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Explaining Death Row's Population and Racial Composition

*John Blume, Theodore Eisenberg, and Martin T. Wells**

Twenty-three years of murder and death sentence data show how murder demographics help explain death row populations. Nevada and Oklahoma are the most death-prone states; Texas's death sentence rate is below the national mean. Accounting for the race of murderers establishes that black representation on death row is lower than black representation in the population of murder offenders. This disproportion results from reluctance to seek or impose death in black defendant-black victim cases, which more than offsets eagerness to seek and impose death in black defendant-white victim cases. Death sentence rates in black defendant-white victim cases far exceed those in either black defendant-black victim cases or white defendant-white victim cases. The disproportion survives because there are many more black defendant-black victim murders, which are underrepresented on death row, than there are black defendant-white victim murders, which are overrepresented on death row.

Active or large death penalty states shape conventional wisdom about capital punishment. Three states' death rows, Texas, California, and Florida, receive substantial attention due to their size.[1] Texas and, to a lesser degree, Florida receive additional scrutiny because—unlike California—they frequently

*Blume is Associate Professor of Law and Director, Cornell Law School Death Penalty Project; Eisenberg is Henry Allen Mark Professor of Law, Cornell Law School; Wells is Professor of Statistics, Department of Social Statistics, and Elected Member of the Law Faculty, Cornell University. Address correspondence to Theodore Eisenberg, Cornell Law School, Myron Taylor Hall, Ithaca, NY 14853; e-mail theodore-eisenberg@postoffice.law.cornell.edu.

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[1]Tracy L. Snell, U.S. Dep't of Justice, Capital Punishment 1999, at 1 (2000) (on Dec. 31, 1999, California had 553 prisoners under sentence of death, Texas 460, and Florida 365).

execute death row inmates.[2] The sizes of these states' death rows and the number of executions shape the conventional belief that these jurisdictions, especially Texas,[3] have high death sentence rates. Conventional wisdom also has it that African Americans constitute a disproportionately large share of death rows,[4] an impression rooted in the many studies finding that race plays a significant role in capital cases.[5]

The conventional wisdom about the death penalty is incorrect in some respects and misleading in others. First, the three states with the largest death rows are not more likely to sentence convicted murderers to death than are many other states. After accounting for a state's number of murders, Oklahoma and Nevada are more death-prone states than are any of the "big three." California, in fact, has a low death sentencing rate.[6] And Texas sentences murderers to death at a rate below the national mean. Second, based on the number of murders, African Americans are sentenced to death at lower rates than whites. As explored below, African Americans commit more than 50 percent of the country's murders yet they comprise 40 percent of death row. Furthermore, the excess of the African-American percentage of murderers over the African-American percentage of death row is greatest where the conventional wisdom would least expect it—in the South.

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[2]Id. at 10, tbl. 10 (from 1977 through 1999, Texas executed 199 persons, Florida 44, and California 7).

[3]E.g., Jonathan A. Sorenson, Robert Wrinkle, Victoria E. Brewer & James W. Marquart, Capital Punishment and Deterrence: Examining the Effect of Executions on Murder in Texas, 45 Crime & Delinq. 481 (1999).

[4]E.g., Ruth E. Friedman, Statistics and Death: The Conspicuous Role of Race Bias in the Administration of the Death Penalty, 11 La Raza L.J. 75, 75 (1999); Marc Riedel, Discrimination in the Imposition of the Death Penalty: A Comparison of the Characteristics of Offenders Sentenced Pre-*Furman* and Post-*Furman*, 49 Temp. L.Q. 261 (1976); Note, The Rhetoric of Difference and the Legitimacy of Capital Punishment,114 Harv. L. Rev. 1599, 1622 (2001) (eliminating death penalty "may just divert racial prejudice from death row to the prisons").

[5]E.g., David Baldus, George Woodworth, David Zuckerman, Neil Alan Weiner & Barbara Broffitt, 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, 1658 & n.61, 1659, 1660–61 & n.69, 1662, 1742–45 (1998) (collecting studies); U.S. Gen. Acct. Off., Death Penalty Sentencing: Research Indicates Pattern of Racial Disparities 1–6 (1990).

[6]John Blume & Theodore Eisenberg, Judicial Politics, Death Penalty Appeals, and Case Selection: An Empirical Study, 72 S. Cal. L. Rev. 465, 500 (1999).

Death row's racial disparity, however, is not the result of race-neutral application of the death penalty or a perverse form of affirmative action to favor black defendants. Rather, a racial hierarchy clearly exists. Black defendants who murder white victims receive death sentences at the highest rate; white defendants who murder white victims receive death sentences at the next highest rate; and black defendants who murder black victims receive death sentences at the lowest rate.[7] The hierarchy stems in part from prosecutors' reluctance to seek death in cases involving black victims,[8] and eagerness to seek death in cases involving black defendants and white victims.[9] Because black offenders nearly always murder black victims, reluctance to seek death in black victim cases reduces black death row populations and more than offsets the propensity to seek death sentences for blacks who murder whites.

The different death sentence rates for black defendant-black victim cases and black defendant-white victim cases confirm the well-known race-of-victim effect. The existence of a broad race-of-defendant effect, found here in different death sentence rates for black defendant-white victim cases and white defendant-white victim cases, has been virtually undetectable in more than 50 previous empirical studies.[10]

This article thus explores the population and racial makeup of states' death rows by relating them to the number of murders, and the race of murderers and victims. A simple model explains most variation in state death row populations: states with more murders have larger death rows, and states with a higher proportion of black offenders have a higher proportion of blacks on death row. Detailed study of eight states establishes racial dispari-

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[7]See James Alan Fox & Jack Levin, The Will to Kill 167 (2001) (similar result for executions but no report about sentences). Executions are not a representative cross-section of states' death rows. Snell, supra note 1, at 1. A fourth racial homicide combination, white defendants who murder black victims, is rare and difficult to place in the hierarchy. Table 8 infra.

[8]E.g., John H. Blume, Theodore Eisenberg & Sheri Lynn Johnson, Post-*McCleskey* Racial Discrimination Claims in Capital Cases, 83 Cornell L. Rev. 1771, 1790 (1998); Richard C. Dieter, The Death Penalty in Black and White: Who Lives, Who Dies, Who Decides (June 1998) (fig. 7, summarizing studies).

[9]E.g., David Baldus, George G. Woodworth & Charles A. Pulaksi, Jr., Equal Justice and the Death Penalty: A Legal and Empirical Analysis (1990); Samuel R. Gross & Robert Mauro, Death and Discrimination: Racial Disparities in Capital Sentencing (1989).

[10]Baldus et al., supra note 5, at 1742–44.

ties in death sentence rates. But a clear picture of these disparities requires accounting for race of defendant-race of victim combinations.

It is helpful to place this study in the context of previous capital sentencing studies. Studies of individual states or groups of states have long reported racial effects in the capital punishment system.[11] These studies usually focus on racial discrimination in the system, sometimes with an eye toward litigation. Death row populations are of interest in such studies primarily as evidence of racial disparities. In this study, death row populations are the social phenomenon of primary interest. It would be naive to think that one can accurately describe these populations without considering race and we do not try to do so. But shifting the emphasis from racial disparity to death row populations provides a different perspective that yields useful insights, even about race. No study systematically connects murder rates and death sentences across states over the comprehensive period studied here, more than 20 years, to present a truly national picture of the relation among murders, death sentences, and race.

Part I of this article describes the data sets used in this study. Part II analyzes the size of death rows and shows their close relation to the number of murders. Part III explores the racial composition of death rows. It shows a strong correlation between the black proportion of murders and the black proportion of death row. Part IV shows that the racial composition of death row is a consequence of differential treatment of black defendant-black victim cases, white defendant-white victim cases, and black defendant-white victim cases. Part V concludes.

I. The Data

We use two publicly available federal data sets. The first reportedly contains data on all death row inmates. The second contains data on the vast majority of murders in the United States. By comparing death row sizes with murder populations one can estimate states' relative propensities to impose the death penalty.

The Bureau of Justice Statistics' (BJS) database, "Capital Punishment in the United States," tracks every person sentenced to death from 1973 to

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[11]E.g, Baldus et al., supra note 5.

1999.[12] To avoid the effects of early uncertainty in the post-*Furman v. Georgia*[13] modern death penalty era, we limit the sample to defendants sentenced after 1976, when the Supreme Court in *Gregg v. Georgia* laid the foundation for the modern death penalty era.[14] We limit to one observation those individuals who entered the death row data set, exited from it (perhaps because of a favorable court decision), and then reentered the sample. This leaves a sample of 5,988 individual death row defendants. To avoid statistical complications of states with little or only recent death penalty activity, we limit the sample to the 31 states that admitted more than 10 defendants to death row from 1977 through 1999. These 31 states account for 5,953 of the 5,988 (99.4 percent) inmates who entered death row during that time period. The BJS death row data include the state, year of sentence, and race of the defendant.[15]

We use murder data to examine the relation between death sentences and murders. Doing so measures the death-proneness of a state's entire criminal justice process. Filtering murders for death eligibility begins with the scope of a state's death penalty statute. Prosecutorial, judicial, and jury decision making occur against the backdrop of a state's statutory scheme. Studies that focus on a single decision point late in the criminal justice process, such as studies of sentencing or commutation, use data that has been filtered by

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[12]U.S. Dep't of Justice, Bureau of Justice Statistics, Capital Punishment in the United States, 1973–1999 [computer file], Inter-university Consortium for Political & Social Research [producer and distributor] (No. 3201), 2001.

[13]408 U.S. 238 (1972).

[14]428 U.S. 153 (1976). The Court approved several new death penalty statutes on the ground that they addressed the problems of arbitrariness and discrimination identified in *Furman*. New Jersey's post-*Furman* death penalty statute became effective in 1982. N.J. Stat. Ann. § 2C:11–3 (West Supp. 2002), New Mexico's in 1979, N.M. Stat. Ann. § 30–2-1(A) (Michie 2000), and Oregon's in 1978, Or. Rev. Stat. § 163.095(e) (2001).

[15]An alternative source of death row inmates is the NAACP's Death Row U.S.A. The NAACP data also do not contain the race of victim for those inmates on death row who have not been executed. NAACP, Death Row U.S.A. Fall 2000 (as of October 1, 2000). The NAACP list does not include a cumulative listing of all those who have entered death row. The BJS list has been said to miscount commutations, see Michael L. Radelet & Barbara A. Zsembik, Executive Clemency in Post-*Furman* Capital Cases, 27 U. Rich. L. Rev. 289 (1993). But the discrepancy seems minimal in revised BJS data. Background and Developments, in The Death Penalty in America: Current Controversies 25 n.26 (Hugo Adam Bedau ed., 4th ed. 1997).

a discretionary selection process. Such studies raise a potential problem of sample selection bias in detecting, for example, race effects.[16]

The FBI's Supplementary Homicide Reports (SHR) provide incident-level data about murders. For each murder, the data include the year of the offense, the race, sex, and age of the victim and of the defendant arrested for the offense, the county in which the offense occurred, and data about the nature of the murder, including whether it was committed in the course of certain crimes such as robbery, rape, burglary, or larceny.[17] The murder data are among the most reliable crime data.[18]

The SHR include unsolved homicides. If the data lack the offender's sex, we treat the case as unsolved, as not producing a candidate for the death sentence, and therefore eliminate it from the death sentence rate calculations. To the extent that arrests are followed by releases, the data overstate the number of offenders at risk of a death sentence. Since our primary interest is interstate comparisons, rather than the absolute level of death sentence rates, erroneous murder arrests are of concern only if they vary unevenly across states.

