A Statistical Analysis of Predictors Associated with the Dramatic Decline in Death Sentences in the United States in the Last Two Decades

Journal of Criminal Justice and Law: Official
Journal of the Law and Public Policy Section
of the Academy of Criminal Justice Sciences
Volume 3, Issue 1, pp. 1-21 (2019)

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Abstract

The annual number of new death sentences in the United States has fallen by more than 75% in the last two decades. The current study examines 1,665 death-eligible cases from 1994, 2004, and 2014 to draw empirically based conclusions that can shed light on some significant predictors associated with this dramatic decline. The results of logistic regression models suggest that the following were consistently significant predictors of case outcomes throughout the country over time: multiple perpetrators, age of perpetrators between 18 and 20 years, number of mitigators, cases with high and low aggravation, and five formerly high-volume counties. By contrast, factors that were important predictors of case outcomes in 1994 but that became insignificant in later years were robbery-murder and limited-revenue counties; the murder rate was not significant in 1994 but became significant in later years. Allegations of intellectual disability and county population size were not significant predictors in any of the years.

The number of new death sentences in the United States fell from 310 in 1994 to 73 in 2014. The media have noticed this sharp decline of more than 75% (Khadaroo, 2014; Wolf & Johnson,

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We would like to give special thanks to James R. Acker, Michael Cassidy, Timothy Lauger, Kenneth Levin, and Michael L. Radelet for their helpful suggestions, comments, and contributions to this research.

The authors also wish to express their appreciation to the blind reviewers of the original manuscript for their comments, which were helpful during preparation of the final version of the manuscript.

2015). In this article, we examine a host of death-eligible cases to draw empirically based conclusions that illuminate some of the significant predictors of case outcome over time. We chose 10 possible predictors for hypothesis testing: level of case aggravation, robbery as an aggravator, size of county population, county financial resources, changes in five populous counties, multiple perpetrators, number of kinds of mitigation evidence presented, claims of intellectual disability, perpetrator age between 18 and 20 years, and murder rate. We tested these predictors for 3 years: 1994, 2004, and 2014. We selected these years for two reasons. First, when we began the project, 2014 was the most recent year for which data were available. Second, this choice allowed us to backtrack two decades to 1994, which was one of the peak years for death sentence imposition in the post-Furman, contemporary death penalty era. The year 2004 then became a midpoint year to examine what was happening between 1994 and 2014. We employed a comparison methodology for death-eligible cases, which was necessary “to ensure that what is being observed is not merely a correlate” (Gould, Carrano, Leo, & Hail-Jares, 2014, p. 479). Specifically, we split the cases into two groups: those in which the defendants were sentenced to death, and those in which defendants were spared the death sentence by prosecutor or sentencer (usually a jury but occasionally a judge) decisions. Analysis of the factors that predicted case outcome generated important insights into the continued, but declining, operation of capital punishment in the United States. This is the first scholarly paper to statistically examine possible correlates of the decline in death sentences over two decades from a nationwide perspective on the basis of the details of more than 1,600 individual cases, thus providing an exceedingly fine-grained analysis.

LITERATURE REVIEW

This project attempts to identify factors associated with the decline in death sentences throughout the country during the past two decades. Previous research on this question can be categorized into four types: (1) qualitative studies without substantial empirical analysis; (2) studies using empirical analysis but limited to certain jurisdictions or certain time periods; (3) studies using empirical analysis that is nationwide in scope but that does not consider case characteristics in detail; and (4) studies using empirical analysis that is nationwide in scope and that does consider case characteristics in detail.

The first category of existing research is qualitative without substantial empirical analysis. A robust example is Lain (2017). This study suggests that the U.S. Supreme Court’s regulation of the death penalty set off a cascade of changes that resulted in decreased death sentencing, including the following: reduced public confidence, exorbitant costs, consistent presentation of mitigating evidence by increasingly skilled capital defense lawyers, addition of life without parole as a sentencing alternative, and the increased number of instances in which the penalty appeared to be beside the point, given the infrequency with which it was actually carried out. Dieter (2015) proposed the emergence of the innocence issue as the most likely significant cause, in addition to the expanded availability of life without parole and the drop in the murder rate. Smith (2015) suggested that contributors were high cost, low likelihood of success, long delays in effectuating executions, decreasing murder rates, and problems with lethal injection protocols. Steiker and Steiker (2012) mentioned extensive legal regulation, the rise of life without parole, and the cost and uncertainty of executions, whereas Steiker (2012) cited decreasing enthusiasm by prosecutors, the surprisingly effective litigation concerning lethal injection protocols, the effects of exonerations, the rise of life without parole, and decreasing murder rates. Sundby (2006)

examined juror sentencing decisions and suggested that an accumulation of micro-level changes had large effects, including the following: “tipping” just a couple of jurors in a significant number of cases toward a stance against the death penalty, which can cause an entire jury to tilt in that direction; professionalization of the capital defense bar; more caution on the part of prosecutors; and elimination of the possibility of death for the intellectually disabled and juveniles by the U. S. Supreme Court mandate.

