

GETTING TO DEATH: RACE AND THE PATHS OF CAPITAL CASES AFTER *FURMAN*

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Decades of research on the administration of the death penalty have recognized the persistent arbitrariness in its implementation and the racial inequality in the selection of defendants and cases for capital punishment. This Article provides new insights into the combined effects of these two constitutional challenges. We show how these features of post-Furman capital punishment operate at each stage of adjudication, from charging death-eligible cases to plea negotiations to the selection of eligible cases for execution and ultimately to the execution itself, and how their effects combine to sustain the constitutional violations first identified 50 years ago in Furman. Analyzing a dataset of 2,328 first-degree murder convictions in Georgia from 1995–2004 that produced 1,317 death eligible cases, we show that two features of these cases combine to produce a small group of persons facing execution: victim race and gender, and a set of case-specific features that are often correlated with race. We also show that these features explain which cases progress from the initial stages of charging to a death sentence, and which are removed from death eligibility at each stage through plea negotiations. Consistent with decades of death penalty research, we also show the special focus of prosecution on cases where Black defendants murder white victims. The evidence in the Georgia records suggests a regime marred less by overbreadth in its statute than capriciousness and randomness in the decision to seek death and to seek it in a racially disparate manner. These two dimensions of capital case adjudication combine to sustain the twin failures that produce the fatal lottery that is the death penalty.

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INTRODUCTION

A. *Furman* and Race

This year marks the 50th anniversary of the Supreme Court's opinion in *Furman v. Georgia*,¹ a landmark decision that temporarily halted capital punishment in the U.S. The opinion invalidated the death sentencing statutes in effect at that time in thirty-five states and in the federal death penalty system.² It resulted in the resentencing of over 600 persons on death rows across the U.S. to life imprisonment.³ The post-*Furman* moratorium followed a de facto moratorium from the mid-1960s. Executions resumed with *Gregg v. Georgia*'s reinstatement of capital punishment in 1976.⁴

Despite disagreements in the 5-4 opinion, the *Furman* Justices were united in their criticism of capital statutes in

¹ 408 U.S. 238 (1972) (per curiam).

² See Michael Meltsner & Daniel S. Medwed, *Does a Fair Way to Decide Who Gets the Death Penalty Actually Exist?*, SLATE (Feb. 22, 2022), <https://slate.com/news-and-politics/2022/02/the-death-penalty-is-arbitrary-and-capricious.html> [<https://perma.cc/V9Z9-U8MW>].

³ *Id.*

⁴ Hashem Dezhbakhsh & Joanna M. Shepherd, *The Deterrent Effect of Capital Punishment: Evidence from a "Judicial Experiment"*, 44 ECON. INQUIRY 512, 515 (2006); see also John J. Donohue & Justin Wolfers, *Uses and Abuses of Empirical Evidence in the Death Penalty Debate*, 58 STAN. L. REV. 791, 797 (2005) (showing execution rates and counts from 1900–2004).

effect at that time.⁵ The Court held that Georgia's death-penalty procedures violated the Eighth Amendment's ban on cruel and unusual punishments.⁶ The opinion cited the arbitrary and capricious application of the death penalty,⁷ a death sentencing scheme described as unpredictable, "freakish[]," and a "fatal lottery."⁸ The *Furman* Court cited the overbreadth of many of the death statutes that inflated the populations of death-eligible defendants, of whom only a tiny proportion were executed.⁹ They required that any new capital statute "must genuinely narrow the class of persons eligible for the death penalty"¹⁰ This feature of death sentencing received the most attention in the hundred-plus-page *Furman* opinion and was the focus of the post-*Furman* statutes.

Several *Furman* Justices also worried that the Court gave uneven attention to racial disparity. Without stating a direct connection of arbitrariness with racial disparity, these Justices

⁵ *Furman*, 408 U.S. at 238; see also *McGautha v. California*, 402 U.S. 183, 190, 196 (1971) (finding that "the law itself provides no standard for the guidance of the jury in the selection of the [death] penalty, but . . . commits the whole matter . . . to the judgment, conscience, and absolute discretion of the jury," but avoiding a conclusion that the lack of standards was a constitutionally problematic violation of the due process clause of the Fourteenth Amendment); see also *id.* at 183 ("Certiorari was granted to consider whether petitioners' rights were infringed by permitting the death penalty *without standards* to govern its imposition") (emphasis added).

⁶ *Furman*, 408 U.S. at 238 (per curiam).

⁷ *Id.* at 274 (Douglas, J., concurring); *id.* at 309 (Stewart, J., concurring); see also *Maynard v. Cartwright*, 486 U.S. 356, 362 (1988).

⁸ Scott Phillips & Alena Simon, *Is the Modern Death Penalty a Fatal Lottery? Texas as a Conservative Test*, 3 *LAWS* 85, 86, 92 (2014) (describing the pattern of death sentencing as a "fatal lottery"); Petition for Certiorari at 24, *Hidalgo v. Arizona*, 138 S. Ct. 1054 (2018) (No. 17-251), 2017 WL 3531089, at *24; *Hidalgo*, 138 S. Ct. at 1057 (Breyer, J., statement respecting the denial of certiorari) (quoting *Zant v. Stephens*, 462 U.S. 862, 878 (1983)) (citing evidence that 98% of first-degree murder cases in Maricopa County as evidence of the absence of the constitutionally mandated legislative narrowing of eligibility for capital punishment in the Arizona statute). The *Furman* Court stated that narrowing was necessary to avoid a pattern of arbitrary and capricious punishments that would violate the Eighth Amendment's prohibition against cruel and unusual punishment. *Furman*, 408 U.S. at 274 (Brennan, J., concurring) (citing the risk of the arbitrary infliction of severe punishments); *id.* at 295 (equating the "unguided" discretion cited in *McGautha* with the "totally capricious selection of criminals for the punishment of death").

⁹ *Furman*, 408 U.S. at 294 (Brennan, J., concurring) ("Crimes and criminals simply do not admit of a distinction that can be drawn so finely as to explain, on that ground, the execution of such a tiny sample of those eligible."); see also *id.* at 310 (Stewart, J., concurring) (noting "the Eighth and Fourteenth Amendments cannot tolerate . . . this unique penalty to be so wantonly and so freakishly imposed").

¹⁰ *Zant v. Stephens*, 462 U.S. 862, 877 (1983) (stating the mandate of *Furman*); see also *Gregg v. Georgia*, 428 U.S. 153, 189 (1976) (same).

cited evidence that the death penalty was carried out against “the poor, the Negro, and the members of unpopular groups.”¹¹ Justice Douglas cited extensive evidence of racial disparities in his opinion. Justice Stewart concluded that “if any basis can be discerned for the selection of these few to be sentenced to die, it is the constitutionally impermissible basis of race.”¹² Justice Marshall noted that racial disparities in capital sentencing were still prevalent at the time of *Furman*, but acknowledged that the record in *Furman* and the Court’s prior decision in *Maxwell v. Bishop*¹³—rejecting a constitutional challenge to capital punishment statutes—led the Court to stop short of a finding that racial bias infected all death sentences imposed on nonwhite defendants.¹⁴

Three opinions issued on July 2, 1976, responded to *Furman*’s critique that there was “no meaningful basis for distinguishing the few cases in which [death] is imposed from the many cases in which it is not.”¹⁵ The *Gregg*,¹⁶ *Jurek*¹⁷ and *Proffitt*¹⁸ opinions each attempted to channel sentencing discretion by requiring enumerated aggravators and mitigators

¹¹ *Furman*, 408 U.S. at 249–50 (Douglas, J., concurring) (quoting the 1967 President’s Commission on Law Enforcement and the Administration of Justice). Justice Douglas also cited research by Marvin Wolfgang and his colleagues showing that racial basis affected the sentencing and execution of defendants in 439 death cases from 1914–1958. *Id.* at 250–51 n.15.

¹² *Id.* at 310 (Stewart, J., concurring); *see also* *Maxwell v. Bishop*, 398 U.S. 262 (1970).

¹³ 398 U.S. 262 (1970).

¹⁴ *Furman*, 408 U.S. at 389 n.12, 390 (Marshall, J., concurring).

¹⁵ *Id.* at 313 (White, J., concurring); *see also* *Maynard v. Cartwright*, 486 U.S. 356, 362 (1988) (noting “*Furman* held that Georgia’s then-standardless capital punishment statute was being applied in an arbitrary and capricious manner”); *Godfrey v. Georgia*, 446 U.S. 420, 427–28 (1980) (plurality opinion) (reiterating that “if a State wishes to authorize capital punishment it has a constitutional responsibility to tailor and apply its laws in a manner that avoids the arbitrary and capricious infliction of the death penalty”).

¹⁶ *Gregg v. Georgia*, 428 U.S. 153, 198 (1976) (ruling that Georgia’s post-*Furman* death penalty statute satisfied the concerns of *Furman* by requiring that specific jury findings regarding the aggravating circumstances of the crime or the character of the defendant be stated, and with adequate state review to ensure that the death sentence in each case is not disproportionate compared to similarly-situated defendants).

¹⁷ *Jurek v. Texas*, 428 U.S. 262, 271 (1976) *reh’g denied*, 429 U.S. 875 (1976) (finding Texas’s sentencing scheme to be constitutional because juries may consider whatever evidence of mitigating circumstances there may be—thus allowing them to ponder “not only why the death penalty should be imposed, but also why it should not”).

¹⁸ *Proffitt v. Florida*, 428 U.S. 242, 253 (1976) (upholding Florida capital sentencing procedures which provide “specific and detailed guidance to assist [juries] to focus on specific aggravating and mitigating circumstances in deciding whether to impose the death penalty or imprisonment for life”).

that would narrow the application of the death penalty to the “worst of the worst.” Executions were resumed shortly after, as death penalty states successively passed statutes that satisfied *Furman*’s essential holdings.¹⁹ To the extent that race was a concern of the *Gregg* court, it was folded into the Court’s short-lived strategy of comparative proportionality analysis as a check on arbitrary and capricious sentencing.²⁰

Fifteen years after *Furman*, and twelve years after *Gregg*, the Court took up the nexus of racial disparities and

¹⁹ Robert W. Jolly & Edward Sagarin, *First Eight After Furman: Who Was Executed with the Return of the Death Penalty?*, 30 CRIME & DELINQ. 610, 612 (noting that the first eight post-*Furman* executions took place between January 1977 and September 1983).

²⁰ The Supreme Court of New Jersey was the first state court to adjudicate comparative proportionality review as a diagnostic tool to determine whether the administration of the death penalty was infected by racial bias. See HON. DAVID S. BAIME, REPORT TO THE SUPREME COURT SYSTEMIC PROPORTIONALITY PROJECT, 2000-2001 TERM, at 5 (2001), <https://static.prisonpolicy.org/scans/baimereport.pdf> [<https://perma.cc/2FQK-36HH>] (hereinafter, the Baime Report) (reporting that “a consistent and strong effect of race of victim in our regression studies utilizing relevant variables defined by judges and by our statutes . . . the effect essentially disappears in three of four regression studies when county variability is introduced”). The case, *In re Proportionality Rev. Project (II)*, 165 N.J. 206 (2000), identified sharp disagreements in the reliability of competing empirical strategies to identify racial discrimination in charging and sentencing of capital-eligible cases. See, e.g., Leigh B. Bienen, Neil Alan Weiner, Deborah W. Denno, and Paul D. Allison, *The Reimposition of Capital Punishment in New Jersey: The Role of Prosecutorial Discretion*, 41 RUTGERS L. REV. 27 (1988) (utilizing regression analysis to demonstrate the presence of racial discrimination based on the racial composition of the population in the county of origin in the progression of a capital case); David Baldus, *When Symbols Clash: Reflections on the Future of the Comparative Proportionality Review of Death Sentences*, 26 SETON HALL L. REV. 1582, 1585 (1995) (describing *Furman*’s “ideal of equal justice” as “embodying a commitment to comparative proportionality”); John J. Donohue III, *An Empirical Evaluation of the Connecticut Death Penalty System Since 1973: Are There Unlawful Racial, Gender, and Geographic Disparities?*, 11 J. EMPIRICAL L. STUD. 637, 650, 657–73 (2014) (employing regression analysis to find “strong, statistically significant and robust evidence of racial disparity—specifically that minority defendants who kill whites are from 50–300 percent more likely to receive a sustained death sentence than are white defendants committing similar crimes”); David Weisburd, *Magic and Science in Multivariate Sentencing Models: Reflections on the Limits of Statistical Methods*, 35 ISR. L. REV. 225 (2001) (criticizing the statistical methods in the Baime Report that incorporate county social structure as a source of racial disparity in patterns of death seeking by prosecutors); Michael Songer & Isaac Unah, *The Effect of Race, Gender, and Location on Prosecutorial Decisions to Seek the Death Penalty in South Carolina*, 58 S.C. L. REV. 161 (2006) (citing county-level effects in addition to case-level effects on the decision to seek death in capital-eligible cases); Alex Lesman, Note, *State Responses to the Specter of Racial Discrimination in Capital Proceedings: The Kentucky Racial Justice Act and the New Jersey Supreme Court’s Proportionality Review Project*, 13 J. L. & POL’Y 359, 362–63 (2005) (reviewing two state legislative responses to the *McCleskey* ruling foreclosing race discrimination claims in capital cases by requiring race-specific comparative proportionality review).

arbitrariness in capital punishment in *McCleskey v. Kemp*, a case with strong empirical evidence.²¹ The Georgia statute had been affirmed a decade earlier in *Gregg*,²² which established the metrics and procedural methods by which the Court regulates statutes to guard against arbitrariness and overbreadth.²³ Yet the Court rejected the nexus of arbitrariness and racial disparity in *McCleskey*,²⁴ in effect shutting down future Eighth Amendment constitutional challenges based on unacceptable risks of racial prejudices infecting capital sentences.²⁵ In the nearly four decades since *McCleskey*, the Court has limited its interest in racial animus in charging and sentencing to direct expressions of racial bias during trial procedures.²⁶

Despite the *McCleskey* Court's ruling, there is considerable social science evidence that race discrimination compromises the neutrality of the decision to seek death, from charging to sentencing, and imposes arbitrariness by superseding the defendant's culpability and the nature of the crime. A 1990 review by the U.S. General Accounting Office (renamed the

²¹ 481 U.S. 279 (1987).

²² *Gregg v. Georgia*, 428 U.S. 153, 155–56 (1976); see also *Furman v. Georgia*, 408 U.S. 238 (1972). The discussion of race in these cases shows the path from *Furman* (where some Justices expressed concern about race discrimination) to *Gregg* (where the Court was satisfied with solving racial disparities through guided discretion and comparative proportionality review) to *McCleskey*. In *McCleskey*, the Court determined that while racial disparities exist in Georgia's sentencing regime, they (a) are tolerable and (b) don't constitutionally disqualify the Georgia statute.

²³ Chelsea Creo Sharon, Note, *The "Most Deserving" of Death: The Narrowing Requirement and the Proliferation of Aggravating Factors in Capital Sentencing Statutes*, 46 HARV. C.R.-C.L. L. REV. 223, 229–30 (2011).

²⁴ 481 U.S. at 279–80, 281–82, 309. Justice Brennan responded to the majority's concern that "McCleskey's claim would open the door to widespread challenges to all aspects of criminal sentencing": "on its face, such a statement seems to suggest a fear of too much justice." *Id.* at 339 (Brennan, J., dissenting); see also Douglas A. Berman, *McCleskey at 25: Reexamining the "Fear of Too Much Justice"*, 10 OHIO ST. J. CRIM. L. 1, 1 (2012) (evaluating Justice Brennan's concerns in the decades after *McCleskey*).

²⁵ Anthony G. Amsterdam, *Opening Remarks: Race and the Death Penalty Before and After McCleskey*, 39 COLUM. HUM. RTS. L. REV. 34, 47 (2007) (noting that Justice Powell wrote the *McCleskey* opinion in terms "calculated to shut down statistically-based challenges to racial discrimination in capital sentencing").

²⁶ Catherine Grosso et al., *Death by Stereotype: Race, Ethnicity and California's Failure to Implement Furman's Narrowing Requirement*, 66 UCLA L. REV. 1394, 1401–02 (2019) [hereinafter Grosso et al., *Death by Stereotype*]; see, e.g., *Buck v. Davis*, 137 S. Ct. 759, 776–77 (2017) (finding defense counsel rendered deficient and prejudicial representation by introducing expert testimony that Mr. Buck, the defendant, was statistically more likely to act violently in the future because he was Black).