The SHR data allow for reasonable estimates of the number of murders in each state in each year. For comparison with the 1977 to 1999 death row population data, we use the SHR for 1976 through 1998 except for New Jersey, New Mexico, and Oregon. New Jersey's post-*Furman* death penalty statute became effective in 1982, New Mexico's became effective in 1979, and Oregon's in 1978. For these states, we therefore limit the SHR data to the years corresponding to the potential exposure of murder defendants to

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[16]Gross & Mauro, supra note 9, at 25. If one assumes interstate statutory variation in defining death-eligible murders is insubstantial, the number of murders in a state is a useful index of the number of possible death penalty cases. Baldus et al., supra note 9, at 268–69 n.31.

[17]James Alan Fox, Uniform Crime Reports [United States]: Supplementary Homicide Reports, 1976–1998 [computer file], Northeastern Univ., College of Criminal Justice [producer], Inter-university Consortium for Political & Social Research [distributor] (No. 3000), 2000.

[18]John J. Donohue, Understanding the Time Path of Crime, 88 J. Crim. L. & Criminology 1423, 1425 (1998); John J. Donohue & Peter Siegelman, Allocating Resources Among Prisons and Social Programs in the Battle Against Crime, 27 J. Legal Stud. 1, 4 (1998); Robert J. Cottrol, Book Review, Hard Choices and Shifted Burdens: American Crime and American Justice at the End of the Century, 65 Geo. Wash. L. Rev. 506, 517 (1997). But see Michael Maxfield, Circumstances in Supplementary Homicide Reports: Variety and Validity, 27 Criminology 671, 675–81 (1989). The data exclude negligent manslaughters and justifiable homicides. Fox, supra note 17. See also Fox & Levin, supra note 7, at 172.

the death penalty.[19] For all states studied, the difference in years studied between the SHR data and the BJS data allows for some lag time between arrests for murder and sentencing. Analyzing the data using other similar combinations of ranges of years of death row populations and SHR produces no material change in results.[20] The SHR data for the period studied, limited to the 31 states in our sample, contain 268,135 identifiable offenders.[21] The 5,953 death row enrollees, described above, yield a national rate of 2.2 percent of murders resulting in a death sentence. Viewed state by state, the mean of the 31 states' death sentence rates for this period is 2.5 percent and the median is 2.0 percent.

II. Death Row Populations

This part first discusses death row populations solely as a function of the number of murders. It then considers legal, demographic, and crime-specific factors as possible influences on states' death sentencing rates. It concludes by presenting models of death row sizes as a function of the more promising of these other factors.

A. The Death Sentence Rate Based on the Number of Murders

Table 1 shows the death sentence rate, equal to the number of people entering death row divided by the number of murders, for the 23 years covered by our data. It is arranged in descending order of death sentence rate. The

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[19]In New Jersey, we use SHR data from 1982 though 1998. Oregon's post-*Furman* statute became effective on December 7, 1978, so we limit its SHR data to 1979 through 1998. New Mexico's post-*Furman* statute became effective July 1, 1979, and we limit its SHR data to 1980 through 1998.

[20]The SHR data available through ICPSR, Fox, supra note 17, are missing or incomplete for Florida for 1988 through 1991 and 1996 through 1998. For the years 1988 through 1991 we use the average of the 1987 and 1992 murders reported for Florida. For 1996, 1997, and 1998, we use the figures reported by the Florida Department of Law Enforcement in its Crime in Florida Annual Reports. These closely match the number of murders in the SHR for the years in which both sources reported figures. Data are also missing for 1988 for Kentucky. We use the average annual number of murders for 1986, 1987, 1989, and 1990 to assign a value for 1988.

[21]We exclude defendants younger than 16 years old and defendants younger than a state's death-eligibility age. The Constitution prohibits executing defendants younger than 16 at the time of the offense. Thompson v. Oklahoma, 487 U.S. 815 (1988).

Table 1: Death Sentence Rates by State, 1977–1999

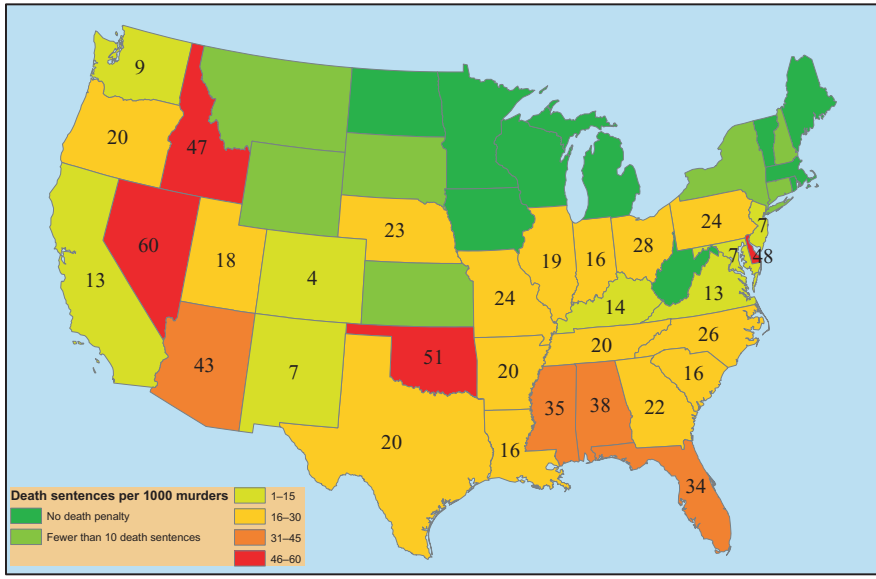
State	*Death Sentence Rate*	*Death Row Inmates, 1977–99*	*Murders with Known Offenders, 1976–98*
Nevada	0.060	124	2,072
Oklahoma	0.051	257	5,020
Delaware	0.048	30	626
Idaho	0.047	36	773
Arizona	0.043	213	5,007
Alabama	0.038	311	8,190
Mississippi	0.035	144	4,122
Florida	0.034	735	21,837
Ohio	0.028	285	10,142
North Carolina	0.026	327	12,463
Pennsylvania	0.024	316	13,095
Missouri	0.024	158	6,679
Nebraska	0.023	19	831
Georgia	0.022	243	10,912
Oregon	0.022	46	2,132
Texas	0.020	776	37,879
Tennessee	0.020	156	7,690
Arkansas	0.020	90	4,523
Illinois	0.019	274	14,710
Utah	0.018	19	1,080
South Carolina	0.016	138	8,451
Indiana	0.016	84	5,289
Louisiana	0.016	158	10,146
Kentucky	0.014	68	4,863
California	0.013	652	49,943
Virginia	0.013	119	9,235
New Jersey	0.010	48	4,710
Washington	0.009	34	3,628
New Mexico	0.008	12	1,480
Maryland	0.007	47	6,606
Colorado	0.004	13	3,256

NOTE: Data are for the 31 states with more than 10 death row enrollees from 1977 through 1999. Death row data are based on the BJS capital punishment data. Murder data are based on the SHR for 1976–1998, except for a later starting year for three states, New Jersey, New Mexico, and Oregon, in which post-*Furman* death penalties became effective after 1977. The death sentence rate is the number of death row inmates divided by the number of known murder offenders.

rate ranges over a fairly narrow interval, from less than 0.5 percent in Colorado to 6 percent in Nevada. We do not mean to trivialize this difference; but the absolute variation in the range, less than 6 percent, is not enormous. That narrow range suggests, as Figure 2 confirms, that death row populations substantially depend on the number of murders in a state.

Table 1 also shows that some states with large death rows, notably California and Texas, are not especially death-prone jurisdictions. California's

Figure 1: Death sentence rates, 1977–1999, by state.



rate of death sentences per murder is one of the lowest in the nation. It has a large death row because it had about 50,000 known murderers, many more than any other state. Texas's death sentencing rate is in the middle. Texas's reputation as a death-prone state should rest on its many murders and on its willingness to execute death-sentenced inmates. It should not rest on the false belief that Texas has a high rate of sentencing convicted murderers to death. Florida has both a large death row and a middling to high death-obtaining rate.[22] Oklahoma and Nevada are the most death-prone states with large death rows.[23] Their death sentence rates are 2.5 to 3 times that of Texas. Figure 1 visually displays interstate death sentence rate variation.

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[22]But Florida also has a high rate of reversed death sentences. Gross & Mauro, supra note 9, at 75; Blume & Eisenberg, supra note 6, at 486; James S. Liebman, Jeffrey Fagan, Valerie West & Jonathan Lloyd, Capital Attrition: Error Rates in Capital Cases, 1973–1995, 78 Tex. L. Rev. 1839 (2000); James S. Liebman, Jeffrey Fagan, Andrew Gelman, Valerie West, Garth Davies & Alexander Kiss, A Broken System: Part II: Why There Is So Much Error in Capital Cases, and What Can Be Done About It (Feb. 11, 2002) (fig. 13) [hereinafter Liebman et al. II].

[23]Studies using other time periods confirm these death sentence rates. Amnesty Int'l, Old Habits Die Hard: The Death Penalty in Oklahoma (Apr. 26, 2001) (App. 2); James Liebman, Jeffrey Fagan & Valerie West, Broken System: Error Rates in Capital Cases, 1973–1995 (2000). For

Figure 2: Number of death row inmates, 1977–1999, and number of murders, 1976–1998.

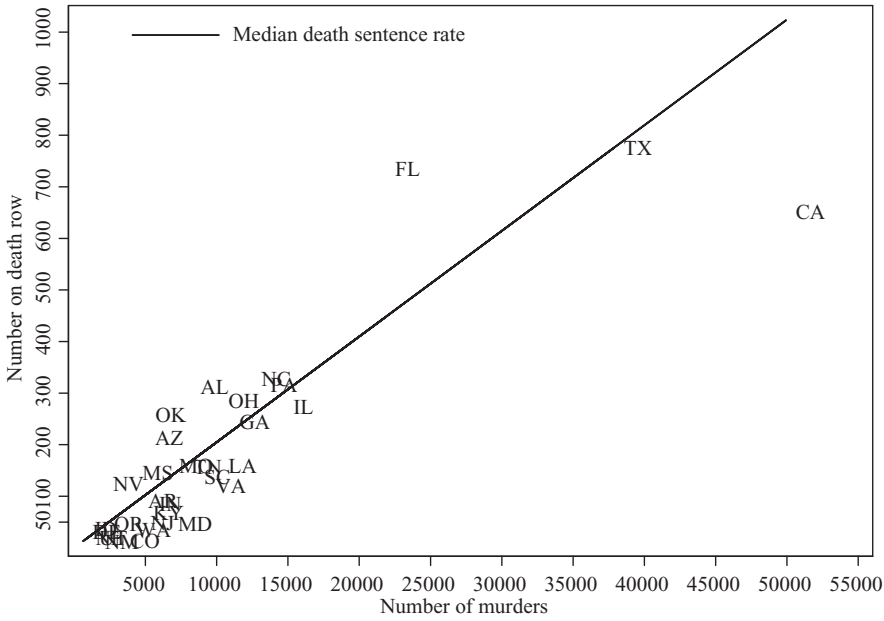

Figure 2 shows the relation between death row populations and the number of murders. For each state, it plots the data in Table 1's last two columns. The figure's diagonal line is the median death sentencing rate, 2.0 percent of murders, for the 31 states in the study. The figure reveals a strong pattern of increasing death row populations with increasing murders. The linear correlation between the number of murders and the death row population is 0.879 and is highly statistically significant ($p < 0.0001$). Only California substantially departs from the pattern. Texas is on the line, suggesting "normal"—indeed, below the national state-level mean of 2.2 percent—inclination to sentence to death among states that do so.