The second category of existing research features empirical analysis that is limited to certain jurisdictions or time periods. For example, Pierce, Radelet, and Sharp (2017) examined more than 4,500 Oklahoma homicide cases from 1990 through 2012 and attributed the decline in death sentences in part to the growing concern that the penalty was not being reserved only for the “worst of the worst.” In particular, they found that death sentence imposition depended greatly upon the race and gender of the victim. When Blume and Vann (2016) studied the last four decades-worth of death-eligible cases in South Carolina, they attributed part of the decline in death sentences to the establishment in 2008 of the Capital Trial Division of the South Carolina Commission on Indigent Defense. The Fair Punishment Project (2016) examined more than 200 direct appeals in eight high-volume death penalty counties between 2006 and 2015 and found systemic problems in these “outlier counties.” Garrett (2017) examined 21 death penalty trials that took place in Virginia from 2005 to 2015, compared them with 20 death penalty trials that took place from 1996 to 2004, and concluded that criminal defense in the later era had improved substantially owing to the provision of regional capital defense resources beginning in 2004. McCord (2011) analyzed statewide and county data in Texas from 1992 to 2009 and concluded that five factors contributed to the decline in death sentences during that time: fewer capital murder convictions (modest effect), advent of life without parole as a mandatory alternative sentence (large effect), exemption of the intellectually disabled and juveniles (modest effect), less-populous county opt-out (large effect), and Harris County plunge in death sentences (large effect)). Finally, Smith (2012) examined certain death sentence-producing counties and concluded that new models of representation, like trial consulting offices, have sometimes reduced new death sentences drastically.

The third category of existing research consists of studies that use empirical analysis that is nationwide in scope but do not consider case characteristics in detail. Garrett, Jakubow, and Desai (2017) collected county-level data for every death penalty jurisdiction from 1990 through 2016. They subjected the data to empirical analysis and concluded that what remains of the death penalty is fragile and based on a long-standing history of racial bias, suggesting that idiosyncratic local preferences exist in certain densely populated urban counties with large Black populations. Moreover, Kovarsky (2016) created a method to calculate the concentration of death sentences in counties. The author examined some high-concentration counties and concluded that decisional pathways common to such counties led to violations of the norm of punishing similarly blameworthy offenders equally. In addition, Baumgartner, Gram, Johnson, Krishnamurthy, & Wilson (2016), reviewed statistical patterns in the geographical distributions of executions and compared them with the patterns in homicide distributions. They concluded that an increasing degree of concentration in a limited number of counties created self-reinforcing pathways toward death sentences in those locales. Liebman and Clarke (2011) analyzed data at the county level and proposed that counties that rarely, or never, sought death sentences were rebelling against subsidizing its profligate use by the minority of counties that often pursued death sentences.

The fourth category in the existing literature consists of studies that employ empirical analysis that is nationwide in scope and consider case characteristics in detail. Fagan, Zimring, and Geller (2006) engaged in a massive data-driven analysis of more than 490,000 murders occurring from 1976 to 2003 to examine whether the death eligibility of cases resulted in a decreased “market share” of death-eligible homicides in death penalty states, concluding that no such deterrent effect could be demonstrated (p. 1803).

Most pertinent to the current article, we published a companion law journal paper in which we identified numerous factors that may be associated with the decline in death sentences (McCord & Harmon, 2017-2018). We grouped these factors into two categories. The first category consisted of decreases in *death eligibility* that could be attributed to the following: (1) the occurrence of fewer murders in death penalty jurisdictions over time; (2) the exemption of the intellectually disabled by the U.S. Supreme Court in *Atkins v. Virginia* (2002); (3) the exemption of juveniles by the U.S. Supreme Court in *Roper v. Simmons* (2005); (4) the abolition of the death penalty in several states; and (5) the move to life without parole in several states.¹ The first four of these factors could not be included in a regression model because they were removed from possibility in at least one of the two years of 2004 and 2014, thus becoming constants that are obvious causes of the decline in death sentences.² The second group of factors consisted of decreases related to death-worthiness embodied in the 10 hypotheses set forth below. The first set of factors could not be included in a regression model because all of these factors, except for the decline in the number of murders and move to life without parole, were removed from possibility in later years (2004 and 2014) and became constants (i.e., no juveniles or mentally disabled should have been sentenced to death since 2002 [intellectually disabled] and 2005 [juveniles] on the basis of the U.S. Supreme Court rulings in *Roper v. Simmons* and in *Atkins v.*

