly situated nonblack defendants. (Preliminary findings from our analysis of jury racial composition in Philadelphia capital cases suggest that black defendants are treated less punitively vis-à-vis nonblack defendants as the proportion of blacks on the juries increases). *See* Adelbert H. Jenkin, PSYCHOLOGY AND AFRICAN AMERICANS 177-81 (1995) (noting that evolution of identity in the black community may include identification with whites in order to minimize persecution and that some blacks view other "[b]lacks in the same stereotyped way that racist [w]hites do"); Jennifer L. Hochschild, *Middle-Class Blacks and the Ambiguities of Success*, *in* PREJUDICE, POLITICS, AND THE AMERICAN DILEMMA 148, 165-72 (Paul M. Shiderman et al. eds., 1993) (examining the anxieties that revolve around the issue of what it means to be a black in a predominantly white society); Robert C. Smith & Richard Seltzer, RACE, CLASS, AND CULTURE 77, 109-11 (1992) (emphasizing black victimization rates, fear of crime, especially on the part of black women, and support for the death penalty of over 50% outside the South with greater support among higher income blacks).

160 *See* GROSS & MAURO, *supra* note 69, at 109-17 (discussing and citing this literature).

161 *See* Stephen B. Bright, *Discrimination, Death and Denial: The Tolerance of Racial Discrimination in Infliction of the Death Penalty*, 35 SANTA CLARA L. REV. 433 (1995).

ports,[162] and common experiences suggest other possible explanations. In this section, we consider these theories and evaluate their applicability in post-*Furman* Philadelphia.

a. *Overt, Conscious Racial Discrimination*

One theory, particularly prominent in the pre-*Furman* South, is that the observed racial disparities were likely the product of overt racial animus—hostility toward black defendants. This animus appeared most fervently if the victim was a "more worthy" white. During the post-*Furman* period, the level of overt racial animus appears to have declined throughout the nation, including Philadelphia. Although one cannot completely discount the possibility of overt conscious discrimination in Philadelphia, the mechanisms producing race effects there and elsewhere in the country appear to be more complex.

b. *Community Outrage*

Conventional wisdom holds that community outrage is the most important determinant of race disparities among similarly situated cases. Community outrage pressures prosecutors, judges, and juries to avenge highly visible murders. One often correlates high visibility with racial composition of both the defendant and victim of the cases. White-victim cases, especially if they are interracial cases, continue to attract the most media coverage. This attention in turn influences prosecutors to allocate their scarce resources to those cases, especially if reelection or a run for higher political office is probable. Additionally, when the victim is white, some prosecutors are more solicitous of a request by the victim's family to seek a death sentence. Moreover, prosecutors consult the families of black victims less often, and when they do, the families generally are less likely to seek a death sentence.[163]

While the outrage theory may be salient in suburbs and rural communities, both of which tend to have relatively small black populations, particularly in the South, it appears to have little applicability in Philadelphia. Surely, the Philadelphia District Attorney supports and aggressively pursues the death penalty, in part with an eye to its political implications in a community with a very high homicide rate. However, no evidence suggests that this support for the death penalty produces the racial disparities documented in the Philadelphia research.

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162 *See, e.g.*, Jim Henderson & Jack Taylor, *Racist Justice: Discrimination Even in Death*, DALLAS TIMES HERALD, Nov. 17, 1985, at 1 (describing racial discrimination in Dallas's death penalty and exploring the possible reasons for disparities).

163 *See* Bright, *supra* note 161, at 453-54.

In Philadelphia, seventy-eight percent of the capital defendants and sixty-seven percent of the victims are black. Very few of the Philadelphia victims were high-status whites murdered by black defendants. The only cases that appear to produce an uncompromising, prosecutorial hard line are those involving police victims. Indeed, in virtually all other case categories, the Commonwealth is willing to negotiate a guilty plea in exchange for a penalty of life without possibility of parole. Finally, there is little to support the idea that Philadelphia prosecutors are more deferential to the wishes of family members concerning whether the death sentence should be sought in nonblack-victim cases.

c. *The Perceived Unimportance of Black-on-Black Murder Cases*

The prevailing view in many communities, particularly in the South and large cities, is that black-on-black homicides do not warrant the resources required for capital trials, and therefore, plea bargains with relatively light sentences are appropriate. These perceptions may result in perfunctory investigations by law enforcement officials in black-victim cases, which in turn may lead some prosecutors to believe that the prospects of obtaining a death sentence are too low to justify the cost. In addition, some prosecutors may believe that the black community will provide a low level of cooperation in the investigation of these cases, significantly reducing the chance of obtaining a capital murder conviction at trial. This belief may encourage the acceptance of a plea to a lesser offense. Furthermore, the black community's perception that defendants in black-on-black cases probably will receive light sentences and return to the streets in a relatively short period of time may inhibit witnesses from coming forward with incriminating evidence against the defendants.

None of this analysis appears applicable to Philadelphia. The District Attorney's office generally supports the death penalty across the board even though sixty-seven percent of the murder victims and seventy-eight percent of the defendants are black.

d. *The Predominance of White Control of the Criminal Justice System*

In many places in the United States, prosecutors, judges, and penalty-trial jurors are predominantly white even though the defendants whose cases they hear are not.[164] The conventional wisdom is that white jurors are less likely to sympathize with black defendants or to identify with black victims. Convincing evidence also suggests that

164 *See* RICHARD C. DIETER, DEATH PENALTY INFO. CTR., THE DEATH PENALTY IN BLACK AND WHITE: WHO LIVES, WHO DIES, WHO DECIDES 19-21 (1998) (reporting the research of Professor Jeffrey Pokorak, indicating that blacks constitute fewer than two percent of the district attorneys (not including assistant district attorneys) in America).

many participants in the system, both black and nonblack, consider young black males more deserving of severe punishment because they are violence prone, morally inferior, and a threat to the community. The danger for black defendants in the system is particularly acute when the attorneys who represent them entertain racial stereotypes that diminish the quality and vigor of their representation.

The risk of both race-of-defendant and race-of-victim discrimination is also enhanced when the jury selection processes result in the serious underrepresentation of blacks on criminal trial juries. This underrepresentation is a widespread problem. First, blacks are often underrepresented on both the voter and automobile registration lists from which most jury venires are drawn. Second, low-income citizens are less likely to appear for jury service, and courts are more likely to excuse them for hardship. Third, and most important, prosecutors have the wide-ranging discretion to strike prospective jurors through the exercise of "peremptory" challenges. The result is that many black defendants receive sentences from juries with only a few or no blacks. This problem is particularly acute when the attorneys assigned to represent indigent defendants are inexperienced or indifferent, making it easier for prosecutors to strike blacks because their strikes are not effectively challenged.[165] We are currently investigating the levels of African American representation on the Philadelphia juries referred to in this Article.

Finally, explicit prosecutorial references to the jury of the race of the defendant or the victim (e.g., "'Can you imagine her state of mind . . . staring into the muzzle of a gun held by this black man?'")[166] as well as racial slurs and other appeals to racial prejudice, such as the use of animal metaphors in describing the defendant (e.g., "this animal" who "shouldn't be out of his cell unless he has a leash on him")[167] exacerbate the risk of racial discrimination.[168] Slurs of this type have come from prosecutors, judges, and defense counsel.[169]

E. The Magnitude and Practical Consequences of Post-*Furman* Race Disparities

A question of obvious importance concerns the "practical" consequences and the "impact" of the disparities researchers have docu-

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165 *See* Bright, *supra* note 161, at 444-48.

166 Blair v. Armontrout, 916 F. 2d 1310, 1347 (8th Cir. 1990) (Heaney, J., concurring and dissenting) (quoting the trial transcript).

167 Darden v. Wainwright, 477 U.S. 168, 180 nn.11 & 12 (1986).

168 *See* Johnson, *Racial Imagery*, *supra* note 159, at 1750-65 (analyzing the prejudicial use of racial imagery during criminal trials, especially by prosecutors).

169 *See* Stephen B. Bright, *The Politics of Capital Punishment: The Sacrifice of Fairness for Executions*, *in* AMERICA'S EXPERIMENT WITH CAPITAL PUNISHMENT 117, 131 (James R. Acker et al. eds., 1998).

mented in Philadelphia and elsewhere. In this section, we consider several ways of assessing these consequences.

1. *The Impact of Racial Disparities on Death-Sentencing "Odds" and "Probabilities"*

One approach is to focus on the impact of the disparities on the *odds* that the average member of the disadvantaged group will receive a death sentence (e.g., one can compare the odds of a death sentence for black defendants to the odds faced by similarly situated nonblack defendants). These effects are reflected in the "odds-multiplier" measures reported earlier and in Table 4. For example, Table 4 (Row 2, Column D) indicates that, on average, black defendants in Philadelphia face odds of receiving a death sentence in a penalty trial that are 9.3 times higher than the odds faced by nonblack defendants with comparable levels of culpability.[170]

An alternative individually focused measure estimates the impact of race on the *probability* that the average member of the disfavored group will receive a death sentence. One may express this impact as the arithmetic difference in death-sentencing rates for similarly situated members of the favored and disfavored groups. For example, Table 4 (Row 5, Column D) reports penalty-trial death-sentencing rates for black and nonblack defendants of .38 and .24 respectively, after adjustment for the relative culpability of the two groups of cases estimated with the salient factors measure of defendant culpability. The arithmetic difference between those rates indicates that the average black defendant's probability of receiving a death sentence is 14 percentage points higher than a similarly situated nonblack defendant.

The relative risk that individuals in the favored and disfavored groups will be sentenced to death can also be expressed as a ratio. For example, the ratio of the .38 and .24 rates referred to above indicates that the average black defendant's probability of receiving a death sentence is 1.6 (.38/.24) times greater than a similarly situated nonblack defendant. An advantage of the ratio as a measure of relative risk is that it reflects a comparison of probabilities rather than odds. (No matter how carefully presentations of odds multipliers are qualified to reflect their precise meaning, odds multipliers are almost invariably interpreted as ratios of probabilities rather than enhancements of odds.) Compare for example, the 9.3 odds multiplier reported in Table 4 in Row 2, Column D with the 1.6 ratio measure in Row 3, Column D. Each of these measures controls for the same level of de-

170 For other examples of the use of this measure, see GROSS & MAURO, *supra* note 69, at 43-94; Keil & Vito, *supra* note 70, at 26-27, 29.

fendant culpability estimated in a single logistic regression analysis. Each measure is accurate, but if the odds multiplier is mistakenly interpreted as a ratio of probabilities, they produce quite different impressions. Although the odds multiplier is to statisticians the mathematically "natural" measure of association in a two-by-two table and is the statistic to which the "*p*-values" of our significance tests refer, we feel that it may be easier for a lay audience to understand relative risks (ratios of rates) or changes in risk (differences of rates). In addition, in small tables, it is not unusual for the odds multipliers to be very large if not infinite. For these reasons we emphasize the relative risk as a descriptive statistic in this report.[171]

2. *Excess Death Sentence Rates and Death Sentences*

But, what are the practical consequences of these disparities in death-sentencing rates? On this issue, it is useful to focus first on the extent to which the death-sentencing rate for the disadvantaged group exceeds what one would expect in an evenhanded system. For example, the decision point at which juries impose death sentences for failure to find mitigation in the case, Table 4 (Row 3, Column B) reports adjusted death-sentencing rates of .31 for the nonblack-victim cases and .22 for the black-victim cases. If one views the rate for the black-victim cases as the expected rate in an evenhanded system, the observed rate for the nonblack-victim cases is 41% (.09/.22) in excess of that rate.[172]

Similarly, at the decision point in which juries impose death sentences after weighing aggravating and mitigating circumstances, Table 4 (Row 3, Column C) reports an adjusted death-sentencing rate of .33 for the black-defendant cases and .12 for the nonblack-defendant cases. If one views the rate for the nonblack-defendant cases as the expected rate in an evenhanded system, the rate for the black-defendant cases is 175% (.21/.12) in excess of that rate.[173]

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171 A drawback of this measure is its sensitivity to the magnitude of the overall death-sentencing rate for the two groups of defendants. For example, a 5 percentage point disparity when the overall death-sentencing rate is low may produce quite a different ratio estimate than it would when the overall rate is high. For example, rates of .10 and .05 will produce a ratio of 2.0 (10/5), while rates of .55 and .50 will produce a ratio of 1.1 (55/50), even though the deprivation in the average probability for the members of the disadvantaged group is identical.

172 The formula is:

$$\frac{\text{Observed (OB)} - \text{Expected (EX)}}{\text{Expected (EX)}}$$

As applied here: $\frac{OB-EX}{EX} = \frac{.31-.22}{.22} = \frac{.09}{.22} = .41$

173 If one views the average death-sentencing rate as the expected rate in an evenhanded system, the rate for the black defendants is 14% (.04/.29) in excess of that rate.