Modeling death row sizes as a function of murders assumes that this is the direction of causation—murders shape death row. A substantial litera-

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discussion of Oklahoma's high rate, see Note, The Rhetoric of Difference and the Legitimacy of Capital Punishment, 114 Harv. L. Rev. 1599, 1612 n.76 (2001); Ken Armstrong, "Cowboy Bob" Ropes Wins—But at Considerable Cost, Chi. Trib., Jan. 10, 1999, § 1, at 13.

ture exists modeling murder rates as a function of whether states have death penalties.[24] This literature assumes (or tests) whether murder rates are associated with the existence of death penalty statutes, and the nature of their enforcement. Those who believe that causation runs in both directions can properly note that we do not account for the endogenous effect of death penalty statutes or execution rates on the rate of murders. At the state level, however, little simple evidence of such causation exists.[25] And, among states with capital punishment, we find no association between murder rates and death sentence rates.[26]

B. Modeling Death Row Populations

Factors other than the number of murders influence death row populations; otherwise, Table 1's death sentence rates would be nearly constant across states. We divide other factors into three categories: (1) the states' legal and political environment, (2) the states' social or demographic environment, and (3) the circumstances of the murders from which death penalty cases might be selected.

A preliminary qualification is in order. State-level influences on death row populations are important but incomplete. Since capital sentencing statutes and other factors operate at the state level, the state is an appropriate starting point for analyzing death row populations. But state law may be enforced differently within a state. Since death-obtaining behavior is subject to local variation, state-level models can supply only a general picture of the capital punishment process.[27] Although the state-level picture has limitations, it remains a natural starting point.

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[24]E.g., William C. Bailey & Ruth D. Peterson, Murder, Capital Punishment, and Deterrence: A Review of the Literature, *in* Bedau (ed.), supra note 15, at 135.

[25]Raymond Bonner & Ford Fessenden, Absence of Executions, N.Y. Times, Sept. 22, 2000, at A1 (10 of 12 non-death-penalty states had homicide rates below the national average).

[26]Table 3 infra.

[27]See Baldus et al., supra note 5, at 1731 (statewide data provided no systematic evidence of discrimination against black defendants because blacks faced greater risk of capital punishment in rural areas and lesser risk in urban areas).

1. Legal and Political Variables

State Death Penalty Laws. Differences in state capital punishment laws could affect death row populations. Some states are regarded as having death penalty laws that facilitate obtaining death sentences.[28] These states should generate larger death rows than other states for the same number of murders.

One method of categorizing state capital sentencing schemes is by the factors that make a defendant eligible for the death penalty:[29] Is death eligibility limited to cases involving more specific, more objective factors or are the state's eligibility factors more amorphous and open-ended? For example, New Mexico's objective list of death-eligible factors (murder of a peace officer, murder in the course of listed felonies, murder while attempting to escape from, or while incarcerated in, prison, murder committed for hire, or murder of a witness) appears in the statutory provision listing aggravating circumstances.[30] Alabama lists murder in connection with rape, robbery, burglary, sex offenses, and arson as bases for a death sentence.[31] It does so, however, not in a list of aggravating circumstances but in a statute defining capital offenses. Whether a specific list appears in an aggravating circumstance list or in a list defining capital murder, its effect for our purposes is the same: a defendant cannot be sentenced to death unless he or she

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[28]Baldus et al., supra note 9, at 235–36.

[29]A constitutionally valid capital sentencing scheme must narrow the pool of murderers who may be sentenced to death by specifying factors that make the death penalty a permissible punishment in a particular case. Gregg v. Georgia, 428 U.S. 153 (1976). Typically, these factors are contained in a state's designation of aggravating circumstances. E.g., S.C. Code Ann. § 16–3-20(C)(a) (Law. Co-op. 1985 & Supp. 2001). Thus, before a defendant is "eligible" for the death penalty, the jury must find beyond a reasonable doubt that at least one of these circumstances is present. Ring v. Arizona, 536 U.S. 584 (2002). Once one or more of the eligibility factors is found, then the sentencer can consider a broad array of information in determining whether the death penalty is the appropriate punishment in a particular case. Although most states' eligibility factors are contained in the list of aggravating circumstances, some states, e.g., Texas, perform the narrowing, eligibility determination in the definition of capital murder. Jurek v. Texas, 428 U.S. 262 (1976). For a study of several statutory factors that might influence death sentencing rates, see Ingrid A. Holewinski, Note, "Inherently Arbitrary and Capricious": An Empirical Analysis of Variations Among State Death Penalty Statutes, 12 Cornell J.L. & Pub. Pol'y 231 (2002).

[30]N.M. St. Ann. § 31-20A-5 (Michie 2000).

[31]Ala. Code § 13A-5-40 (1994 & Supp. 2000).

commits a murder that appears on the list.[32] Factors not included on an enumerated list of circumstances cannot make a defendant "eligible" for capital punishment.[33]

In other states, a more subjective approach defines death eligibility. One recurring phrasing of a more subjective standard is whether the crime is "heinous, atrocious, or cruel;"[34] another is that the murder involved torture.[35]

Eleven of this study's 31 states require a specific list of acts and 20 have a more subjective standard.[36] Table 1 allows computation of the death sentence rate for the two groups of states. The death sentence rate, computed by averaging the state rates, is 1.9 percent in states with specific statutes compared to 2.7 percent in states with more subjective statutes. This difference is nearly statistically significant, with $p = 0.069$ for the medians and $p = 0.105$ for the means. Seven of the 10 states with the lowest death sentence rates have specific lists compared to four of 21 states with higher death sentence rates ($p = 0.013$). This difference suggests an association between an objective list and a lower death sentence rate.

Who Imposes Sentence. Baldus et al. note that states that require death sentencing by the judge rather than by the jury "tend to have the highest rates

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[32]Jurek v. Texas, 428 U.S. 262, 270 (1976).

[33]See, e.g., Shellito v. State, 701 So. 2d 837, 842 (Fla. 1997) (per curiam), cert. denied, 423 U.S. 1084 (1998).

[34]E.g., N.C. Gen. Stat. § 15A-2000(e)(9) (2001) ("heinous, atrocious, or cruel"); Okla. Stat. tit. 21, § 701.12(4) (West 2000) (same).

[35]E.g., Nev. Stat. § 200.033 (Michie 2001); Utah Code Ann. § 76–5-202(1)(p) (2001). Seemingly objective factors supporting a death sentence, such as murder in the course of kidnapping, could be subjective if courts interpret generously what constitutes kidnapping.

[36]The specific lists appear in Ala. Code § 13A-5-40 (1994 & Supp. 2000); Ind. Code Ann. § 35-50-2-9(b)(3) (2002); Ky. Rev. Stat. Ann. § 532.025(a) (Michie Supp. 2001); La. Rev. Stat. Ann. § R.S. 14:30 (West 2001); Md. Ann. Code art. 27, § 413 (West 2001); Miss. Code Ann. § 97-3-19 (2001); N.M. St. Ann. § 31-20A-5 (Michie 2000); Ohio Rev. Code Ann. § 2929.04(A) (West 1997 & Supp. 2001); Texas Penal Code Ann. § 19.03 (Vernon 2001); Va. Code Ann. §§ 18.2–31 (Michie Supp. 2002), 19.2–264.2 (Michie 2000); and Wash. Rev. Code Ann. § 10.95.020 (West 1990 & Supp. 2001). States in which torture makes a murder death eligible are categorized as subjective states. Indiana added torture as a death-qualifying factor in 1989. Ind. Pub. L. 296-1989 (1989). We count it as a specific-list state because it was such for most of the study period. Treating it as a subjective state does not materially affect our results.

in the region."[37] One might expect the pressure to sentence to death to be especially high on individual judges who make the final determination. This observation motivates testing whether death sentence rates vary with the choice of final sentencer. In 25 of 31 states, either a jury or a three-judge panel imposes the final sentence. In six of the states, either an individual judge alone, or an individual judge with the advice of a jury, imposes the final sentence.[38] In these six states, the mean death sentence rate is 4.1 percent of murders. In the 25 states that have a group make the final decision, the mean death sentence rate is 2.1 percent of murders. This difference is statistically significant with $p = 0.002$ for the difference in means and $p = 0.012$ for the difference in medians. The effect is not limited to one region. States from the West (Arizona and Idaho), the Midwest (Indiana), the South (Alabama and Florida), and the Atlantic region (Delaware) all contribute to the high death sentence rate when individual judges impose the final sentence. Table 1 shows that five of the eight highest death sentence rates are in these six states. The ultimate sentencer thus appears to help explain death sentence rates.

Political Pressure on Judges. Judges who are vulnerable to election or recall may facilitate higher death sentence rates than other judges. The more often and directly state trial judges are subject to popular election, and the more partisan those elections are, the higher the state's rate of serious capital case error.[39] The association between political pressure and high error rates may be because the pressure leads judges to favor death sentences at trial. It is less plausible that political pressure drives courts to find error in cases once a defendant is on death row. The likely effect of

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[37]Baldus et al., supra note 9, at 235.

[38]The relevant statutes are Ala. Code § 13A-5-47 (1994 & Supp. 2000); Ariz. Rev. Stat. § 13–703 (2001); Del. Code Ann. tit. 11, § 4209(d) (1995); Fla. Stat. Ann. § 921.141(3) (West 2001); Idaho Code § 19–2515(g) (Michie Supp. 2002); Ind. Code 35-50-2-9(e) (2002). Eight of the 31 states studied require ultimate sentencing by one or more judges rather than by the jury. Ala. Code § 13A-5-47 (1994 & Supp. 2000); Ariz. Rev. Stat. § 13-703 (2001); Colo. Rev. Stat. Ann. § 16-11-802(c) (West 1998); Del. Code Ann. tit. 11, § 4209(d) (1995); Fla. Stat. Ann. § 921.141(3) (West 2001); Idaho Code § 19-2515(g) (Michie Supp. 2002); Ind. Code 35-50-2-9(e) (2002); Neb. Rev. Stat. § 29-2520 (1995). States will have to revise their sentencing procedure after Ring v. Arizona, 536 U.S. 584 (2002) (jury, not judge, must find the aggravating factors triggering death eligibility).

[39]Liebman et al. II, supra note 22, at iii.

political pressure is earlier in the process, with the high error rate being a consequence of political pressure leading to more questionable death sentences.

The political pressure index used here is based on the length of judges' first elected term, or the longer of retention terms.[40] The index ranges in value from two through eight.[41] The correlation coefficient measuring the relation between the political pressure indices and states' death sentence rates is 0.315 ($p = 0.085$).[42]

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[40]The description of the political pressure index variables is as follows:

> The first index combines the way in which judges are selected, the way they are retained, and the length of the first term. Selection method consists of a scale of 1 to 4, with 1 being the least political method and 4 being the most political, with scores based on the appointing authority (legislature, governor), whether the appointment is subject to retention elections, or whether elections without appointments are used. Retention is . . . coded 1 for appointed judges who face constitutionally mandated retention votes, and zero for all other judges. Length of first term scales years from 1 to 4 with the assumption that longer terms diminish political pressure. Years are categorized based on frequency distributions of term lengths. Terms of 10 to 15 years are categorized as 1; 8 years is categorized as 2; 6 years is categorized as 3; and from 1 to 4 years is categorized as 4. . . . [T]o account for the short duration of many appointments, a second scale was used based on the length of judges' first elected term, or the longer of retention terms. For example, an appointed first term of 1 year followed by an election term of 15 years is considered a 15 year first term, and scaled as a 1 to reflect lower political pressure.