Government Accountability Office in 2004) of charging and sentencing procedures in the fifteen years post-*Gregg* concluded that Black defendants are treated more punitively than similarly situated non-Black defendants, and claims that defendants whose victims are white are treated more punitively than similarly situated defendants whose victims are Black.²⁷ A second review of studies between 1990 and 2013 found the same patterns to be prevalent in empirical studies after the *McCleskey* litigation.²⁸ Another review of the studies spanning these two eras found that published studies reproduced the Baldus results from the *McCleskey* case and showed three themes: there is little evidence of disparities in charging and sentencing based on defendant race; there is consistent evidence of disparity on the race of the victim regardless of defendant race; and the largest disparities are observed based on the combination of defendant race (Black) and victim race (white).²⁹

These empirical facts suggest the processes by which race may produce arbitrary death sentences. This might not be the case were the aggravators required to attain a death sentence correlated with race, but those aggravators may be a proxy or Trojan horse for race, a coding scheme for death-worthiness that is built on racial stereotypes.³⁰ Instead, the robust evidence of racial disparities in charging and sentencing suggests that demographics are shaping charging decisions, whether directly in charging or indirectly in the coding of race in the patterns of aggravators, eclipsing the factors of the crime itself that distinguish a capital case from the majority of murders. This is the core of the arbitrariness claim: that death sentences are based only in part on features of the offense, and

²⁷ U.S. GEN. ACCT. OFF., GAO/GGD-90-57, DEATH PENALTY SENTENCING: RESEARCH INDICATES PATTERN OF RACIAL DISPARITIES 5-6 (1990) (showing that in 82% of the studies, defendants who murdered white people were more likely to be sentenced to death than those who murdered Black people, regardless of the study design, sampling, and analysis methods).

²⁸ See generally Catherine M. Grosso, Barbara O'Brien, Abijah Taylor & George Woodworth, *Race Discrimination and the Death Penalty: An Empirical and Legal Overview*, in AMERICA'S EXPERIMENT WITH CAPITAL PUNISHMENT 525 (Charles S. Lanier, Robert Bohm & James Acker eds., 2014) [hereinafter Grosso, O'Brien, Taylor & Woodworth, *Empirical and Legal Overview*].

²⁹ Steven F. Shatz & Terry Dalton, *Challenging the Death Penalty with Statistics: Furman, McCleskey, and a Single County Case Study*, 34 CARDOZO L. REV. 1227, 1246-51 (2013).

³⁰ See, e.g., Grosso et al., *Death by Stereotype*, *supra* note 26, at 1441 (finding that the California death sentence statute "appears to codify rather than ameliorate the harmful racial stereotypes that are endemic to our criminal justice system").

those salient features separate the murder and murderer charged with death from other murders. These features—which include the defendant’s culpability, the evidence in the case, the specific factors that signal extra culpability, and even guilt—are set aside and replaced by race to create a pattern of arbitrariness that eclipses the factors and processes that are prescribed by case law. We explore this question in this Article, comparing factors of each case with the demographics of the murder, to locate the racial components of arbitrariness.

B. This Article

We revisit the *Furman-McCleskey* nexus to assess the role of race in charging and sentencing in capital cases. We are hardly the first. In the decades after *McCleskey*, a robust body of empirical research has demonstrated racial bias in capital cases.³¹ Several recent studies have noted the extent to which death statutes continue to be expansive, with only a small fraction of death-eligible cases resulting in a death sentence.³² A few of those studies have focused on race, or on the intersection of race and overbreadth.³³ In addition to a growing body of empirical studies, the U.S. Supreme Court recently considered but rejected the question of overbreadth in capital charging and sentencing in *Hidalgo v. Arizona*,³⁴ despite evidence that nearly all first-degree murders in the state’s most populous county were death-eligible under a constitutionally problematically capacious death penalty statute.³⁵

The majority of studies on race discrimination in the administration of the death penalty have examined the charging decision, or the “selection stage” at which defendants

³¹ For a discussion of previous empirical work, see Grosso, O’Brien, Taylor & Woodworth, *Empirical and Legal Overview*, *supra* note 28.

³² David C. Baldus et al., *Furman at 45: Constitutional Challenges from California’s Failure to (Again) Narrow Death Eligibility*, 16 J. EMPIRICAL LEGAL STUD. 693, 704–06 (2019) [hereinafter Baldus et al., *Furman at 45*] (citing studies from California, Colorado, Maryland, Nebraska, North Carolina, Connecticut, Texas, and Georgia).

³³ See Grosso, O’Brien, Taylor & Woodworth, *Empirical and Legal Overview*, *supra* note 28; see also Scott Phillips & Justin Marceau, *Whom the State Kills*, 55 HARV. C.R.-C.L. L. REV. 585, 606 (2020) (showing that those convicted of killing white victims were more likely to be sentenced to death and to be put to death).

³⁴ Petition for Certiorari at 3, 6–7, *Hidalgo v. Arizona*, 138 S. Ct. 1054 (2018) (No. 17-251), 2017 WL 3531089. Mr. Hidalgo proffered evidence that 99% of first-degree murder defendants charged in Maricopa County, which encompasses the City of Phoenix and its surrounding suburbs, were eligible for a death sentence. *Id.* at 3; *Hidalgo*, 138 S. Ct. at 1054.

³⁵ *Hidalgo*, 138 S. Ct. at 1056 (Breyer, J., statement respecting the denial of certiorari).

among the death-eligible would be charged as capital cases.³⁶ There also is a substantial literature on death sentencing, most of it also focused on racial disparities,³⁷ including the research whose probative value was rejected by the *McCleskey* court.³⁸ These studies report strong and consistent evidence of disparities by victim race (white) and more inconsistent effects by defendant race (Black).

In this study, we too focus on the decision to issue a death sentence, with two additional contributions. First, we examine the role of race and its cumulative effects at each decision stage of a capital case that ultimately produce death sentences. We view decisions by prosecutors and juries in death penalty cases as a progression of choices or negotiations, each potentially variable by defendant or victim race, but also shaped by observable features of the case.³⁹ Those features include the characteristics of a case that endow its salience as a candidate for prosecutors to pursue a death sentence over other severe punishments including life without parole.⁴⁰ Using a unique

³⁶ Grosso, O'Brien, Taylor & Woodworth, *Empirical and Legal Overview*, *supra* note 28, at 541–43.

³⁷ See Deon Brock, Nigel Cohen & Jonathan Sorensen, *Arbitrariness in the Imposition of Death Sentences in Texas: An Analysis of Four Counties by Offense Seriousness, Race of Victim, and Race of Offender*, 28 AM. J. CRIM. L. 43, 46–56, 62–69 (2000); Marian R. Williams & Jefferson E. Holcomb, *Racial Disparity and Death Sentences in Ohio*, 29 J. CRIM. JUST. 207, 207–217 (2001); Michael L. Radelet & Glenn L. Pierce, *Race and Death Sentencing in North Carolina, 1980–2007*, 89 N.C. L. REV. 2119, 2123–36, 2140–45 (2010); Glenn L. Pierce, Michael L. Radelet & Susan Sharp, *Race and Death Sentencing for Oklahoma Homicides Committed Between 1990 and 2012*, 107 J. CRIM. L. & CRIMINOLOGY 733, 733–34 (2017); John M. Scheb II & Hemant K. Sharma, *Race and the Death Penalty in Tennessee, 1977–2016*, in OPEN JUDICIAL POLITICS 828, 837–41 (2021); Jeffery T. Ulmer, John H. Kramer & Gary Zajac, *The Race of Defendants and Victims in Pennsylvania Death Penalty Decisions: 2000–2010*, 37 JUST. Q. 955, 969–75 (2020); Alexis Hoag, *Valuing Black Lives: A Case for Ending the Death Penalty*, 51 COLUM. HUM. RTS. L. REV. 983, 990–95 (2019) (arguing that the modern death penalty can be challenged on equal protection grounds for its undervaluation of Black lives based on disparities in capitally prosecuting cases with White and Black victims).

³⁸ David C. Baldus, Charles Pulaski & George Woodworth, *Comparative Review of Death Sentences: An Empirical Study of the Georgia Experience*, 74 J. CRIM. L. & CRIMINOLOGY 661, 698–727 (1983) [hereinafter Baldus, Pulaski & Woodworth, *Comparative Review*].

³⁹ To the best of our knowledge, only one prior study has decomposed the outcomes of death penalty cases into the distinct stages of case processing, from charging to trial to sentencing. Katherine Barnes, David Sloss & Stephen Thaman *Place Matters (Most): An Empirical Study of Prosecutorial Decision-Making in Death-Eligible Cases*, 51 ARIZ. L. REV. 305, 312–14 (2009).

⁴⁰ Life without parole, or LWOP, is also a death sentence, although delayed through the end of natural life, and without the rituals and symbolism of execution. See Sherod Thaxton, *Leveraging Death*, 103 J. CRIM. L. & CRIMINOLOGY 475, 502–03 (2013) (discussing how LWOP is used in plea bargaining to avoid the

empirical procedure that we describe in Part II, we combined these case characteristics into five distinct scales that we test for their contributions to understanding the decision to seek death.⁴¹

Second, we examine the prospect of racial disparities in the prosecutorial charging of the “heinous, atrocious and cruel”—or HAC—aggravator in Georgia’s death sentencing statute. Similar to other studies on this aggravator, we use HAC as a generic term to characterize this aggravator. HAC statutes are not uncommon in death penalty states. Most death penalty states have some variant of this aggravator, and it has been criticized extensively for its vagueness and inherent potential for ambiguity, which in turn are invitations to arbitrariness and overbreadth in capital charging.⁴² For example, Arizona defines a murder as death-eligible where “[t]he defendant committed the offense in an especially heinous, cruel or depraved manner.”⁴³ California uses similar language to create death-eligibility when the murder was “especially heinous, atrocious, or cruel, manifesting exceptional depravity.”⁴⁴ Fourteen states, including some that have subsequently abolished capital punishment, specify a HAC aggravator.⁴⁵

risk of a death sentence at trial); Ilyana Kuziemko, *Does the Threat of the Death Penalty Affect Plea Bargaining in Murder Cases? Evidence from New York’s 1995 Reinstatement of Capital Punishment*, AM. L. & ECON. REV. 116, 140 (2006) (showing the negotiation parameters of plea bargaining, often for LWOP, in lieu of a capital prosecution).

⁴¹ See *infra* Appendix C.

⁴² E.g., Richard A. Rosen, *The “Especially Heinous” Aggravating Circumstance in Capital Cases—The Standardless Standard*, 64 N.C. L. REV. 941, 941–45 (1986) (arguing “the overbroad application [of HAC] has seriously undermined” the guided discretion requirement of the Eighth Amendment and vagueness prohibition of the Fourteenth Amendment); see also Sarah A. Mourer, *Forgetting Furman: Arbitrary Death Penalty Sentencing Schemes Across the Nation*, 2 WM. & MARY BILL RTS. J. 1183, 1189–91 (2014) (arguing that the imposition of a death sentence based on a judge’s finding of aggravators is a violation of the Sixth Amendment and aggravators are a question of fact for the jury to find). See generally Michael Welner, Kate O’Malley, James Gonidakis & Ryan E. Tellalian, *The Depravity Standard I: An Introduction*, 55 J. CRIM. JUST. 1 (2018) (providing a comprehensive review of the application of HAC statutes and discussing their inconsistent application); Michael Welner, Kate O’Malley, James Gonidakis, Alisha Saxena & James Burnes, *The Depravity Standard II: Developing a Measure of the Worst of Crimes*, 55 J. CRIM. JUST. 25 (2018) (empirically studying the public’s notion of depravity to understand what the public would tend to find as HAC).

⁴³ ARIZ. REV. STAT. § 13-751(F)(4).

⁴⁴ CAL. PENAL CODE § 190.2(a)(14).

⁴⁵ Colorado, New York, and New Jersey had a HAC aggravator in their death penalty statutes prior to their abolition of capital punishment. See *Aggravating Factors by State*, DEATH PENALTY INFO. CTR.,

HAC statutes raise specific issues of arbitrariness that infected pre-*Furman* death statutes. Following *Furman* and *Gregg*, the Eighth Amendment requires only that a death sentence be imposed under a system that guides the sentencer's discretion to avoid arbitrary, capricious, and discriminatory sentencing decisions. While the *McGautha* Court rejected the idea of substantive standards for death eligibility in the term before *Furman*,⁴⁶ the *Furman* Court cited vague and inconsistent criteria for death eligibility as a source of overbreadth and over-inclusion of murders into the set of cases eligible for the death penalty.⁴⁷ Courts have recognized this danger: the constitutionality of HAC statutes has been contested as vague, open to racial bias in its application and interpretation, difficult to satisfy *Apprendi* and *Ring* requirements for reasonable doubt, are open to arbitrariness, and generally as a risk of running afoul of *Gregg's* narrowing principles.⁴⁸ One writer termed the demand on jurors to

and-research/crimes-punishable-by-death/aggravating-factors-by-state [https://perma.cc/Y9EZ-V9RN] (last visited Sept. 26, 2022).

⁴⁶ *McGautha v. California*, 402 U.S. 183, 207 (1971) (concluding that it is "impossible to say that committing to the untrammelled discretion of the jury the power to pronounce life or death in capital cases is offensive to anything in the Constitution").

⁴⁷ *Furman v. Georgia*, 408 U.S. 238, 300 (1972) (Brennan, J., concurring); see, e.g., Baldus et al, *Furman at 45*, *supra* note 32, at 713-18 (showing that 95% of all first-degree murder convictions and 59% of all second-degree murder and voluntary manslaughter convictions were death eligible under California's 2008 statute); Justin Marceau, Sam Kamin & Wanda Foglia, *Death Eligibility in Colorado: Many Are Called, Few Are Chosen*, 84 U. COLO. L. REV. 1069, 1072 (2013) (showing that nearly all defendants charged with first-degree murder are statutorily eligible for execution in Colorado); *Hidalgo v. Arizona*, 138 S. Ct. 1054, 1056 (2018) (Breyer, J., statement respecting the denial of certiorari) (showing that 98% of first-degree murder defendants charged in Maricopa County, which encompasses the City of Phoenix and its surrounding suburbs, were eligible for a death sentence).

⁴⁸ E.g., Laurel L. Cleek, Note, *The Constitutionality of the Heinous, Atrocious, or Cruel Aggravating Circumstances in Death Penalty Cases and Its Interpretation by Tennessee Courts*, 31 U. MEM. L. REV. 939, 941-49 (2000) (discussing how the Court finds applications of the "much less precise" HAC aggravator to be within the narrowness principle); Michael Mello, *Florida's Heinous, Atrocious or Cruel Aggravating Circumstance: Narrowing the Class of Death-Eligible Cases Without Making It Smaller*, 13 STETSON L. REV. 523, 528-29 (1983) (arguing the Supreme Court, as per *Gregg* and *Profitt*, allows overbroad aggravation statutory language as long as the courts applying this standard narrow it in its application); Terrill Pollman, Note, *Maynard v. Cartwright: Channeling Arizona's Use of the Heinous, Cruel, or Depraved Aggravating Circumstance to Impose the Death Penalty*, 32 ARIZ. L. REV. 193, 208 (1990) (discussing how courts may fail to limit the application of the aggravating circumstance provision). See generally Stephen B. Bright, *Discrimination, Death and Denial: The Tolerance of Racial Discrimination in Infliction of the Death Penalty*, 35 SANTA CLARA L. REV. 433 (1994) (discussing how *Dobbs* and other cases reveal that racial discrimination is alive in today's criminal

evaluate the HAC factor and determine whether it is satisfied beyond a reasonable doubt, as “I know it when I see it” jurisprudence.⁴⁹

While HAC statutes risk offending *Furman*’s prohibitions on arbitrary and capricious sentences, HAC statutes also raised concerns of the *Furman* majority on racial disparities in death sentencing. We discussed these concerns earlier by noting the potential for statutory aggravators to invoke racial stereotypes of criminal offending.⁵⁰ Painting criminality from a broad palette of criminal acts that may be correlated with race, such as “carjacking” or armed robbery, HAC statutes invite an attribution and labeling of conduct as death eligible based on the promiscuous piling on of aggravators that characterized post-*Gregg* statutes for over a decade.⁵¹ Georgia defines HAC as a statutory aggravator as “the offense was outrageously or wantonly vile, horrible, or inhuman in that it involved torture, depravity of mind, or an aggravated battery to the victim.”⁵² In fact, the Court in *Godfrey v Georgia*⁵³ reasoned that Georgia’s HAC statute was so broad that most jurors would find any murder to be “outrageously or wantonly vile” and thus not narrowing death eligibility or sentencing and allowing juries to act arbitrarily.⁵⁴ This error is a primary driver both of overbreadth and racial disparity.