The excess death-sentencing analysis uses the same approach when estimating the extent to which the number of death sentences juries actually imposed on members of the disadvantaged group exceeds what one would expect in an evenhanded system. Using this approach, the number of death sentences juries imposed for failure to find mitigation in nonblack-victim cases is 31% (8/26) in excess of what one would have expected if the rate for the black victim cases of comparable culpability is the basis for the comparison and 19% (5/26) if the average rate is the basis for the comparison.[174] Similarly, at the point in which juries weigh aggravating and mitigating circumstances, the number of death sentences juries imposed is 63% (29/46) in excess of what one would have expected if the rate for the nonblack-defendant cases is the basis for the comparison and 13% (6/46) if the average rate is the basis for the comparison.[175] In Georgia and New Jersey, the results were in the 30-40% range.[176]

3. *Impact on the Community and Death Row Population*

Some observers have noted that the principal beneficiaries of race-of-victim discrimination are black defendants because the vast majority of death-eligible cases involving black victims also involve black defendants. Thus, if on average, the system treats black-victim cases less punitively than nonblack-victim cases, black defendants will be sentenced to death at a lower rate than would be the case in a system that sentenced all cases at the white-victim rate. However, if a system sentenced all cases at the *black-victim* rate, there would be no increase in the number of black defendants sentenced to death, but there would be a decline in the number of nonblack defendants sentenced to death. Nevertheless, it is clear that if an evenhanded policy were applied to the black- and nonblack-victim cases (at the current

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174 At this stage in the jury deliberations, there were 26 death sentences imposed in nonblack-victim cases for failure of the jury to find mitigation present in the case. On the basis of the data in Table 7, we estimate there would have been only 18 death sentences imposed in these cases if they had been treated comparably to similarly situated black-victim cases. Thus we estimate that 31% (8/26) of the death sentences were excess. Had the overall average death-sentencing rate been applied to the nonblack-victim cases, there would have been only five excess death sentences among those cases.

175 At this stage in the jury deliberations, there were 46 death sentences imposed in the black-defendant cases. On the basis of the data in Table 8, we estimate that there would have been only 17 death sentences imposed in these cases if they had been treated comparably to the nonblack-defendant cases. Had the overall average death sentencing rate been applied to the nonblack-defendant cases, there would have been only five excess death sentences.

176 In the Georgia research, the excess rate of death sentences associated with race-of-victim discrimination statewide is in the 35-40% range. *See* BALDUS ET AL., *supra* note 59, at 154 tbl.32 & 322 tbl.53. In the New Jersey research, the rate of excess death sentences associated with race-of-defendant discrimination in jury penalty trials is 37%. *See* Technical Appendix, *supra* note 78, at 14a tbl.18.1.

rate for either black- or nonblack-victim cases), the *proportion* of black defendants on death row would increase.

In places that currently treat black defendants more punitively, like Philadelphia, an evenhanded system would reduce the number of black defendants sentenced to death. Moreover, an evenhanded system that applied the current death-sentencing rate for either black or nonblack defendants would reduce the proportion of black defendants on death row.

4. *Measures of the Importance of Race and SES in Jury Decision Making*

A useful measure of the degree of influence of both the race and SES of the defendant and of the victim in jury decision making is a comparison of the magnitude of the coefficients estimated for those variables (in a logistic regression model) with the coefficients estimated for the variables for legitimate case characteristics in the same model. For example, the coefficient for the black-defendant variable estimated in the analysis of Philadelphia penalty-trial weighing decisions (see Table 6) is larger and more statistically significant than the coefficients for seven of the statutory aggravating circumstances in the analysis.

IV
JUDICIAL AND LEGISLATIVE RESPONSES TO CLAIMS OF RACIAL DISCRIMINATION

A. The United States Supreme Court

The Supreme Court did not directly address a constitutional claim that states administer the death penalty in a racially discriminatory pattern until *McCleskey v. Kemp*.[177] The Justices, however, have been aware of the issue for decades. In fact, the Court has announced many of the procedural protections that it has established in criminal cases since the 1930s in capital cases involving black defendants in the South. Moreover, although the Court was aware of empirical studies suggesting racially discriminatory patterns, especially in southern states, it has demonstrated a persistent reluctance to confront the race question directly. In a number of capital cases between 1962 and 1986, the Court either declined requests to hear issues of racial discrimination by denying certiorari or resolved the case on other grounds.[178]

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177 481 U.S. 279 (1987).

178 *See, e.g.*, Coker v. Georgia, 433 U.S. 584 (1977) (failing to address the race issue); Maxwell v. Bishop, 398 U.S. 262 (1970) (resolving the case by reference to an issue not raised below and ignoring race in its disposition).

A noteworthy example of the Court's diffidence on this issue is *Maxwell v. Bishop*.[179] Maxwell, a black male, received a death sentence from an Arkansas jury for the nonfatal rape of a white woman.[180] The case received particular attention because Maxwell's attorneys supported their claim of a violation of equal protection rights with statistical evidence that Maxwell's death sentence was part of a racially discriminatory pattern.[181] Most telling were results from an Arkansas study showing that, between 1945 and 1965, the probability that a jury would give the death sentence to a black male convicted in Arkansas of raping a white woman was about fifty percent, while the death-sentencing rate for cases involving conviction for any other defendant-victim racial combination rape was only fourteen percent.[182] Maxwell's experts further established that nonracial factors, such as the level of violence the crime involved or the defendant's prior criminal record could not explain this disparity.[183] Despite this evidence, the Court of Appeals for the Eighth Circuit ruled that Maxwell's statistics were insufficient to invalidate his death sentence on equal protection grounds.[184] The Supreme Court agreed to review, and ultimately vacated, the Eighth Circuit's decision on another constitutional ground, but the Court pointedly declined to review Maxwell's statistically based, equal protection claim.[185]

Two years after it decided *Maxwell*, the Supreme Court again confronted claims of racial discrimination in *Furman v. Georgia*.[186] The Court's brief per curium opinion did not directly address the claims of racial discrimination that Furman and a companion case petitioner, both of whom were black, asserted. However, three concurring Justices and one dissenting Justice expressed, in separate opinions, their concerns that the jury sentencing practices under scrutiny created a dangerous opportunity for racial discrimination. Justice Thurgood Marshall's concurring opinion gave the question the greatest attention. He recited in detail the national statistics showing a disproportional overrepresentation of blacks among the people

179 398 U.S. 262 (1970).

180 *See* Maxwell v. Bishop, 257 F. Supp. 710, 711-12 (E.D. Ark. 1966), *aff'd* 398 F.2d 138 (8th Cir. 1968), *vacated*, 398 U.S. 262 (1970).

181 *See* Maxwell v. Bishop, 398 F.2d 138, 141-45 (8th Cir. 1968), *vacated*, 398 U.S. 262 (1970).

182 *See id.* at 145.

183 *See id.* at 143.

184 *See id.* at 147.

185 *See Maxwell*, 398 U.S. at 267 (expressing no view on the race issue). The same data were brought to the Court's attention in *Coker v. Georgia*, 433 U.S. 584 (1977), which challenged the death penalty for the crime of rape. The Court barred the use of capital punishment for rape on Eighth Amendment "excessiveness" grounds, but it pointedly made no reference to the racial issue presented by the case.

186 408 U.S. 238 (1972).

executed in America from 1930 through 1970.[187] Unfortunately, evidence on the issue from well-controlled studies was unavailable at the time.

The decade following *Gregg v. Georgia*[188] saw the publication of more than two-dozen empirical studies, primarily in southern jurisdictions, that were designed to test the discrimination hypothesis in murder cases. The NAACP Legal Defense Fund ("LDF") commissioned one of the largest of these studies in the early 1980s. This study, which David Baldus, George Woodworth, and Charles Pulaski, Jr. conducted, analyzed the relationship between sentencing outcomes and racial characteristics in 2,484 homicide cases Georgia charged and sentenced from 1973 to 1979. The following unadjusted tabulation, from what the courts have described as "the Baldus study," indicates how death-sentencing outcomes correlated with the defendant/victim racial combination among all cases in the study:

Black Defendant/White Victim:	21%	(50/233)
White Defendant/White Victim:	8%	(58/748)
Black Defendant/Black Victim:	1%	(18/1443)
White Defendant/Black Victim:	3%	(2/60)

Those data suggest strong race-of-victim discrimination as well as more punitive treatment of black offenders in white-victim cases. The researchers further subjected the data to extensive multivariate statistical analysis, designed to estimate racial disparities after adjustment for a large variety of legitimate case characteristics, such as the number of victims, contemporaneous offenses such as rape or robbery, and the defendant's prior criminal record.

Those results provided no evidence of systemic, statewide discrimination against black defendants. To be sure, in rural areas, blacks were at greater risk of capital prosecution and death sentence than similarly situated whites. But in urban areas, the opposite was the case, and the two effects canceled each other out statewide. The statewide data did indicate, however, that among death-eligible cases, the average defendant's odds of receiving a death sentence were 4.3 times higher if the victim was white. The study also showed (1) that the race-of-victim disparities were largest in the midrange cases, which gave prosecutors and sentencing juries the greatest degree of discretion, and (2) that the observed race-of-victim disparities in death sentencing were primarily the product of prosecutorial, rather than jury, decision making.

The Baldus study provided the basis for *McCleskey*, a federal habeas corpus proceeding commenced in 1982 with the intention of

187 *See id.* at 364 (Marshall, J., concurring).
188 428 U.S. 153 (1976).

reversing McCleskey's death sentence. McCleskey was a black male whom a jury had sentenced to death for killing a white police officer in Atlanta. In the case, LDF attorneys alleged that the Baldus study demonstrated a pattern of both purposeful and intentional discrimination in Georgia's capital-punishment system and that McCleskey's sentence consequently violated the Equal Protection Clause of the Fourteenth Amendment.[189] McCleskey's lawyers also claimed that the Georgia study demonstrated a sufficient showing of arbitrariness and of capriciousness in Georgia's administration of its capital statute to violate the prohibition of cruel and unusual punishments in the Eighth Amendment, as interpreted by *Furman*.[190]

The Supreme Court rejected both of those constitutional claims by a vote of five to four. The majority opinion, written by Justice Lewis Powell, declared that, because the Baldus study did not establish with "exceptionally clear proof . . . that any of the decisionmakers in McCleskey's case acted with discriminatory purpose," McCleskey failed to establish an equal protection violation.[191] Of particular importance was the Court's unwillingness to apply the methods for proving discrimination, both systemic and in McCleskey's case, that courts commonly use in both jury- and employment-discrimination cases.[192] One surprising effect of *McCleskey*, therefore, is that courts now subject equal protection claims of purposeful racial discrimination in death-sentence cases to a far heavier burden of proof than they apply to evaluate claims in ordinary jury- and employment-discrimination cases and in claims of discrimination by white voters challenging racially motivated legislative redistricting.[193]

In response to McCleskey's Eighth Amendment arbitrariness claim, Justice Powell's opinion accepted the validity of his data but rejected his claim that his sentence was excessive because racial considerations may influence capital-sentencing decisions in Georgia. Justice Powell reasoned that the statistical evidence McCleskey offered failed to establish "a constitutionally significant risk" that racial factors had, indeed, infected Georgia's death-sentencing process.[194] There is

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189 *See* McCleskey v. Kemp, 481 U.S. 279, 286, 291 (1987).

190 *See id.* at 299.

191 *Id.* at 297.

192 The dissenting opinions of Justices Blackmun and Stevens are of particular interest because they perceived the remedy for the discrimination in *McCleskey* to be a limitation of the Georgia death sentencing system to the most aggravated cases in which no race effects were apparent.

193 *See* Hon. Julian A. Cook, Jr. & Mark S. Kende, *Color-Blindness in the Rehnquist Court: Comparing the Court's Treatment of Discrimination Claims by a Black Death Row Inmate and White Voting Rights Plaintiffs*, 13 T.M. COOLEY L. REV. 815 (1996) (comparing the Court's analysis in *McCleskey* with its analysis in *Shaw v. Reno*, 509 U.S. 630 (1993), in which the Court addressed white plaintiffs' claims of discrimination in redistricting).

194 *McCleskey*, 481 U.S. at 313.

some intimation in the Court's opinion that statistical evidence might support an Eighth Amendment claim of excessiveness, but only if the proven disparities were much more severe than those documented by McCleskey. The opinion also suggests that since "[s]tatistics at most may show only a likelihood that a particular factor entered into *some* decisions," statistical proof can never provide a sufficient base for inferring a constitutional risk of excessiveness in an individual case.[195] The opinion further suggests that when "constitutional [procedural] guarantees are met," empirical evidence is irrelevant to a claim of excessiveness under the Eighth Amendment.[196] The Court underscored this point by failing to specify in any way why McCleskey's proof was not "constitutionally siguificant."[197]

Justice Powell couched his opinion largely in terms of McCleskey's failure of proof. However, he also addressed and alluded to several concerns that do not fit within any recognizable legal categories, but appear to have been important to the decision. One factor working against McCleskey's equal protection argument may have been that his case did not as heavily implicate the principle of racial equality underlying the Equal Protection Clause of the Fourteenth Amendment as would another, more typical civil-rights case. As a convicted murderer, McCleskey did not enjoy the same status of an "oppressed minority" as would a blameless claimant seeking equal access to housing, to employment, or to schools. In addition, McCleskey's claim primarily pointed not to discrimination on the basis of his race (over which he had no control), but rather to discrimination on the basis of the victim's race. As noted earlier,[198] it was McCleskey who "chose" his victim, a fact that weakened the moral appeal of his claim.