Id. at E-4. We use the second political pressure index described in this passage. The political pressure and judicial ideology variables were compiled by Liebman et al., were part of what was originally in id., and were licensed for secondary analysis by Columbia University.

[41]The index values for this study's states are: Virginia = 2; Delaware = 3; Colorado, Illinois, Louisiana, South Carolina = 4; California, Indiana, Maryland, Missouri, Mississippi, Pennsylvania, New Jersey, Utah = 5; Arkansas, Kentucky, North Carolina, Tennessee = 6; Alabama, Arizona, Florida, Georgia, Idaho, Nebraska, New Mexico, Nevada, Oklahoma, Texas, Washington = 7; Ohio, Oregon = 8.

[42]One small state, Delaware, substantially influences this 0.315 coefficient. Excluding Delaware, the correlation between the political pressure index and death sentence rate is 0.475 ($p = 0.008$). Weighting the correlation calculation by the number of inmates on states' death rows yields a correlation coefficient of 0.506 ($p = 0.004$) (including Delaware). Since the political pressure index takes on integral values from 2 through 8, one can construct a mean death sentence rate for each value. This calculation is also sensitive to inclusion of Delaware. The correlation coefficient for the seven mean death sentence rates and the political pressure index is 0.069 ($p = 0.884$). Excluding Delaware, the correlation is 0.838 ($p = 0.037$). Weighting the calculation by the number of inmates on death rows for each value of the political pressure index yields a correlation coefficient of 0.805 ($p = 0.029$) (including Delaware).

Judicial Ideology. Liebman et al. also find a correlation between a measure of state supreme court justices' political ideology and rates of error in death penalty cases.[43] As in the case of judicial selection methods, if judicial ideology is associated with high error rates, it may be because ideology leads judges to promote death sentences at the trial stage. Liebman et al. use a combined measure of state supreme court justices' liberal versus conservative decision making.[44] This measure ranks states based on state supreme court justices' political party affiliations and on indices of the electorate's ideological disposition (for states where judges are elected) and of elite portions of the population (where judges are appointed). The measure is a state mean from 1970 to 1993, scored from conservative to liberal.[45] For the 31 states studied here, this measure ranges from a low of 25.0 for Arizona, the state with the most conservative judiciary, to a high of 97.4 for Maryland, the state with the most liberal judiciary. We find a substantial and significant correlation between death sentence rates and this measure of judicial political characteristics. The more liberal a state's judiciary (the higher its score), the lower the state's death sentence rate. The simple correlation coefficient is −0.430 ($p = 0.016$).

Life Without Parole. Another aspect of conventional wisdom is that the existence of life without parole (LWOP) as a sentencing option influences juries to reject the death penalty.[46] Juries may sentence a defendant to death because they worry that he or she will be released from prison[47] and mandatory life imprisonment without parole alleviates that concern. But we find little evidence that the availability of LWOP reduces death sentence rates. Two states in this study, Texas and New Mexico, do not have LWOP as an option. Yet Table 1 shows that Texas has a middling death sentence rate, and that New Mexico's rate is low, ranking 29th out of 31 states. A third state,

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[43]Liebman et al. II, supra note 22, at iii.

[44]They rely on Paul Brace, Laura Langer & Melinda Hall, Measuring the Preferences of State Supreme Court Judges, 62 J. Pol. 387 (2000).

[45]Liebman et al. II, supra note 22, at E-3.

[46]Peter Finn, Given Choice, Va. Juries Vote for Life, Wash. Post, Feb. 3, 1997, at A1.

[47]Theodore Eisenberg & Martin T. Wells, Deadly Confusion: Juror Instructions in Capital Cases, 79 Cornell L. Rev. 1 (1993). Liebman et al., supra note 23, at 103 (fig. 27) show little relation between political pressure on the judiciary and states' death sentencing rates.

Table 2: Association Between Death Sentence Rates and Legal and Political Factors

A. Legal Factors	*Mean of Factor*	*Death Sentence Rate in States*		*Significance of Difference*
		With Factor	*Without Factor*	
Specific list of crimes supporting a death sentence	0.355	1.9%	2.7%	0.105
Individual judge imposes final sentence	0.194	4.1%	2.1%	0.002

B. Political Factors	*Mean of Factor*	*Correlation with Death Sentence Rate*	*Significance of Correlation*
Index of political pressure on judges	5.74	0.315	0.085
Index of state supreme court justices' political ideology	42.20	–0.430	0.016

NOTE: Data are for the 31 states with more than 10 death row enrollees from 1977 through 1999. Death sentence rates used to compute correlations and *t* tests are from Table 1. Significance levels are *p* values. Death row data used to compute death sentence rates are based on the BJS capital punishment data. Murder data used to compute death sentence rates are based on the SHR from 1976–1998, except for a later starting year for three states, New Jersey, New Mexico, and Oregon, in which post-*Furman* death penalties became effective after 1977. Legal factor dummy variables in Panel A are based on the authors' coding. Political factor variables in Panel B were made available by Liebman et al. The "Significance of Difference" column in Panel A is the significance of the difference in death sentence rates between states with and without the rows' legal factors.

New Jersey, mandates LWOP only in limited circumstances[48] and also has a low death sentence rate, ranking 27th. So a comparison of states with and without parole suggests a tendency opposite to the expected effect. Since some states recently opted for an LWOP option, one can also compare death sentence rates within the same state before and after the change. Here the evidence is mixed, as reported in the Appendix, which also suggests possible reasons for the absence of an LWOP effect.

Table 2 summarizes the relation between death sentence rates and the legal and political factors discussed in this subpart.

2. Demographic and Murder Circumstance Variables

Factors such as region, race, and urbanization may plausibly influence death sentence rates.

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[48]N.J. Stat. Ann. § 2C:11–3 (West Supp. 2002).

The Southern Effect. Conventional wisdom suggests that Southern states are especially death-prone.[49] But the 11 former confederate states have mean death sentence rates of 2.4 percent, the same as the mean rate of the 20 death penalty states not in the former confederacy.

Race. Race effects in both seeking and ob taining the death penalty are well known.[50] But these effects do not explain, at the state level, the sizes of death rows. As Table 3 shows, no large or significant correlation exists between states' death sentencing rates and the percent of murders that involve blacks killing whites, blacks killing blacks, or whites killing whites. The BJS data do not include the race of the victim of death row inmates and so this factor cannot be accounted for using these data. We explore this effect in Part IV below.

Other Demographic Factors. Table 3 also shows that other demographic factors—rate of urbanization, black population percentage, crime rate, and murder rate—do not significantly correlate with states' death sentence rates, at least within the limits of the sample size of 31 states.[51]

Death row sizes are thus largely tied to the number of murders, and do not vary widely based on statewide demographic factors. Local, county-level practices are a likely source of death sentence rate variation.

Other Murder Circumstances. The SHR data include information about the circumstances of murders. One source of interstate variation in death row sizes could be differences in the nature of murder across states. It is unlikely, across large numbers of murders over many years, that the average death-worthiness of murders varies substantially across states. But a few murder characteristics are strong candidates for correlation with death row sizes and are worth exploring. First, crimes involving multiple victims are on average

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[49]E.g., Baldus et al., supra note 9, at 235 (expecting but not finding higher death sentence rates in the South); Bedau (ed.), supra note 15, at 21 ("the death penalty is as firmly entrenched as grits for breakfast").

[50]E.g., Baldus et al., supra note 5, at 1658–62, 1742–45.

[51]Liebman et al., supra note 23, at 97 (fig. 23), also show little correlation between death sentence rates and murder rates. The absence of significant correlation between murder *rates* and death sentence *rates* should not be confused with the presence of a strong correlation between the *number* of murders and the *number* of death sentences.

Table 3: Association Between Death Sentence Rates and Murder and Population Demographics

Murder or Population Characteristic	*Mean of Characteristic for 31 States*	*Correlation with Death Sentence Rate*	*Significance of Correlation*
Proportion of murders with black defendants & white victims	0.068	–0.233	0.207
Proportion of murders with black defendants & black victims	0.390	–0.094	0.617
Proportion of murders with white defendants & white victims	0.475	0.099	0.595
Proportion of murders with multiple victims	0.041	0.108	0.564
Proportion of murders involving victims who are strangers	0.183	–0.127	0.496
Black population percent	12.9%	–0.036	0.846
Crimes per 100,000 residents	5,758	0.029	0.876
Percent in urban areas	56.4%	–0.133	0.476
Murder rate	0.0014	0.116	0.536

NOTE: Data are for the 31 states with more than 10 death row enrollees from 1977 through 1999. The means in the first numerical column are of state-level data. They differ somewhat from averages computed at the national level. Death row data used to compute the correlations are based on the BJS capital punishment data. Murder data in the first five rows are based on the SHR from 1976–1998, except for a later starting year for three states, New Jersey, New Mexico, and Oregon, in which post-*Furman* death penalties became effective after 1977. State demographic data in the next three rows are based on the 1990 Census. The last row's murder rate uses the number of murders with known offenders from the SHR and divides by the state's 1990 population. Significance levels are reported as *p* values.

likely to be regarded as more deathworthy than cases involving individual victims. In some states, multiple victims are themselves an aggravating circumstance supporting a death penalty. Second, cases involving strangers as victims may be regarded as especially deathworthy by prosecutors and adjudicators. However, Table 3 shows no large or significant correlation between these factors and a state's death sentence rate. The factors may not vary substantially enough across states to help explain interstate variation in death sentence rates.[52]

[52]No strong relation exists between death sentence rates and court expenditures. Liebman et al., supra note 23, at 106, 108 (fig. 29). The correlation coefficient between our data's state death sentence rates and states' court expenditures per capita (reported id. at App. E-31 (tbl.

3. Regression Models of Death Row Sizes

To simultaneously explore the relation between the number of death sentences and the number of murders, and the influence of other legal, political, and demographic factors, we use regression analysis. Table 4 reports binomial regression models[53] in which the dependent variable is the size of all or a part of each state's death row population. The models control for the states' number of murders (through the use of binomial regression) and other explanatory factors.

Table 4's models use three dependent variables: the number of inmates on death row, regardless of race (Model 1), the number of black inmates on death row (Models 2 and 3), and the number of white inmates on death row (Model 4). The models thus vary both the race of the states' death row population sought to be explained and some of the explanatory variables. The

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23)) is 0.270 ($p = 0.183$). The relation between state court caseloads and death sentencing rates is also not significant. Id. at 110, 112 (fig. 31). The correlation coefficient between states' death sentence rates and state court criminal cases per 1,000 population (reported id. at App. E-33 (tbl. 24)) is 0.068 ($p = 0.740$).

[53]Generalized linear models are used for regression modeling for nonnormal data with a minimum of extra complication compared with normal linear regression. These regression models are flexible enough to include a wide range of common situations, including binomially distributed data, but at the same time allow most of the familiar ideas of normal linear regression to carry over (cf. P. McCullagh & J.A. Nelder, Generalized Linear Models (2d ed. 1989)). The dependent variables analyzed in Table 4 are the number of events of a particular type out of a certain universe of offenders. Hence the binomial model is the appropriate distributional model.