¹ The companion piece examines the possible effects on death sentencing of the enactment of a life-without-parole (LWOP) sentencing alternative (McCord & Harmon, 2017-2018). The authors reported that from 1994 to 2009, eleven states—Florida, Kentucky, Mississippi, Nebraska, New Jersey, New Mexico, North Carolina, Ohio, South Carolina, Texas, and Virginia—enacted LWOP as a capital sentencing alternative, although three of those states—Nebraska, New Jersey, and New Mexico—imposed so few death sentences either before or after the enactment of LWOP that studying the possible effects of LWOP in those states is not fruitful. Of the remaining eight states, all of them except Texas enacted LWOP from 1994 to 1998. This was a high-volume time for death sentencing. The article examined the number of death sentences in the seven states that enacted LWOP in the 1990s by comparing the number of death sentences in the 2 years before LWOP enactment, the year of enactment, and the years immediately after enactment. The findings were that the number of death sentences did not significantly change in any of those states. This supports a hypothesis that in the relatively pro-death penalty climate of the 1990s the enactment of LWOP had no noticeable effect. Texas, however, enacted LWOP in 2005 in a relatively more anti-death penalty climate. The results found that the number of death sentences in Texas in the year of enactment was about half of what it had been in the years leading up to enactment, and that the number of death sentences remained at or below this reduced level in every subsequent year. This supports a hypothesis that the enactment of LWOP in Texas had a noticeable effect in decreasing the number of death sentences. Because of a small degree of state variability, it was not possible to include this variable in the regression models.

² It was not possible to obtain murder rates at the county level. We tried to obtain this information for the three most influential counties that were hypothesized to cause a drop in death sentences: Cook, Harris, and Philadelphia. However, county murder data are not available in the Uniform Crime Report, only city data. These city figures did not suffice for Cook and Harris Counties because Chicago accounts for only 54% of the population in Cook County, and Houston also spills over into two other counties.

Virginia). This data set could profitably be subjected to statistical analyses (e.g., bivariate analysis, logistic regression), which was not done in the companion law journal paper (McCord & Harmon, 2017-2018). The current paper uses statistical tools and fills a gap in the literature because prior research has not used these statistical techniques to examine patterns that emerge from an examination of individual death-eligible cases over two decades and across every death penalty jurisdiction.

HYPOTHESES

Prior researchers have been skeptical that more aggravated cases are more likely to result in death sentences, claiming instead that death sentencing is largely arbitrary. Some researchers have pointed generally to seemingly arbitrary outcomes. McCord (2005) examined almost 600 death-eligible cases from 2004, only about one-quarter of which resulted in death sentences, and after accounting for the relative aggravation levels of the cases, the author concluded that death sentencing nationwide was so unpredictable as to be arbitrary. Blume and Vann (2016) concluded that arbitrariness was prevalent in South Carolina over a 40-year period. Pierce, Radelet, and Sharp (2017), on the basis of a study of more than 4,500 Oklahoma homicide cases, concluded that part of the reason for the decline of the death penalty in that state was that the penalty was not being reserved for the “worst of the worst.” Other researchers have focused on more specific causes of arbitrariness. Dorland and Krauss (2005) argued that jurisdictions that factor “future dangerousness” into their death sentencing systems build in arbitrariness because the predictions of experts who opine on this topic lack validity, yet they are likely to influence jurors. Hughes (2012), on the basis of interviews with 30 mitigation specialists, asserted that arbitrariness in the gathering and presentation of mitigation evidence conduces to arbitrary death sentences. Mourer (2014) argued that the ability of judges in some state systems to sentence a defendant to death when the judges do not know what factual findings a jury concluded can lead to arbitrariness. Emanuel (2015) contended that in North Carolina, the failure of the state supreme court to perform proportionality review properly resulted in arbitrariness.

To test the pervasive skepticism that case aggravation level has a substantial effect on death sentencing, we hypothesized the following:

H1. The case aggravation level will affect the likelihood that a case will result in a death sentence—that is, a more highly aggravated case will be more likely to result in a death sentence, whereas a less aggravated case will be more likely to result in a non-death sentence.

On the basis of two studies in California, Shatz (2007) concluded that robbery was a weaker predictor of a death sentence than were other felony aggravators, such as kidnapping and rape. McCord and Harmon (2017-2018) surveyed more than 1,600 cases over three decades and concluded that robbery had declined significantly as a possible death sentence correlate. Thus, we hypothesized the following:

H2. The fall in the number of death sentences will be particularly pronounced among death-eligible robbery-murders.

McCord (2011) suggested that less-populous counties in Texas, which normally have fewer financial resources, have become increasingly less likely to seek death sentences because of rising costs. Owens (2013) analyzed county-level data in Texas. She concluded that the effect of the rural population percentage on death sentencing was conditioned by a county's financial standing, especially if the county was unable to afford capital trials. Thus, we hypothesized the following:

H3. The fall in the number of death sentences will be particularly pronounced among less-populous counties—that is, death-eligible murders in counties with a small population will be more likely to result in non-death sentences over time.