At one level, it may come as a surprise to see the Court reject a claim of arbitrariness in the face of the strong empirical evidence presented by McCleskey. On several earlier occasions, the Court has invalidated death sentences on the ground that the record indicated an unacceptable "risk" of arbitrariness in the case, when in fact, unlike in *McCleskey*, there was little beyond the Justices' hunches and intuition to support such an inference. This preference for hunches and intuition may very well reflect an insecurity about the Justices' own abilities to properly assess statistical evidence of the type the defendant presented in *McCleskey*. The Court may fear that if it bases its findings on empirical data, subsequent analyses could demonstrate that it incorrectly interpreted the empirical data on which it based its findings. One can understand why judges, relatively untrained in sta-

195 *Id.* at 308 (emphasis added).

196 *Id.* at 313.

197 *Id.*

198 *See supra* text accompanying note 39.

tistics and confronted with conflicting opinions about the validity of the data, might have greater confidence in their intuitively derived conclusions than in the pronouncements of statisticians.

It is likely that the Court was even more concerned that a finding of unconstitutional discrimination in McCleskey's case would have had a significant disruptive effect on the criminal justice system of Georgia and of other states. Justice Powell alludes to this possibility when he suggests that a finding in favor of McCleskey could throw "into serious question the principles that underlie our entire criminal justice system."[199] Such a ruling, he explained, could validate under the Eighth Amendment, not only claims of racial discrimination but also claims of discrimination based on sex, or on such allegedly arbitrary factors "as the defendant's facial characteristics, or the physical attractiveness of the defendant or the victim, that some statistical study indicates may be influential in jury decision making."[200]

Even more important in the Court's thinking may have been a concern that its recognition of a racial claim in a death case would discredit the death penalty and enhance public perceptions that the Court was responsible for the "failure" of the death penalty in the post-*Furman* period. Justice Scalia underscored this concern in a memorandum while *McCleskey* was pending in the Court. Addressing the entire Court, he stated his belief that racial discrimination in the administration of the death penalty is "'real, acknowledged in the decisions of this court, and ineradicable.'"[201] From this perspective, any effort by the Court to cure the effects of discrimination could obviously have significant potential repercussions for the future of the death penalty in America.

If the purpose of *McCleskey* was to provoke closure, it certainly was successful in the federal courts. The decision has largely eliminated the federal courts as a forum for the consideration of statistically based claims of racial discrimination in capital sentencing. We know of only one case since *McCleskey* in which a federal district court has granted a hearing on a claim of racial discrimination in the application of the death penalty, and the court dismissed the claim for failure to meet the *McCleskey* burden of proof.[202]

Another effect of *McCleskey* has been to stimulate an alternative focus in academic research on the death penalty. In addition to statistical evidence, several important projects now also focus on extended

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199 *McCleskey*, 481 U.S. at 315.

200 *Id.* at 317-18 (footnotes omitted).

201 *See* Baldus et al., *supra* note 44, at 371 n.46 (quoting Memorandum from Antonin Scalia, Justice, U.S. Supreme Court, to the Conference of the Justices, U.S. Supreme Court (Jan. 6, 1987) (on file with the *Washington and Lee Law Review*)).

202 *See* Dobbs v. Zant, 720 F. Supp. 1566, 1572, 1575-79 (N.D. Ga. 1989), *aff'd*, 963 F.2d 1403 (11th Cir. 1991).

interviews with jurors who have participated in the life-and-death decision making of penalty trials. The early results indicate that this research will shed substantial light on the extent to which jurors both understand the facts and the law that underlie their decisions and follow the instructions the court gives them.[203]

McCleskey has drawn considerable criticism. Numerous commentators have expressed serious concern about the Court's placement of an implicit imprimatur on racial discrimination in such an important area of the criminal law.[204] Particularly offensive to blacks is the perception, based upon *McCleskey*, that the Constitution authorizes prosecutors and jurors to provide minority communities with less protection than it provides white communities.[205] In spite of these criticisms, however, *McCleskey* is still the law.

B. Congressional Reform Efforts

Although *McCleskey* has, for the time being, largely closed down federal-court discussion of race in capital cases, it did not block further congressional consideration of the issue. Indeed, Justice Powell's opinion in *McCleskey* suggested that one should present claims of discrimination for corrective action to legislatures.

In *McCleskey*'s wake, congressional concerns stimulated a formal assessment of the scope of the problem in American capital-charging and sentencing systems. This assessment produced the previously mentioned GAO report, which clearly suggested that a problem existed, especially with respect to race-of-victim discrimination.[206] Continuing congressional concerns led to a series of efforts to bypass *McCleskey* by relying on the legislative power the Enabling Clause of the Fourteenth Amendment grants Congress.[207] The two resulting proposals were known as the Racial Justice Act[208] and the Fairness in Death Sentencing Act.[209] Neither addressed the specific situation in Georgia or in any other state. Nor did they specifically seek to impose structural remedies on the states that would limit the exercise of both prosecutorial and jury discretion to the most highly aggravated cases

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203 *See* Symposium, *The Capital Jury Project*, 70 IND. L.J. 1033 (1995) (presenting some of the early academic research on how juries function in death penalty cases).

204 *See, e.g.*, Stephen L. Carter, *When Victims Happen to Be Black*, 97 YALE L.J. 420, 442-43 (1988) (comparing *McCleskey* to *Korematsu v. United States*, 323 U.S. 214 (1944), and indicating that "[w]hen the Supreme Court places its imprimatur upon a horror, as it did in *Korematsu*, the horror becomes a constitutional tragedy").

205 *See id.* at 443 (noting that the Court allowed for "racialism [to] be responsible not only for the disproportionate execution of *murderers* who happen to be black, but for inadequate protection of *murder victims* who happen to be black").

206 *See supra* note 64 and accompanying text.

207 *See* Baldus et al., *supra* note 44, at 377.

208 S. 1696, 101st Cong. (1989); *see* Baldus et al., *supra* note 44, at 378.

209 H.R. 2851, 102d Cong. (1991); *see* Baldus et al., *supra* note 44, at 378-79.

in which no race effect was apparent, which Justices Blackmun and Stevens suggested in *McCleskey*. Instead, Congress designed the measures to give offenders the right to challenge their individual death sentences as racially motivated, just as individuals who can claim discrimination under federal employment and housing laws.[210]

Under the two proposals, a black defendant or a defendant whose victim was white could establish a prima facie case by showing a racially discriminatory pattern of death sentencing, presumably after adjustment for the leading aggravating circumstances. The State could rebut this showing by demonstrating, by a preponderance of the evidence, that identifiable and pertinent nonracial factors persuasively explain the observable racial disparities comprising the pattern. Absent such a rebuttal by the State, defendants would be entitled to relief from their death sentences if their cases fell within a category of cases in which a racial disparity existed to their disadvantage.

The U.S. House of Representatives adopted the second proposal, the Fairness in Death Sentencing Act, in 1990 and again with only slight modification, in 1994. In each instance, however, the Senate rejected it in a House-Senate Conference Committee.[211] On both occasions, the measure attracted strong opposition from state Attorneys General and from prosecutors in death-penalty states. They argued, on the one hand, that racial discrimination did not exist and therefore the act was unnecessary, and, on the other hand, that the provision would necessarily result in either the use of quotas or the de facto abolition of capital punishment in America. They premised the latter argument on claims that racial discrimination in the use of the death penalty was inevitable and impossible to prevent, detect, or remedy. Thus, we would be left with the choice between quotas or abolition. Although we consider those arguments spurious red herrings, they had considerable force with legislators, who feared that their constituents might perceive a vote in support of the Act as an action that could lessen the viability of the death penalty in their states.[212]

C. State Court Claims

Although *McCleskey* does not bind state supreme courts and they are free to entertain claims of racial discrimination under their state constitutions, the idea is distinctly unappealing to nearly all such courts. The reasons are quite clear. Most important among these rea-

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210 *See* Baldus et al., *supra* note 44, at 378-79.

211 *See id.* at 404 & n.173.

212 Racial Justice Act provisions have also been presented without success in the Maryland legislature.

sons is the power of the death penalty as a symbol in contemporary American life, especially in the South.[213]

Indeed, many judges are reluctant to vacate death sentences even on "technical" legal grounds when the Constitution clearly calls for such action. Elected judges are familiar with the unpleasant fate of some of their colleagues whom the public perceived to be resistant or unsympathetic to the death penalty.[214] The idea of upsetting even a single death penalty on racial grounds, particularly in the South, would carry unacceptable risks for most judges.[215]

It is no surprise, therefore, that the two state supreme courts (Connecticut, New Jersey) and the one state legislature (New York) that thus far have expressed a possible interest in the issue are located in northeastern jurisdictions with strong traditions of concern about racial discrimination.[216] Moreover, the members of the only supreme court actually to have heard a race claim (New Jersey) enjoy the protection of life tenure until retirement at age seventy. In the first New Jersey case, *State v. Marshall*,[217] the court rejected the *McCleskey* approach and ruled that, under the equal protection clause of the New Jersey constitution, claims of both race-of-victim and race-of-defendant discrimination are cognizable. It also recoguized the standing of a white defendant to present "a structural challenge to the constitutional fairness" of New Jersey's death-sentencing system as the state's prosecutors and juries actually apply it.[218] The operative test asks whether the race of either the victim or the defendant "played a significant part in capital-sentencing decisions" in New Jersey.[219] The *Marshall* case focused on the constitutional legitimacy of the system as a whole, rather than on the risk that race might adversely have influenced the decision of either the prosecutor or the jury in an individual case.

The New Jersey court barely developed potential remedies in the *Marshall* opinion because the court did not find evidence of unconstitutional discrimination. The court did state, however, that if it found discrimination to exist, it would "seek corrective measures"[220] whose impact the court could observe through judicial oversight. The most

213 *See* David Baldus, *When Symbols Clash: Reflections on the Future of the Comparative Proportionality Review of Death Sentences*, 26 SETON HALL L. REV. 1582, 1582-85 (1996).

214 *See* Stephen B. Bright & Patrick J. Keenan, *Judges and the Politics of Death: Deciding Between the Bill of Rights and the Next Election in Capital Cases*, 75 B.U. L. REV. 759 (1995).

215 *See* M.B. Hall, *Electoral Politics and Strategic Voting in State Supreme Courts*, 54 J. POL. 427 (1992).

216 *See supra* note 2 (describing the Kentucky Racial Justice Act).

217 613 A.2d 1059 (N.J. 1992).

218 *Id.* at 1109.

219 *Id.* at 1110.

220 *Id.*

likely possibilities would be the following: (1) a limitation on the class of death-eligible cases or (2) the promulgation of more objective and detailed standards to guide the exercise of prosecutorial discretion. The court further stated that if the corrective measures failed to correct the discrimination, it "could not . . . tolerate" such a system and would presumably declare it unconstitutional.[221] However, in spite of the New Jersey court's willingness to consider race claims, it has rejected all of the claims it has heard thus far.[222]

CONCLUSION

The century's history of race discrimination and the death penalty has been a tale of both denial and avoidance by both state and federal courts, by Congress, and by state legislatures. As a result, the civil-rights movement, which hardly has touched the American criminal justice system in general, almost has completely by-passed the core discretionary decisions of the American capital-sentencing system. Given the importance of the death penalty as a symbol in American life and the perceived political risk to public officials who appear unsympathetic to the use of the death penalty, this record comes as no great surprise. Nevertheless, for a nation with a historical commitment to equal justice under the law, the story is a disappointment. In particular, the empirical findings from Philadelphia and New Jersey reported in this Article,[223] indicate that the problem of arbitrariness and discrimination in the administration of the death penalty is a matter of continuing concern and is not confined to southern jurisdictions. We also believe that the record of the last twenty-five years demonstrates that the issue of racial discrimination in the use of death penalty is as susceptible to identification, to adjudication, and to correction as are practices of discrimination in other areas of American life that the civil rights movements and the law have addressed for more than 30 years.

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221 *Id.*

222 The Supreme Court of Minnesota, an abolitionist state, has also rejected *McCleskey*, in the context of noncapital sentencing, *see* State v. Russell, 477 N.W.2d 886, 888 n.2 (Minn. 1991), as did a three-person minority of the seven-member Florida Supreme Court in 1992, *see* Foster v. State, 614 So. 2d 455, 465 (Fla. 1992) (Barkett, C.J., joined by Shaw and Kogan, JJ., concurring in part and dissenting in part). The Connecticut high court agreed in principle to hear a race claim in 1995, State v. Cobb, 663 A.2d 948, 961 (Conn. 1995).

223 The recent findings from Philadelphia are presented *supra* Part III.C and summarized in Table 4, while the findings from New Jersey are summarized *supra* note 79.