To assess how Georgia’s HAC statute is defined and applied, we created a scale representing components of this specific statutory aggravator in Georgia that were defined by the research team. Rather than defaulting to such subjective assessments, we dimensionalize HAC into its components and then create a metric for assessing its influence on the stages of seeking and imposing death. The question we pursue is the

courts); W. David Ball, *Heinous, Atrocious, and Cruel: Apprendi, Indeterminate Sentencing, and the Meaning of Punishment*, 109 COLUM. L. REV. 893 (2009) (arguing that the *Apprendi* right is violated when a parole board denies parole upon finding that a murder was heinous, atrocious or cruel); Bobbie Shell, Note, *Criminal Procedure: Godfrey v. Georgia and the Especially Heinous, Atrocious, or Cruel Murder*, 34 OKLA. L. REV. 337 (1981) (examining what qualifies as HAC post-*Godfrey*).

⁴⁹ Valerie L. Barton, Note, *Knowing Evil When We See It: An Attempt to Standardize Heinous, Atrocious, and Cruel*, 33 NOVA L. REV. 679, 698–99 (2008).

⁵⁰ See also Grosso et al., *Death by Stereotype*, *supra* note 26, at 1426–40.

⁵¹ *Id.* at 1401–09, 1404 n.52 (citing Jonathan Simon & Christina Spaulding, *Tokens of Our Esteem: Aggravating Factors in the Era of Deregulated Death Penalties*, in *THE KILLING STATE: CAPITAL PUNISHMENT IN LAW, POLITICS AND CULTURE* 81 (Austin Sarat, ed., 1999)).

⁵² GA. CODE ANN. § 17-10-30(7).

⁵³ 446 U.S. 420 (1980).

⁵⁴ *Id.* at 427–29.

extent to which HAC aggravators may be a proxy for race and an expression of bias by defendant or victim race or both.

The rest of the Article proceeds through four sections. We begin in Part I with a discussion of a transactional framework for understanding the progression of death-eligible cases from selection to trial to seeking death and receiving death. Whether and for whom the threat of a death sentence induces a plea bargain among the parties, and the components of those decisions, and at which stages, is the framework for understanding how cases proceed and how they conclude. Part II discusses both the methods for measurement and data analysis. One of the contributions of this Article is both the inclusion of the victim and defendant characteristics and a set of case characteristics that estimate some of the “bargaining chips” that are available to both prosecutors and defense attorneys in decisions about pleas or challenges. We also describe a new method for creating scalar representations of these bins of factors that facilitate their incorporation into multivariate models of decision making at each successive stage of a capital case. Part III presents the results of the empirical tests and compares those results with the few studies that have examined the progression of cases. Part IV discusses the implications for understanding capital punishment through this lens and the implications of this framework in an era of sharply declining death sentences and executions.

I

DISCRETION AS NEGOTIATED CHOICE

It is by now hardly a surprise that prosecutors use the threat of a capital charge as leverage in plea negotiations. In a sense, it is an extension of plea bargaining more generally, where harsher sentences are threatened and exchanged with defense counsel in return for a quick guilty plea at a lower punishment tariff.⁵⁵ Sherod Thaxton summarized incentives and rationales in plea bargaining in the negotiations to seek or forego a death sentence. First, seeking death enables prosecutors to seek a death-qualified jury, which prior research shows is more prone to find the defendant guilty of the underlying murder.⁵⁶ This increases the strategic and

⁵⁵ See generally Thaxton, *supra* note 40, at 475 (discussing how capital punishment is used in plea bargaining).

⁵⁶ *Id.* at 484–85. See generally CRAIG HANEY, DEATH BY DESIGN: CAPITAL PUNISHMENT AS A SOCIAL PSYCHOLOGICAL SYSTEM (2005); Claudia L. Cowan, William C. Thompson & Phoebe C. Ellsworth, *The Effects of Death Qualification on Jurors'*

financial burdens on the defense by expanding her role to include a robust mitigation defense.⁵⁷

Second, for the prosecutor, the upside of the negotiation game is cost-reduction and a speeding up of the court's calendar and reducing its backlog. In this way, prosecutors can resolve a larger volume of cases at the cost of shorter punishments.⁵⁸ Pleas, especially in death cases, serve a potentially important second purpose by enabling prosecutors to strengthen their cases against co-defendants, while allowing primary defendants to avoid a capital sentence. Prosecutors can preserve at least one capital-eligible conviction while obtaining additional convictions and harsh albeit non-capital sentences against others.⁵⁹ But the process lends itself to overcharging by prosecutors to gain an upper hand in negotiations, and may encourage defendants to plead guilty when they are not,⁶⁰ and to cede some constitutional rights in exchange for the negotiated plea.⁶¹

Predisposition to Convict and on the Quality of Deliberation, 8 LAW & HUM. BEHAV. 53 (1984) (discussing how the jury selection process leads to a jury that is more likely to convict a defendant); Craig Haney, Eileen L. Zurbriggen & Joanna M. Weill, *The Continuing Unfairness of Death Qualification: Changing Death Penalty Attitudes and Capital Jury Selection*, 28 PSYCH., PUB. POLY & L. 1 (2022) (death-qualified juries are biased to convict a defendant for the death penalty).

⁵⁷ Thaxton, *supra* note 40, at 485.

⁵⁸ Backlogs have additional costs in capital cases. The longer a case goes on and the more crowded both the capital and overall docket, the higher the risk of reversible error and the possible loss of a capital conviction. See Andrew Gelman, James S. Liebman, Valerie West & Alexander Kiss, *A Broken System: The Persistent Patterns of Reversals of Death Sentences in the United States*, 1 J. EMPIRICAL LEGAL STUD. 209, 212–13, 260–61 (2004); see also JAMES S. LIEBMAN ET AL., *A BROKEN SYSTEM, PART II: WHY THERE IS SO MUCH ERROR IN CAPITAL CASES, AND WHAT CAN BE DONE ABOUT IT* i–iv (2002), https://scholarship.law.columbia.edu/cgi/viewcontent.cgi?article=4431&context=Faculty_scholarship [https://perma.cc/5ZA7-YPDK].

⁵⁹ Thaxton, *supra* note 40, at 491–92. In this sense, a plea is a satisficing decision when there are uncertainties in the prospects for success. See, e.g., Barry Schwartz, Yakov Ben-Haim & Cliff Dacso, *What Makes a Good Decision? Robust Satisficing as a Normative Standard of Rational Decision Making*, 41 J. THEORY SOC. BEHAV. 209, 210 (2011) (defining “robust satisficing” as allowing “decision makers to calculate robustness to uncertainty of satisfactory outcomes” and arguing that it is often preferable to a “utility maximizing” approach is part of the rational decision-making process).

⁶⁰ BRANDON GARRETT, *THE END OF ITS ROPE: HOW KILLING THE DEATH PENALTY CAN REVIVE CRIMINAL JUSTICE* 23, 181–183 (2018) (noting that most death penalty cases are plea-bargained and quoting a prosecutor claiming that the threat of a death sentence helps resolve cases with pleas to life without parole “where that was the appropriate sentence”).

⁶¹ Stephanos Bibas, *Regulating the Plea-Bargaining Market: From Caveat Emptor to Consumer Protection*, 99 CALIF. L. REV. 1117, 1119–23 (2011) (discussing the rights defendants generally forfeit that could otherwise provide a cause of action for an appeal).

There are downsides, too, for prosecutors to negotiate each decision point to get to a death sentence. Death-qualified juries may be more likely to convict the defendants on the murder charge, but that is no guarantee that a win at the guilt phase will translate to a death sentence. Evidence of guilt and evidence of mitigation are loosely coupled at the guilt phase, but largely uncoupled at the penalty phase when deathworthiness, rather than blameworthiness, is adjudicated. But here, the advantage still tilts to the prosecutor in wrangling a guilty plea even at the cost of a non-death sentence. For example, the *McGautha* Court concluded that “[t]he policies of the privilege against compelled self-incrimination are not offended when a defendant in a capital case yields to the pressure to testify on the issue of punishment at the risk of damaging his case on guilt.”⁶²

Moreover, at the penalty stage, defense counsel has greater control over the massing and presentation of mitigation evidence. Prosecutors are at a disadvantage in countering medical evidence of addiction or neurological deficits or severe childhood abuse or psychiatric disorder. Countering this evidence raises the costs of litigation for prosecutors once they reach the penalty stage, thinning resources for the remaining trials or other criminal violence cases on their felony dockets.⁶³ While families of victims may object to plea bargains and raise the political costs of a bargain for prosecutors, the punishments debated in a plea bargain are death versus the next harshest punishment available for a capital charge. In addition, defense counsel may place evidence on the record at all phases of the trial that might fortify an appeal of the conviction or the sentence, further complicating decision-making, plea negotiations, and strategizing at each decision juncture.

So, while the strength of evidence may encourage a prosecutor to predict success in the guilt phase trial, the difference in the other sentencing factors including mitigation raise uncertainties for prosecutors that are difficult to quantify. The thresholds at which either prosecutors or defense counsel (or both) will decide when the threat of death is sufficient to pursue a capital sentence or accept a plea bargain are

⁶² *McGautha v. California*, 402 U.S. 183, 217 (1971).

⁶³ Thaxton, *supra* note 40, at 479 (citing GEORGE FISHER, PLEA BARGAINING'S TRIUMPH: A HISTORY OF PLEA BARGAINING IN AMERICA 200–201 (2003)).

ambiguous.⁶⁴ Prosecutorial decision-making, then, is not transparent, but neither is it entirely opaque. These negotiations take place within the boundaries of statutes designed to channel prosecutorial discretion.⁶⁵ The observable facts of a case, then, are the substance of the negotiations at each stage between prosecution and defense that shape decisions and outcomes. It is these facts that we focus on as the potential mediating effects of these negotiations.

Figure 1 illustrates the decision points and junctures that begin with charging a murder as death-eligible to the jury's decision to impose a death sentence. The progression of cases in Georgia is typical of many death penalty states, but with at least one important exception. In Georgia, the mandatory aggravating circumstances that create death eligibility and that distinguish first-degree murder from capital murder are incorporated in the capital murder statute itself.⁶⁶ The guilt phase trial then incorporates an eligibility determination that a death-eligible murder was committed beyond a reasonable doubt. Once convicted, the case proceeds to a penalty phase trial. In most other death penalty jurisdictions, the guilt phase and eligibility phases are separate proceedings, with a separate finding on the statutory aggravator as part of the narrowing process to limit death sentences "to killings more aggravated than the [state's] base definition of capital homicide" or premeditated first-degree murder.⁶⁷

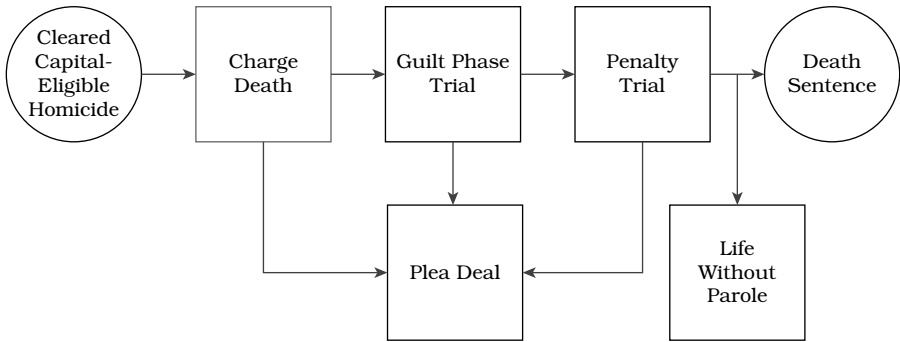
⁶⁴ Kuziemko, *supra* note 40, at 116 (concluding that the threat of a death sentence did not increase defendants' propensity to plead but did motivate them to accept plea bargains with harsher terms such as longer waits for parole eligibility). See Thaxton, *supra* note 40, at 492–97 for a critique of Kuziemko Research.

⁶⁵ See *Zant v. Stephens*, 462 U.S. 862, 876 (recognizing the need to limit the death penalty to certain crimes whose features are articulated by statute). This is one of the purposes of statutory aggravators that create a boundary between most murders and those statutorily defined as perhaps deserving of death.

⁶⁶ GA. CODE ANN. § 17-10-30. Under the Georgia statute, aggravators include murder, rape, armed robbery, kidnapping committed by a person with prior record of conviction for capital felony; murder, rape, armed robbery, kidnapping committed while engaged in commission of other capital felony; knowingly creating grave risk of death to multiple persons in public place by use of weapon/device; murder committed for financial gain; murder of a judicial officer, district attorney or solicitor (or formers) because of exercise of duties; murder committed as agent of another; murder, rape, armed robbery, or kidnapping that is outrageously or wantonly vile, horrible or inhuman; murder of a peace officer, corrections officer, or fireman while performing duties; offense of murder was committed by someone who escaped from lawful custody/confinement; offense of murder was committed by someone who avoided lawful arrest.

⁶⁷ James S. Liebman & Peter Clarke, *Minority Practice, Majority's Burden: The Death Penalty Today*, 9 OH. ST. J. CRIM. L. 255, 282–83 (2011) (citing *Godfrey v.*

FIGURE 1. DECISION POINTS IN CAPITAL PUNISHMENT: CHARGING, ADJUDICATION AND SENTENCING



The design for this research suggests that there are discrete decision points in the progression of death penalty cases where the case either terminates via a plea agreement, withdrawal of a death notice, or survives to the next stage. The model is agnostic with respect to the substance of the agreement, though we assume that most agreements will be to a life sentence with or without parole eligibility. We make no assumptions about the specific game-theoretic processes that may explain decisions to leave the process via a plea agreement or other choice and proceed to a non-death punishment. But we do assume that there are features of the case that influence the choices made at each juncture.

In other words, these are mediating factors that are part of the negotiations and the contest between defense and prosecution in the pursuit or avoidance of a capital sentence. Factors such as the strength of the evidence, the extent of mitigation evidence, lawyering strategies, and other case features can influence negotiations at each stage. Details of these constructions and measurement of these factors are shown in the next section⁶⁸ and also in Appendix C.

The mediating factors not only shape each party's decision heuristics but also offer them potential cognitive shortcuts that may be salient to jurors weighing whether to proceed further toward a death sentence or to accept a plea that avoids a penalty phase trial.⁶⁹ The complex contingencies in a death

Georgia, 446 U.S. 420, 430 (1980); *Gregg v. Georgia*, 428 U.S. 153, 194, 197–98 (1976), *reh'g denied*, 429 U.S. 875 (1976)).

⁶⁸ See *infra* II.B.

⁶⁹ Matthew P. West & Monica K. Miller, *The Social Science of the Death Penalty: Before, During, and After Trial*, in 5 *ADVANCES IN PSYCHOLOGY AND LAW* 219, 220 (2020) (discussing the cognitive biases that affect jurors in death penalty cases); Raymond Paternoster & Jerome Deise, *A Heavy Thumb on the Scale: The*

case suggest that prosecutors may apply their own stereotypes, heuristics, and scripts in their strategizing and decision-making, and may also be predicting how jurors might apply the same processes to reach biased decisions on guilt and deathworthiness. These processes are likely to interact with case facts to create the white victim prototype, and especially the white female victim symbol,⁷⁰ whose effects may lead to pursuit of a death sentence compared to other victim profiles, as well as how both prosecutors (to evaluate likelihood of winning) and jurors (to decide deathworthiness) weigh aggravators and mitigators.⁷¹ Moreover, recent evidence of the proliferation of death penalty exonerations based on false confessions raises a critical question of the very idea of plea bargaining in a death penalty case.⁷²

Modeling these choice processes and mechanisms in capital punishment sentencing research has not been very

Effect of Victim Impact Evidence on Capital Decision Making, 49 CRIMINOLOGY 129, 129–30 (2011) (finding that victim impact statements heavily cause jurors to form a bias towards imposing a death penalty).