Petersen and Lynch (2012) studied a database of cases from Los Angeles County to demonstrate that death penalty prosecutions are more costly in terms of both money and time. Some authors have contended that these increased costs have deterred prosecutors from seeking death sentences (Steiker & Steiker, 2012; Lain, 2017). Goelzhauser (2013) studied a nationwide sample of cases occurring from 2004 and 2005 and concluded that counties with larger budgets are more willing to pursue death sentences. Thus, we hypothesized the following:

H4. The fall in the number of death sentences will be particularly pronounced among counties with limited resources—that is, death-eligible cases in such counties will be more likely to result in non-death sentences over time.

Researchers have noted that death sentencing is quite varied among counties. On the basis of an analysis of county-level data, Liebman and Clarke (2011) asserted that one explanation for the decline in death sentencing was that counties that do not use the death penalty have rebelled against the minority of counties that raise costs by using it regularly. Baumgartner et al. (2016) noted the entrenched pathways in certain counties that lead to death sentences, as did Kovarsky (2016) and the Fair Punishment Project (2016). Garrett, Jakubow, and Desai (2017) analyzed county-level data from 1990 through 2016 and concluded that death sentence patterns reflect local preferences in densely populated urban counties with large Black populations.

In addition to this variance among counties, considerable variance also occurs within counties over time. McCord (2011) examined data in Texas from 1992 to 2009 and concluded that Harris County had changed from a high producer of death sentences to a moderate producer during that time span. McCord and Harmon (2017-2018) presented data showing seemingly surprisingly large declines in death sentencing from 1994 to 2004 and 2014 in five large-population counties: Cook (Illinois), Harris (Texas), Miami-Dade (Florida), Philadelphia (Pennsylvania), and Pima (Arizona). To determine whether the decline in these five counties (which for brevity we hereinafter refer to as “idiosyncratic counties”) was more dramatic than the overall decline, we hypothesized the following:

H5. The fall in death sentences will be particularly pronounced in these five formerly high-volume counties—that is, the counties will be more likely than the norm of counties to impose non-death sentences over time.

McCord and Harmon (2017-2018) pointed out that a substantial proportion of death-eligible cases involve multiple perpetrators, which can result in difficulties in affixing degrees of blameworthiness among them. In turn, this situation can lead to forbearance by prosecutors in seeking death sentences in cases with multiple perpetrators, or by sentencers in imposing them. That paper found evidence that the number of death sentences had declined in cases with multiple perpetrators. Thus, we hypothesized the following:

H6. Cases with multiple perpetrators will be more likely to result in non-death sentences over time.

Sundby (2006) and Lain (2017) suggested that the decline in death sentences is at least partially attributable to better capital defense lawyering. In particular, several scholars pointed to the establishment of capital defender offices in certain localities as a factor leading to a decline in death sentences (Smith, 2012; Pierce, Radelet, & Sharp, 2017; Garrett, 2017). Because one of the primary hallmarks of good capital defense lawyering is the presentation of mitigation evidence, we hypothesized the following:

H7. The presentation of more kinds of mitigation evidence will lead to fewer death sentences over time.

Blume, Johnson, and Seeds (2009) found that about 7% of death row inmates from 2002 to 2008 had filed intellectual disability claims in post-conviction proceedings in the wake of *Atkins v. Virginia*, and about 40% of them prevailed. Thus, if a defendant asserts a claim of intellectual disability, the prosecution could have to devote significant resources to contest the claim; beyond that, the claim could cause jurors to refrain from imposing a death sentence. Accordingly, we hypothesized the following:

H8. The abolition of death sentences for the intellectually disabled deterred prosecutors and juries from seeking death for defendants who made a claim that they were intellectually disabled.

Michaels (2016) argued that persons 18 to 20 years old should be excluded from death eligibility for the same developmental reasons as juveniles. Although the U.S. Supreme Court has not so ruled, McCord and Harmon (2017-2018), who examined the possibility that the juvenile exclusion from death eligibility had a ripple effect on prosecutors and juries in their death-sentencing decisions for defendants who were age 18, 19, or 20 at the time of the murder, found evidence to support this proposition. As a result, we hypothesized the following:

H9. The abolition of death sentences for juveniles deterred prosecutors and juries from seeking death for defendants who were only slightly past the age of majority (18, 19, or 20 years).

Not only did the absolute number of homicides decline in most jurisdictions over the time period studied, but so also did the murder rates. Steiker (2012) and Dieter (2015) suggested that decreases

in murder rates might be part of the explanation for the decline in the death penalty. Thus, we hypothesized the following:

H10. The decline in murder rates will be more likely to result in non-death sentences over time.