APPENDIX A

PENNSYLVANIA STATUTORY AGGRAVATING AND MITIGATING CIRCUMSTANCES[224]

A. The Statutory *Aggravating Circumstances*

d1. The victim was a firefighter, peace officer, public servant concerned in official detention, (relating to escape), judge, the Attorney General of Pennsylvania, a deputy attorney general, district attorney, assistant district attorney, member of the General Assembly, Governor, Lieutenant Governor, Auditor General, State Treasurer, State law enforcement official, local law enforcement official, Federal law enforcement official or person employed to assist or assisting any law enforcement official in the performance of his duties, who was killed in the performance of his duties or as a result of his official position.

d2. The defendant paid or was paid by another person or had contracted to pay or be paid by another person or had conspired to pay or be paid by another person for the killing of the victim.

d3. The victim was being held by the defendant for ransom or reward, or as a shield or hostage.

d4. The death of the victim occurred while defendant was engaged in the hijacking of an aircraft.

d5. The victim was a prosecution witness to a murder or other felony committed by the defendant and was killed for the purpose of preventing his testimony against the defendant in any grand jury or criminal proceeding involving such offenses.

d6. The defendant committed a killing while in the perpetration of a felony.

d7. In the commission of the offense the defendant knowingly created a grave risk of death to another person in addition to the victim of the offense.

d8. The offense was committed by means of torture.

d9. The defendant has a significant history of felony convictions involving the use or threat of violence to the person.

d10. The defendant has been convicted of another Federal or State offense, committed either before or at the time of the offense at issue, for which a sentence of life imprisonment or death was imposable or the defendant was undergoing a sentence of life imprisonment for any reason at the time of the commission of the offense.

d11. The defendant has been convicted of another murder committed in any jurisdiction and committed either before or at the time of the offense at issue.

d12. The defendant has been convicted of voluntary manslaughter, committed either before or at the time of the offense at issue.

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224 42 Pa. C.S. § 9711. Listed in order of statutory section designations (i.e., d1, d2). Aggravating circumstances d17 and d18 were not applicable during the time period of this study (1983-93).

d13. The defendant committed the killing or was an accomplice in the killing, while in the perpetration of a felony under The Controlled Substance, Drug, Device and Cosmetic Act, and punishable under the provisions of 18 PA. CODE § 7508 (relating to drug trafficking sentencing and penalties).

d14. At the time of the killing, the victim was or had been involved, associated or in competition with the defendant in the sale, manufacture, distribution or delivery of any controlled substance or counterfeit controlled substance in violation of The Controlled Substance, Drug, Device and Cosmetic Act or similar law of any other state, the District of Columbia or the United States, and the defendant committed the killing or was an accomplice to the killing as defined in 18 PA. CODE § 306(c), and the killing resulted from or was related to that association, involvement or competition to promote the defendant's activities in selling, manufacturing, distributing or delivering controlled substances or counterfeit controlled substances.

d15. At the time of the killing, the victim was or had been a nongovernmental informant or had otherwise provided any investigative, law enforcement or police agency with information concerning criminal activity and the defendant committed the killing or was an accomplice to the killing as defined in 18 PA. CODE § 306(c), and the killing was in retaliation for the victim's activities as a nongovernmental informant or in providing information concerning criminal activity to an investigative, law enforcement or police agency.

d16. The victim was a child under 12 years of age.

d17. At the time of the killing, the victim was in her third trimester of pregnancy or the defendant had knowledge of the victim's pregnancy.

d18. At the time of the killing, the defendant was under a court order restricting the defendant's behavior toward the victim.

B. The Statutory *Mitigating* Circumstances

e1. The defendant has no significant history of prior criminal convictions.

e2. The defendant was under the influence of extreme mental or emotional disturbance.

e3. The capacity of the defendant to appreciate the criminality of his conduct or to conform his conduct to the requirements of law was substantially impaired.

e4. The age of the defendant at the time of the crime.

e5. The defendant acted under extreme duress, although not such duress as to constitute a defense to prosecution under 18 PA. CODE § 309 (relating to duress), or acted under the substantial domination of another person.

e6. The victim was a participant in the defendant's homicidal conduct or consented to the homicidal acts.

e7. The defendant's participation in the homicidal act was relatively minor.

e8. Any other evidence of mitigation concerning the character and record of the defendant and the circumstances of his offense.

APPENDIX B

STATISTICAL EVIDENCE OF RACE-OF-DEFENDANT AND RACE-OF-VICTIM DISCRIMINATION IN THE POST-*FURMAN* ADMINISTRATION OF THE DEATH PENALTY

Each death penalty state in which researchers have reported empirical findings for any period of time since 1973 has an entry below. The entry "___" means no findings have been reported for the state or the sample size is too small to support an estimate.

If the race effect is statistically significant, the entry is marked with an "S." If the race effect is practically, but not statistically significant, the entry is marked with an "NS." We consider a race effect to be practically significant if (1) the ratio between the death-sentencing rates (or the prosecutorial capital-charging rates) for the two racial groups (for example, the rates in white-victim versus black-victim cases) is 1.5 or larger or .67 or smaller, and there is a sample size of at least ten cases in each group, or (2) an applicable logistic regression coefficient is larger than .50 or smaller than -.50. Racial disparities of this magnitude may indicate a risk of arbitrariness and discrimination, even if they are not statistically significant. "NRE" for "no race effects" indicates that some results have been reported, but the disparities are neither practically nor statistically significant.

If the observed race effects are not in the direction normally observed, i.e., if the rates are (1) *lower* for nonblack victim and black defendant cases and/or (2) *higher* for black victim and non-black defendant cases, the S or NS is preceded by a "-" sign.

The reported race effects may relate to racial disparities (1) in prosecutorial decisions to seek death sentences, (2) in jury decisions to impose death sentences, or (3) in overall death-sentencing rates that reflect the combined effects of both prosecutorial and jury decisions.

Finally, the studies vary considerably in terms of how well they control for nonracial factors.

State	Dates of study	Race-of-defendant effects	Race-of-victim effects
Alabama	1977-1984[a]	NS	S
Arizona	1977-1984[a]	NRE	NS
Arkansas	1976-1980[b]	NRE	S
	1977-1984[a]	NRE	NS
California	1977-1984[c]	NRE	NRE
	1977-1986[d]	NRE	S
	1977-1984[a]	NRE	S
	1990-1994[e]	NRE	S
Colorado	1979-1984[f,g]	NRE	NS
Connecticut	1973-1994[h]	NRE	S
Delaware	1977-1984[a]	NS	-NS

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State	Dates of study	Race-of-defendant effects	Race-of-victim effects
Florida	1973-1977; 1976-1977[i]	NRE	S
	1972-1978[j]	NRE	S
	1973-1977[k]	NRE	S
	1973-1977[l]	NRE	S
	1977-1984[a]	–S	S
	1976-1980[b]	NRE	S
Georgia	1973-1980[f]	NRE	S
	1973-1979[m]	NRE	S
	1974-1984[a]	NRE	S
	1976-1980[b]	NRE	S
Idaho	—	—	—
Illinois	1977-1980[n]	NRE	S
	1976-1980[b]	NRE	S
	1977-1984[a]	–NS	S
Indiana	1977-1984[a]	NS	NS
Kansas	—	—	—
Kentucky	1976-1991[o]	NRE	S
	1977-1984[a]	NRE	NS
Louisiana	1979-1984[p]	NRE	NS
	1977-1984[a]	–NS	NS
	1976-1982[q]	NRE	S
Maryland	1977-1984[a]	NS	S
Mississippi	1976-1982[r]	NS	S
	1977-1984[a]	NRE	S
	1976-1980[b]	NRE	S
Missouri	1977-1984[a,s]	NRE	S
Montana	—	—	—
Nebraska	1977-1984[a]	–NS	—
Nevada	1977-1984[a]	NRE	NRE
New Hampshire	—	—	—
New Jersey	1982-1986[t]	NRE	S
	1982-1996[u]	S	S
New Mexico	—	—	—
New York	—	—	—
North Carolina	1977-1978[v]	—	S
	1976-1980[b]	NRE	S
	1977-1984[a]	NRE	NRE
Ohio	1973-1977[i]	NRE	S
	1977-1984[a]	–NS	NRE
Oklahoma	1976-1980[b]	NRE	S
	1977-1984[a]	NRE	NS
Oregon	—	—	—
Pennsylvania	1977-1984[a]	–NS	NRE
	1983-1993[w]	S	S
South Carolina	1977-1981[x]	NS	NS
	1977-1984[a]	NRE	NS
South Dakota	—	—	—
Tennessee	1977-1984[a]	–S	S
Texas	1976-1982[y]	NRE	S
	1977-1984[a]	S	S
Utah	—	—	—
Virginia	1976-1980[b]	NRE	NS
	1977-1984[a]	–NS	S

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State	Dates of study	Race-of-defendant effects	Race-of-victim effects
Washington	1977-1984[a]	NS	NS
Wyoming	—	—	—

NOTE: In the Federal System, .59 (78/133) of the federal defendants prosecuted capitally since 1988 have been black. However, a race of defendant effect cannot be estimated because no reliable data indicating the proportion of blacks among all federal death-eligible crimes exist. The Death Penalty Information Center of Washington, D.C. reported on November 1, 1998, that in 133 federal capital prosecutions that the Attorney General approved since 1988, there were 78 black defendants, 32 non-Hispanic white defendants, 17 Hispanic defendants, and six Asian/Indian defendants. Of the 19 inmates on federal death row, 13 are black, four are non-Hispanic white, one is Hispanic, and one is Asian. *See* E-mail from Richard Dieter, Executive Director, Death Penalty Information Center, to author (Nov. 2, 1998) (on file with author).

[a] *See* Baldus et al., *Arbitrariness and Discrimination*, *supra* note 69, at 159-60, 163-64 (presenting state-by-state estimates among cases involving a contemporaneous felony with race of defendant effects estimated among white-victim cases (Table 2) and race-of-victim effects based on a comparison of white- and black-victim cases (Table 3)).

[b] *See* GROSS & MAURO, *supra* note 69, at 43-63, 88-94 (reporting multivariate statistical analyses, controlling for from one to five legitimate case characteristics).

[c] *See* Klein & Rolph, *supra* note 69, at 38, 43. For an evaluation of the Klein and Rolph article, see *supra* note 80.

[d] *See* Klein et al., *supra* note 69 (stating in the text that there are no race-of-victim effects, while indicating in the data of Table 7 that a statistically significant race-of-victim effect exists). Dr. Harriet Ganson, Assistant Director of Tax Policy and Administration in the GAO, has also noted that Stephen Klein's study indicated statistically significant race-of-victim effects. *See* Conference, *supra* note 70, at 341 (remarks of Harriet Ganson); *supra* note 80 (evaluating Klein and Rolph article).

[e] *See* Rohrlich & Tulsky, *supra* note 70.

[f] *See* BALDUS ET AL., *supra* note 59, at 148-78, 262-63 (Colorado); *id.* at 315-40 (Georgia).

[g] *See* Anderson, *supra* note 70, at 9-16.

[h] *See* State v. Cobb, 663 A.2d 948, 964 (Conn. 1995).

[i] *See* Bowers & Pierce, *supra* note 69, at 590-629.

[j] *See* Foley, *supra* note 69, at 457.

[k] *See* Radelet & Pierce, *supra* note 70, at 20-29; Radelet & Pierce, *supra* note 69, at 598-615.

[l] *See* Zeisel, *supra* note 69, at 459-61.

[m] *See* Barnett, *supra* note 69, at 1347-52.

[n] *See* Murphy, *supra* note 69.

[o] *See* Keil & Vito, *supra* note 70, Gennaro Vito & Thomas Keil, *Capital Sentencing in Kentucky: An Analysis of the Factors Influencing Decision Making in the Post-*Gregg *Period*, 79 J. CRIM. L. & CRIMINOLOGY 483, 496-503 (1988) (estimating in the regression analysis that race-of-victim effect is limited to a coefficient for black defendant with white victim cases; although suggesting in cross-tabulations that primary influence is race-of-victim rather than race-of-defendant discrimination); Ralph Dunlop, *A Three-Part Series on Race and the Death Penalty in Kentucky*, COURIER J. (Louisville), Dec. 31, 1995, Jan 1-2 1996 (reporting wide-ranging interviews and analysis of data that reveal race-of-victim and race-of-defendant discrimination that is pervasive but "rarely admitted").

[p] *See* Klemm, *supra* note 69.

[q] *See* Smith, *supra* note 69, at 281-85.

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[r] *See* Berk & Lowery, *supra* note 69. For a summary of the results published in this manuscript, see Baldus et al., *supra* note 69, at 258-59.

[s] *See* Baldus et al., *supra* note 69; Jonathan R. Sorenson & Donald H. Wallace, *Capital Punishment in Missouri: Examining the Issue of Racial Disparity*, 13 BEHAV. SCI. & L. 61, 67-79 (1995).

[t] *See* Bienen et al., *supra* note 69, at 27.

[u] *See* State v. Marshall, 613 A.2d 1059, 1073 (N.J. 1992); *supra* note 78-79 (describing recent research); Baldus et al., *supra* note 44, at 411-12.

[v] *See* NAKELL & HARDY, *supra* note 69, at 70-150.

[w] *See supra* Part III and Table 4 for a description and summary of the 1983-1993 research.

[x] *See* Paternoster & Kazyaka, *supra* note 69, at 285-88.

[y] *See* Ekland-Olson, *supra* note 69.