⁷⁰ See, e.g., Isaac Unah, *Choosing Those Who Will Die: The Effect of Race, Gender, and Law in Prosecutorial Decision to Seek the Death Penalty in Durham County, North Carolina*, 15 MICH. J. RACE & L. 135, 135 (2009) (finding that Durham county prosecutors are 43% more likely to seek the death penalty when a Black defendant kills a white victim, and that this figure increases when the victim is a white female); Jeffery T. Ulmer, Lily S. Hanrath & Gary Zajac, *Racialized Victim Gender Differences in Capital Decision Making in Pennsylvania*, 39 JUST. Q. 1104, 1123 (2022) (finding that “the murders of black women were treated overall less punitively than those of other gender/race categories”); Barbara O’Brien, Catherine M. Grosso, George Woodworth & Abijah Taylor, *Untangling the Role of Race in Capital Charging and Sentencing in North Carolina, 1990-2009*, 94 N.C. L. REV. 1997, 1998 (2005) (reporting on post-1990 studies of racial disparities in charging and sentencing in capital cases and finding that cases “with at least one white victim face odds of receiving a death sentence that are 2.17 times the odds faced by all other cases”); Phillips & Marceau, *supra* note 33, at 606 (finding that the racial “sentencing disparity discovered by Baldus [at the charging and sentencing stages was] exacerbated at the execution stage”).

⁷¹ West & Miller, *supra* note 69, at 241 (noting that weak mitigating evidence may cause jurors to express prejudice against racial or ethnic minorities). See generally Matthew P. West, Emily F. Wood, Monica K. Miller & Brian H. Bornstein, *How Mock Jurors’ Cognitive Processing and Defendants’ Immigrant Status and Ethnicity Relate to Decisions in Capital Trials*, 17 J. EXPERIMENTAL CRIMINOLOGY 423 (2021) (explaining how cognitive processes influence jurors’ decisions in capital cases).

⁷² See generally Klara Stephens, *Misconduct and Bad Practices in False Confessions: Interrogations in the Context of Exonerations*, 11 N.E. U. L. REV. 593 (2019) (discussing bad practices that do not constitute misconduct but are still used to obtain false confessions) (citing *Frank Sterling*, NAT’L REGISTRY EXONERATIONS, http://www.law.umich.edu/special/exoneration/Pages/case_detail.aspx?caseid=3662 [<https://perma.cc/4C85-DCJM>]); Lauren Morehouse, *Confess Or Die: Why Threatening a Suspect with the Death Penalty Should Render Confessions Involuntary*, 56 AM. CRIM. L. REV. 531 (2019) (detailing coercive tactics police use to obtain false confessions).

successful over time.⁷³ The typical approach is to eschew direct measurements of choice processes and instead relate variations in decisions among options to some set of explanatory covariates. Even mediation models, which attempt to apportion the effects between features of a choice and those mediating covariates in understanding the choice itself, rely on proxy variables for other influences or—rarely—mechanisms. Discrete choice models do a better job but still rely on abstractions of the choice dynamics to explain statistical relationships.

The choices in the progression of a potential death penalty case from the first to the last stage decisions suggest the existence of a discrete choice process that may change from one decision point to the next while retaining and carrying forward the processes from the last stage to the next. Initial stages of decision-making filter out some aspects of a decision and remain agnostic about their potential influence for the next. At each stage, there may be an inflection or cutoff point for particular parameters that may be applied and then retained or discarded at the next decision point. This framework does not automatically reject a game-theoretic approach—it only suggests that those choices carry forward some information across stages while perhaps engaging new information. Recent advances in modeling decisions include applications in marketing, school choice, occupational change and even online dating behavior (!). Each of these choices requires social decisions with varying metrics through a sequence of decisions with overlapping information.⁷⁴ We are agnostic about how prosecutors or defense lawyers encode information needed for a decision. We understand that not all information the parties use is accounted for in models of decision-making, nor can these models explain how available information is ordered or how the absence of important information impacts decisions based on the information that is available. We do look at the information available and examine which pieces of information are carried forwarded or discarded

⁷³ See Kuziemko, *supra* note 40; see also Thaxton, *supra* note 40, at 493–497 (critiquing Kuziemko’s research design and describing the limits of post-hoc structuring of quasi-experimental observational evidence); Joseph L. Hoffmann, Marcy L. Kahn & Steven W. Fisher, *Plea Bargaining in the Shadow of Death*, 69 *FORDHAM L. REV.* 2313, 2313 (2001) (citing *Hynes v. Tomei*, 92 N.Y.2d 613, 622–27 (1998), cert. denied, 527 U.S. 1015 (1999)) (examining the constitutional implications of engaging in plea bargaining once a death notice has been filed).

⁷⁴ E.g., Elizabeth Bruch, Fred Feinberg & Kee Yeun Lee, *Extracting Multistage Screening Rules from Online Dating Activity Data*, 113 *PROC. NAT’L ACAD. SCI.* 10530 (2016).

and how decisions at one stage affect a sequence of decisions at later stages.

II

DATA AND METHODS

A. Study Sample

Data were collected by senior reporters from *The Atlanta Journal-Constitution* (AJC) for an investigative series on the death penalty in Georgia.⁷⁵ AJC reporters visited each judicial circuit in the state to record the details of every murder case that entered the courts over a ten-year period from 1994–2005. The data collection protocol was developed by one of us (Paternoster) and completed by reporters under his supervision. Data were verified, coded, and entered into a database for analysis.

The search identified over 6,000 potentially death-eligible murder and manslaughter cases,⁷⁶ 2,328 murder convictions, and 1,315 convictions for death-eligible murders, or 24% of all murders.⁷⁷ Defendants convicted of a death-eligible offense

⁷⁵ Bill Rankin, Heather Vogell, Sonji Jacobs & Megan Clarke, *From 2007: A Matter of Life and Death: Death Still Arbitrary*, ATLANTA J.-CONST., Sept. 23–30, 2007. The first article in the series is available at <https://www.ajc.com/news/state—regional/from-2007-matter-life-and-death-death-still-arbitrary/uQMik03eSLJ7VII4wvUZnN/> [<https://perma.cc/PZ8W-5LEA>]. A reprint of the full series is available from the authors.

⁷⁶ Including first-degree murder, second-degree murder, and voluntary manslaughter cases that were potentially capital-eligible.

⁷⁷ G.A. Code Ann. § 17-10-30 (a) authorizes the imposition of a death sentence for airline hijacking or treason, or (b) the presence of at least one of aggravating circumstance including: (1) murder, rape, armed robbery or kidnapping committed by a person with a prior record of conviction for a capital felony; (2) the offense of murder, rape, armed robbery, or kidnapping was committed while the offender was engaged in the commission of another capital felony or aggravated battery, or the offense of murder was committed while the offender was engaged in the commission of burglary or arson in the first degree; (3) the offender, by his act of murder, armed robbery, or kidnapping, knowingly created a great risk of death to more than one person in a public place by means of a weapon or device which would normally be hazardous to the lives of more than one person; (4) the offender committed the offense of murder for himself or another, for the purpose of receiving money or any other thing of monetary value; (5) the murder of a judicial officer, former judicial officer, district attorney or solicitor-general, or former district attorney, solicitor, or solicitor-general was committed during or because of the exercise of his or her official duties; (6) the offender caused or directed another to commit murder or committed murder as an agent or employee of another person; (7) the offense of murder, rape, armed robbery, or kidnapping was outrageously or wantonly vile, horrible, or inhuman in that it involved torture, depravity of mind, or an aggravated battery to the victim; (8) the offense of murder was committed against any peace officer, corrections employee, or firefighter while engaged in the performance of his official duties; (9) the offense of murder was committed by a person in, or who has escaped from, the

can be sentenced to death or life without parole in Georgia since 1995.⁷⁸ Starting that year, Georgia law specified that if the jury found no (statutory) aggravating circumstance present beyond a reasonable doubt, an LWOP sentence was imposed.⁷⁹ Prior to that year, sentences other than death were to term life with parole eligibility. Details of each murder were collected consistent with the statutory aggravators and other elements specified in the state's death penalty statute.⁸⁰

In addition to detailed information on each case, information on each of Georgia's forty-eight judicial circuits was recorded, as well as information on the prosecutor who decided whether to seek death on each death-eligible case. Variations by defendant race across jurisdictions in death-seeking and sentencing reflect more than the individual preferences of local prosecutors; these patterns suggest that there are structural preferences in the administration of the death penalty that lead to patterns of arbitrariness that the *Furman* Court found intolerable.⁸¹ These spatial patterns, as well as simultaneous patterns of case-level discrimination and

lawful custody of a peace officer or place of lawful confinement; (10) the murder was committed for the purpose of avoiding, interfering with, or preventing a lawful arrest or custody in a place of lawful confinement, of himself or another; or (11) the offense of murder, rape, or kidnapping was committed by a person previously convicted of rape, aggravated sodomy, aggravated child molestation, or aggravated sexual battery.

⁷⁸ The Georgia legislature created a life without parole provision as part of its compliance with the 1994 federal Violent Offender Incarceration / Truth in Sentencing (VOITIS) program. See WILLIAM J. SABOL, KATHERINE ROSICH, KAMALA MALLIK KANE, DAVID P. KIRK & GLENN DUBIN, *THE INFLUENCES OF TRUTH-IN-SENTENCING REFORMS ON CHANGES IN STATES' SENTENCING PRACTICES AND PRISON POPULATIONS* 11, 21 n.43, 34 (2002), http://webarchive.urban.org/UploadedPDF/410470_FINALTISrpt.pdf [<https://perma.cc/TZ97-RPDW>] (showing that Georgia enacted its law abolishing parole in 1995, with strong implementation of its several components).

⁷⁹ G.A. Code Ann. § 17-10-16.

⁸⁰ Meltsner & Medwed, *supra* note 2.

⁸¹ U.S. GEN. ACCT., *supra* note 27, at 4 (remarking that "discretion exercised early in the process may have the effect of concealing (masking) race effects if analysis is limited only to the later stages"); O'Brien, Grosso, Woodworth & Taylor, *supra* note 70, at 2043-44; Sherod Thaxton, *Disentangling Disparity: Exploring Racially Disparate Effect and Treatment in Capital Charging* 45 AM. J. CRIM. L. 95, 106 (2018) (noting that systemic patterns of impermissible racial discrimination are evident when decisions are considered in the aggregate); John H. Blume, Theodore Eisenberg & Sheri Lynn Johnson, *Post-McCleskey Racial Discrimination Claims in Capital Cases*, 83 CORNELL L. REV. 1771 (1997) (arguing that selective prosecution claims are effectively precluded in capital cases); Erwin Chemerinsky, *Eliminating Discrimination in Administering the Death Penalty: The Need for the Racial Justice Act*, 35 SANTA CLARA L. REV. 519 (1994) (discussing the dissonance between the courtroom and other settings in which proof of racially disparate impact may be used to shift the burden onto the government).

randomness, led other states to implement important statutory remedies for the twin violations of arbitrariness and racial discrimination, including for example the North Carolina Racial Justice Act and the California Racial Justice Act.⁸² Accordingly, beyond case features, we recorded a range of factors that influence death seeking in both states and counties include local political preferences, court backlog pressures and caseloads, and the racial composition of both the populations and the pool of murder cases potentially eligible for capital punishment.⁸³

To incorporate these structural effects of local patterns, we cluster the standard errors in the regression models to adjust

⁸² For a deeper understanding of the Racial Justice Act, see generally Seth Kotch & Robert P. Mosteller, *The Racial Justice Act and the Long Struggle with Race and the Death Penalty in North Carolina*, 88 N.C. L. REV. 2031 (2009). In September 2022, the California legislature passed, and Governor Newsom signed, AB 256, The California Racial Justice Act for All, which allows persons with convictions or judgements prior to January 1, 2021 to petition the court and seek relief if statistical evidence of shows racial bias to be present in their case. AB 256 builds upon the California Racial Justice Act, AB 2542 (Kalra, Chapter 317, Statutes of 2020), which allowed individuals to challenge racial bias in criminal charges, convictions, and sentences but was limited to cases after January 1, 2021.

⁸³ See, e.g., O'Brien, Grosso, Woodworth & Taylor, *supra* note 70, at 2043–44 (showing sentencing disparities by race after controlling for county-level demographic and socioeconomic factors such as racial composition, poverty); David Jacobs & Jason T. Carmichael, *Ideology, Social Threat, and the Death Sentence: Capital Sentences Across Time and Space*, 83 SOC. FORCES 249, 269–72 (2004) (documenting how political and social identity can explain support for capital punishment); see also Gelman, Liebman, West & Kiss, *supra* note 58, at 241–44 (finding greater error in sentencing when death sentencing rates increase and where there are lower rates of efficiency in capturing and convicting violent criminals); Theodore Eisenberg, *Death Sentence Rates and County Demographics: An Empirical Study*, 90 CORNELL L. REV. 347, 358–59 (2005) (finding capital sentencing is lower in counties with higher rates of murders by Black defendants of Black victims). See generally John J. Donohue III, *An Empirical Evaluation of the Connecticut Death Penalty System Since 1973: Are There Unlawful Racial, Gender, and Geographic Disparities?* 11 J. EMPIRICAL LEGAL STUD. 637, 639, 694 (2014) (reporting that death sentences in Connecticut were “marred” by arbitrariness and discrimination based on race, gender and geography, an empirical claim that was not contested by the state in a 2013 death penalty trial); Meg Beardsley, Sam Kamin, Justin Marceau & Scott Phillips, *Disquieting Discretion: Race, Geography & the Colorado Death Penalty in the First Decade of the Twenty-First Century*, 92 DENV. U. L. REV. 431, 450–51 (2014) (finding prosecutors more likely in Colorado to seek the death penalty against minority defendants); Raymond Paternoster, Robert Brame, Sarah Bacon & Andrew Ditchfield, *Justice by Geography and Race: The Administration of the Death Penalty in Maryland, 1978-1999*, 4 U. MD. L.J. RACE, RELIGION, GENDER & CLASS 1, 45–46 (2004) (finding capital punishment in Maryland was more likely against Black defendants that murder white victims).

estimates for such local influences.⁸⁴ Appendix A shows a map of Georgia Counties assigned to forty-nine Superior Court judicial circuits that include one or more counties.⁸⁵ Appendix B shows data on the social, demographic and crime characteristics for 159 Georgia counties collapsed into the state's forty-nine multi-county judicial districts that adjudicate and sentence murder cases from 1990-2005.⁸⁶ The AJC reporters interviewed case investigators, judges, jurors and defense attorneys in each county to verify case details. Because of the importance of social context and spatial location in death penalty decisions,⁸⁷ we include the judicial district in the analyses to weight the case-level results. In the next phase of this project, we will decompose the effects to assess factors associated with death sentencing rates in each Georgia district during this period.

⁸⁴ See John Jackson, *Corrected Standard Errors with Clustered Data*, 28 POLI. ANALYSIS 318 (2020); Alberto Abadie, Susan Athey, Guido W. Imbens & Jeffrey Wooldridge, *When Should You Adjust Standard Errors for Clustering?* (Nat'l Bureau of Econ. Rsch., Working Paper No. 24003, 2017), <http://www.nber.org/papers/w24003> [<https://perma.cc/M9F6-7B7C>].

⁸⁵ See also GA. JUDICIAL COUNCIL, YOUR GUIDE TO GEORGIA'S COURT SYSTEM 2 (2017), https://georgiacourts.gov/wp-content/uploads/2019/09/Your-Guide-2017_final.pdf [<https://perma.cc/JMQ2-DWLE>] (describing structure of Georgia's courts).

⁸⁶ See also *Georgia Judicial System Structure*, REFORM GA., <https://www.reformgeorgia.org/georgia-judicial-system-structure/> [<https://perma.cc/4WPE-22QV>] (last visited Feb. 1, 2022).