METHODS

We generated two sets of cases. The first included death-sentenced defendants in 1994, 2004, and 2014, who were identified by comparing the names in succeeding *Death Row USA* quarterly reports (Criminal Justice Practice, NAACP Legal Defense and Educational Fund.). The second set of cases comprised death-eligible defendants who avoided death sentences in those 3 years owing to a prosecutorial or sentencer decision. To identify the non-death-sentenced cases, we searched the WestLaw *U.S. News and World Report* database, using the search term “death/s sentence or penalty.” It was necessary to search each week of the 3 years (1994, 2004, and 2014) individually, for a total of 156 weeks. Hundreds of hits were obtained for each week, so each article was examined to identify pertinent cases—death-eligible cases in which defendants were convicted but not sentenced to death. A murder was classified as death-eligible if evidence was available to support any of 19 aggravating factors, identified by scholars (McCord & Harmon, 2017-2018), that make murder a death-eligible crime in most death penalty jurisdictions: multiple murders; murder during robbery, rape, kidnapping, home burglary, or arson; murder to escape incarceration, for a financial motive other than robbery, to eliminate or retaliate against a witness, with an anti-government or terroristic motive, or committed as a hate crime; perpetrator with a prior murder conviction; perpetrator with prior violent felonies or incarcerated; victim 12 years of age or younger, 70 years of age or older, or a police officer; use of torture; and hiring a killer or acting as a hired killer.

We located 1,665 death-eligible cases from those 3 years, which were distributed as follows:

- 1994: 310 death sentences, 158 sentencer-spared cases, and 290 prosecutor-spared cases;
- 2004: 134 death sentences, 113 sentencer-spared cases, and 296 prosecutor-spared cases; and
- 2014: 73 death sentences, 40 sentencer-spared cases, and 251 prosecutor-spared cases.

Although this total includes every case in which a death sentence was imposed during the 3 years, the roster of non-death sentence cases is not exhaustive because the *U.S. News* database did not cover every newspaper, and our search term did not necessarily retrieve all death-eligible cases. Although this is a significant limitation, we had no other possible alternative to obtain a comparison group on a national scale for the death sentences.

Next, we searched for news articles and/or appellate opinions containing facts about each case. Then, we each coded each case for numerous variables, including the state (or federal court) in which the sentence was imposed, the county, the county population, the county revenue, the defendant’s age at the time the crime was committed, 66 factors that could aggravate a case (which we used to create a more sophisticated aggravation scale), and 22 factors that could mitigate a case (see Appendix for coding sheet).

Data Analysis

As a first step in the data analysis, we produced descriptive statistics to show the presence of aggravators and mitigators among the cases. Second, a bivariate analysis was performed to identify variables that were significantly related to case outcome over time. Because of the nature of the dependent variables (dichotomous), we used logistic regression analyses. Running the logistic regression equations allowed a comparison of the influences of the various independent variables on the dependent variable over time, and therefore a test of the hypotheses previously stated (Hosmer & Lemeshow, 1989). Finally, we performed a variety of tests to assess whether the coefficients from the 1994 and 2014 regression models were statistically distinguishable (Brame, Paternoster, Mazerolle, & Piquero, 1998; Williams, 2009).³

Independent Variables

The independent variables used in this study include the following: year, state (or federal court), and county in which the sentence was imposed; county population; county revenue; state murder rate (per 100,000 residents); defendant's age at the time of the murder; 66 aggravating factors (used to create a scale); and 22 mitigating factors that can affect a case outcome (see Appendix for a complete listing of the variables and codes). We did not regress these multiple variables separately. Rather, we combined the aggravators in each case into one summary variable, which ranged from 1 to 39, as is explained below. For the mitigators, we used the count of the number of mitigators that were presented in each case.

In a series of articles (McCord, 2002, 2005, 2009), McCord created and refined a set of weighted aggravators based on the common sense proposition that not all aggravating circumstances should be counted as equally bad. For example, killing an additional victim is worse than causing a great risk for harm to others, even though in many jurisdictions both of these constitute aggravating circumstances. We used McCord's system with some minor refinements. We used an aggravation rubric with 66 weighted aggravators ranging from 5 points (worst) to 1 point (least bad), all as shown in the Appendix. We used aggravators that were objectively identifiable (e.g., "two murders") rather than creating aggravators that required subjective value judgments, such as whether the murder was "particularly heinous."

The 5-point aggravators all involved an additional murder by the defendant—one additional murder victim had a weight of 5, two additional victims a weight of 10, and three or more additional murder victims a weight of 15; a prior murder (evidenced by either a conviction or proof of such a murder without a conviction) also had a weight of 5.

The 4-point aggravators included the following: murder with an anti-government/terroristic motive, murder during incarceration, murder of a government servant, torture, and hiring a killer/acting as a hired killer. The 3-point aggravators included the following: attempted murder causing serious injury, rape, kidnapping, murder during an attempt to escape incarceration, murder with an insurance/inheritance or other blatantly financial motive (not including robbery),

³ Scholars have argued that using Z tests for comparing coefficients across logit models may be inappropriate when residual variation differs across groups (Allison, 1999; Williams, 2009). Subanalysis (not shown) employing heterogeneous choice models indicated differences in residual variation for 1994 and 2014 cases, but only in model 1. Thus, tests for equality of coefficients were conducted by using heterogeneous choice models for model 1 and Z tests for models 2, 3, and 4 (Brame, Paternoster, Mazerolle, & Piquero, 1998).

and thrill killing. The 2-point aggravators were numerous; among the most frequently occurring were robbery, burglary of a home, elimination/retaliation against a witness, defendant record of other violent felonies (not including murder), victim age of 12 years or younger, and several aspects of the method of killing and aftermath of the murder.