We use the sandwich, often known as the robust, covariance estimator to estimate the standard errors of the regression estimators. See P.J. Huber, The Behavior of Maximum Likelihood Estimates Under Non-Standard Conditions, 1 Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics & Probability 221–33 (1967). This estimator has the benefits that it is a consistent estimator irrespective of the underlying distributional assumptions and even if the model underlying the parameter estimates is incorrect. In addition, if a regression model that assumes independent error terms is applied to data with mis-specified cluster dependence, the result may be coefficient standard errors that are understated, leading to the unjustified rejection of null hypotheses. Since we have limited information about the facts of the case, the most salient information the judge or jury used in deciding the defendant's fate, the underlying parametric model is likely to be mis-specified in a variety of ways. We fit the models above using the usual (nonrobust) covariance estimator and found the standard error of the corresponding regression estimates to be too small, consequently the resulting regression estimators overstated the significance of the individual covariates. The bias-corrected bootstrap procedure (cf. B. Efron & R.J. Tibshirani, An Introduction to the Bootstrap (1993)) was applied to validate the results in Tables 4 and 6.

Table 4: Binomial Regression Models of Death Row Sizes 1977–1999, by Race

	1	*2*	*3*	*4*
	Dependent Variable = Number of			
	Inmates	*Black Inmates*		*White Inmates*
Universe of Offenders (1976–1998)	*Black & White Offenders*	*Black Offenders*	*Black Offenders*	*White Offenders*
Explanatory variables				
Individual judge is final sentencer	0.268 (1.54)	0.333 (0.38)	0.333 (0.33)	0.392 (1.60)
Specific list of death eligible crimes	–0.295* (2.16)	–0.177 (1.12)	–0.176 (1.02)	–0.407* (2.10)
Black defendant-white victim proportion	— —	— —	0.056 (0.05)	— —
Judicial ideology index	–0.018** (2.75)	–0.009 (1.17)	–0.009 (1.02)	–0.024* (2.30)
Political pressure index	0.121* (2.42)	0.128* (2.51)	0.127* (2.23)	0.115+ (1.78)
Constant	–3.709*** (12.31)	–4.326*** (16.28)	–4.329*** (15.74)	–3.203*** (5.66)
Observations	31	31	31	31
Log likelihood	–331.695	–203.600	–203.587	–293.662

+significant at 0.1; *significant at 0.05; **significant at 0.01; ***significant at 0.001.

NOTE: Data are for the 31 states with more than 10 death row enrollees from 1977 through 1999. "Inmates" are the number of death row inmates. Death row data are based on the BJS capital punishment data. Murder data are from SHR, 1976–1998, except for a later starting year for three states, New Jersey, New Mexico, and Oregon, in which post-*Furman* death penalties became effective after 1977. The sentencer and characterization of state death penalty statutes as specific are based on the authors' coding. The absolute values of bootstrapped standard errors are in parentheses.

models include the most promising explanatory variables based on the results reported in Tables 2 and 3, and related text. The models thus include explanatory variables for political pressure on the state's judiciary, the political leanings of the state's courts, and whether a group or an individual is responsible for the final sentencing decision.

The full inmate population model, Model 1, shows that the relations in the nonregression analyses all survive. But not all survive at traditional levels of statistical significance. In states that allow a judge to sentence or give the jury a mere advisory role ("Individual judge is final sentencer"), the number of death row inmates is greater, but not significantly, than in states

that have three judges sentence or have sentencing by the jury. States with objective specific lists of death-eligible murders have smaller death rows and the difference is statistically significant. States with more liberal judicial ideology on their highest court, corresponding to a lower judicial ideology index, have smaller death rows. And states with higher political pressure on their judges have larger death rows. This factor is statistically significant in Table 4's first model.

Previous studies showing racial effects in capital sentencing motivate the models shown in Table 4's other three columns. They treat black inmates and offenders separately from white inmates and offenders by modeling the number of black inmates as a function of the number of black offenders and the number of white inmates as a function of the number of white offenders.

For each state, a model generates a predicted number of death row inmates. The difference between a state's actual death row size, and the size as predicted by the model, yields a model's error for each state. The better the model fits the data, the lower the error rate. For example, if a state has 100 persons on death row, and a model, based on the explanatory variables in Table 4, predicts that the state would have 110 inmates, the error is 10 inmates. Similarly, if a model predicts that the same state would have 90 inmates, it too would have an error of 10 inmates. If all 31 states had an error of 10 inmates, the sum of errors would be 310.

The median error for the 31 states for Model 1 is 29 offenders and the mean error is 37 offenders. The actual median size of death rows is 138 and the mean size is 191. The sum of the errors[54] for the 31 states is 1,132 offenders compared to a total death row population of 5,932, an error rate of 19.1 percent. One can contrast this error rate with a baseline model, in which death row sizes are modeled solely as a function of each state's number of murders. In this simplest murder-based model, not reported here, the median error is 41 offenders and the mean error is 54 offenders. The sum of errors for all states is 1,674. The first model reported in Table 4 thus reduces the error by 542 out of 1,674 (to 1,132), or 32.4 percent, and provides substantial improvement in the mean and median error. So the legal and political variables substantially reduce the error. But the simple murder-based model accounts for over 70 percent of the sizes of death row, with the

[54]We use the absolute value of the errors to compute statistics summarizing errors.

additional variables increasing the explanatory power to about 80 percent of their sizes.

In summary, the primary factor explaining the size of states' death rows is the number of murders in a state. Other explanatory factors are: (1) the specificity of the factors that render a defendant eligible for the death penalty, which exerts pressure in the expected direction though not at traditionally statistically significant levels, (2) the final sentencer's characteristics, (3) judicial ideology, and (4) political pressure on the judiciary. These variables provide explanatory power over the simple murder-count-based model, but the number of murders is the most important factor in explaining the number of death sentences.

III. Death Row's Racial Composition

Murder demographics help explain death row's racial composition as well as its population. The larger the proportion African Americans constitute of a state's murderers, the larger the proportion African Americans constitute of a state's death row.[55]

A. The African-American Proportion of Death Row

Table 5 shows, for each state, the black proportions of death row and of murder offenders, the number of black death row inmates, and the number of black murder offenders. The African-American proportion of murder offenders ranges from less than 2 percent in Idaho to about 80 percent in Mississippi. The first numerical column shows that the black percentage of states' death rows ranges from zero in Idaho to about 70 percent in Maryland.

The most important factor in explaining the black proportion of death row is the black proportion of murder offenders. Figure 3 illustrates the rela-

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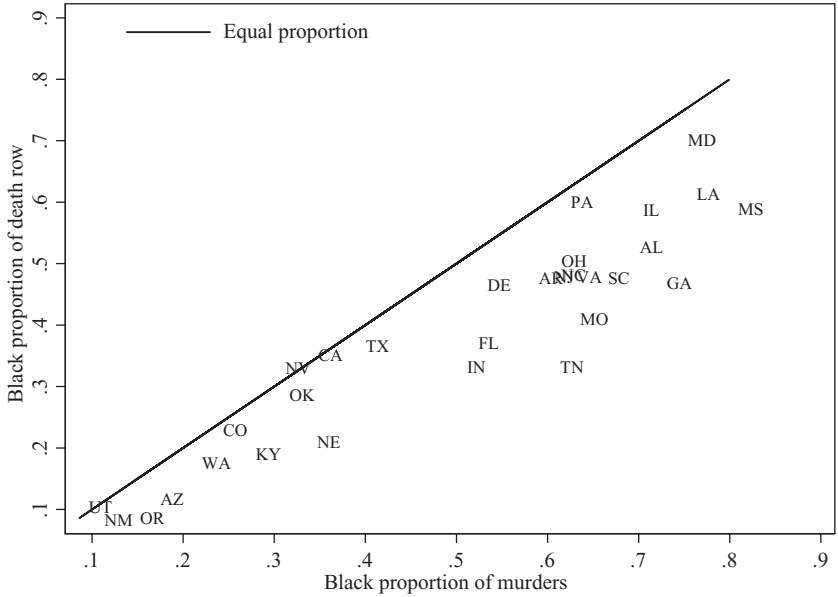
[55]One should be cautious in using crime statistics to establish racial disparity in crime rates. More accurate crime rate data or nondiscrimination in arrests could reduce the disparity. Angela J. Davis, Benign Neglect of Racism in the Criminal Justice System, 94 Mich. L. Rev. 1660, 1662–63 (1996); Jerome G. Miller, Search and Destroy: African-American Males in the Criminal Justice System 52–75 (1996); Tukufu Zuberi, Thicker Than Blood: How Racial Statistics Lie (2001). This concern is much lower, however, for homicide cases than for other classes of crimes. Michael Tonry, Malign Neglect: Race, Crime, and Punishment in America 66 (1995); Davis, supra, at 1682.

Table 5: Black Proportions of Death Row, 1977–1999, and of Murder Offenders, 1976–1998

State	*Black Proportion of Death Row*	*Black Proportion of Offenders*	*Number of Black Death Row Inmates*	*Number of Black Murder Offenders*
Maryland	0.702	0.744	33	4,912
Louisiana	0.614	0.754	97	7,646
Pennsylvania	0.601	0.615	190	8,058
Mississippi	0.590	0.799	85	3,294
Illinois	0.588	0.695	161	10,218
Alabama	0.527	0.691	164	5,659
Ohio	0.505	0.605	144	6,137
North Carolina	0.483	0.605	158	7,539
New Jersey	0.479	0.597	23	2,814
Virginia	0.479	0.622	57	5,742
South Carolina	0.478	0.656	66	5,545
Arkansas	0.478	0.580	43	2,625
Georgia	0.469	0.721	114	7,866
Delaware	0.467	0.524	14	328
Missouri	0.411	0.626	65	4,179
Florida	0.373	0.514	274	6,993
Texas	0.367	0.390	285	14,779
California	0.353	0.338	230	16,894
Indiana	0.333	0.501	28	2,652
Tennessee	0.333	0.604	52	4,643
Nevada	0.331	0.302	41	626
Oklahoma	0.288	0.307	74	1,539
Colorado	0.231	0.234	3	761
Nebraska	0.211	0.337	4	280
Kentucky	0.191	0.269	13	1,259
Washington	0.176	0.210	6	763
Arizona	0.117	0.165	25	825
Utah	0.105	0.086	2	93
Oregon	0.087	0.143	4	304
New Mexico	0.083	0.103	1	153
Idaho	0.000	0.013	0	10

NOTE: Data are for the 31 states with more than 10 death row enrollees from 1977 through 1999. Death row data are based on the BJS capital punishment data. Murder data are based on the SHR from 1976–1998, except for a later starting year for three states, New Jersey, New Mexico, and Oregon, in which post-*Furman* death penalties became effective after 1977. The racial breakdown of murderers is missing for Kentucky in 1988 and for Florida for 1988 through 1991, and 1996 through 1998.

Figure 3: Black proportion of death row and black proportion of murders.



tion between the race of murderers and the racial makeup of death row. It shows, for example, that African Americans account for about 40 percent of Texas murders and comprise about 40 percent of Texas's death row.

Thus, the proportion of murders by African Americans varies widely from state to state, as does the proportion of death row inmates who are African American. But Figure 3 shows that the two proportions move substantially together: a higher percentage of black offenders results in a higher percentage of black death row inmates.

The figure's straight line represents equal African-American proportions of death row and murder offenders. In states below the line, blacks constitute a higher proportion of murderers than they do of death row. In states above the line, blacks are a higher proportion of death row than they are of murderers. Three states, California, Nevada, and Utah, are above the line but no state is substantially above the line. In contrast, 28 of 31 states are below the line with some far below the line. A national figure helps summarize this effect. Blacks account for 51.5 percent of murders but for well

under half of the death row population.[56] The BJS data indicate that 41.3 percent of death row inmates since 1976 have been black. The disproportion between black offenders and blacks receiving capital sentences exists in almost every capital punishment state.

B. Race Effects' Influence on the Black Proportion of Death Row

How can African-American underrepresentation on death row be reconciled with the well-documented racial effects in capital cases? One racial effect, disproportionate presence of minorities on death row, is an artifact of using the general population, rather than the murderer population, as the basis for comparison.[57] If the focus is on the operation of the capital punishment system, the population of murderers is an arguably more appropriate starting point.