APPENDIX C

PROCEDURES FOR ESTIMATING UNKNOWN PROCEDURAL VARIABLES IN JURY PENALTY-TRIAL CASES AND RELATED ISSUES

A. Introduction

In this Appendix, we first describe the number and proportion of penalty-trial cases in which there are "unknowns" for important case characteristics. In one group of cases, the unknowns relate to the procedural posture of life-sentenced cases (i.e., it is unknown if the decision turned on the issue of whether there was statutory aggravation present in the case or the case was decided at the weighing stage). In a second group of cases, the unknowns relate to the jury's finding of statutory aggravating and mitigating circumstances.

We next explain our treatment of life-sentenced cases that "hung" as distinguished from life cases that are based on a unanimous decision. Third, we describe the methods used for estimating the procedural posture of jury penalty-trial cases when it is unknown. Fourth, we describe the methods used for imputing jury penalty-trial findings on statutory aggravating and mitigating circumstances, when a jury finding on one or more of these factors is unknown. Fifth, we describe a coding protocol that focuses on the statutory aggravating and mitigating factors that were present in penalty-trial cases, as contrasted to the factors that the jury found to be present. Finally, we describe the research strategies that we used to estimate the possible impact of unknowns on the validity of our core findings.

B. The Number and Proportion of Penalty-Trial Cases in Which the Procedural Posture of the Jury's Decision and/or the Jury's Findings on Statutory Aggravation and Mitigation Are Unknown

Hung Decisions. Our sample of 346 jury penalty-trial cases includes 16% (54/346) in which the jury reported a hung decision.[225] In 100% of these 54 cases, the procedural posture of the case is unknown, i.e., it is unknown whether the jury hung on a threshold finding of aggravation or hung on the weighing decision. Also, the jury findings on statutory aggravation and mitigation are unknown in 89% (48/54) of these cases.[226]

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225 This count includes one case, 427, classified as hung because it is unknown whether the case hung or was unanimously decided. The aggravation or mitigation, if any, found by the jury is also unknown. All case counts reported in this Appendix are unweighed, i.e., they refer to the number of cases in the sample as distinguished from the universe. *See supra* note 90 and accompanying text for a description of the sampling plan.

226 In five hung cases 664, 969, 1025, 1026, and 1027, the jury reported findings on both aggravation and mitigation, and in case 1134 aggravation is known but mitigation is unknown.

Unanimous Decisions. Among the 292 unanimously decided cases, there are 7 life-sentenced cases in which the procedural posture of the case is unknown.[227] The jury findings on aggravation and mitigation are also unknown in all of these cases. Thus among the unanimously decided cases there are unknowns on jury findings of aggravation in 3% (10/292) of the cases (all life sentenced) and unknowns on jury mitigation findings in 12% (35/292) of the cases (32 with life and 3 with death sentences).

Among the entire sample of 346 jury penalty-trial cases, therefore, the procedural posture of the case is unknown in 18% (61/346) of the cases (all life sentenced). In addition, the jury findings on aggravation are unknown in 17% (58/346) of the cases (all life sentenced) and the jury findings on mitigation are unknown in 24% (84/346) of the cases (all but 3 life sentenced).

All of these unknowns exist because of gaps in the judicial records that we consulted for this research.[228]

C. Differential Treatment of Hung and Unanimous Decisions

Our core analyses and models are limited to penalty-trial cases that were unanimously decided. However, the hung cases are included in supplemental analyses designed to test the robustness of these results estimated from the unanimously decided cases. Also with respect to jury decisions to impose death sentences for failure to find mitigation, from a legal and analytic standpoint, we consider the analyses that include the cases that hung at the weighing stage to be sounder than those that exclude those hung cases. The reason is simply that those cases did not hang at this stage in the process. Indeed, a hung case at this stage is legally impossible since if only a single juror finds statutory mitigation, the case advances to the weighing stage. The results from these supplemental analyses are routinely reported along with the results from the core analyses. In addition, the results from the analyses that include the hung cases are summarized in Appendix D in the same format that they are presented in Table 4, which reports the results based on the unanimously decided cases. The basic difference between the two sets of results is that the race of victim effects associated with the failure of the jury to find mitigation after finding aggravation are enhanced when the hung cases are included, while the race-of-defendant effects documented in the jury weighing decisions are reduced when the hung cases are included.[229]

For the cases decided at the penalty-trial weighing stage, we place greater weight on the unanimously decided cases for three reasons.

227 Cases 716, 922, 491, 510, 753, 1030, 1373.

228 See *supra note* 92 for detail on the source of these gaps.

229 The likely reasons for these changes are explained, *supra* note 125.

First, a principal goal of this research is to evaluate the legitimate and illegitimate factors that appear to influence jury decision making. In contrast to a unanimous jury verdict for life or death, a hung verdict at the weighing stage is a nondecision because a jury could not achieve consensus. Moreover, a hung verdict may reflect the judgment of only a small minority of the jurors or even a single juror—with respect either to the presence or absence of statutory aggravating circumstances or the ultimate judgment of the defendant's deathworthiness.

Second, in the 48 hung cases that advanced to the weighing stage, aggravating and mitigating circumstances were found, but the precise factors found are known in only six of the cases, i.e. 87% (42/48) are unknown. While in the unanimously decided cases, the findings on aggravation are unknown only 3% (10/292) of the time and the findings on mitigation are unknown only 12% (35/292) of the time.

In spite of these concerns about the hung decisions, there is a compelling case for not ignoring them completely. First, since the cases that we estimate hung at the weighing stage represent 24% (48/206) of those cases, they represent a significant body of evidence on the values of sentencing juries. Moreover, the court instructs Philadelphia juries that a hung verdict will result in a life sentence.[230] The jury decision to cease deliberations and report a hung verdict, therefore, represents a vote for life even though it is not unanimous.

Second, cases that hang at the weighing stage have the same consequences for the affected defendants as do unanimously decided life sentence decisions. A life sentence based on a hung verdict is no less final than a life sentence based on a unanimous verdict. (In contrast to a hung verdict at the guilt trial, the Commonwealth may not retry a hung verdict at the penalty trial unless the original guilt-trial verdict is reversed on appeal and the Commonwealth retries the case.[231]) Also, from the standpoint of uniform treatment of similarly situated defendants, arbitrariness flowing from the imposition of life sentences based on hung verdicts is no less problematical than arbitrariness produced by the imposition of life sentences based on unanimous decisions.

Third, we are not totally ignorant about the probable basis of the hung decisions. Indeed, as we explain below, we can, on the basis of our strength of evidence measures, make reasonably valid estimates of both the procedural posture of the decision and the findings on aggravation and mitigation that were probably influential with the jurors.

As noted above, in the analyses of death-sentencing decisions based on the jury's failure to find mitigation, we consider it more ap-

230 42 Pa. C.S. § 9711(c)(1).

231 *See* Commonwealth v. Martorano, 634 A.2d 1063, 1072 (Pa. 1993).

propriate to include in the analyses the cases that hung at the weighing stage. To be sure, juries do not report whether they hung on the finding of aggravation, (decision point 4, Figure 1) or on the weighing decision (decision point 6, Figure 1). Nevertheless, we believe that our strength of evidence measures provide a reliable basis for estimating when aggravation was found in the hung cases. See section E below. And, if aggravation is found in a case and a death sentence is not imposed for failure to find mitigation, we know the case advanced to the weighing stage. However, because of the uncertainty on this issue, throughout this Article, we report initially and in Table 4, the results for this decision point from analyses in which all of the hung cases have been excluded. On balance, however, we consider these estimates to be conservative and we place primary reliance on the analyses that include the cases that hung at the weighing stage. Another alternative we explored was to view the death sentencing results as a three level outcome: Life (unanimous), Hung, and Death (unanimous). In a logistic regression analysis of jury death sentences imposed among all death-eligible cases using this three level outcome variable the coefficient for the race of defendant variable was .87 (with a 2.4 odds multiplier), significant at the .04 level.[232]

D. Estimating the Procedural Posture of Jury Penalty-Trial Decisions When it Is Unknown

As indicated above, the data base includes 54 hung cases that resulted in a mandatory life sentence and 7 unanimously decided life-sentenced cases in which the procedural basis of the jury's decision is unknown. For 6 of the hung cases, the jury reported findings of aggravating circumstances. As noted above, this finding is strong evidence that the jury did not hang on the "no aggravation" issue and that the case advanced to the weighing stage. (This inference is especially strong in 5 of these cases in which the jury reported findings of mitigation.)

For the remaining 48 hung cases, we estimated the procedural posture of the case on the basis of the strength of the evidence on the statutory aggravating circumstances. When the evidence for one or more aggravators was judged to be "strong," the case was classified as a weighing case, while the cases with weaker strength of evidence on the aggravators were classified as no aggravation found cases.[233] The as-

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232 This analysis indicates that the black-defendant cases were more likely to result in a hung rather than a unanimous life sentence and more likely to result in a death sentence. In contrast, in the analyses with a life/death outcome, the black-defendant coefficient/odds multiplier was 1.1/3.0 with hung cases included and 1.1/3.0 with the hung cases excluded (both statistically significant).

233 See *infra note* 11 for the strength-of-evidence codes for the statutory aggravating circumstances.

sumption here is that a jury finding that an aggravator was present was quite likely when the evidence on it was strong. Moreover, since we know that a death sentence was not imposed in any of these cases for failure of the jury to find mitigation, it is more likely than not that such cases advanced to the weighing stage. This procedure had the effect of transferring 6 of the remaining 48 hung cases to the no aggravation found category and 42 cases to the weighing stage.

We applied the same protocol to the 7 unanimously decided cases in which the procedural posture of the case was unknown. This protocol had the effect of classifying 2 of the cases as no aggravation found decisions and 5 as weighing decisions.

E. Imputing Jury Findings on Statutory Aggravation and Mitigation

The procedure for imputing findings of statutory aggravation and mitigation builds upon an *underlying* series of variables that reflect all of the unknowns in the original database. For each of the statutory aggravating and mitigating circumstances, we used these recoded variables to build a series of core variables and two alternative series of variables. (These imputation procedures apply only to the penalty-trial cases since the non-penalty-trial cases involve no jury penalty-trial decisions and therefore contain no unknowns concerning the aggravating and mitigating circumstances).

1. *Statutory Aggravation*

The Underlying Variables. The underlying recoded variables for the aggravators are coded "1" if the procedural variable in the DCI indicates the factor was "found by fact finder."[234] The recoded variable is coded 0 if the DCI indicates that the factor was considered and

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234 The procedural and evidentiary codes for the statutory aggravating circumstances, enumerated in Appendix A, are as follows:

> *Procedure*: *1*-Factor found by fact-finder; *2*-Factor presented at penalty hearing but not found by fact-finder, *3*-Factor alleged in 352 or comparable notice but not pursued at penalty hearing; Blank-Factor not alleged or no notice filed; *5*-Unknown if factor presented, but penalty hearing held and facts support; *6*-Factor presented and verdict reached, but unknown if found; *7*-Factor presented, but unknown if found because jury did not reach a unanimous verdict; 9-Unknown if notice filed.
>
> *Strength of Evidence*: *1*-Strong-Elements clearly made out and no issue as to reliability of evidence; *2*-Legally sufficient-Facts are legally sufficient to establish the aggravating factor, but a reasonable fact-finder, in exercise of discretion, could find or not find the circumstance present in the case; no issue of reliability of evidence; *3*-Sufficient, with evidentiary issue(s)-Facts are legally sufficient to establish the aggravating factor, but such a finding rests on acceptance of evidence that is controverted or of questionable reliability; *4*-Insufficient-Some evidence of the aggravating factor, but even if accepted, it would not survive a sufficiency challenge; Blank-Not applicable. No indication that factor may be present.

rejected by the jury, or the aggravation question was not presented to the jury. If an aggravator is coded 5, 6, or 7 in the DCI, for unknown, it is designated unknown in the underlying series of recoded variables.

The Core and Alternative Variables. With one exception, the "core" recoded variables equal the underlying recoded variables, i.e., they reflect what the jury found. The exception is that unknowns are coded as having been found if the strength of evidence is "strong." We believe that this imputation procedure has a reasonable level of validity since Philadelphia juries find an aggravator present in the case 87% of the time when the strength of evidence is coded as strong; in contrast, aggravating circumstances are found to be present only 44% of the time when the evidentiary code is less than "strong."

The first alternative series of recoded variables modifies the core series by recoding unknowns (5, 6, or 7) in the underlying series as 0 (not found), while the second alternative series deletes from the analysis entirely penalty-trial cases in which there is an unknown coded for one or more aggravating or mitigating circumstances.

2. *Statutory Mitigation*[235]

The Underlying Variables. The underlying recoded variables are coded 1 if the procedural code in the Data Collection Instrument (DCI) indicates the factor was "presented and found." The recoded variable is coded 0 if the procedural code in the DCI indicates that the factor was either rejected or not considered by the jury. It is coded unknown if the DCI procedural code is 7 or 9, indicating it is unknown whether the factor was presented to the jury or, if presented, whether it was found or not found by the jury.