The 1-point aggravators were also numerous. Some of the most frequently occurring were attempted murder without serious injury, murder during a drug deal, gang-related murder, male obsession/stalking, defendant history of less serious crimes, victim age of 70 years or older, infliction of three or more handgun wounds, and use of multiple forms of violence during the killing. After the weighted factors had been coded, the aggravator point total in each case was determined by adding the aggravator points, which resulted in a range from 1 to 39 aggravator points in each case (1 point representing the least aggravated case, 39 the most highly aggravated case).

We identified 22 mitigators (see Appendix); however, we could not devise a reliable way to weight them, as we were able to do with the aggravators. Most mitigators were matters of degree that would have required subjective value judgments. For example, many defendants presented evidence of childhood trauma and deprivation. Yet, the variety of such trauma and deprivation evidence was large, and the subjective analysis that would have been necessary to devise a weighting system that could be applied even-handedly across cases was elusive. Thus, we used the number of kinds of mitigators presented in a case as a rough estimate of the weight of the mitigation. This is a significant limitation that was inescapable.

We also created a special variable to capture the unexpectedly large drop in death sentences in five counties that had been high producers of death sentences in 1994 but in which the number of death sentences plummeted in 2004 and 2014 (“idiosyncratic counties”). McCord and Harmon (2017-2018) identified local political reasons for declines in two of these counties: in Harris County, Texas, the retirement of a long-time “deadly D.A.” coupled with the Houston Crime Lab scandal; and in Cook County, Illinois, a coerced confession scandal involving the Chicago Police Department. In three other counties—Philadelphia, Pennsylvania; Pima, Arizona (Tucson); and Miami-Dade, Florida—similar drops in the number of death sentences undoubtedly also occurred because of local political factors. A series of dummy variables was created for each of these counties. However, because of the small sample sizes, it was necessary to combine them into a new variable that was coded dichotomously: an idiosyncratic county (1) and all the other counties that were not idiosyncratic (0). This variable replaced the small-population county variable and limited-resources county variable to avoid multi-collinearity problems. As a result, it was necessary to run several different regression models that included the separate county variables. This was also true of the high-aggravator and low-aggravator case variables. These variables were multi-collinear. As a result, two different regressions models were performed substituting these variables because they could not be included in a single regression model.

We used 10 of the variables embodied in the hypotheses above to run the logistic regression analyses, and several had to be re-coded into categorical variables. The aggravation scale was re-coded into two separate variables: high aggravation (0=all other aggravation points [lowest and middle]), 1=top quartile in aggravation points (13-39 on the aggravation scale) and low aggravation (0=all other aggravation points, 1=lowest quartile in aggravation points [0-5 points]). The other variables were coded as follows: robbery-murder (0=no, 1=yes); small county population (0=50,000 or less, 1=more than 50,000); limited county revenue (0=lowest quartile of revenue,

1="110822" [this number represents the cutoff at 25% of the cases or higher and is in thousands of dollars]); idiosyncratic counties (no=0, 1=yes); multiple perpetrator cases (0=no, 1=yes); presence of mitigating factors (0=no, 1=yes); claim of intellectual disability (0=no, 1=yes); age of 18 to 20 years (no=0, yes=1); and state murder rate.

Dependent Variable

We used a dichotomous dependent variable to indicate whether the case ended in a death sentence (death vs. life).

FINDINGS

It is important to note that we excluded cases from any state that had abolished the death penalty between 1994 and 2014. We did this because if the state had abolished the death penalty for any of the years, there would have been no variation in the dependent variable—case outcome. It was of primary interest to ascertain if the level of aggravation in death-eligible cases was a significant predictor of a death sentence or a non-death sentence outcome while controlling for other independent predictors over time. McCord (2009) noted the widespread agreement today that if death sentences should exist at all, they should be imposed on only the “worst of the worst” among death-eligible perpetrators. Thus, it is possible that part of the reason for the decline in death sentences was a more refined process of winnowing out cases so that only the perpetrators of the most highly aggravated murders were sentenced to death.