⁸⁷ See Gelman, Liebman, West & Kiss, *supra* note 58, at 212–13 (finding that prosecutors are cautious about reversible errors so that the social support for the death penalty does not wane); see also John Blume & Theodore Eisenberg, *Judicial Politics, Death Penalty Appeals, and Case Selection: An Empirical Study*, 72 S. CALIF. L. REV. 465, 469 (1999) ("The [per-murder] rate at which states impose [death] sentences strongly correlates with the rate at which [post-sentence] relief was obtained from those sentences."); James Liebman, Jeffrey Fagan, Valerie West & Jonathan Lloyd, *Capital Attrition: Error Rates in Capital Cases 1973-1995*, 78 TEX. L. REV. 1839, 1841–44 (2000) (describing how geography can predict public's opinion on the death penalty); Jeffrey Fagan, Franklin E. Zimring & Amanda Geller, *Capital Punishment and Capital Murder: Market Share and the Deterrent Effects of the Death Penalty*, 84 TEX. L. REV. 1803, 1858 (2006) (showing that fewer than 10% of the 254 Texas counties imposed one or more death sentences from 1976–2001); Frank R. Baumgartner, Janet M. Box-Steffensmeier & Benjamin W. Campbell, *Event Dependence in US Executions*, PLOS ONE 1, 2 (2018), <https://doi.org/10.1371/journal.pone.0190244> [<https://perma.cc/695G-TZK4>] (showing that the 1,400 executions in the U.S. from 1976–2013 were highly concentrated in a few jurisdictions). See generally Craig Haney, *Social Context of Capital Murder: Social Histories and the Logic of Mitigation*, 35 SANTA CLARA L. REV. 547 (1994) (discussing the socially accepted myths that support the decision to impose the death penalty).

B. Variables and Measures

1. *Outcomes and Progression of Cases*

The dependent variable in this study is the stage of survival or progression for each death-eligible case. From Figure 1, we construct an ordinal scale which varies from one (death not sought) to five (death sentence imposed). For example, a case resulting in a death sentence has a value of five in the ordinal scale, whereas a case that reaches the penalty phase but does not result in a death sentence has a value of four.

Predictors and control variables include defendant, victim and case characteristics. The unit of analysis is defendant and her or his case. However, the data include characteristics of up to six victims per case. Based on prior research on racial disparities in charging and sentencing showing consistent evidence of the influence of victim race on charging and sentencing,⁸⁸ we identify victim race as white if one or more victims are white. The remaining race and ethnicity victim categories created for analysis excluded all white victims. Other victim characteristics include victim/defendant relationship and two special salient victim categories: pregnant victims and killing of police officers. Case characteristics include the eligible statutory aggravator, the evidence available to prosecutors, the type of weapon used in the murder, the defendant's motive, and the case outcomes. An index of the progression of case outcomes was our primary dependent variable, allowing us to assess which of the decision points in Figure 1 is the final stage of the case.

2. *Mediating Effects on the Progression of Decisions*

We measure the case characteristics that may mediate the decisions at each successive stage of case processing, from charging to the decision to seek death and the jury's decision to impose death. We developed five scales that represent those observable factors that may be mediators of the relationship between case characteristics and the final disposition of the case: strength of evidence, mitigation evidence, defense strategy, and the number of statutory aggravators alleged. The scales are included as predictors in the regression methods that test for the factors that predict the penetration of the case from death sought to death sentence. The construction of each scale is shown in Appendix C.

⁸⁸ Grosso et al., *Death by Stereotype*, *supra* note 26, at 1413–17.

To construct each scale, we first estimated a logistic regression of each component individually against the first stage dependent variable: death seeking.⁸⁹ Each of the regression scores for these analyses was then used as a weight in the construction of the final additive scale. In the tables reporting the results of the analyses, we identify these as a “scale.” For example, the strength of evidence variable appears as “Strength of Evidence Scale”. There are distinct advantages to this approach. Most notably, it avoids relying on the assumption that all of the constituent components contribute equally to the scale. The weights produced through equation (3) demonstrated significant variation between components for each of the scales. Weighting also allows for a more accurate measurement of the relative contribution of each component to the scale, thereby producing a scale with greater construct validity.

To create a scale to assess the components of the HAC aggravator and its racialized applications, we include elements of the crime that identify those defendants whose crimes are readily distinguished from other “ordinary murders.”⁹⁰ To

⁸⁹ Each scale is a weighted composite of its components, where the weights were equal to the exponentiated coefficient derived from logistic regression analyses of each component in the scale against the first stage decision—the decision to seek death. Each component (or item) in the scale is run as an independent variable in a separate logistic regression analysis predicting the dependent variable *Death Sought*. In addition, the scale score is conditioned on the race of the victim and the defendant, which are included as dichotomous covariates in the logistic regression model.

$$\text{Logit [Death Sought]} = \beta_0 + \text{Component 1}X_1 + \text{Victim Race}_2X_2 + \text{Defendant Race}_3X_3. \quad (1)$$

Equation (1) produces a β for each scale, which is then exponentiated, and this exponentiated β serves as the weight for the scale in the model tests.

$$\text{Scale 1}_{\text{WEIGHT}} = e^{\beta_1} \quad (2)$$

For example, for DNA Evidence, a component of the Strength of Evidence (SOE) scale, equation (1) produces a B value of 0.956. Exponentiating this value produces a weight of 2.60.

$$\text{DNA}_{\text{WEIGHT}} = 2.60 \quad (3)$$

After separate logistic regression analyses (1) are run for each component of the scale, the each component is weighted by multiplying the component by its weight (3), creating a weighted score (WS). Continuing with our DNA example:

$$\text{Component 1}_{\text{WEIGHTED SCORE}} = \text{Component 1} * \text{Factor 1}_{\text{WEIGHT}} \quad (4a)$$

$$\text{DNA}_{\text{WEIGHTED SCORE}} = \text{DNA Evidence} * 2.60 \quad (4b)$$

To compute the final scale scores, all of the weighted scores (WS) for each component of the scale are summed together.

$$\text{Scale} = \text{Component 1WS} + \text{Component 2WS} + \dots + \text{Component NWS} \quad (5)$$

⁹⁰ *Furman v. Georgia*, 408 U.S. 238, 313 (1972) (White, J. concurring) (recognizing that a death-sentencing procedure is unconstitutional if it provides “no meaningful basis for distinguishing the few cases in which [death] is imposed

further specify the role of HAC in capital prosecutions, we include separate analyses of death eligibility under Georgia's HAC aggravator, including tests of racial disparities in its application.

C. Analysis

We used two procedures to assess the influence of race and other case characteristics on the narrowing process that results in a death sentence. First, we analyzed predictors of being charged with a capital eligible crime. Once there is a conviction for a first-degree murder, prosecutors can elect to seek death by filing a death notice. We tested for differences by race and other case characteristics to identify factors that explain death-seeking. We included the statutory aggravators to identify if and how narrowing principles were applied and to which types of cases. We estimated a series of logistic regression models to determine the factors that predict whether death was sought, under what circumstances, and for which defendants.

The models provide estimates that the log odds of a defendant being selected into the category of interest, adjusted for the effects of other variables entered into the regression. The dependent variable is whether the prosecutor sought death. We control for the mediating effects of the case characteristics. Victim race effects are based on a binary variable indicating the presence of one or more white victims in the case. We treat the standard errors in the model in three ways that reflect different assumptions of the context of prosecutors' decisions: (a) a standard matrix method, (b) clustered by the judicial district where the case originated, and (c) fixed effects for each location. The regression model takes the form of:

from the many cases in which it is not[]"); *see also* *Gregg v. Georgia*, 428 U.S. 153, 189 (1976) *reh'g denied*, 429 U.S. 875 (1976) (plurality opinion) (finding that Georgia's death penalty statute assures the careful use of the death penalty by requiring a bifurcated proceeding where the trial and sentencing are conducted separately and verdicts are based on specific jury findings of legislative factors that distinguish the few cases from other murders); *Lowenfield v. Phelps*, 484 U.S. 231, 244 (1988) ("To pass constitutional muster, a capital sentencing scheme must 'genuinely narrow the class of persons eligible for the death penalty and must reasonably justify . . . a more severe sentence on the defendant compared to others found guilty of murder.'") (quoting *Zant v. Stephens*, 462 U.S. 862, 877 (1983)).

$$\pi_i = Pr(Y_i=1 \mid X_i=x_i) = \frac{\exp(\beta_0 + \beta_1 x_i)}{1 + \exp(\beta_0 + \beta_1 x_i)}$$

where Y is the outcome of interest (0 or 1), π is the probability that individual i will be in the category of interest, β_0 is the intercept, and βx represents the concurrent effects of a set of explanatory variables or predictors of that outcome. In this case, we are interested in a defendant being selected for capital prosecution.

Next, we use an ordered probit regression to identify factors that predict which cases pass through *all* decision points to receive a death sentence.⁹¹ Ordered probit regression models explain variation in an ordered categorical dependent variable with more than two outcomes as a function of one or more independent variables. The dependent latent variable typically is a set of ordinal (or ordered) categories, which could be coded as 0, 1, 2, 3, . . . k. In this analysis, we use five categories, based on stages of case processing from charging to sentencing, as shown in Figure 1. The response of category k is thus observed when the underlying continuous response falls in the k -th interval.⁹²

⁹¹ See, e.g., M.A. Damisa and M. Yohanna, *Role of Rural Women in Farm Management Decision Making Process: Ordered Probit Analysis* 3 WORLD J. AGRIC. SCI. 543 (2007) (employing a probit model to analyze parameters of the hierarchical work choices in the socio-economic lives of rural women); see also Christopher Winship & Robert D. Mare, *Regression Models with Ordinal Variables*, 49 AMER. SOC. REV. 512 (1984) (resolving issues of scale and ordinality in ranked variables and developing an analytic model to estimate ordinal regressions in a common framework with other forms of regression); Richard Williams, *Understanding and Interpreting Generalized Ordered Logit Models*, 40 J. MATHEMATICAL SOCIO. 7, 8–10 (2016) (discussing tests to determine if the model assumptions of parallel lines are met). Our tests for discrete stages, where samples vary at each stage, obviates the necessity for such a test. *Id.* at 8; see, e.g., Rollin Brant, *Assessing Proportionality in the Proportional Odds Model for Ordinal Logistic Regression*, 46 BIOMETRICS 1171 (1990).

⁹² Considering the ordered probit model development, let:

$$Y^* = \beta X_i + \varepsilon_i$$

Where Y^* is the underlying latent variable that indexes the outcome of each death penalty case, X is a vector of parameters to be estimated, and ε is the stochastic error term. Here, the latent variable Y^* exhibits itself in ordinal categories, which could be coded as 0, 1, 2, 3, . . . k. The response of category k is thus observed when the underlying continuous response falls in the k -th interval as:

$$Y^* = 0 \text{ if } Y^* \leq \delta_0$$

$$Y^* = 1 \text{ if } \delta_0 \leq Y^* \leq \delta_1$$

$$Y^* = 2 \text{ if } \delta_1 \leq Y^* \leq \delta_2$$

$$Y^* = 3 \text{ if } \delta_2 \leq Y^* \leq \delta_3$$

$$Y^* = 4 \text{ if } \delta_3 \leq Y^* \leq \delta_4$$

Where δ ($i=0,1,2,3$) are the unobservable threshold parameters that will be estimated together with other parameters in the model.

One additional analysis tests for racial disparities in charging using the HAC aggravator. In this case, we use the logistic regression form to test for differences by race in charging the total number of aggravators, controlling for the demographic factor in the case and the mediating factors endogenous the case.

III RESULTS

A. Descriptive Statistics

Table 1 shows asymmetry between victim and defendant race among those charged with a capital-eligible murder. Black defendants (71.6%) outnumber white defendants (28.4%). There is less asymmetry in victim race: there are slightly more Black victims (50.8%) compared to white victims (43.6%). The dissimilarities in victim and defendant characteristics are even greater: about three victims in four were males, while nearly all (94.2%) defendants were male. More than one victim in three (35.2%) were females, a factor that is important in predicting both charging and death sentencing in this population.⁹³

Probabilities for each of the observed ordinal responses will be given as:

$$\text{Prob}(Y = 0) = P(Y^* \leq 0) = P(\beta'X_i + \varepsilon_i \leq 0) = \phi(-\beta'X)$$

$$\text{Prob}(Y = 1) = \phi(\delta_1 - \beta'X) - \phi(-\beta'X)$$

$$\text{Prob}(Y = 2) = \phi(\delta_2 - \beta'X) - \phi(\delta_1 - \beta'X)$$

$$\text{Prob}(Y = 3) = \phi(\delta_3 - \beta'X) - \phi(\delta_2 - \beta'X)$$

$$\text{Prob}(Y = 4) = 1 - \phi(\delta_3 - \beta'X)$$

Where $0 < \delta_1 < \delta_2 < \dots < \delta_{k-1}$ is the cumulative normal distribution function such that the sum total of the above probabilities is equal to one.

⁹³ The total exceeds 100% due to 85 cases with multiple female victims.

TABLE 1. VICTIM AND DEFENDANT CHARACTERISTIC^a

<i>Race/Ethnicity (%)^d</i>	<i>Victim</i>	<i>Defendant</i>
White	43.6	28.4
Black	50.8	71.6
LatinX	4.1	
Asian	1.8	
Other	0.5	
<i>Sex (%)</i>		
Male	71.9	94.2
Female	35.2	5.8
<i>Age (%)</i>		
< 13	4.8	0
< 18	9.3	5.8
18-25	22.5	48.4
> 25 ^b	72.2	45.3
> 65 ^c	9.6	0.5
<i>Defendant Prior Record (Mean)</i>		
Prior Convictions (Mean)		2.1
Prior Death-Eligible Convictions (Mean)		1.7
<i>Victim - Defendant Relationship (%)</i>		
Stranger/Unknown	42	
Spouse or Intimate	13.3	
Friend	39.8	
<i>Other Victim Characteristics (%)</i>		
Victim Police Officer	1.5	
Victim Pregnant	0.8	

Notes

a. Sample: 1,317 death eligible cases, 1995-2004

b. %persons > 25 compared to sample

c. % persons > 65 compared to sample

d. Includes race or ethnicity of first 6 victims, percentages may add to > 100%

Age is similarly unbalanced. Nearly half of defendants (48.5%) were between 18–25 years of age, and a similar percentage (45.3%) were over 25 years of age. But victim ages skewed older: nearly three in four (72.2%) were over 25 years of age. A simple reading of these age distributions suggests that persons 25 years of age or older were at greater risk of murder by persons below age 25, while murder victims below age 25 were less likely to be killed by persons in their own age bracket.

To the extent known, most victims were killed by friends (39.8%) or strangers (42.0%). Prior convictions for these defendants were rare, although arrest records for murder or other crimes were unavailable.

TABLE 2. CASE CHARACTERISTICS

<i>Statutory Aggravators Alleged</i>	%		
Felony Murder	80.8		
Murder for money	59.8		
Murder vile, horrible, or inhuman	38.7		
Murder with Prior Capital Felony Conviction	8.9		
Contract Murder	4.8		
Knowingly create risk using weapon/haz. device	2.1		
Murder to avoid or prevent custody	1.2		
Murder of Peace Officer	0.9		
Murder to escape from custody	0.6		
Murder of Judicial Officer	0		
<i>Evidence</i>	%		
Eyewitness	70.8		
Forensic	63.6		
Confession	27.5		
Admission	22.8		
Video Tape	4.2		
DNA	3.4		
Weapon	3.1		
<i>Weapon</i>	%		
Gun	62.4		
Knife	15.8		
Bare Hands	13.1		
Other	22.5		
Multiple Weapons	14.0		
<i>Mediating Factors</i>	<i>Scale Mean</i>	<i>Std. Dev.</i>	<i>Range</i>
Strength of Evidence	3.3	1.8	0 - 10
Mitigation	0.8	0.8	0 - 4
Defense Strategy	0.7	0.5	0 - 1
Statutory Aggravators	2.0	0.7	1 - 5
HAC	0.9	1.2	0 - 6

N.B.: Cases may have multiple indicators, so percentages may add to greater than 100% within groups of characteristics.

Table 2 shows offense characteristics of the cases. In each case, more than one category can be present. Statutory aggravators are concentrated in three groups: felony murder (80.8%), murder for monetary gain (59.8%), and “vile, horrible or inhuman” murders (38.7%) (the “HAC” in language shared across states). Nearly one in eleven (8.9%) had a prior conviction for a capital felony conviction, primarily felony murder.

The most common form of evidence was either eyewitness identification (70.8%) or forensic evidence (63.6%). Multiple forms of evidence in a case were common, which is one of the rationales for adopting the scaling procedure described earlier. In our data, confessions and admissions of guilt were present in nearly half the cases.⁹⁴ Guns were the most common weapon used, in nearly two-thirds (62.4%) of the cases. More than one weapon was used in one in seven (14%) cases. Weapons that did not easily fit in these categories⁹⁵ were used in 22.5% of the cases.