1. Describing the Racial Effects

The racial disproportion does not mean that racism is not a factor in capital sentencing patterns. Race plays a substantial role in the administration of the death penalty, but it tugs in two different directions.

The first tug increases the African-American proportion of death row because blacks who murder whites are most likely to wind up on death row.[58] For a fixed number of murders, the greater the proportion consisting of black defendant-white victim murders, the larger should be the black proportion of the state's death row. Note that Part I suggests that an increase in such murders may not increase the size of death row. The question here is whether it increases the African-American proportion of death row.

A correlation exists between the proportion of murders consisting of black defendants and white victims and the proportion of death row that is black. For the 31 states studied, the correlation coefficient is 0.657 ($p <$

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[56]E.g., Snell, supra note 1, at 8, tbl. 7 (42.9 percent of death row is black); NAACP Legal Defense and Education Fund, Death Row U.S.A. (1998) (41 percent of death row is black).

[57]Friedman, supra note 4, at 75.

[58]E.g., Baldus et al., supra note 9; Marc Mauer, Race to Incarcerate 129–30 (1999); William J. Bowers & Glenn L. Pierce, Arbitrariness and Discrimination Under Post-*Furman* Capital Statutes, 26 Crime & Delinq. 563, 612–14 (1980); Michael L. Radelet & Glenn L. Pierce, Race and Prosecutorial Discretion in Homicide Cases, 19 Law & Soc'y Rev. 587, 615–19 (1985).

Table 6: Regression Models of Racial Makeup of States' Death Rows

	1 *Black Proportion of Death Row (Logit OLS)*	*2* *Number of Blacks on Death Row (Binomial)*
Black proportion of murders	3.728**	3.255**
	(11.71)	(7.24)
Black defendant-white victim murder proportion	14.462**	10.441+
	(3.05)	(1.74)
Old South dummy × black proportion of murders	–0.422*	–0.413+
	(2.10)	(1.82)
Constant	–3.284	–2.670
	(11.93)**	(6.56)**
Observations	30	31
Adjusted R^2	0.92	—
Probability > F	0.0000	—
Log likelihood	—	–111.734

+significant at 0.1; *significant at 0.05; **significant at 0.01.

NOTE: Data are for the 31 states with more than 10 death row enrollees from 1977 through 1999. Death row data are based on the BJS capital punishment data. Murder data used to compute proportions and number of murders in the binomial regressions are from SHR, 1976–1998, except for a later starting year for three states, New Jersey, New Mexico, and Oregon, in which post-*Furman* death penalties became effective after 1977. The first model lacks one observation because the logit transformation eliminates one state with zero blacks on death row. The number of offenders on death row is the population used in the binomial regression model. The absolute values of bootstrapped standard errors are in parentheses.

0.001). However, further analysis is needed to determine whether this relation explains the black proportion of death row. As the share of murders committed by blacks increases, one expects the share of murders involving black defendants and black victims, as well as the share of murders involving black defendants and white victims, to increase. For example, assume that blacks commit 10 percent of the murders in state A and 50 percent of the murders in state B. The proportion of murders in state B that involve black defendants and white victims is likely larger than the proportion of murders in state A that involve black defendants and white victims.

So the high correlation between the proportion of murders consisting of black defendants and white victims and the proportion of death row that is black could be an artifact of a greater proportion of a state's murders being by blacks. We need to control for the proportion of murders by blacks as well as for the proportion of black defendant-white victim murders, as is done in Table 6.

The second tug decreases the black proportion of death row because, as Table 8 shows, blacks who murder blacks are unlikely to wind up on death row. This effect is harder to isolate at the state level because of the strong correlation (greater than 0.99) between the proportion of offenders who are blacks murdering blacks and the proportion of murders by blacks. So a simple correlation between the proportion of murders that involve black defendants and black victims and the black proportion of death row would suggest a positive relation. But that relation is likely misleading; absent information about the race of the victims of those on death row, it is difficult to separate the proportion of black defendant-black victim murders from the proportion of black offenders.

If, however, black defendant-white victim murders increase black representation on death row, and the bottom line is underrepresentation of blacks on death row, *some* race of defendant-race of victim combination must decrease it. The strongest candidate is the black defendant-black victim combination due to the evidence of prosecutorial reluctance to seek death in "black on black" cases. Another racial combination, white defendant-white victim, could also be viewed as increasing death sentence activity since this would also depress the proportion of African Americans on death row. The white defendant-black victim category is too small a portion of murders to materially influence the size of death row.

So black defendant-white victim murders increase black death row proportions and black defendant-black victim murders likely decrease black death row proportions. The two racial effects do not offset one another because the second effect is much more common than the first. Interracial crime is the exception, not the rule. From 1976 through 2000, 86 percent of white murder victims were killed by whites; 94 percent of black homicide victims were killed by blacks.[59] Since most black offenders murder black victims, race-based prosecutorial reluctance to seek the death penalty in this category of cases, or of juries to impose the death penalty, drives the racial imbalance. This tendency swamps the increased black presence on death row attributable to the harsh treatment of black defendant-white victim cases. The net result, as Figure 3 shows, is the African-American disproportion on death row.

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[59]James Alan Fox & Marianne Zawitz, U.S. Dep't of Justice, Homicide Trends in the United States, at http://www.ojp.usdoj.gov/bjs/homicide/homtrnd.htm; Trends by race, at http://www.ojp.usdoj.gov/bjs/homicide/race.htm (last modified Nov. 21, 2002).

A regional effect exists in the African-American proportion of death rows. Figure 3 shows that all 11 former confederate states are below the line of proportional equality. Most are substantially below it. The black proportion of death row grows least quickly in relation to the black proportion of murders in the old South.[60]

2. Regression Models of Racial Effects

Analyses not reported here explore the effect of Table 2's legal and political factors—the final sentencer, the specific list of death-eligible offenses, judicial ideology, and political pressure on judges—on the black proportion of death row. The legal or political factors did not achieve statistical significance, and we do not include them in the models explaining the black proportion of death row. Our analysis instead suggests that three factors most influence the black proportion of death row: the black proportion of murders, the proportion of murders that consist of blacks killing whites, and the Southern regional effect. Table 6 combines these three factors in regression models. An interaction variable explores the regional effect. It consists of a dummy variable equal to one for the 11 old-South states times the state's proportion of murders by blacks.

Table 6 reports in Column 1 ordinary least squares regression with a logit transformation of the dependent variable (the black proportion of death row), and in Column 2 binomial regression with the number of blacks on death row as the dependent variable and the number of offenders on death row as the population. In both models, the explanatory variables are significant or near-significant.[61]

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[60]For each state, subtract the percentage of death row that is black from the percentage of murders that are by blacks. For the 11 old-South states, the mean of these differences is 15.8. For the 20 other states, the mean of the differences is about 5.8. The difference between the differences, 10 percent, is statistically significant ($p = 0.0003$ for the difference in means; $p = 0.0010$ for the difference in medians).

[61]In selecting explanatory variables, we applied factor analysis to four variables: the proportion of black-kill-black murders in a state, the proportion of black-kill-white murders in a state, the proportion of murders by black offenders in a state, and the proportion of white-kill-white murders in a state. These variables reduce to two factors, well represented by the black-kill-white proportion and the proportion of murders by black offenders. Possible multicollinearity exists among the explanatory variables. Both the "black defendant-white victim proportion" variable and the interaction term are correlated with the "black proportion of murders" variable. But analysis of variance inflation factors indicates that multicollinearity is not a serious problem.

Table 6 confirms that the proportion of blacks on death row is primarily a function of the proportion of murders by blacks, with adjustment upward for the proportion of murders consisting of black defendants and white victims. The negative coefficient in both models for the interaction term, "Old South dummy × black proportion of murders," shows that the primary factor noticeably diminishes in the old South.[62] The black proportion of death row in the old South is smaller relative to the black proportion of murders than it is in other regions.

Table 6's models explain most of the variation in black inmate death row proportions. Using Column 2's model, we calculate for each state the difference, or error, between the actual number of blacks on death row and the number predicted by the model. The median difference for the 31 states is five offenders and the mean error is nine. The actual median number of blacks on death row is 52 offenders and the mean is 79. The sum of the errors is 267 offenders compared to a total black death row population of 2,456, an error rate of 10.9 percent. The models account for nearly 90 percent of the cumulative total of blacks on death row. Most of the explanatory power comes from the proportion of offenders that are black. A simple model using only the proportion of black offenders yields a sum of errors of 293 offenders. The other explanatory variables thus reduce the error by 26 out of 293 (to 267), or 8.9 percent.

IV. Accounting for Race of Defendant-Race of Victim Combinations

The BJS death row data do not include the race of the victim of death row inmates. This limits quantifying race of defendant-race of victim effects that are essential to understanding the African-American disproportion on death row. Establishing the disproportion does not establish which defendant and victim racial combinations drive the result.

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[62]The statistical significance of the "black defendant-white victim murder proportion" is sensitive to how one computes the bootstrapped confidence intervals. The reported significance levels use the normal corrected method. The data show some nonnormality and, using either the percentile or bias-corrected method, the 95 percent confidence interval for this coefficient is positive.

Table 7: Data Sets that Identify Race of Victims in Capital Cases

	Dates Covered by Available Death Row Data	*SHR Murder Data Used to Calculate Death Sentence Rates*	*Source*
Arizona	1977–2000	1976–1998	AZ Department of Corrections website
Georgia	1977–10/31/2001	1976–1998	GA Multicounty Public Defender's Office
Indiana	1978–2000	1977–1998	IN Public Defender Council
Maryland	7/1/1978–10/1/2001	1977–1998	Office of the Public Defender, Capital Def. Div.
Nevada	1977–2001	1976–1998	NV Law Offices of the Federal Public Defender
Pennsylvania	1977–6/25/1997	1976–1996	Administrative Office of PA Courts
South Carolina	1977–9/30/2001	1976–1998	Authors
Virginia	1977–9/28/2001	1976–1998	VA Capital Resource Center

A. State Databases that Account for Defendant-Victim Combinations

Data from government and capital case defense organizations that account for race of defendant and race of victim are available to us for the eight states listed in Table 7. The table also shows the time periods covered by the death row data for each state and the time period employed to supply a set of murders for which death sentences might be imposed. For example, the Georgia death row data used here cover 1977 through most of 2001. Death sentence rates for Georgia are computed using this death row data and murder data for 1976 through 1998, as indicated in Table 7's second column. We use more years of death sentence data than in earlier tables because, as Table 7 shows, more recent data, including race-of-victim data, were available for all of these states other than Pennsylvania. But repeating the analysis using death sentence data through 1999 or 2000 reveals no substantial difference in results.[63]

[63]Other qualifications about these data sources exist. For six of the Table 7 states, the death row data are quite complete. The Arizona data do not include those released from death row; thus its death sentence rates are understated compared to other states. The understatement is

The varying years covered by the eight state databases in Table 7 prevent exact within-state computations of death sentence rates by race of defendant-race of victim combinations. Our purpose in analyzing these data is to suggest the most plausible explanation for the African-American disproportion on death row: the disproportion results from extreme treatment of both black defendant-black victim murders and black defendant-white victim murders. Notwithstanding their limitations, the eight state databases support this explanation.