Table 1: Logistic Regression: Complete Model for All Years Combined (High Aggravation)

	Coefficient	St. Error	Coefficient	St. Error
Robbery-Murder	-.46***	.19	-.44***	.14
Multiple Perps.	1.20***	.15	1.22***	.16
Intell. Disability	-.65*	.37	-.73**	.37
Age 18-20 Years	1.41***	.20	1.42***	.20
Aggravation	-1.29***	.15	-1.30***	.15
# of Mitigators	-.80***	.05	-.79***	.06
County Pop.	-.06	.21	-.01	.22
County Revenue	-.58***	.20	-.53***	.21
Murder Rate	-.13***	.02	-.09***	.03
Year			.04***	.01

***p<.01, **p<.05, *p<.10

SE=standard error

N=1,538 (the total is not 1,665 because 125 cases for county revenue were missing and 71 cases for county population were missing).

The results of the first regression models (Tables 1 and 2), which included all of the predictors of a death sentence for all of the years in the study, suggest that the following variables were statistically significant: robbery-murder, multiple perpetrators, perpetrator age of 18 to 20 years, number of mitigators, murder rate, county revenue, and high-aggravation cases (the variable of low-aggravation cases in a separate model was also significant). Claims of intellectual disability were marginally significant. County population was not significant. When year was added as a control variable, it was significant, and all of the variables that had been significant remained significant. Moreover, claims of intellectual disability changed from marginal significance to statistical significance.

Table 2: Logistic Regression: Complete Model for All Years Combined (Low Aggravation)

	Coefficient	St. Error	Coefficient	St. Error
Robbery-Murder	-.54***	.14	-.52***	.14
Multiple Perps.	1.14***	.15	1.17***	.15
Intell. Disability	-.59*	.36	-.65*	.36
Age 18-20 Years	1.51***	.20	1.52***	.20
Aggravation	1.10***	.17	-1.10***	.17
# of Mitigators	-.78***	.05	-.78***	.05
County Pop.	-.09	.21	-.04	.22
County Revenue	-.61***	.20	-.57***	.21
Murder Rate	-.14***	.02	-.08***	.03
Year			.04***	.01

***p<.01, **p<.05, *p<.10

N=1,538 (the total is not 1,665 because 125 cases for county revenue were missing and 71 cases for county population were missing).

When the models were separated out according to year (Tables 3 and 4), the following variables were statistically significant across all 3 years in all of the models: multiple perpetrators, age, number of mitigators, high aggravation, and idiosyncratic counties. Moreover, the coefficients for high aggravation (size of the effect) were approximately the same across all three models, a finding suggesting that this predictor has not changed in statistical significance over time. Moreover, the equality of coefficients test results in the 1994 and 2014 regression models were not statistically significantly different. The low-aggravation variable was statistically significant in 1994 and 2014 but surprisingly not in 2004. However, the equality of coefficients test was statistically significant. As a result, there does appear to be a stronger relationship for this predictor over time. In fact, the low-aggravation variable became a stronger predictor of a life sentence over time.

Moreover, robbery-murder and limited county revenue were significant in 1994 but became non-significant in the later models. The equality of coefficients test was statistically significant for limited county revenue. Thus, limited county revenue was a significant predictor of a life sentence in later years.

Claims of intellectual disability were marginally significant in 1994 but became non-significant in the later models, which suggests that these variables were significant factors in 1994 but became less important in predicting case outcome in recent years. In contrast, in all three study years, small county population was not a significant predictor. The murder rate was not significant as a predictor in 1994 but became significant in later years, which suggests that this factor became important in predicting case outcome in later years.

Table 3: Logistic Regression Results for Death vs. Life Over Time (High Aggravation)

	1994		2004		2014	
	Coefficient	St. Error	Coefficient	St. Error	Coefficient	St. Error
Rob.-Murder	-.59***	.19	-.32	.30	-.06	.35
Multip. Perps.	1.08***	.21	1.74***	.34	1.19***	.39
Intellect. Dis.	-.69	.57	-.95	.65	.51	.96
Age 18-20	1.50***	.26	1.47***	.42	1.72***	.67
# Mitigators	-.74***	.08	-1.25***	.14	-.51***	.11
Murder Rate	-.05	.04	-.10***	.06	-.23***	.12
County Pop.	.18***	.30	.20	.44	-.85	.55
County Rev.	-.77***	.28	-.39	.41	.14	.54
Aggravation	-1.30***	.22	-1.24***	.30	-1.53***	.32

***p<.01, **p<.05, *p<.10

Table 4: Logistic Regression Results for Death vs. Life Over Time (Low Aggravation)

	1994		2004		2014	
	Coefficient	St. Error	Coefficient	St. Error	Coefficient	St. Error
Rob.-Murder	-.72***	.19	-.33	.29	-.22	.34
Multip. Perps.	1.01***	.21	1.73***	.33	1.18***	.39
Intellect. Dis.	-.77*	.57	-.95	.64	.72	.92
Age 18-20	1.44***	.26	1.68***	.41	1.68**	.65
# Mitigators	-.74***	.08	-1.23***	.13	-.48***	.11
Murder Rate	-.04	.03	-.18***	.06	-.24***	.11
County Pop.	.14	.31	.03	.43	-.64***	.53
County Rev.	-.83***	.29	-.53	.40	.24***	.52
Aggravation	1.29***	.23	.27	.36	1.63***	.46