Motives for the homicide varied, but money was present in more than half the cases. Motives often were not discussed explicitly in the complaints or death notices that were reviewed by coders but were more likely to be interpreted from the statutory aggravators. While the other case characteristics are observable and generally objective, motive is a subjective judgment absent a clear statement, and in some cases, inferred from disparate information sources available to the coders from witness statements, confession evidence, or investigation reports from police, prosecutors, or defense lawyers.

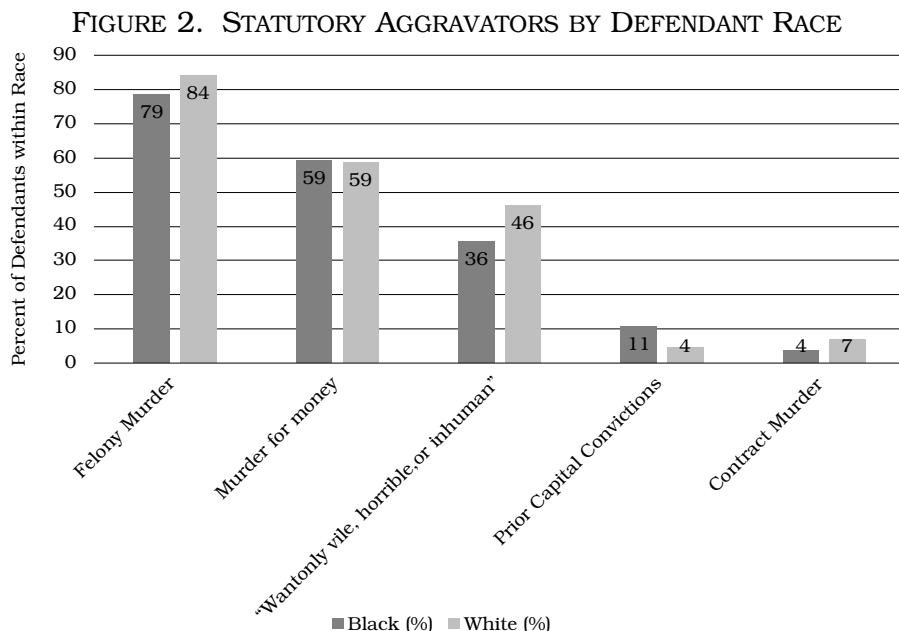
B. Statutory Aggravators by Defendant Race

There are few differences in the patterns of charging statutory aggravators by defendant race for the most commonly charged aggravators. At least one prior study has shown that the charging of specific aggravators, or “special circumstances” that are required to sentence an defendant to death, reflect specific racial stereotypes and are invoked differentially by

⁹⁴ However, not all confessions or admissions of guilt should be understood as intentional. See Luna Filipovic, *Confession to Make: Inadvertent Confessions and Admissions in United Kingdom and United States Police Contexts*, 12 FRONTIERS IN PSYCH. 1, 2 (2021), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8685440/pdf/fpsyg-12-769659.pdf> [https://perma.cc/46X6-TGXV] (distinguishing between misunderstandings, or lack of understanding, that lead to inadvertent confessions, where a suspect appears to be confessing without being fully aware of doing so).

⁹⁵ Specifically, vehicles, swords, poison, and blunt objects.

defendant race.⁹⁶ We examined the Georgia data in this project for similar effects. Figure 2 shows charging of specific aggravators by defendant race, for nine of the twelve statutory aggravators. We then computed the total number of aggravators by defendant and victim race when death is sought or not sought. We found no significant differences in defendant race or in victim race.



However, the largest difference in charging specific aggravators for Black and white defendants is for the "HAC" aggravator. Similar to many other death penalty states, Georgia has a version of a HAC aggravator, "the offense of murder, rape, armed robbery, or kidnapping was outrageously or wantonly vile, horrible, or inhuman in that it involved torture, depravity of mind, or an aggravated battery to the victim."⁹⁷ Not only is the HAC aggravator charged disproportionately, it is also charged more often for Black defendants when prosecutors seek death, controlling for victim and defendant race. The same is true for white victim cases. Table 3 shows differences in seeking death by victim and defendant race by presence of the HAC aggravator. In Black victim cases, prosecutors are significantly more likely to seek death when the HAC aggravator is present (74.7%) compared to

⁹⁶ Grosso et al., *Death by Stereotype*, *supra* note 26, at 1435.

⁹⁷ GA. CODE ANN. § 17-10-30(b)(7).

white victim cases (50.6%). The differences by defendant race are narrower, in the opposite direction, but not statistically significant. As we show in the analyses that follow, this trend in harsher treatment of defendants in white victim cases persists at each decision point in the progression of capital cases, from charging through death sentencing.

TABLE 3. PRESENCE OF THE HAC AGGRAVATOR BY VICTIM AND DEFENDANT RACE

	Victim Race		Defendant Race	
	White	Black	White	Black
Death Sought	50.6	74.7	63.2	54.2
Death Not Sought	29.0	33.6	35.0	30.1
Significance (Chi Sq.)	0.000		NS	

C. Seeking Death

Several of the recent studies on racial disparities in charging and sentencing linked those disparities to capacious aggravators that are disproportionately applied to non-white defendants.⁹⁸ The wider the palette of aggravators available to prosecutors making charging decisions, the more they seem to be used to bring minority defendants into the death penalty matrix of charging and sentencing.⁹⁹ We test this hypothesis in the Georgia data by examining the decision to seek death. We include the availability of statutory aggravators, a feature both of the statute as well as the details of the case, in modeling the decision to seek death and in estimating the role of victim

⁹⁸ *E.g.*, Grosso et al., *Death by Stereotype*, *supra* note 26; Stephanie Hindson, Hillary Potter & Michael L. Radelet, *Race, Gender, Religion and Death Sentencing in Colorado, 1980-1999*, 77 U. COLO. L. REV. 549 (2006); Beardsley, Kamin, Marceau & Phillips *supra* note 83; Marceau, Kamin & Foglia, *supra* note 47; David C. Baldus, George Woodworth, Catherine M. Grosso & Aaron M. Christ, *Arbitrariness and Discrimination in the Administration of the Death Penalty: A Legal and Empirical Analysis of the Nebraska Experience (1973-1999)*, 81 NEB. L. REV. 486 (2002); David C. Baldus, George Woodworth, David Zuckerman & Neil Alan Weiner, *Racial Discrimination and the Death Penalty in the Post-Furman Era: An Empirical and Legal Overview with Recent Findings from Philadelphia*, 83 CORNELL L. REV. 1638 (1998); Michael B. Blankenship & Kristie R. Blevins, *Inequalities in Capital Punishment in Tennessee Based on Race: An Analytical Study of Aggravating and Mitigating Factors in Death Penalty Cases*, 31 U. MEM. L. REV. 823 (2001).

⁹⁹ Grosso et al., *Empirical and Legal Overview*, *supra* note 28, at 542-543 (citing research studies showing that the regression coefficient for defendant race was sensitive to the inclusion of each of several important statutory aggravators).

and defendant race in the charging decision. Both the aggravators and the potentially mediating effects of the offense, victim and defendant, are salient features of the decision to seek death. But the rationale for including each set of factors is ambiguous and hard to tease out in this design: the inclusion of either or both could reflect a decision maker's estimation of the likelihood of success, or it could simply be a search for retribution, or elements of each rationale in tandem. While plea bargaining leads to observable decisions, the rationale for each isn't transparent.

TABLE 4. CHARGING DEATH BY VICTIM AND DEFENDANT RACE AND CASE CHARACTERISTICS

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	OR	SE	OR	SE	OR	SE	OR
White Victim	2.673***	(.701)	2.778***	(.797)	2.987***	(.918)	
Black Defendant	0.682	(.164)	0.695	(.174)	0.841	(.213)	
Black Defendant/White Victim							0.315***
White Defendant/Black Victim		0.369***		0.349***		(.099)	(.093)
White Defendant/White Victim		0.621		0.667		(.430)	(.377)
Black Defendant/White Victim vs. All Others		1.446		1.396		(.355)	(.285)
Female Victim			2.503***	(.355)	2.511***	(.358)	1.689**
Victim Age			1.002	(.004)	1.002	(.005)	1.441*
Defendant Age			0.986	(.012)	0.989	(.011)	1.006
Defendant Female			0.846	(.264)	0.846	(.262)	0.993
Mitigation Scale					0.916	(.312)	0.926
Strength of Evidence Scale					0.305***	(.130)	0.301***
Statutory Aggravators Scale					1.147***	(.033)	1.147***
HAC Scale					1.342***	(.081)	1.354***
Defense Scale					1.159***	(.031)	1.159***
Prior Convictions	1.413**	(.202)	1.425**	(.212)	1.419**	(.215)	0.537***
Prior Death Eligible Convictions	1.381	(.379)	1.382	(.380)	1.474	(.413)	1.514**
Year	0.963*	(.022)	0.963*	(.022)	0.97	(.023)	0.981
					0.959	(.025)	0.959
					1.260	(.025)	1.260
Observations	1,272	1,272	1,260	1,260	1,260	1,260	1,260
Sid Errors		Cluster (Court District)	Cluster (Court District)	Cluster (Court District)	Cluster (Court District)	Cluster (Court District)	Cluster (Court District)
Chi-Squared	56.6	82.0	92.2	104.7	1125.0	1118.0	855
Probability Chi2	6.23E-11	0	0	0	0	0	0
Log Likelihood	-686.2	-686.1	-658.6	-658.4	-527.7	-527.3	-550.4
Pseudo R-squared	0.066	0.066	0.096	0.096	0.276	0.276	0.245

Notes:
a. Significance: *** p<0.01, ** p<0.05, * p<0.1
b. Predictor is exponentiated scale score

We estimated a logistic regression in seven models, each with two forms. The first form includes victim and defendant race as predictors. The second compares pairings of victim and defendant race to identify the possible effects of cross-racial killings. In Models 1–6, we omit the group of Black defendant-Black victim killings as a reference group, so that the results for each combination are compared to the omitted group. Models 1 and 2 include only victim and defendant race as predictors, together with the defendant's prior felony convictions and prior death-eligible prior convictions. Models 3 and 4 add victim demographics, and Models 5 and 6 add the mediators of case characteristics, including evidence and defenses. Changes in the odd ratios for victim and defendant race suggest effects of those factors on race, as well as providing important information on their contributions to seeking death. Model 7 substitutes Black defendant-white victim murders for separate victim and defendant race predictors, focusing on a circumstance that has been identified through empirical research as increasing the odds that a prosecutor will seek death¹⁰⁰ and recently, that a jury will impose death.¹⁰¹

Models 1, 3 and 5 show that defendants who kill white victims are nearly twice as likely to be prosecuted as a capital case.¹⁰² This effect increases with each model as additional variables are added as predictors in the regression. The second feature of these models that suggest a prosecutorial preference is victim gender: across all models, defendants who kill female victims are substantially more likely to be prosecuted as a death penalty case.

The mediating effects of case characteristics also are consistently significant predictors of a capital prosecution, and the influence of each is in the expected direction. Mitigation reduces the odds of a capital prosecution, but strong evidence

¹⁰⁰ *Id.* at 535, 576; see e.g., Marceau & Phillips, *supra* note 33; Baldus, Pulaski & Woodworth, *Comparative Review*, *supra* note 38; O'Brien et al., *supra* note 70; Pierce, Radelet & Sharp, *supra* note 37; Jefferson E. Holcomb, Marian R. Williams & Stephen Demuth, *White Female Victims and Death Penalty Disparity Research*, 21 *JUST. Q.* 877, 891–98 (2004).

¹⁰¹ Phillips & Marceau, *supra* note 33, at 627 (showing that those convicted of killing white victims were more likely to be sentenced to death and to be put to death).

¹⁰² Odds ratios of 1.0 suggest no difference based on that factor. An odds ratio above 1.0 is interpreted as a multiple of the factor. For example, in Model 1, defendants accused of killing a white victim are 1.6 times more likely that defendants who allegedly kills a non-white victim (2.673-1.000). A Black defendant is .318 times less likely (1.000-.682) to be prosecuted as a capital case.

and multiple statutory aggravators are substantial and independent contributors to the likelihood of a capital prosecution. So, too, is the presence of both a HAC aggravator and a scale that expresses the elements of a “HAC” murder. But note that as strong as these effects are, they seem to contribute independently from the victim and defendant race and gender effects.

Models 2, 4 and 6 suggest that the particular victim-defendant race dyad is generally negative and not statistically significant: i.e., their odds ratios are less than 1.0. The odds ratio of seeking death for the dyad of a Black defendant and white victim alone is significant and negative, suggesting these cases are less likely to be prosecuted as capital cases. Other victim-defendant dyads are no more likely than the reference group to be prosecuted capitally.

At first glance, this seems to contradict the majority of studies that suggest a higher prosecution rate for those cases. But in this design, these cases are being contrasted with Black victim-Black defendant killings (the reference group), and simultaneously with the other dyads. This suggests that perhaps details of those cases are either unrelated to the decision to seek death, or there are unobserved factors influencing the decision to seek death.

But the research setting being Georgia, where the *McCleskey*¹⁰³ and *Furman*¹⁰⁴ cases originated, and the effect of victim-defendant race being not significant overall, we wanted to determine whether the original Baldus finding of a significantly greater death-seeking preference in cross-racial homicides¹⁰⁵ would be present when assessed in isolation from other victim-defendant dyads. Model 7 in Table 4 provides an answer. We compare white victim-Black defendant homicides to all other victim-defendant race combinations. Defendants in these cases are 68.9% (1.689-1.000) more likely to face capital charges than the average of the other three dyads. This result controls for the significant effects of the mediating case characteristics and other demographic factors, suggesting a

¹⁰³ *McCleskey v. Kemp*, 481 U.S. 279 (1987).

¹⁰⁴ *Furman v. Georgia*, 408 U.S. 238 (1972).

¹⁰⁵ See Baldus, Pulaski & Woodworth, *Comparative Review*, *supra* note 38; see also David C. Baldus, George Woodworth & Charles A Pulaski Jr., *The Influence of Racial and Suspect Factors in the Postconviction Phases of Georgia's Capital-Sentencing System*, in *EQUAL JUSTICE AND THE DEATH PENALTY: A LEGAL AND EMPIRICAL ANALYSIS* 140 (1990); Frank R. Baumgartner, Amanda J. Grigg & Alisa Mastro, *#BlackLivesDon'tMatter: Race-of-Victim Effects in US Executions, 1976-2013*, 3 *POL., GRPS., & IDENTITIES* 209 (2015).

robust finding that has endured for twenty years after the original Baldus research was published in 1983 and reported in *McCleskey* four years later.¹⁰⁶ And in fact, the effect size is greater than that reported in the original 1983 *McCleskey* study.

D. Getting to Death

Most persons sentenced to death are not executed. Cases languish on death row for decades while habeas appeals slowly work their way through the courts. James Liebman and colleagues showed that over two death sentences in three between 1973 and 1995 were reversed and either remanded (82%) or dismissed (11%), and only 7% were resentenced to death.¹⁰⁷ Among those whose death sentences were overturned or remanded, most were found on retrial not to deserve the death penalty, including 7% who were cleared of the capital offense.¹⁰⁸ A recent study by Frank Baumgartner and colleagues showed that about 1,500 persons were executed from 1973–2019, a fraction of the roughly 8,000 persons sentenced to death in that period.¹⁰⁹ Race infected the progression of cases from charging to death sentencing. Consistent with the Baldus studies, and as we show here, persons who murder one or more white victims were substantially more likely to be charged capitally, and, as we show in the analysis to follow, were more likely to be sentenced to death.¹¹⁰ Scott Phillips and Justin Marceau show that 2.26% of those convicted of killing a white victim were

¹⁰⁶ Baldus, Pulaski & Woodworth, *Comparative Review*, *supra* note 38; DAVID C. BALDUS, GEORGE WOODWORTH & CHARLES A. PULASKI, *Equal Justice and the Death Penalty: A Legal and Empirical Analysis* 344, 402 (1990) (showing that Black defendants who killed White victims were 4.3 times more likely to be sentenced to death compared to similarly situated cases); *see also* Phillips & Marceau, *supra* note 33 (replicating the Baldus finding that “the overall execution rate is substantially greater for defendants convicted of killing a white victim than for those convicted of killing a Black victim”).