The Core and Alternative Variables. The core recoded variables reflect what was found by the jury, but when a jury finding is unknown, the core recoded variables impute a jury finding on the mitigating circumstance from the strength of the evidence measures. Specifically, for variables e1-e7 (the statutory mitigating circumstances other than the e8 catchall factor), the unknown factor is coded as

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235 The procedural and evidentiary codes for the statutory mitigating circumstances, enumerated in Appendix A, are as follows:

> *Procedure:* 1-Presented and found; 2-Presented and not found; 3-Presented but not reached because no aggravating circumstance found; 7-Unknown if presented but penalty hearing held and facts support; 9-Presented, but unknown if factor found; Blank-Inapplicable, no penalty trial or no indication factor presented.
>
> *Strength of evidence:* 1-Strong-Strong evidence of the presence of the factors; 2-Sufficient-Sufficient evidence for fact-finder to find factor by the preponderance of the evidence; 3-Questionable-Some indication of factor but either derives from questionable source or is of questionable relevance or validity as mitigating factor; judge's failure to charge on factor would likely be upheld; Blank-No indication the factor may be present.

found when the strength of evidence code is strong or sufficient; otherwise, it is coded as either not found or not presented. This procedure is also used to code mitigation in the non-penalty-trial cases.

We believe this imputation procedure has a reasonable level of validity because in the 265 cases in which we know both the strength of the evidence and the jury findings, the jury found the mitigating circumstances e1-e7 present in the case 81% of the time when the evidentiary measure is coded "strong" or "sufficient,"[236] while it found mitigators present only 37% of the time when the strength of evidence was weaker than that.[237]

When the e8 catchall procedural variable is unknown, the recoded e8 variable in the core series of variables is coded strong if either V538 (the principal e8 strength of evidence measure) or one or more supplemental e8 measures is coded 1 (strong). However, if one or more of those variables is only coded sufficient, the recoded core e8 variable in the core series is coded 0. This differential weighting of a "sufficient" evidentiary coding on the e8 variable (as contrasted to the coding of the e1-e7 variables) reflects the fact that Philadelphia juries find the e8 factor present 87% of the time when the e8 evidence is ranked as strong. However, juries find the e8 factor present only 49% of the time when the strength of evidence is coded "sufficient." (This coding procedure for e8 unknowns in penalty-trial cases is also used for the e8 factor in the non-penalty-trial cases for whom the presence of the statutory factors is based exclusively on the strength of the evidence.)

The first alternative series of recoded variables modifies the core recoded variables by coding all unknown values as 0, for not found or not presented. The second alternative deletes all cases in which one or more mitigating or aggravating factors is coded unknown (7 or 9). (We did not create codes that treated all unknown aggravators and mitigators as having been found to be present by the jury as we believe this scenario implausible.)

F. Penalty-Trial Variables for Statutory Aggravation and Mitigation Based on the Strength of the Evidence Rather than Jury Findings

We also created an alternative series of variables that focus on whether statutory aggravating and mitigating circumstances were *present* in the penalty-trial cases rather than whether they were *found* by the jury. With one exception, therefore, these variables apply to the

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236 When the evidence supporting the mitigator was rated as "strong," the jury found it present 90% of the time; when it was rated as "sufficient," it was found 75% of the time.

237 All of the cases in the study were rated as having evidence on the e8 factor that was either strong (1) or sufficient (2).

penalty-trial cases the same coding rules that are used in the non-penalty-trial cases, i.e., an aggravator is considered present if the strength of the evidence is "strong" and a mitigator, except for e8, is considered present if the strength of the evidence is "strong" or "sufficient." The one exception to this coding protocol is that a statutory aggravator or mitigator "found" by the jury is coded as present, regardless of the strength of the evidence supporting it. The assumption here is that if the jury found the factor present it should be so considered, even if the evidence was not strong (in the case of the aggravators) or was less than strong or sufficient (in the case of the mitigators).

This series of variables permits us to evaluate the impact of aggravators that were strongly present in the cases but either not charged by the Commonwealth or charged but not found by the jury. The series similarly enables us to evaluate the impact of mitigators that were present in the cases but either not presented to the jury or presented and not found by the jury.

These variables also enable us to evaluate jury findings of aggravation (at the first "no-aggravation found" stage of the process) and findings of mitigation (at the second "no-mitigation found with mandatory death" stage of the process), while controlling for the *strength of the evidence* on the aggravators and mitigators that were charged to the jury. Also, to the extent that jury decisions *finding or not finding* aggravating and mitigating circumstances may have been affected by race or other arbitrary factors (which is subject to independent empirical verification), analyses based on this alternate series of variables permit us to estimate the extent to which the analyses of the jury weighing decisions that are based on jury *findings* of aggravation and mitigation may be masking race effects that are packed in those findings.[238]

G. Research Strategies to Estimate the Possible Impact of Unknowns on the Core Results

Our primary strategy is to utilize the information that we have on all of the cases in the sample, filling in the "unknown" gaps with the imputation procedures described above. We place the greatest weight on the results estimated with the imputation procedures we consider most plausible. (This approach applies whether the analysis is limited to the unanimously decided cases or also includes the hung cases).

Accordingly, we place primary reliance on the "core" variables when the focus is on the aggravating and mitigating circumstances

238 See Article Part III.D.2(d) for a discussion of how the race of defendant and victim and the socioeconomic status of the victim correlate with jury findings of statutory aggravation and mitigation.

found by the jury. However, when the focus is on jury findings of aggravation (at the no aggravation found stage in the process) or jury findings of no mitigation present (at the no mitigation found/mandatory death sentence stage of the process), we place primary reliance on the alternative series of variables that focus on the aggravating and mitigating circumstances that are present in the cases.

For all of these analyses, we also supplement the core findings with the results estimated using the variables in the two alternative series described above. On the basis of these alternative analyses, we are able to estimate the extent to which it appears that the coding protocols for handling "unknown" codes may have influenced the race effects estimated in the Philadelphia capital charging and sentencing system. Because of the stability and relative consistency of the results in the alternative analyses, we believe that our treatment of unknowns in the case models introduced no bias in the estimation of race effects.

In another series of supplemental analyses, we estimated race effects in the two input-output models reported in Appendix E, after deleting from the sample 71 unanimously decided penalty-trial cases (representing 83 cases in the universe) in which the jury found no statutory aggravation present in the case.[239] (In our analyses of decision points 5 and 6 in Figure 1, presented in Tables 5 and 6, the "no aggravation" cases are *not* included since they are no longer under consideration at those two decision points.) In our core analyses, we treat these cases as death eligible with the defendant having been at risk of a death sentence (even though the jury found no aggravation present) since there was sufficient evidence in each case to support a finding of the presence of statutory aggravation if such a finding had been returned by the jury. However, one can argue that the no aggravation findings of the juries are strictly factual, that they do not reflect a deathworthiness judgment, and that accordingly the no aggravation cases should be excluded from the database as not death eligible. While we find this argument unpersuasive, it is the rationale for excluding those cases from models in which they would otherwise have been included.[240] A more plausible assumption is that the failure to find statutory aggravation was a "factual" determination only when the

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239 Figure 1, Row 4 (Box 4B) reports 90 cases with no aggravation found. This includes six cases that we estimated hung at this stage in the process.

240 In analyses that exclude both hung cases and the 90 cases in which no aggravation was found, the race-of-defendant coefficient estimated for all penalty-trial cases was 1.9 (p = .04) versus 2.2 (p =.01) when the 90 no aggravation cases were included. In the model of jury death sentencing among all death-eligible cases, the race-of-defendant coefficient was .87 (p =.08) versus 1.1 (p = .02) when the 90 no aggravation cases were included.

strength of the evidence was less than "strong" on all of the statutory aggravators.[241]

241 When we exclude only cases with less than strong evidence on aggravation, the race-of-defendant coefficient in the analyses of all jury decisions is 2.1 ($p = .03$) and among all death-eligible cases the coefficient is 1.0 ($p = .08$).

APPENDIX D

RACE-OF-VICTIM AND RACE-OF-DEFENDANT DISPARITIES ESTIMATED IN ANALYSES THAT INCLUDE HUNG CASES

TABLE D1
SUMMARY OF UNADJUSTED AND ADJUSTED SYSTEMIC RACE-OF-DEFENDANT AND RACE-OF-VICTIM DISPARITIES IN ANALYSES THAT INCLUDE HUNG PENALTY-TRIAL CASES IN THE PHILADELPHIA CAPITAL CHARGING AND JURY SENTENCING SYSTEM (1983-93)

	Race-of-victim disparity	Race-of-defendant disparities		
A Measure of defendant culpability	B Jury decision to impose a death penalty for failure to find mitigation	C Jury death sentence imposed after weighing aggravating and mitigating circumstances	D All death sentences imposed at jury penalty trial (decisions in Columns B & C combined)	E Death sentences imposed by jury among all death-eligible cases
Average Rate	.20 (59/290)	.22 (51/231)	.29 (110/380)	.17 (110/662)
1. Unadjusted estimated disparity (without volunteers and without adjustment for defendant culpability)	NBV .30 (26/87) BV .16 (33/203) Diff. 14 pts. Ratio 1.8 (.01)[a]	BD .24 (46/193) NBD .13 (5/38) Diff. 11 pts. Ratio 1.8 (.18)	BD .30 (94/310) NBD .23 (16/70) Diff. 7 pts. Ratio 1.3 (.25)	BD .18 (94/519) NBD .12 (16/143) Diff. 7 pts. Ratio 1.6 (.09)
2. Adjusted regression coefficient/ odds multiplier[b]	1.47/4.3 (.03)	2.6/13.5 (.04]	1.3/3.7 (.05)	1.1/3.0 (.02)
3. Adjusted disparity estimated in a scale based on logistic regression model	NBV .30 BV .16 Diff. 14 pts. Ratio 1.9 (.001)	BD .24 NBD .11 Diff. 13 pts. Ratio 2.2 (.04)	BD .30 NBD .22 Diff. 8 pts. Ratio 1.4 (.10)	BD .18 NBD .11 Diff. 7 pts. Ratio 1.6 (.03)
4. Adjusted disparity esimtated with a scale based on the number of aggravating and mitigating circumstances in the case		BD .23 NBD .09 Diff. 14 pts. Ratio 2.6 (.42)		
5. Adjusted disparity estimated with a scale based on the salient factors of the case	NBV .31 BV .14 Diff. 17 pts. Ratio 2.2 (.001)	BD .25 NBD .07 Diff. 18 pts. Ratio 3.6 (.05)	BD .31 NBD .21 Diff. 10 pts. Ratio 1.5 (.22)	BD .19 NBD .13 Diff. 6 pts. Ratio 1.5 (.15)
6. Disparity estimated with a scale based on the results of the murder severity study	NBV .28 BV .17 Diff. 11 pts. Ratio 1.6 (.03)	BD .23 NBD .13 Diff. 10 pts. Ratio 1.8 (.30)	BD .31 NBD .24 Diff. 7 pts. Ratio 1.3 (.37)	BD .18 NBD .12 Diff. 6 pts. Ratio 1.5 (.14)

Continued on next page

Table D1—*Continued*

NOTE: The estimates are based on analyses that include life-sentence cases that resulted in a hung verdict at penalty trial. The results with the bung cases excluded are reported in Table 4. The rationale for differential treatment of hung and unanimously decided cases is presented in Appendix C. Except for the odds multipliers reported in Row 2, all of the disparities reported below are percentage point differences or ratios between death sentencing rates that have been adjusted for defendant culpability (with the measures indicated in Column A), either (black-defendant rate versus nonblack-defendant rate) or (nonblack-victim rate versus black-victim rate), as the case may be. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

The Average rates in the first row of the Appendix and the "unadjusted" adjustment disparities reported in Row 1, exclude four volunteers who presented no mitigating evidence and no argument that mitigation should be found. In each such case, the jury failed to find mitigation and imposed the death sentence as required by law. The analyses reported in Rows 1-6 exclude the cases of these four volunteers.

[a] The level of statistical significance of the reported disparity is in parenthesis.

[b] The odds multipliers reported in this Row indicate, on average, the factor by which the odds of receiving a death sentence are enhanced when the defendant is black or the victim is nonblack, as the case may be.

APPENDIX E

LOGISTIC REGRESSIONS ESTIMATED FOR ALL PENALTY TRIALS AND FOR JURY DEATH SENTENCES IMPOSED AMONG ALL DEATH-ELIGIBLE CASES

The model in Table E1 reflects the impact of all three stages of the jury decision-making process, decision points 4-6 in Figure 1. The model in Table E2 reflects the combined impact of all prosecutorial and jury decisions taken at decision points 1- 6 in Figure 1.