Some inmates are on death row for murders involving multiple victims. If a capital murder included at least one white victim, we classified the inmate as having killed a white victim. This is consistent with the hypothesis that white-victim murders are more likely to receive death sentences than are black-victim murders and we do not take seriously the hypothesis that the murder of a white victim is treated with unusual leniency if a black victim is simultaneously murdered.[64]

B. Race of Defendant-Race of Victim Results

Table 8 presents the race of defendant-race of victim death sentence rates for the eight states. It reports results for Arizona separately because the existence of a second substantial minority group, Hispanics, complicates analyzing Arizona. Table 8 combines Arizona blacks and Hispanics into a single "minority" category.[65] So, for Arizona, instead of reporting for four combi-

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substantial because the BJS data indicate that, from 1978 through 1999, 85 Arizona inmates exited death row for reasons other than execution. But there may be no undue distortion of within-Arizona variation across racial combinations. The Nevada data are missing the race of victim for 29 death row inmates so the Nevada death sentence rates are likely substantially higher than reported in Table 8 because it includes only 79 death sentences. For all states other than Arizona, we exclude the relatively few death sentences in cases involving race of defendant-race of victim pairs that do not consist of blacks and whites. This does not materially affect our overall results but does result in the exclusion of 14 additional Nevada death sentences. Because of the slightly shorter period of death sentences for Maryland, its death sentence rates are slightly understated compared to other states.

[64]See Gross & Mauro, supra note 9, at 38 (similarly characterizing multivictim murders).

[65]The prominence of Hispanics in Arizona also requires using data from the FBI's Supplementary Homicide Reports to estimate the number of murders involving Hispanic defendants and victims. Professor Fox's SHR compilation does not contain information separately identifying Hispanics. Fox, supra note 17. The FBI data contain an ethnicity variable that distinguishes between whites and Hispanics. U.S. Dep't of Justice, Federal Bureau of Investigation, Uniform Crime Reporting Program Data [United States]: Supplementary Homicide Reports, 1998

Table 8: Death Sentence Rate (*N* per 1,000 Murders), by Race of Offender and Victim, 1977–2000 (Eight States with Known Race of Offender-Race of Victim Data)

	Black Offender-Black Victim			*Black Offender-White Victim*			*White Offender-White Victim*			*White Offender-Black Victim*		
	# of Murders	*# of Death Sentences*	*Death Sentence Rate*	*# of Murders*	*# of Death Sentences*	*Death Sentence Rate*	*# of Murders*	*# of Death Sentences*	*Death Sentence Rate*	*# of Murders*	*# of Death Sentences*	*Death Sentence Rate*
Georgia	7,091	35	4.5*	726	72	99.2*	2,734	114	41.7	187	4	21.4
Indiana	2,151	12	5.6*	375	16	42.3+	2,272	49	21.6	100	0	0
Maryland	4,174	10	2.4*	479	25	52.2*	1,429	20	14.0	137	1	7.3
Nevada	442	11	24.9	178	18	101.1+	1,244	46	37.0	80	1	12.5
Pennsylvania	6,310	112	17.7	947	46	48.6*	4,055	90	22.2	335	4	11.9
South Carolina	4,784	14	2.9*	738	50	67.8*	2,654	72	27.1	179	9	50.3†
Virginia	4,975	18	3.6*	713	46	64.5*	3,167	58	18.3	217	5	23.0
	Minority-Minority			*Minority-White*			*White-White*			*White-Minority*		
Arizona	2,416	13	5.4*	400	19	47.5	1,613	95	58.9	247	7	28.3†

†indicates that significance of difference from state's white offender-white victim rate is $p < 0.1$; + $p < 0.05$; *$p < 0.0001$.

NOTE: Time periods used to compute the number of death sentences, time periods used to compute the number of murders, and sources of the number of death sentences are in Table 7. The numbers of murders are from SHR.

nations of offender and victim based on black and white, we report on offender-victim combinations based on minority and white status.[66] With that qualification, Table 8 shows, for each state, the number of murders that fit each offender-victim racial combination, the number of persons on death row for each such combination, and a death sentence rate—the number of death sentences per 1,000 murders for each combination.

Note the impression of death row created if one does not account for defendant and victim races. Table 8 shows, for example, that in South Carolina 64 African-American defendants were sentenced to death row during the period studied. It also shows that 81 whites were sentenced to death row during this period. So African Americans comprise 64 of 145, or 44.1 percent, of South Carolina's death sentences.[67]

Table 8 also shows that African Americans account for about 66 percent of South Carolina's known murderers during this period. This analysis confirms the national pattern: in South Carolina African Americans account for more than 65 percent of murders and about 44 percent of death row. The story is similar for Virginia. Sixty-four African Americans and 63 whites were sentenced to death row. African Americans thus comprise 50.4 percent of those on death row. African Americans account for about 63 percent of the murders. So we again find an African-American disproportion consistent with the national trend. Other states differ somewhat in the degree of this effect but do not depart from the dominant pattern.

Table 8's "death sentence rate" columns show that the low African-American proportion of death row masks two powerful, offsetting race-based effects. Death sentence rates vary substantially depending on defendant-victim racial combinations. In South Carolina, only 2.9 per 1,000 of black

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[computer file], Inter-university Consortium for Political & Social Research [distributor] (No. 2906), 2d ICPSR ed. 2001. We use the FBI's 1998 data to estimate the number of murders with Hispanics as victims or offenders. The complications of accounting for a second substantial minority group discouraged researchers from studying states such as Arizona. Gross & Mauro, supra note 9, at 41–42 n.11.

[66]The minority-minority category in Arizona consists of black defendant-black victim cases, Hispanic defendant-Hispanic victim cases, black defendant-Hispanic victim cases, and Hispanic defendant-black victim cases. The minority-white category consists of black defendant-white victim cases and Hispanic defendant-white victim cases. The white-minority category consists of white defendant-black victim cases and white defendant-Hispanic victim cases.

[67]This figure differs slightly from the black proportion shown in Table 5 due to the additional years of death row inmates included in this part of the analysis.

defendant-black victim cases resulted in death sentences compared to 67.8 per 1,000 of black defendant-white victim cases. Both these rates are highly statistically significantly different from the rate, 27.1 per 1,000, at which white defendant-white victim cases lead to death sentences.[68]

In Virginia, the story is similar. Only 3.6 per 1,000 of black defendant-black victim cases resulted in death sentences compared to 64.5 per 1,000 of black defendant-white victim cases. Both these rates are highly statistically significantly different from the rate, 18.3 per 1,000, at which white defendant-white victim cases lead to death sentences. The white defendant-black victim death sentence rate is not statistically significantly different from the white defendant-white victim rate. Maryland also has a low death sentence rate in black defendant-black victim cases, 2.4 per 1,000 murders, and a high death sentence rate in black defendant-white victim cases, 52.2 per 1,000. A similar pattern emerges in Georgia and Indiana.

Arizona's death sentence rate for minority defendant-minority victim homicides, 5.4 per 1,000 murders, is low compared to its 58.9 rate for white defendant-white victim homicides. This is similar to the South Carolina and Virginia pattern. Unlike Georgia, Indiana, Maryland, South Carolina, and Virginia, Arizona's minority defendant-white victim death sentence rate is not significantly different from the white defendant-white victim rate.

Nevada and Pennsylvania differ from the dominant pattern. Compared to the other states, they have relatively high death sentence rates in black defendant-black victim cases. In these two states, the death sentence rates in black defendant-black victim cases are not statistically significantly different from the death sentence rates in white defendant-white victim cases. But the rates in black defendant-white victim cases remain significantly higher than the rates in white defendant-white victim cases.

We use the states with race-of-victim data to explore national implications. For simplicity, we consider the national implications for blacks and whites only and limit national projections to estimates using the seven states other than Arizona. Table A1 in the Appendix describes this process, which yields an estimate that black offenders comprise 38 percent of death row. African Americans actually comprise a slightly higher proportion of death row—a bit over 40 percent. These data strongly suggest that black

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[68]For differences in early research, see Baldus et al., supra note 5, at 1731; Bowers & Pierce, supra note 58, at 563, 594 (tbl. 2) (1980); Gross & Mauro, supra note 9, at 45, 235, 237, 239, 241, 243.

underrepresentation on death row results from two racial effects—black underrepresentation in black-victim cases and black overrepresentation in white-victim cases.

The data also help explain a pattern across 55 studies analyzing race-of-defendant effects in nearly all death penalty states. Of the 55 studies, only five report statistically significant race-of-defendant effects and those five studies split in the direction of the effect.[69] An additional 13 of the 55 studies show race-of-defendant effects that are not statistically significant, and they too point in different directions. Race-of-defendant effects are not observed because of the contrasting treatment of black defendant-white victim cases and black defendant-black victim cases. Table 8, which allows direct comparison of black defendant-white victim cases and white defendant-white victim cases, establishes a race-of-defendant effect. In every state studied, the death sentence rate in black defendant-white victim cases is statistically significantly higher than the death sentence rate in white defendant-white victim cases.

Calculations using Table 8's seven-state data suggest Southern regional effects that are consistent with conventional wisdom. One can combine the three former confederate states in the table into one "Southern" observation. This yields 2,177 black defendant-white victim murders resulting in 168 death sentences, a death sentence rate of 7.7 percent. Combining the four nonconfederate states into one observation yields 1,979 black defendant-white victim murders and 105 death sentences, a death sentence rate of 5.3 percent. The Southern rate is 45 percent higher than the nonconfederate state base rate of 5.3 percent and the difference is statistically significant ($p = 0.002$). Similarly, the combined black defendant-black victim Southern death sentence rate is 67 death sentences out of 16,850 murders, or 0.4 percent. The non-Southern rate is 145 death sentences out of 13,077 murders, or 1.1 percent. This difference is highly statistically significant ($p < 0.0001$). For white defendant-white victim cases, the Southern death sentence rate is 2.9 percent compared to a non-Southern death sentence rate of 2.3 percent ($p = 0.017$).

C. Explaining the Observed Racial Effects

Racial effects can have varying sources. These include differences in murder characteristics that correlate with race and racially differential processing of

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[69]Baldus et al., supra note 5, at 1742–44.

Table 9: Murder Characteristics and Racial Combinations, 1976–1998

	Race of Offender-Race of Victim Combinations			
	Black-Black	*Black-White*	*White-White*	*White-Black*
Percent of murders with multiple victims	2.6	4.3	4.8	3.3
Percent of murders involving victims who are strangers	14.4	52.2	17.4	34.7

NOTE: Data are for the 31 states with more than 10 death row enrollees from 1977 through 1999. Murder data are based on the SHR from 1976–1998, except for a later starting year for three states, New Jersey, New Mexico, and Oregon, in which post-*Furman* death penalties became effective after 1977.

cases with similar characteristics. Both sources may contribute to the observed pattern of death sentencing.

1. Murder Characteristics as a Source of Racial Effects

As noted in Part II.B.2, murders involving multiple victims are likely to be regarded as more deathworthy than murders involving individual victims. Similarly, murders of strangers may be regarded as especially threatening by prosecutors and adjudicators. Table 9 reports the percent of murders with these characteristics for the four basic racial combinations of defendants and victims.

Table 9 suggests a partial explanation for observed racial effects. Its second row shows that about 50 percent of black defendant-white victim murders with known defendant-victim relationships involve victims who are strangers. This contrasts with less than 18 percent for both within-race classes of murders and about 35 percent for white defendant-black victim murders.