¹⁰⁷ Gelman, Liebman, West & Kiss, *supra* note 58, at 209, 221.

¹⁰⁸ Liebman, Fagan, West & Lloyd, *supra* note 87, at 1846–50, 1852 (showing that after having their initial death sentence overturned for serious error, more than 80% of capital defendants were re-sentenced to a lesser sentence or had their convictions overturned).

¹⁰⁹ FRANK R. BAUMGARTNER, MARTY DAVIDSON, KANEESHA R. JOGNSON, ARVIND KRISHNAMURTHY & COLIN P. WILSON, *DEADLY JUSTICE: A STATISTICAL PORTRAIT OF THE DEATH PENALTY* 139 (2018).

¹¹⁰ Baldus, Pulaski & Woodworth, *Comparative Review*, *supra* note 38, at 708–09. *See generally* Grosso et al., *Empirical and Legal Overview*, *supra* note 28 (reviewing empirical studies showing that this is a commonly observed empirical finding in studies of charging and sentencing of capital cases in the post-*Furman* era).

executed, compared to 0.13% of those convicted of killing a Black person.¹¹¹ They conclude, “[r]arity and race . . . stand as hallmarks of the American death penalty.”¹¹² Theirs is a meticulous and critically important project.

In this project, we ask about not only who is sentenced to death, but also the sequence of decisions in the pathway from charging to death sentencing and the factors predicting the sequence of decisions. Tables 5.1 and 5.2 show the sequence of decisions and the progression of cases from the decision to seek death to the decision to impose death. We follow the sequence of multiple decision stages in Figure 1. We assume that decision makers are aware of the options at each stage, and their decisions are influenced by the mediating case-level factors in each case as well as an assessment of the risks of each decision. But unlike individual decision-making, the results of this analysis reflect a series of heuristics that each party—prosecution and defense—processes to advance or drop out of each stage of the case. We account for heterogeneity in the totality of circumstances in each case and try to establish the cutoffs that reflect the decision to proceed or accept a lesser punishment. In addition to the influence of case characteristics, we also test explicitly for the effects of victim and defendant race in shaping the outcome.

¹¹¹ Phillips & Marceau, *supra* note 33, at 587.

¹¹² *Id.*

TABLE 5.1 CASE DISPOSITION BY DEFENDANT RACE (N, %)

Disposition	All Cases	Black	White
Death Not Sought	936 (73.6)	716 (79.4)	220 (60.4)
Death Sought - Defendant Took Plea Bargain	212 (16.7)	121 (13.4)	91 (25.0)
Death Sought - Trial - Guilty - DA Not Seek Death at Sentencing	11 (0.9)	6 (0.7)	5 (1.4)
Death Sought - Trial - Guilty - DA Sought Death at Sentencing - Jury Rejected	65 (5.1)	45 (5.0)	20 (5.5)
Death Sought - Trial - Guilty - DA Sought Death at Sentencing - Jury Accepted	48 (3.8)	20 (2.2)	28 (7.7)
Total	1272 (100.0)	902 (70.9)	364 (28.6)

N=1,272 Cases

TABLE 5.2 CASE DISPOSITION BY VICTIM RACE (N, %)

Disposition	All Cases	Black Victims	White Victims
Death Not Sought	936 (73.6)	549 (84.2)	381 (62.7)
Death Sought - Defendant Took Plea Bargain	212 (16.7)	64 (9.8)	145 (23.8)
Death Sought - Trial - Guilty - DA Not Seek Death at Sentencing	11 (0.9)	6 (0.9)	5 (0.8)
Death Sought - Trial - Guilty - DA Sought Death at Sentencing - Jury Rejected	65 (5.1)	20 (3.1)	42 (6.9)
Death Sought - Trial - Guilty - DA Sought Death at Sentencing - Jury Accepted	48 (3.8)	13 (2.0)	35 (5.8)
Total	1272 (100.0)	652 (51.3)	608 (47.8)

N=1,272 Cases

Tables 5.1 and 5.2 show the number of cases progressing to each stage or dropping out at that stage by defendant and victim race. Among both victims and defendants, cases were more likely to advance at each stage toward a death verdict and to reach a death verdict if the victim was white. However, fewer than four percent (3.8) of all cases in this study were sentenced to death, although we lack information on whom in that group were eventually executed. The small percentage of death-eligible cases that are sentenced to death suggests that *Furman's* fatal lottery persisted for nearly three decades through the post-*Gregg* era.¹¹³

Of the 1,272 death-eligible cases,¹¹⁴ prosecutors sought death for defendants in 336 cases (26.4%).¹¹⁵ Prosecutors sought death more often in white defendant cases (39.6%) than in Black defendant cases (20.6%). But white defendants were more likely to accept a plea (25.0%) than Black defendants (13.4%). A small number went to trial where the prosecutor did not seek death. There were sixty-five penalty phase trials where the jury rejected death (5.0% of Black defendants and 5.5% of white defendants in all cases). Juries returned a death verdict in forty-eight cases, including twenty Black defendants (2.2% of all cases) compared to twenty-eight white defendants (7.7% of the smaller pool of white defendants).

Among victims, prosecutors sought death in 15.8% of Black victim cases and 37.3% of white victim cases. By sheer volume at each stage in Table 5.2, and especially at the sentencing stage, the white victim effect is evident from the numbers before adjusting for case and other effects. Prosecutors sought death more often, went to trial more often, and were able to persuade juries to return death verdicts more often. Juries returned death verdicts in 5.8% of white victim cases, nearly three times more than in Black victim cases.

We described earlier the method used to convert the data in Tables 5.1 and 5.2 to an ordinal (rank order) scale to weigh

¹¹³ *Furman v. Georgia*, 408 U.S. 238, 293 (Brennan, J., concurring) (“When the punishment of death is inflicted in a trivial number of the cases in which it is legally available, the conclusion is virtually inescapable that it is being inflicted arbitrarily. Indeed, it smacks of little more than a lottery system.”); see also Scott Phillips & Alena Simon, *Is the Modern American Death Penalty a Fatal Lottery? Texas as a Conservative Test*, 3 *LAWS* 85, 92 (2014) (describing the pattern of arbitrary and capricious death sentencing as a “fatal lottery”); Scott Phillips & Trent Steidley, *A Systematic Lottery: The Texas Death Penalty, 1976 to 2016*, 51 *COLUM. HUM. RTS. L. REV.* 1042 (2020).

¹¹⁴ Cases with complete information including victim and defendant race.

¹¹⁵ Six defendants of other race or ethnic groups were excluded from the analyses in Tables 5.1 and 5.2.

the progression of cases from charging to sentencing. The scale ranges from zero to five, with zero assigned to the 73.6% of cases where death was not sought and five assigned to cases where a penalty phase jury returned a death verdict. We then analyzed the data from this scale using an ordered probit regression to determine first whether there were racial disparities in the progression of a murder conviction to a death sentence, and whether there were mediating effect of case factors that influenced that progression.¹¹⁶

We followed the analytic strategy shown earlier in Table 4 for the ordered probit analysis in Table 6. Models 1 and 2 test for the effects of victim and defendant race alone, together with data on prior convictions and year trend. Models 3 and 4 add victim and defendant demographic variables, including victim race and gender. Models 5 and 6 include the effects of a set of mediating case characteristics on the race estimates. The aggravators in capital statutes across death penalty states in particular are important in creating the space for a broader and deeper application for seeking the death penalty, including their racially disproportionate application to cases with white victims.¹¹⁷

¹¹⁶ See *supra* note 92 and accompanying text for the equation used to generate these models.

¹¹⁷ Grosso et al., *Empirical and Legal Overview*, *supra* note 28, at 542–43; see e.g., Pierce, Radelet & Sharp, *supra* note 37, at 733, 747, 754–55 (“Among those suspected of killing white males, 2.3% end up on death row, whereas among those suspected of killing non-white males, only 0.8% are sentenced to death. On the other hand, 7.6% of those suspected of killing white females are sentenced to death, as are 6.4% of those suspected of killing non-white females.”).

TABLE 6. ORDERED PROBIT REGRESSION OF PROGRESSION OF CASES FROM CHARGING TO DEATH SENTENCING BY VICTIM AND DEFENDANT RACE AND CASE CHARACTERISTICS

Variables	(1)		(2)		(3)		(4)		(5)		(6)		(7)	
	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE	OR	SE
White Victim	1.679***	(0.230)			1.747***	(0.266)			1.741***	(0.261)				
Black Defendant	0.777*	(0.102)			0.794*	(0.106)			0.860	(0.113)				
Black Defendant/White Victim			0.592***	(0.077)			0.561***	(0.083)			0.558***	(0.081)		
White Defendant/Black Victim			0.808	(0.300)			0.837	(0.301)			0.839	(0.269)		
White Defendant/White Victim			1.278*	(0.171)			1.233	(0.169)			1.130	(0.150)		
Black Defendant/White Victim vs. All Others														
Female Victim					1.656***	(0.125)	1.661***	(0.126)			1.221*	(0.126)	1.227**	(0.127)
Victim Age					1.000	(0.002)	1.000	(0.002)			1.003	(0.002)	1.003	(0.002)
Defendant Age					0.994	(0.006)	0.995	(0.006)			0.993	(0.006)	0.993	(0.006)
Defendant Female					0.920	(0.157)	0.922	(0.158)			0.940	(0.181)	0.944	(0.181)
Mitigation Scale ^a									0.515***	(0.115)	0.510***	(0.114)	0.462***	(0.104)
Strength of Evidence Scale ^a									1.090***	(0.018)	1.090***	(0.018)	1.098***	(0.019)
Statutory Aggravators Scale ^a									1.074***	(0.008)	1.074***	(0.008)	1.076***	(0.009)
HAC Scale ^a									1.126***	(0.013)	1.126***	(0.013)	1.118***	(0.013)
Defense Scale ^a									0.843***	(0.053)	0.843***	(0.052)	0.829***	(0.048)
Prior Convictions	1.354***	(0.114)	1.353***	(0.116)	1.353***	(0.115)	1.351***	(0.117)			1.374***	(0.121)	1.373***	(0.121)
Prior Death Eligible Convictions	1.071	(0.149)	1.071	(0.149)	1.094	(0.151)	1.093	(0.152)			0.962	(0.169)	0.960	(0.169)
Year	0.971**	(0.013)	0.971**	(0.013)	0.975**	(0.012)	0.975**	(0.012)			0.964***	(0.013)	0.964***	(0.013)
Cluster (District)	1.272		1.272		1.260		1.260		1.260		1.260		1.260	
Observations	63.2		102.2		109.2		131.6		558.7		563.3		495	
Chi-Squared	0.000		0.000		0.000		0.000		0.000		0.000		0	
Probability Chi2	-1019.0		-1019.0		-989.4		-989.2		-866.3		-865.9		-892.6	
Log Likelihood	0.048		0.048		0.068		0.069		0.184		0.185		0.16	
Pseudo R-squared														

Notes: Significance: *** p<0.01, ** p<0.05, * p<0.10
 a. Predictor is exponentiated scale score

Across all models in Table 6, white victim cases are more likely to progress from charging to trial and then to a death sentence. The odds ratio varies from 1.679 to 1.741, suggesting that each white victim case is about over 70% more likely than Black victim cases to progress to each succeeding stage. In Models 2, 4, and 6, Black victim cases are neither more or less likely to progress in the same ways compared to white victim cases and the small number of other race victim cases. The odds ratios for Black defendants in Models 1, 3, and 5 are less than 1.0. They are significant in Models 2 and 4, but not in Model 6 when the case characteristics are introduced. In Models 2, 4, and 6, with specific victim-defendant race dyads, the only odds ratio that is significant is the white victim-Black defendant dyad. This result suggests that for one comparison, this dyad is less likely to reach a death sentence compared to Black defendant-Black victim cases (the reference group). Overall, the pattern of results points to preferences to seek and reach a death sentence for white victim cases.

When victim and defendant gender and age are introduced in Models 2–6, the results show strong preference to seek and obtain a death sentence for cases with female victims and a significant but somewhat weaker preference to seek death for older victims.

The addition of the mediating factors in Models 5 and 6 show a mixed pattern of results. The patterns for victim and defendant demographics also are unchanged: female and older victims are more likely to receive a penalty trial and a death sentence. Among the factors themselves, the patterns are in the expected directions: mitigation and defense reduce the odds of receiving a death sentence, while strong evidence and multiple aggravators increase the odds of reaching a death sentence. So, too, does the HAC scale, which is a count of the separate elements that typically comprise a HAC aggravator. But the HAC scale has no greater weight than other mitigating factors or aggravating factors, nor of the case or trial circumstances in predicting which cases progress to a death sentence.

Model 7 isolates white victim-Black defendant cases to estimate whether those cases in particular will progress through trial to receive a death sentence. This was one of the major findings both of the Baldus work and the *McCleskey* evidence, as well as in the analysis of which of those cases

resulted in execution.¹¹⁸ The results show that these cross-racial murders, where Black defendants kill white victims, cases are over 25% more likely than all other race combinations to receive a death sentence. Female and older victims also are more likely to receive a penalty phase trial and a death sentence. The overall pattern of mediating factors remains the same for this subset of cases.

E. Who Gets to Death?

In the final analysis, we provide descriptive detail on the regressions on the progression from charging to sentencing with a simple table showing the differences in the composition of cases at each stage. Table 7 shows these differences for two features of the analysis: the racial composition of victims and defendants, and the mean scale score for the mediating factors that influence the progression of cases.

¹¹⁸ Baldus, Pulaski & Woodworth, *Comparative Review*, *supra* note 38; Phillips & Marceau, *supra* note 33.

TABLE 7. COMPOSITION OF CASES AT EACH STAGE OF CASE DECISION MAKING BY DEMOGRAPHICS AND CASE CHARACTERISTICS

	Percent of Cases at Each Stage						Mean Scale Score			
	N	% Black Defendant	% White Victim	% Female Victim	% Prior Convictions	Mitigation	Strength of Evidence	N of Aggravators	HAC	Defense
Death Eligible	1272	71.4	48.7	35.8	43.2	0.06	1.81	4.97	1.90	0.34
Death Noticed	336	57.1	69.3	50.3	48.8	0.02	3.04	7.04	3.11	0.03
Guilt Phase Trial	124	57.3	68.5	52.4	61.3	0.03	3.42	8.61	4.13	0.59
Penalty Phase Trial	113	57.5	70.8	53.1	63.7	0.01	3.61	8.93	4.16	0.53
Death Sentenced	48	41.7	72.9	58.3	62.5	0.03	4.63	8.95	5.43	0.50

Note: Percent of cases at each stage, scale score for cases at each stage

The left half of Table 7 shows the race and gender of victims and defendants at each stage from death eligibility to death sentencing. The first two columns show that the composition of victims and defendants shifts sharply as cases move to a death sentence. Over 70% of the death eligible defendants are Black; the remainder are white. These proportions change markedly for cases that are death sentenced: 41.7% are Black, and nearly six in ten are white. We see the opposite inversion for race of victim. Nearly half of the victims in cases that are death eligible are white, but nearly three in four (72.0%) of the victims in cases that reach death are white. In each instance, the deflection point appears to be in the decision to issue a death notice (charged with death).

For Black defendants, there is another deflection point at the decision to seek death at the sentencing phase following the guilt determination. Over half (57.5%) of defendants at the penalty phase trial are Black, but fewer than half of those sentenced to death are Black (41.7%). The latter phase is important, because here, the decision is in the hands of the jury, whereas the prior decisions are subject to plea bargaining and negotiations between defense and prosecution. Overall, these first two columns in Table 7 show that the regressions describe but locate the effect as different stages: the penalty phase trial for defendants and the charging decision for victims.

Similar deflections are evident for female victims and the prior conviction record of defendants.¹¹⁹ The percentage of cases with white victims increases at each stage, from one in three at eligibility to nearly 60% at death sentencing. Victim gender, then, like victim race, plays a role in narrowing the profile of cases both eligible for death and that receive death. The same appears to true for defendants' conviction records, suggesting a different meaning to "aggravation" and deathworthiness.

The progression of cases also reflects a narrowing of cases advancing toward a death sentence based on specific features more amenable to prosecution. The victim and defendant profiles are targets for death and remain so even when we control for the mediating case factors. However, although cases resulting in death sentences have, on balance, stronger evidence, a higher number of statutory aggravators, and a higher number of elements that reflect the HAC aggravator, the

¹¹⁹ The percent with one or more.

victim demographics are the essential factors in the decision to seek death at each stage. The regressions in earlier tables show that the mediating effects factors operate independently of victim and defendant demographics. Prosecutors select cases at each stage first on race and gender and then at later stages seem to bargain for death with the cases with stronger evidence in these pools.