TABLE E1
LOGISTIC MULTIPLE REGRESSION MODEL OF ALL JURY PENALTY-TRIAL DECISIONS IN PHILADELPHIA (1983-93)
(this model controls for the statutory aggravating and mitigating circumstances found by the jury)

A Circumstance	B Death-odds multiplier	C Adjusted logistic regression coefficient (with level of statistical significance)
A. Statutory aggravating circumstances (statutory section numbers in parenthesis)[a]		
1. The victim was a police officer (d1)	27.60	3.30(.08)
2. Defendant was paid to kill or paid another to kill (d2), or ransom or hostage victim involved (d3)	43.30	3.80(.09)
3. Victim was a prosecution witness (d5), or an informant (d15)	234.10	5.50(.0001)
4. Contemporaneous robbery, rape, kidnapping or arson (d6)	13.50	2.60(.001)
5. Defendant knowingly created a grave risk of death to another (d7)	8.50	2.10(.003)
6. Torture involved (d8)	9.90	2.30(.05)
7. Defendant had a significant history of violent felony convictions (d9)	33.40	3.50(.0001)
8. Defendant serving a life sentence, etc. (d10)	43.70	3.80(.001)
9. Multiple murder victims or defendant had a prior murder conviction (d11)	18.50	2.90(.002)
10. A prior conviction for voluntary manslaughter (d12)	123.30	4.80(.001)
11. Victim was a competitor in the illegal drug world (d14)	30.10	3.40(.02)
B. Statutory mitigation circumstances (statutory section numbers in parenthesis)[a]		
1. Defendant had no significant history of prior criminal convictions (e1)	0.43	–0.83(.15)
2. Defendant under extreme mental or emotional disturbance (e2)	2.10	0.76(.39)
3. Defendant's capacity to appreciate the criminality of his conduct or to conform his conduct to the requirements of the law was impaired (e3)	0.72	–0.33(.81)
4. The defendant's youth or advanced age mitigated the offense (e4)	0.50	–0.70(.20)
5. Defendant acted under duress or the substantial domination of another person (e5)	.006	–5.20(.001)
6. Victim participated in the homicidal acts (e6)	2.30	0.84(.53)

Continued on next page

Table E1—*Continued*

A Circumstance	B Death-odds multiplier	C Adjusted logistic regression coefficient (with level of statistical significance)
7. Defendant's role was minor (e7)	0.16	–1.80(.09)
8. There were other mitigating aspects of the defendant's character, record, or the offense (e8)	0.15	–1.90(.0003)
C. Nonstatutory aggravating and mitigating circumstances		
1. Prior assault on victim or sex motive	16.60	2.80(.001)
2. Defendant committed additional crimes after the homicide	6.30	1.80(.08)
3. Victim mutilated or dismembered one or more co-perpetrators involved	0.17	–1.80(.01)
D. Race and socioeconomic status (SES) of the defendant and the victim		
1. Defendant was black	9.30	2.20(.01)
2. One or more victims was nonblack	1.40	0.36(.60)
3. Victim with low SES	0.38	–0.96(.07)
4. Defendant with high SES	0.47	–0.75(.66)
5. Defendant with low SES	0.56	–0.57(.28)
6. Victim's SES missing	1.10	0.14(.85)
7. Defendant's SES missing	9.20	2.20(.02)
E. Time period of the case[b]		
1. 1986-1989	0.53	–0.64(.24)
2. 1983-1985 (1990-1993 is the comparison period)	0.79	–0.24(.68)
N = 318 (110 death sentences imposed)		

NOTE: This analyses does not include penalty-trial cases that hung on the sentence and four cases in which the defendant presented no mitigating evidence and no argnment that the jury should find mitigation. When hung cases are included in the analyses, the race of defendant coefficient (at item D1, Column C) is 1.3 *(p=.05)* with an odds multiplier of 3.7. See Appendix C for detail on the differential treatment of the hung and unanimously decided cases in this research. For an overview of the cases included in this Article's Tables and Fignres, see *supra* note 110.

[a] The statutory aggravating and mitigating circumstances are described in Appendix A. Items A2 and A3 in this table embrace more than one statutory circumstance. Without these combinations, the logistic model would not run, i.e., it would not "converge," because of the distribution of the outcomes for the cases with these case characteristics. There are no cases in this analysis implicating the d4 (airplane hijacking), the d13 (murder in a specific type of drug trafficking), or the d16 (victim under 12 years) aggravating factors.

[b] Two variables to identify the time period of the cases are included in the regression to correct for imbalances created in differential sampling between the time periods. In the sampling scheme, a higher percentage of cases were sampled from the most recent time period, fewer from the 1983-1985 time period, and the fewest from 1986-1989. In general, jury death-sentencing rates among all death-eligible cases have been decreasing: 23% in 1983-1985; 20% in 1986-89; and 13% in 1990-1993.

TABLE E2
LOGISTIC MULTIPLE REGRESSION MODEL OF JURY DEATH SENTENCES IMPOSED AMONG ALL DEATH-ELIGIBLE CASES IN PHILADELPHIA (1983-93)
(this model controls for the statutory aggravating and mitigating circumstances that were found by the jury in penalty-trial cases or were present in non-penalty-trial cases)

A Circumstance	B Death-odds multiplier	C Adjusted logistic regression coefficient (with level of statistical significance)
A. Statutory aggravating circumstances (statutory section numbers in parenthesis)[a]		
1. The victim was a police officer (d1)	41.80	3.70(.004)
2. Defendant was paid to kill or paid another to kill (d2)	4.40	1.50(.02)
3. Ransom or hostage victim (d3) or victim under 12 years of age (d16)	0.02	−4.10(.001)
4. Victim was a prosecution witness (d5), or an informant (d15)	77.50	4.30(.0001)
5. Contemporaneous robbery, rape, kidnapping or arson (d6), or the murder occurred during the perpetration of a drug trafficking crime (d13)	1.90	0.63(.10)
6. Defendant knowingly created a grave risk of death to another (d7)	2.60	0.97(.01)
7. Torture involved (d8)	10.20	2.30(.001)
8. Defendant had a significant history of violent felony convictions (d9)	8.30	2.10(.00001)
9. Defendant serving a life sentence, etc. (d10)	5.60	1.70(.001)
10. Multiple murder victims or defendant had a prior murder conviction (d11)	5.40	1.70(.01)
11. A prior conviction for voluntary manslaughter (d12)	19.60	3.00(.01)
12. The victim was a competitor in the illegal drug trade (d14)	20.70	3.00(.03)
B. Statutory mitigating circumstances (statutory section numbers in parenthesis)[a]		
1. Defendant had no significant history of prior criminal convictions (e1)	0.58	−0.55(.18)
2. Defendant under extreme mental or emotional disturbance (e2)	2.30	0.85(.20)
3. Defendant's capacity to appreciate the criminality of his conduct or to conform his conduct to the requirements of the law was impaired (e3)	0.39	−0.94(.16)
4. The defendant's youth or advanced age mitigated the offense (e4)	0.18	−1.70(.0006)
5. Defendant acted under duress or the substantial domination of another person (e5)	0.05	−3.00(.01)
6. Victim participated in the homicidal acts (e6)	8.50	2.10(.09)
7. Defendant's role was minor (e7)	0.05	−3.00(.01)
8. There were other mitigating aspects of the defendant's character, record or the offense (e8)	0.84	−0.18(.66)
C. Nonstatutory aggravating circumstances		
1. Execution or mutilation	4.10	1.40(.01)
2. Prior assault of victim or victim a sex rival	3.60	1.30(.02)
3. Victim was killed at his/her place of employment	3.00	1.10(.17)
4. Defendant resisted arrest	2.60	0.94(.03)

Continued on next page

Table E2—*Continued*

A Circumstance	B Death-odds multiplier	C Adjusted logistic regression coefficient (with level of statistical significance)
5. Defendant committed additional crime after the murder	5.40	1.70(.003)
D. Race and socioeconomic status (SES) of the defendant and the victim		
1. Defendant was black	3.10	1.10(.02)
2. One or more victims was nonblack	1.10	0.11(.79)
3. Victim with low SES	0.27	−1.30(.0005)
4. Defendant with high SES	2.00	0.70(.50)
5. Defendant with low SES	1.30	0.27(.45)
6. Defendant SES missing	0.92	−0.09(.97)
7. Victim SES missing	0.61	−0.50(.32)
E. Time period of the case[b]		
1. 1986-1989	2.20	0.78(.04)
2. 1983-1985 (1990-1993 is the comparison period)	2.50	0.93(.03)
N = 600 (110 death sentences imposed)		

NOTE: This analysis does not include penalty-trial cases that hung on the sentence. When these cases are included in the analyses, the race of defendant regression coefficient (at item D.1 Column C) is 1.09 (p=.02) with an odds multiplier of 2.9. See Appendix C for detail on the differential treatment of the hung and unanimously decided cases in this research. The analysis also excludes four volunteers who presented no mitigation and did not argue in favor of a jury finding of mitigation. Each volunteer received a death sentence at this stage in the process. For an overview of the cases included in this Article's Tables and Fignres, see *supra* note 110.

[a] The statutory aggravating and mitigating circumstances are described in Appendix A. Items A4 and A5 in the table embrace more than one statutory factor. Without these combinations, the logistic model would not run, i.e., it would not "converge," because of the distribution of the outcome variable for the cases with these case characteristics. There are no cases in this analysis implicating the d4 (airplane hijacking), or the d13 (murder in a specific type of drug trafficking), aggravating factors.

[b] Two variables to identify the time period of the cases are included in the regression to correct for imbalances created in differential sampling between the time periods. In the sampling scheme, a higher percentage of cases were sampled from the most recent time period, fewer from the 1983-1985 time period, and the fewest from 1986-1989. In general, jury death-sentencing rates among all death-eligible cases have been decreasing: 23% in 1983-1985; 20% in 1986-89; and 13% in 1990-1993.

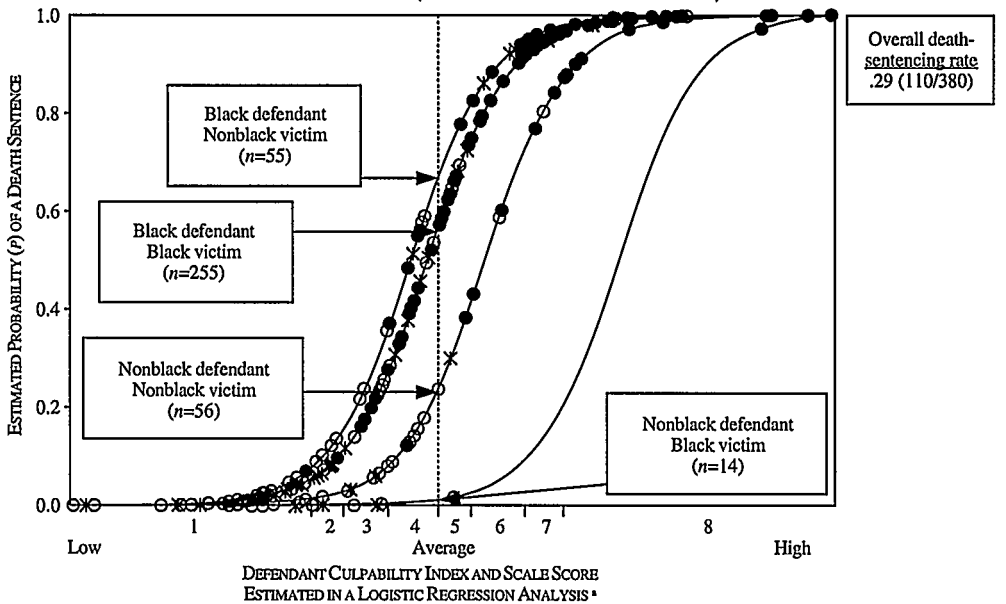
APPENDIX F

PLOTS OF THE MODELS IN APPENDIX E, CONTROLLING FOR THE DEFENDANT/VICTIM RACIAL COMBINATION

This appendix presents plots based on the two logistic regression models in Appendix E. Figure F1 is based on the model in Table E1 while Figure F2 is based on the model in Table E2.

FIGURE F1

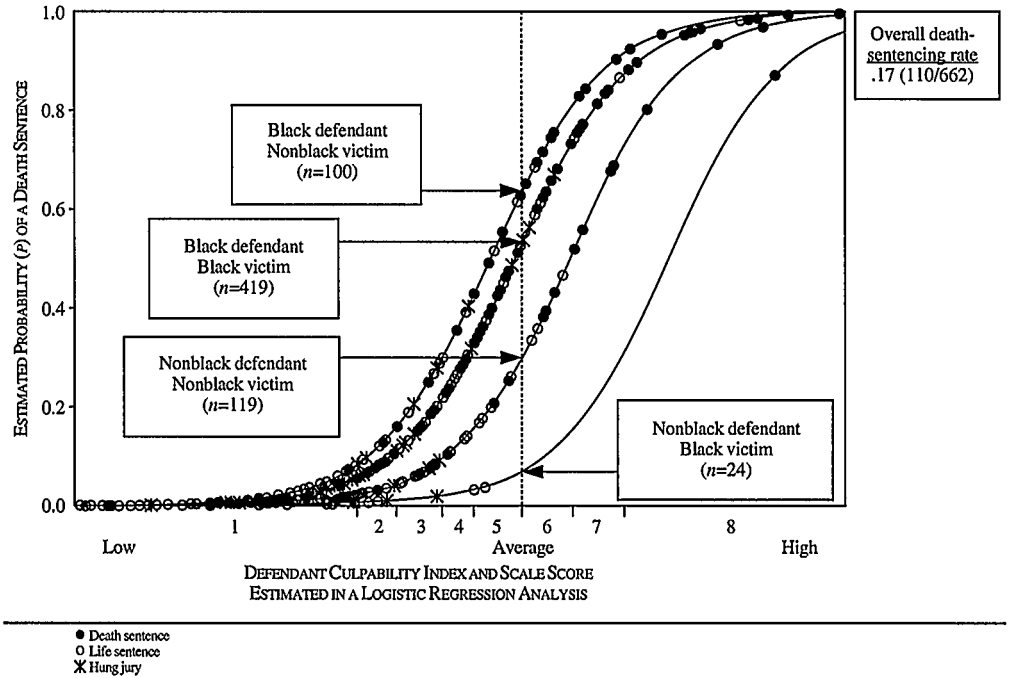
ESTIMATED RACE-OF-DEFENDANT AND RACE-OF-VICTIM EFFECTS AMONG ALL JURY PENALTY-TRIAL DEATH-SENTENCING DECISIONS (PHILADELPHIA: 1983-93)



NOTE: This plot does not reveal the outcome for each case. When multiple sentences are imposed in cases with the same level of culpability, death sentences are plotted over any other applicable sentences. Similarly, hung cases are plotted over unanimously decided life cases. Both multiple death sentence cases and unanimously decided life cases are plotted as a single point. The difference between the estimated death-sentencing rates for the (1) nonblack defendants with nonblack victim cases and (2) the nonblack defendants with black victim cases is statistically significant ($p = .05$), but the comparable race-of-victim disparity (i.e., nonblack versus black) within the black-defendant cases is not significant. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[a] The subgroups of cases specified on the horizontal axis (1-8) correspond to the subgroups of cases in Table G1 (Appendix G).