The absolute levels of Table 9's stranger-victim percentages may be suspect. Characterizing victims' relations to defendants can be subjective and may require information not available to the police at the time crime-reporting data are submitted. But the relative percentages in Table 9 are plausible. Within-race crime is less likely to involve strangers than interracial crime. Holding constant the race of the defendant, Table 9 shows that victims whose race differs from the defendant's are substantially more likely to be strangers. For Nevada and Pennsylvania, the difference in stranger-victim rates could explain nearly all the difference, reported in Table 8,

between black defendant-black victim death sentence rates and black defendant-white victim death sentence rates.[70]

The stranger-victim percent is less helpful in explaining sentencing differences between within-race murder cases. The stranger-victim percent in white defendant-white victim cases is only a few points higher than the stranger-victim percent in black defendant-black victim cases. This difference is too small to explain Table 8's large differences in death sentence rates between black defendant-black victim cases and white defendant-white victim cases.

With respect to multiple-victim homicides, Table 9 suggests that the highest death sentence rate should be in white defendant-white victim cases. But the multiple-victim data could also contribute to the low death sentence rate in black defendant-black victim murders.[71]

2. Sources of Prosecutorial Race-Based Behavior

Murder characteristics thus help explain part of the high death sentence rates in black defendant-white victim cases. They do not help explain the extraordinarily low death sentence rate in black defendant-black victim cases. Evidence suggests that prosecutors systematically decline to seek death in black defendant-black victim cases and our results are consistent with that effect. The effect may be the product of two explanations. First is a traditional racially discriminatory view in which black life is valued less highly than white life, or in which the white-dominated social structure is less threatened by black-victim homicide.[72] These views undoubtedly play a role.

However, prosecutors are more likely to seek death sentences when they believe they can obtain them. In urban communities with a strong

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[70]For other states, the difference in stranger-victim rates can explain part, but not all, of the larger differences in death sentence rates between black defendant-white victim cases and black defendant-black victim cases. Prior work confirms that accounting for murder circumstances does not eliminate racial effects. Gross & Mauro, supra note 9, at 45.

[71]Caution is necessary in relying on murder characteristics as a substantial explanation for racial differences. Recall from Table 3 that the two murder characteristics studied in Table 9 were not helpful in explaining interstate differences in death row sizes. Determining whether they substantially help explain racial differences should await further information about the murder characteristics of those actually sentenced to death row.

[72]Gary Kleck, Racial Discrimination in Criminal Sentencing: A Critical Evaluation of the Evidence with Additional Evidence on the Death Penalty, 46 Am. Soc. Rev. 783, 800 (1981).

minority presence, prosecutors may face juries that are more reluctant to impose the death penalty, or those communities may select prosecutors who are reluctant to seek the death penalty.[73] African Americans view the death penalty more skeptically than whites.[74] Recent evidence shows that black and white differences survive the jury-selection process. Race correlates with jurors' first votes in capital punishment trials.[75]

Thus, African Americans are, in general, more reluctant to impose the death penalty, tend to murder other African Americans, and tend to commit within-race murders in communities with substantial African-American populations. Even absent prosecutorial devaluing of African-American life, African-American presence on death row would be disproportionately low. Prosecutors may be reluctant to seek the death penalty because they expect the jury to be reluctant to impose it. Since this effect should occur more in communities with larger African-American populations, where most African-American murders occur, African-American presence on death row should be understated.

3. Black Defendant-White Victim Cases and Death Row Populations

The significance of the black defendant-white victim effect in explaining the racial makeup of death rows contrasts with its insignificance in Part I in explaining death row populations. If black defendant-white victim cases are especially likely to result in a death sentence, why does not the size of a state's death row increase with an increasing proportion of such cases?

One possibility is that the sample size is insufficient to detect a black defendant-white victim effect on death row sizes. Another possibility is that states have financial or bureaucratic limits on the number of capital cases they can prosecute. There may be a limited amount of "death" that the system can handle. This is consistent with evidence that the number of addi-

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[73]Baldus et al., supra note 5, at 1731, report that blacks in Georgia faced reduced risk of capital punishment in urban areas. Gross & Mauro report increased odds of a death sentence in rural counties in Georgia and Florida but not in Illinois. Gross & Mauro, supra note 9, at 69.

[74]E.g., Eisenberg et al., supra note 8.

[75]William J. Bowers, Benjamin D. Steiner & Marla Sandys, Death Sentencing in Black and White: An Empirical Analysis of the Role of Jurors' Race and Jury Racial Composition, 3 U. Pa. J. Const. L. 171 (2001); Theodore Eisenberg, Stephen P. Garvey & Martin T. Wells, Forecasting Life and Death: Juror Race, Religion, and Attitude Toward the Death Penalty, 30 J. Legal Stud. 277 (2001).

tions to states' death rows over time varies only slightly.[76] The BJS data show that from 1982 through 1999, the number of defendants added to all states' death rows in a year has always been from 266 to 326. In some states, therefore, the prosecution of one capital case likely precludes the prosecution of another. If black defendant-white victim cases are more attractive capital cases to prosecutors, seeking death in those cases may prevent capital prosecutions in cases involving other defendant-victim racial combinations.

V. Conclusion

Murderer demographics explain death row's population and racial makeup. Beyond the basic number of murders, a few other explanatory factors of death row sizes exist at the state level, including a state's judicial ideology and the degree of political pressure on its judges. A deeper understanding of the forces shaping death row populations may be obtained by studying intrastate variation through county-level studies.

With respect to the racial makeup of death row, the higher the proportion of murders by African Americans, the higher proportion of death row that is African American. That simple association masks two powerful but offsetting racial effects. Because black-victim cases are rarely prosecuted as capital cases, a racial disproportion exists on death row in almost every capital punishment state, and especially in the South. The tendency to obtain death sentences in cases involving African-American defendants and white victims only slightly moderates the underrepresentation because such cases are a small proportion of murders.[77] Since African Americans comprise a large proportion of the population and of the murder population in the South, the African-American disproportion on death row is stronger there.

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[76]Samuel R. Gross, The Romance of Revenge, in 13 Studies in Law, Politics, and Society 71, 78, 95 (Austin Sarat & Susan S. Silbey eds., 1993); Gross & Mauro, supra note 9, at 114; Steve Brewer, A Deadly Distinction: County Has Budget to Prosecute with a Vengeance, Hous. Chron., Feb. 4, 2001, 2001 WL 2996969; Liebman et al., supra note 23, at 106–12. State resource limit effects on death sentence rates are not detectable in the relation between death sentence rates and states' court expenditures. See supra note 52.

[77]These racial effects persist over time. The relation among death sentence rates across defendant-victim racial combinations reported here is similar to the relation found in Gross & Mauro's study of 1976–1980 data in eight states. See supra note 68.

APPENDIX

1. Further Discussion of the Relation Between Life Without Parole (LWOP) and Death Sentence Rates

In two states, Maryland and Indiana, death sentence rates did decline. Indiana authorized life without parole in 1993.[1] In the five years before 1993, there were 20 death sentences and 1,557 murders, a 1.3 percent rate; in the five years after 1993, there were 13 death sentences and 1,893 murders, a 0.7 percent rate. Maryland authorized life without parole in 1987.[2] In the five years before 1987, there were 17 death sentences and 2,064 murders, a 0.8 percent rate; in the five years after 1987, there were 11 death sentences and 2,932 murders, a 0.4 percent rate.

In Georgia and Mississippi, however, death sentence rates did not change or increased. Georgia authorized life without parole in 1993.[3] In the five years before 1993, there were 51 death sentences and 3,656 murders, a 1.4 percent rate; in the five years after 1993, there were 46 death sentences and 3,309 murders, a 1.4 percent rate. Mississippi authorized life without parole in 1994.[4] In the four years before 1994, there were 32 death sentences and 904 murders, a 3.5 percent rate; in the four years after 1994, there were 30 death sentences and 829 murders, a 3.6 percent rate.

One explanation for the absence of an LWOP effect is the death-qualification process used in capital cases. Jurors who indicate that they could not vote to impose the death penalty, or whose views on the death penalty would substantially impair their ability to follow the law, cannot serve

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[1]Ind. Code § 35-50-2-9(a). Virginia changed its law effective in 1995 to require that jurors be told about the life without parole alternative. Va. Code Ann. § 19.2–264.4. The three years before the change yielded 23 death penalties out of 1,892 murders, a rate of about 1.2 percent. The three years after the change yielded 14 death penalties out of 1,552 murders, a rate of 0.9 percent. But in 1998 nine people received death sentences and there were fewer murders than in any year since 1987. The death sentence rate in 1998 exceeded that in 1994.

[2]Md. Ann. Code art. 27, § 413.

[3]Ga. Code Ann. § 17-10-30.1.

[4]Miss. Code Ann. § 99-19-101.

on capital juries.[5] As states opt for LWOP, an increasing number of citizens, armed with knowledge of a new, appealing alternative to death, may indicate that they could not vote to impose the death penalty. So the capital jury selection process may increasingly remove potential jurors as the law incorporates LWOP as an alternative to the death penalty. Another possible explanation is that jurors may not believe that LWOP means that the defendant will spend the rest of his or her life in jail. Even when the law does provide for an LWOP alternative to the death penalty, jurors may be unaware of it,[6] or, "if they are aware of it, they do not believe it."[7]

2. Estimate of the Black Proportion of Death Row Based on Seven States' Data

Table A1 applies the seven-state average of the four race of defendant-race of victim death sentence rates to national offender data. For each of the four defendant-victim racial combinations, the table's first row shows the number of murders for the 31 states in this study for the period 1976 through 1998. Table A1's second row applies the combined seven-state rates of death sentencing to the respective defendant-victim racial combinations. It reports the estimated number of defendants on death row from each racial combination. The table's third row uses the second row's results to compute the estimated percent of national death row attributable to each racial combination.[8] The sum of the two columns with black defendants indicates

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[5]Morgan v. Illinois, 504 U.S. 719, 729 (1992); Wainwright v. Witt, 469 U.S. 412 (1985); Witherspoon v. Illinois, 391 U.S. 510 (1968). For discussion of the evidence that many jurors believe that death is the only appropriate punishment, see John H. Blume, Sheri Lynn Johnson & A. Brian Threlkeld, Probing "Life Qualification" Through Expanded Voir Dire, 29 Hofstra L. Rev. 1209, 1220–29 (2001).

[6]Only in 1994 did the Supreme Court require disclosure to jurors of life without parole as a sentencing alternative. Simmons v. South Carolina, 512 U.S. 154 (1994). Even after *Simmons*, struggles continue over when disclosure is required. Shafer v. South Carolina, 532 U.S. 36 (2001); John H. Blume, Stephen P. Garvey & Sheri Lynn Johnson, Future Dangerousness in Capital Cases: Always "At Issue," 86 Cornell L. Rev. 397 (2001). At the time of *Simmons*, Pennsylvania and Virginia also refused to inform sentencing juries of life without parole as the alternative to a death sentence. 512 U.S. at 168 n.8.

[7]Theodore Eisenberg, Stephen P. Garvey & Martin T. Wells, The Deadly Paradox of Capital Jurors, 74 S. Cal. L. Rev. 371, 396 (2001).

[8]The percentages do not total 100 because the national murder sample to which we apply the seven-state death sentence rates includes only cases with whites and blacks as offenders and victims.

Table A1: National Estimate of Death Row Composition Using Seven States' Data

	Black Offender-Black Victim	*Black Offender-White Victim*	*White Offender-White Victim*	*White Offender-Black Victim*
National known murderers 1976–98	113,649	19,987	118,488	7,048
Estimated number of death sentences	767	1,243	3,368	131
Estimated national percent of death row	14.6%	23.8%	55.0%	2.5%

NOTE: Using seven states with known race of offender-race of victim data, the table estimates the percentage of death row consisting of the indicated racial combinations for the 31 states in this study. The percentages in the third row do not total 100 because we limit our national murder sample to those cases with whites and blacks as offenders and victims.

that over 38 percent of death row would be black if the pattern found in these seven states was the national pattern.