IV DISCUSSION

Race was not a primary concern for the *Furman* Court. Nevertheless, in the years since *Furman*, empirical evidence has grown that racial discrimination infects the administration of the death penalty.¹²⁰ Much of the discrimination occurs at charging¹²¹ and in plea bargaining for sentences to avoid death.¹²² Recent re-analysis of the *McCleskey* evidence suggests that racial disparities in charging carry forward to sentencing¹²³ and then to execution.¹²⁴ Nationwide data on reversals of death sentences on appeal suggest that error rates in capital convictions are significantly higher for death sentences against non-white defendants who kill whites.¹²⁵

In this study, analyses of both seeking death and imposing death sentences in Georgia show two consistent patterns of race-based prosecution. First, we observe significant racial disparities in charging and sentencing in capital eligible cases, in the offer of pleas to punishments other than death, in the use of the most promiscuous of the statutory aggravators, and in the overall progression of cases from eligibility for death to a death sentence. Second, similar to many other studies, we identify the preference of both prosecutors and juries to seek

¹²⁰ Carol S. Steiker & Jordan M. Steiker, *The Rise, Fall, and Afterlife of the Death Penalty in the United States*, 3 ANN. REV. CRIMINOLOGY 299, 304–07 (2020) (showing that race has had a long, consistent and strong influence over the death penalty system in the U.S.).

¹²¹ Amsterdam, *supra* note 25, at 49–50 (discussing lessons of fifty years of empirical research on race and the American death penalty).

¹²² Thaxton, *supra* note 40.

¹²³ O'Brien, Grosso, Woodworth & Taylor, *supra* note 70, at 2023–26.

¹²⁴ See Phillips & Marceau, *supra* note 33, at 587 (showing that the racial biases in charging and sentencing in the 1983 Baldus study are also observed in race differences in execution).

¹²⁵ See, e.g., Alberto Alesina and Eliana La Ferrara, *A Test of Racial Bias in Capital Sentencing*, 104 AM. ECON. REV. 3397, 3419–20 (2014) (re-analyzing the evidence from Liebman, Fagan, West & Lloyd, *supra* note 87, showing that higher reversal rates on direct appeal and in habeas corpus cases from 1973–1995 were three and nine percentage points higher, respectively, against minority defendants who killed whites).

and impose death on defendants in cases of white and female victims.¹²⁶

While these studies on racial inequality in capital punishment have proliferated over time, their lessons live side-by-side but rarely intersect with the questions of overbreadth that infected the death penalty in the decade leading up to the 1972 *Furman* opinion and moratorium. But the evidence is available for the post-*Furman* era: one need only look to the available empirical evidence. First, in a 2018 denial of certiorari in *Hidalgo v. Arizona*, defendant Hidalgo proffered evidence that ninety-eight percent of first-degree murder defendants charged in Maricopa County were eligible for a death sentence.¹²⁷ Three Justices joined a statement issued by Justice Stephen Breyer that the evidence presented a serious constitutional issue that the state statute may fail to perform the “constitutionally necessary” narrowing function at the stage of legislative definition to prevent “a pattern of arbitrary and capricious sentencing.”¹²⁸ We earlier discussed the Supreme Court’s rejection in *McCleskey* of the nexus of arbitrariness and racial disparity in the Georgia statute.¹²⁹ In California, the continuous expansion of death eligibility imposes costs to racial equity and fairness to non-white defendants through the structure of statutory aggravators that invoke racial stereotypes.¹³⁰ The California statute appears to codify rather than ameliorate the harmful racial stereotypes that are endemic to our criminal justice system, leading to

¹²⁶ Grosso, O’Brien, Taylor & Woodworth, *Empirical and Legal Overview*, *supra* note 28.

¹²⁷ *Hidalgo v. Arizona*, 138 S. Ct. 1054, 1056 (2018) (Breyer, J., statement respecting the denial of certiorari).

¹²⁸ *Id.* at 1057; *Gregg v. Georgia*, 428 U.S. 153, 195 n.46 (1976)

¹²⁹ Justice Brennan responded to the majority’s concern that “*McCleskey*’s claim would open the door to widespread challenges to all aspects of criminal sentencing”: “on its face, such a statement seems to suggest a fear of too much justice.” *McCleskey v. Kemp*, 481 U.S. 279, 339 (1987) (Brennan, J., dissenting); *see also* Berman, *Supra* note 24, at 1–3 (introducing symposium evaluating *McCleskey*’s legacy).

¹³⁰ Grosso et al., *Death by Stereotype*, *supra* note 26. Given the demography of murder, and especially the types of murder instantiated by the “special circumstances” for death eligibility among murders, any expansion of the death penalty is likely to aggravate the problem of racial equity in the death penalty. *See generally* Andrew E. Taslitz, *Racial Blindsight: The Absurdity of Color-Blind Criminal Justice*, 5 OHIO ST. J. CRIM. L. 1 (2007); Jeffrey Fagan & Mukul Bakhshi, *New Frameworks for Racial Equality in the Criminal Law*, 39 COLUM. HUM. RTS. L. REV. 1 (2007); Anthony V. Alfieri, *Objecting to Race*, 27 GEO. J. LEGAL ETHICS 1129 (2014).

errors that were cited by the *McCleskey* dissenters in their comments on “too much justice.”¹³¹

The case records in the investigation by *The Atlanta Journal-Constitution* provide granular evidence of the intersection of race and arbitrariness and capriciousness in the Georgia data. It is not just the cases for which death is sought and obtained that show the root unfairness in the administration of the death penalty, but it also is the journalists’ comparative proportionality review that reveals the inexplicable differences in the outcomes of these cases. Both prosecutors and jurors contribute to the seemingly arbitrary and capricious case outcomes. For example, two cases, each based on murders of hitchhikers, produced different outcomes: one a death sentence, and the other a life in prison sentence.¹³² Reginald Acres avoided death for stabbing and killing his wife, children, and other family members; David Perkins is on death row for stabbing a drinking buddy and crushing his head with a whisky bottle.¹³³ Overall, jurors rejected death in the study period in more than two penalty phase trials in three, suggesting that the losers of the fatal lottery are not easily discerned from the “winners.”¹³⁴

Of the 1,317 death-eligible cases, journalists reported, and we confirmed, that the prosecutors elected not to pursue death in 375 murder cases that might easily be classified as HAC killings or felony murders, the two most frequent case factors cited for the cases where death was sought and the case profiles most often burdened by racial imbalance.¹³⁵ At the same time, prosecutors sought and won death sentences for defendants who killed their victims with a single gunshot to a single victim.¹³⁶

The evidence in the Georgia records suggests a regime marred less by overbreadth, in contrast to the Arizona¹³⁷ and California regimes,¹³⁸ than by capriciousness and randomness

¹³¹ Berman, *supra* note 24, at 1.

¹³² Rankin, Vogell, Jacobs, & Clarke, *supra* note 75.

¹³³ *Id.*

¹³⁴ *Id.*

¹³⁵ *Id.*; Grosso *et al.*, *Death by Stereotype*, *supra* note 26, at 1434–40 Tables 5 and 6 and accompanying text.

¹³⁶ Rankin, Vogell, Jacobs, & Clarke, *supra* note 75.

¹³⁷ *Hidalgo v. Arizona*, 138 S. Ct. 1054, 1057 (2018) (Breyer, J., statement respecting the denial of certiorari); Baldus *et al.*, *Furman at 45*, *supra* note 32, at 695

¹³⁸ Baldus *et al.*, *Furman at 45*, *supra* note 32, at 714 (calculating a death-eligibility rate between 91% and 95% in cases resulting in a conviction for first degree murder).

in the decision to seek death and to seek it in a racially disparate manner. In California, between 91% and 95% of first-degree murder cases between 1983 and 2008 were death eligible.¹³⁹ In Georgia, 1,317 murder cases were determined to be death eligible among the 2,328 convictions for first-degree murder, a 56.5% eligibility rate.

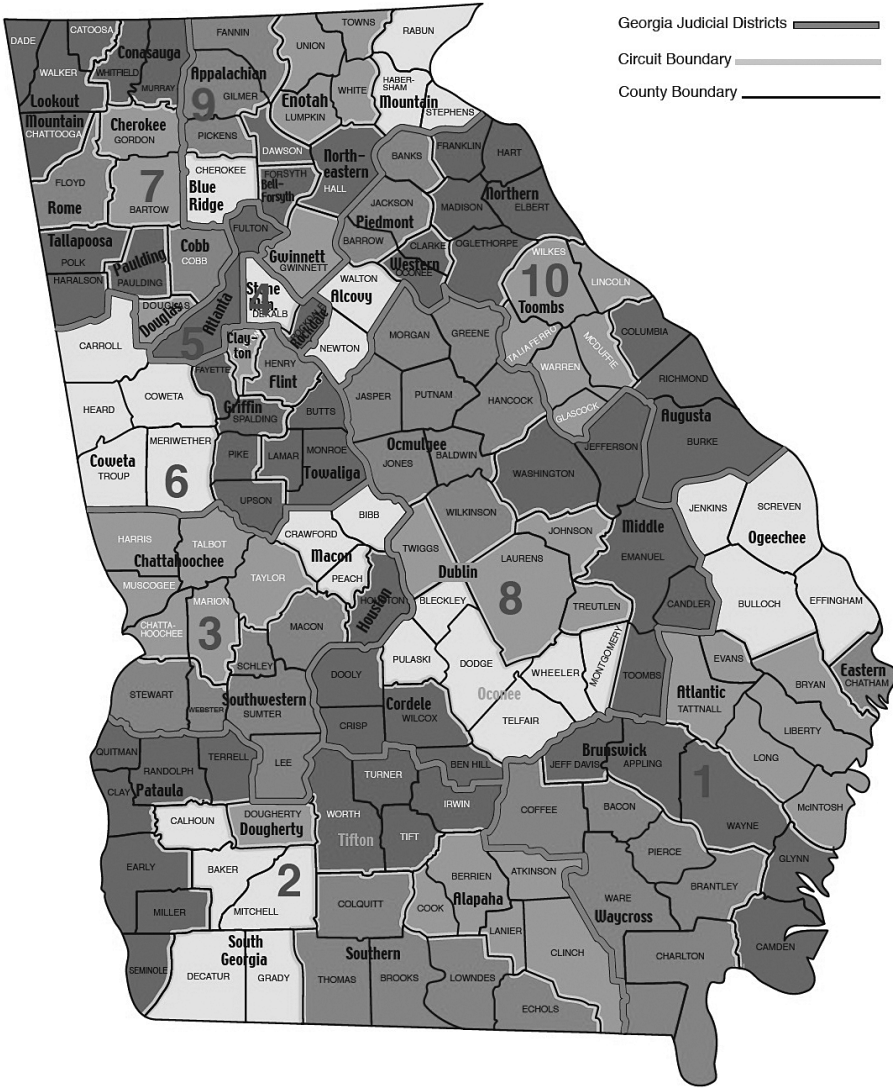
The contrast in these empirical pictures illustrates two faces of *Furman's* infirmities: the strong influence of race, specifically white victim race, intersects with randomness in the selection of cases for capital prosecution. Rather than singling out the worst of the worst, we find two processes in place that violate the *Furman* and *Gregg* Courts' attempts at narrowing. It is unlikely that Georgia prosecutors and jurors are alone in recreating the "fatal lottery" conditions that led to *Furman*. We see here that those conditions are multiplied by the missing racial component to the *Furman* doctrine.

CONCLUSION

The U.S. Supreme Court shaped the current era of the death penalty in three cases beginning in 1972. More than fifty years after the *Furman* moratorium, over forty years after the creation of a narrowing architecture for death eligibility in *Gregg*, and over thirty years after the willful racial blindness in *McCleskey* shut down litigation on racial discrimination, new research reveals that the concerns over both arbitrariness and race discrimination are not only present, but they intersect and perhaps multiply the constitutional flaws addressed in these three core cases. We show here that race continues to matter, and that the statutory aggravators that distinguish death cases from other killings are themselves racialized. By tracing the decisions that move cases from death eligibility to executions, we show the role of race in the progression of cases and the features of cases that explain the attrition of cases whose defendants avoid death. There are two faces to these progressions: one shaped by race, and a second shaped by the features of the cases that mediate each decision in the progression of cases. Only one of those should matter, but here, they combine to sustain the fatal lottery that is the death penalty.

¹³⁹ *Id.* at 713.

APPENDIX A. GEORGIA COUNTIES AND JUDICIAL DISTRICTS



APPENDIX B. DESCRIPTIVE STATISTICS - GEORGIA JUDICIAL
CIRCUITS, 1990-2005 AVERAGE

	<i>Mean</i>	<i>Std Dev</i>
Demography		
Total Population	157,906.40	155,645.40
Percent White	.70	.16
Percent Black	.25	.15
Percent Hispanic	.03	.03
Percent < Age 15	.22	.02
Percent Foreign Born	.04	.03
Percent Non-Native English	.34	.03
Socio-Economics		
Percent >50% Below Poverty	.08	.03
Percent on Public Assistance	.02	.01
Percent in LF Not Working	.05	.01
Percent Renters	.30	.08
Percent Owners	.70	.08
Percent Own > 10 yrs	.43	.06
Crimes per 100,000 Persons		
Murder	6.21	5.35
Rape	2.38	1.71
Robbery	104.50	132.76
Aggravated Assault	225.74	138.27
Burglary	860.62	433.95
Theft	2,511.11	1,224.88
MV Theft	317.53	280.56
Court Backlogs (% of Filings)		
Criminal Cases	.01	.05
Felony Cases	.01	.08
Total Caseload	.02	.04

Sources: Social Explorer Geodata Profiles, <https://geodata.socialexplorer.com>; Open ICPSR, Kaplan Concatenated Files, <https://www.openicpsr.org/openicpsr/project/100707/version/V17/view>; Georgia Judicial Gateway, various years, <https://georgiacourts.gov/>

APPENDIX C. SCALE CONSTRUCTION OF MEDIATING CASE CHARACTERISTICS

	Defense	Strength of Evidence	Mitigation	HAC	Statutory Aggravators
	Self-defense	Eyewitness Testimony	Drug Use or Abuse	Torture	Felony Murder
	Accident	Forensic Evidence	Alcohol Addiction	Killed in Front of Children	Murder for money
	Insanity	Confession	Alcohol-Influenced Murder	Cruelty to Children	Murder vile, horrible, or inhuman
	Innocence	Admission	Drug-Related Crime	Victim Begged	Murder with Prior Capital Felony Conviction
	Other defense	Video Evidence	Youth/Immaturity	Sexual Assault	Contract Murder
		DNA		Set on Fire	Knowingly create risk using weapon/hazardous device
		Weapon Recovered		Prolonged Death	Murder to avoid or prevent custody
				Multiple Weapons Used	Murder of Peace Officer
				Multiple Stab Wounds	Murder to escape from custody
				Execution Style Murder	Murder of Judicial Officer
				Pregnant Victim	
				Multiple Victims	
				Victim Below Age 13	
Scale Mean	0.4	1.8	0.1	1.9	5.0
Scale Std. Dev.	(0.9)	(2.7)	(0.2)	(2.8)	(4.0)
Count Mean	0.7	2.6	0.8	0.9	2.0
Count Std. Dev.	(0.5)	(1.4)	(0.8)	(1.2)	(1.2)
Count Range	0 - 1	0 - 6	0-4	0 - 6	1 - 5

APPENDIX D. STATUTORY AGGRAVATORS BY DEFENDANT RACE FOR
MOST FREQUENTLY CHARGED AGGRAVATORS

Statutory Aggravator	Black Defendant		White Defendant	
	N	%	N	%
Felony murder	714	78.6	306	84.1
Murder for money	537	59.1	214	58.8
Murder vile, horrible, or inhuman	324	35.7	168	46.2
Murder with prior capital felony conviction	97	10.7	16	4.4
Contract murder	35	3.9	26	7.1
Knowingly create public risk using weapon	26	2.9	1	0.3
Murder to avoid custody	10	1.1	5	1.4
Murder of peace officer	8	0.9	4	1.1
Murder & escape from custody	8	0.9	0	0.0