FIGURE F2
ESTIMATED RACE-OF-DEFENDANT AND RACE-OF-VICTIM EFFECTS AMONG ALL JURY DEATH-SENTENCING DECISIONS (PHILADELPHIA: 1983-93)



NOTE: This plot does not reveal the outcome for each case. When multiple sentences are imposed in cases with the same level of culpability, death sentences are plotted over any other applicable sentences. Similarly, hung cases are plotted over unanimously decided life cases. Both multiple death sentence cases and unanimously decided life cases are plotted as a single point. The difference between the estimated death-sentencing rates for the (1) nonblack defendants with nonblack victim cases and (2) the nonblack defendants with black victim cases is statistically significant ($p = .05$), but the comparable race-of-victim disparity (i.e., nonblack versus black) within the black-defendant cases is not significant. For an overview of the cases included in this Article's Tables and Fignres, see *supra* note 110.

* The subgroups of cases specified on the horizontal axis (1-8) correspond to the subgroups of cases in Table G2 (Appendix G).

APPENDIX G

RACE-OF-DEFENDANT DISPARITIES ESTIMATED WITH REGRESSION-BASED SCALES DERIVED FROM THE MODELS IN APPENDIX E

This appendix presents estimates of race-of-defendant effects based on the logistic regression models presented in Appendix E. The scale underlying Table G1 is based on the model in Table E1 while the scale underlying Table G2 is based on the model in Table E2.

TABLE G1
RACE-OF-DEFENDANT DISPARITIES IN JURY PENALTY-TRIAL DEATH-SENTENCING DECISIONS AFTER CONTROLLING FOR THE LEVEL OF DEFENDANT CULPABILITY ESTIMATED IN A LOGISTIC REGRESSION ANALYSIS

A	B	C	D	E	F
Culpability level from low (1) to high (8)	Death sentence rate for all cases	Rate for black-defendant cases	Rate for nonblack-defendant cases	Percentage point disparity in death-sentencing rates[a] (Column C - Column D)	Ratio of rates (Column C/Column D)
1	0.01 (1/109)	0.01 (1/89)	0.00 (0/20)	1 pt.	Infinite
2	0.03 (1/32)	0.04 (1/25)	0.00 (0/7)	4 pts.	Infinite
3	0.13 (5/38)	0.16 (5/32)	0.00 (0/6)	16 pts.	Infinite
4	0.46 (17/37)	0.57 (16/28)	0.11 (1/9)	46 pts.	5.20
5	0.65 (17/26)	0.70 (16/23)	0.33 (1/3)	37 pts.	2.10
6	0.79 (19/24)	0.81 (17/21)	0.67 (2/3)	14 pts.	1.20
7	0.94 (15/16)	1.00 (13/13)	0.67 (2/3)	33 pts.	1.50
8	0.97 (35/36)	0.96 (25/26)	1.00 (10/10)	−4 pts.	0.96
Unadjusted rates	0.35 (110/318)	0.37 (94/257)	0.26 (16/61)	—	—
Adjusted rates and disparities[a]	—	0.37	0.23	14 pts.	1.60

NOTE: The table excludes hung cases and four volunteers who presented no mitigating evidence and made no argument in favor of a finding of mitigation. Each of those defendants received a death sentence. See Appendix C for a description of our treatment of hung cases in this research. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[a] The overall race-of-victim disparity estimated in a Mantel-Haenszel procedure, controlling for the level of defendant culpability, is 14 percentage points, significant at the .002 level. The measure of defendant culpability underlying this table is based on the logistic regression model in Table E1 (Appendix E) for all jury penalty trial decisions, after the race and socieconomic effects were purged from the model. When the hung cases are included in the analysis, the overall race-of-defendant effect is eight percentage points (.30 versus .22) with a ratio of rates of 1.4 (.30/.22), siguificant at the .10 level.

TABLE G2

RACE-OF-DEFENDANT DISPARITIES IN JURY DEATH SENTENCES IMPOSED AMONG ALL DEATH-ELIGIBLE CASES

(controlling for the level of defendant culpability estimated in a logistic regression analysis)

A	B	C	D	E	F
Culpability level from low (1) to high (8)	Death sentence rate for all cases	Rate for black-defendant cases	Rate for nonblack-defendant cases	Percentage point disparity in death-sentencing rates[a] (Column C - Column D)	Ratio of rates (Column C/Column D)
1	0.02 (5/254)	0.02 (5/204)	0.00 (0/50)	2 pts.	Infinite
2	0.11 (10/91)	0.12 (9/72)	0.05 (1/19)	7 pts.	2.40
3	0.08 (6/71)	0.14 (6/43)	0.00 (0/28)	14 pts.	Infinite
4	0.25 (15/60)	0.27 (14/52)	0.12 (1/8)	15 pts.	2.20
5	0.45 (24/53)	0.52 (22/42)	0.18 (2/11)	34 pts.	2.90
6	0.50 (15/30)	0.57 (12/21)	0.33 (3/9)	24 pts.	1.70
7	0.86 (19/22)	0.82 (14/17)	1.00 (5/5)	–18 pts.	0.82
8	0.94 (16/17)	0.92 (12/13)	1.00 (4/4)	–8 pts.	0.92
Unadjusted rates	0.18 (110/598)	0.20 (94/464)	0.12 (16/134)	—	—
Adjusted rates and disparities[a]	—	0.21	0.12	9 pts.	1.70

NOTE: The table excludes hung cases as well as four volunteers who presented no mitigating evidence and made no argument in favor of a finding of mitigation. Each of these defendants received a death sentence. See Appendices C and D for a description of our treatment of hung cases in this research. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[a] The overall race-of-victim disparity estimated in a Mantel-Haenszel procedure, controlling for the level of defendant culpability, is 9 percentage points, significant at the .01 level. The measure of defendant culpability underlying this table is based on the logistic regression model in Table E1 (Appendix E) for all jury penalty-trial decisions, after the race and socieconomic effects were purged from the model. When the hung cases are included in the analysis, the overall race-of-defendant effect is eight percentage points (.30 versus .22) with a ratio of rates of 1.4 (.30/.22), significant at the .10 level.

Appendix H

Race-of-Defendant Disparities Estimated for All Penalty-Trial Outcomes and for Jury Death Sentences Imposed Among All Death-Eligible Cases, Controlling for Defendant Culpability Estimated in a Murder Severity Study

Table H1 estimates race-of-defendant effects in jury penalty trials controlling for a culpability scale based on the murder severity study, while Table H2 presents a similar analysis of all jury decisions imposed among all death-eligible cases.

TABLE H1

RACE-OF-DEFENDANT DISPARITIES IN JURY PENALTY-TRIAL DEATH DECISIONS

(controlling for the level of defendant culpability estimated in the murder severity study)

A	B	C	D	E	F
Culpability level from low (1) to high (12)	Death sentence rate for all cases	Rate for black-defendant cases	Rate for nonblack-defendant cases	Percentage point disparity in death-sentencing rates[a] (Column C - Column D)	Ratio of rates (Column C/Column D)
1	0.05 (1/22)	0.07 (1/15)	0.00 (0/7)	7 pts.	Infinite
2	0.16 (3/19)	0.18 (3/17)	0.00 (0/2)	18 pts	Infinite
3	0.18 (4/22)	0.21 (4/19)	0.00 (0/3)	21 pts.	Infinite
4	0.33 (5/15)	0.33 (4/12)	0.33 (1/3)	0 pts.	1.00
5	0.17 (7/41)	0.18 (6/33)	0.12 (1/8)	6 pts.	1.50
6	0.24 (9/37)	0.29 (9/31)	0.00 (0/6)	29 pts.	Infinite
7	0.33 (11/33)	0.33 (8/24)	0.33 (3/9)	0 pts.	1.00
8	0.22 (8/37)	0.23 (7/31)	0.17 (1/6)	6 pts.	1.40
9	0.48 (11/23)	0.47 (9/19)	0.50 (2/4)	–3 pts.	0.94
10	0.78 (18/23)	0.80 (16/20)	0.67 (2/3)	13 pts.	1.20
11	0.79 (22/28)	0.82 (18/22)	0.67 (4/6)	15 pts.	1.20
12	0.69 (11/16)	0.69 (9/13)	0.67 (2/3)	2 pts.	1.03
Unadjusted rates	0.35 (110/316)	0.37 (94/256)	0.27 (16/60)	—	—
Adjusted rates and disparities[a]	—	0.37	0.25	12 pts.	1.5

NOTE: This table, which is based on the results of the law student pilot from the murder severity study, does not include hung cases or four volunteers who failed to present evidence of mitigating circumstances and made no argument in favor of a finding of mitigation. The jury imposed a death sentence in each of those cases. See Appendix C for a description of our treatment of hung cases. For an overview of the cases included in this Article's Tables and Fignres, see *supra* note 110.

[a] The overall race-of-victim disparity estimated in a Mantel-Haenszel procedure, controlling for the level of defendant culpability, is 12 percentage points, significant at the .10 level. The measure of defendant culpability underlying this table is the student murder severity score. When the hung cases are included in the analysis, the overall race-of-defendant effect is eight percentage points (.30 versus .22) with a ratio of rates of 1.4 (.30/.22), significant at the .26 level.

TABLE H2
RACE-OF-DEFENDANT DISPARITIES IN JURY DEATH-SENTENCING RATES IMPOSED AMONG ALL DEATH-ELIGIBLE DEFENDANTS
(controlling for the level of defendant culpability estimated in the murder severity study)

A	B	C	D	E	F
Culpability level from low (1) to high (12)	Death sentence rate for all cases	Rate for black-defendant cases	Rate for nonblack-defendant cases	Percentage point disparity in death-sentencing rates[a] (Column C - Column D)	Ratio of rates (Column C/Column D)
1	0.02 (1/52)	0.03 (1/34)	0.00 (0/18)	3 pts.	Infinite
2	0.06 (3/54)	0.06 (3/47)	0.00 (0/7)	6 pts.	Infinite
3	0.08 (4/52)	0.09 (4/43)	0.00 (0/9)	9 pts.	Infinite.
4	0.13 (5/39)	0.13 (4/30)	0.11 (1/9)	2 pts.	1.20
5	0.11 (7/66)	0.12 (6/51)	0.07 (1/15)	5 pts.	1.70
6	0.14 (9/64)	0.16 (9/55)	0.00 (0/9)	16 pts.	Infinite
7	0.23 (11/48)	0.23 (8/35)	0.23 (3/13)	0 pts.	1.00
8	0.15 (8/55)	0.17 (7/40)	0.07 (1/15)	10 pts.	2.40
9	0.22 (11/50)	0.24 (9/37)	0.15 (2/13)	9 pts.	1.60
10	0.37 (18/48)	0.42 (16/38)	0.20 (2/10)	22 pts.	2.10
11	0.48 (22/46)	0.50 (18/36)	0.40 (4/10)	10 pts.	1.20
12	0.50 (11/22)	0.53 (9/17)	0.40 (2/5)	13 pts.	1.30
Unadjusted rates	0.18 (110/596)	0.20 (94/463)	0.12 (16/133)	—	—
Adjusted rates and disparities[a]	—	0.20	0.11	9 pts.	1.80

NOTE: This table, which is based on the results of the law student pilot from the Murder Severity Study, does not include hung cases or four volunteers who failed to present evidence of mitigating circumstances and made no argument in favor of a finding of mitigation. The jury imposed a death sentence in each of these cases. See Appendix C for a discussion of our treatment of hung cases in this research. For an overview of the cases included in this Article's Tables and Figures, see *supra* note 110.

[a] The overall race-of-victim disparity estimated in a Mantel-Haenszel procedure, controlling for the level of defendant culpability, is 9 percentage points, significant at the .05 level. The measure of defendant culpability underlying this table is based on the logistic regression model in Table E1 (Appendix E) for all jury penalty-trial decisions, after the race and socieconomic effects were purged from the model. When the hung cases are included in the analysis, the overall race-of-defendant effect is seven percentage points (.18 versus .11) with a ratio of rates of 1.6 (.18/.11), significant at the .09 level.