***p<.01, **p<.05, *p<.10

An additional series of regressions was performed in which the special idiosyncratic county variable (recall the previous discussion of this variable indicating five counties with unique political factors) was used in the models instead of the small-population county and limited-resource county variables (Tables 5 and 6). The results suggest that the idiosyncratic county variable was statistically significant across all 3 years. The effect of idiosyncratic counties appears to have become stronger over time. The equality of coefficients test was statistically significant for this variable. The statistical significance of the other variables in the models did not change. In other words, robbery-murder and intellectual disability claims (marginally significant), seem to have been important factors in 1994 but not significant predictors in later years. In contrast, multiple perpetrators, age, aggravation (high aggravation was significant across all 3 years and low aggravation was significant in 1994 and 2014), number of mitigating factors, and idiosyncratic counties were significant variables across all three study years, which suggests that these variables remained important and did not change in significance over time. According to the equality of coefficients test, only the effects of idiosyncratic counties and number of mitigating factors on case outcome seem to have become stronger over time.

Table 5: Logistic Regression Results for Death vs. Life Over Time: Idiosyncratic County Variable Instead of Small-Population County and Limited Revenue County (High Aggravation)

	1994		2004		2014	
	Coefficient	St. Error	Coefficient	St. Error	Coefficient	St. Error
Rob.-Murder	-.47***	.18	-.29	.29	-.01	.35
Multip. Perps.	1.03***	.20	1.79***	.33	1.11***	.39
Intellect. Dis.	-.95	.57	-.69	.65	-.72	1.08
Age 18-20	1.48***	.24	1.51***	.41	1.55***	.66
# Mitigators	-.72***	.08	-1.32***	.14	-.49***	.13
Murder Rate	-.06	.03	-.17***	.06	-.17***	.11
Ideo. Cnty.	-.49***	.26	-1.24***	.42	-2.73***	1.00
Aggravation	-1.30***	.21	-1.37***	.29	-1.63***	.33

***p<.01, **p<.05, *p<.10

Table 6: Logistic Regression Results for Death vs. Life Over Time: Idiosyncratic County Variable Instead of Small-Population County and Limited Revenue County (Low Aggravation)

	1994		2004		2014	
	Coefficient	St. Error	Coefficient	St. Error	Coefficient	St. Error
Rob.-Murder	-.61***	.18	-.33	.29	-.18	.34
Multip. Perps.	.94***	.20	1.75***	.32	1.13***	.39
Intellect. Dis.	-.92	.57	-.65	.64	.90	1.05
Age 18-20	1.57***	.25	1.75***	.40	1.60**	.65
# Mitigators	-.72***	.07	-1.29***	.13	-.48***	.11
Murder Rate	-.05*	.03	-.16***	.06	-.20**	.10
Ideo. Cnty.	-.54**	.26	-1.20***	.42	-2.54***	1.05
Aggravation	1.34***	.21	.47	.36	1.79***	.47

***p<.01, **p<.05, *p<.10

LIMITATIONS

Despite our very robust data set, it has limitations. First, because our data set was on a national scale, we relied on news reports to find sentencer-spared and prosecutor-spared cases that did not result in death sentences. We undoubtedly could have missed a random unknown number of relevant cases. Second, we relied on news reports and appellate opinions for case details instead of tracking down and examining the trial court files for each case. Although in an ideal world it would have been preferable to examine each court file, we simply did not have the resources to do so because we examined a large number of cases on a nationwide scale. Third, the extent of the details we could find about a case depended on the number of sources of information we obtained, which varied considerably.

Fourth, we were unable to obtain race-of-defendant and race-of-victim data for our comparison cases, which prevented us from including race as a control variable in our regression models. It would have been impossible to obtain race data for the control groups because our data set was on a nationwide scale, and it would have been necessary to do so if we were to include these variables in the regression models. None of the public records to which we had access (including media reports and court opinions) included race information. Thus, unfortunately, these data were simply not available. Finally, our data set was limited to three specific years over two decades. We picked those specific years because we started at one of the peak years for death sentences (1994) in the contemporary death penalty era, then continued out every decade when the decline was more than 50% (2004 and 2014). Although we obtained data for only 3 years (admittedly a limitation), this study was an enormous undertaking in regard to both data identification and data collection.

SUMMARY AND DISCUSSION

Significant Changes in Predictors of Death Sentences

According to the logistic regression models, the main changes appear to be a drop in the power of the variables measuring robbery-murder, limited-resource counties, and intellectual disability cases in predicting whether defendants would be sentenced to death. We have theories about why each of these may have become less predictive of death sentence imposition, and these are set forth in the following paragraphs.

McCord (2009) established that robbery is the most frequently occurring aggravating factor in death-eligible cases. We posit that in 1994, before death penalty cases became so complicated and expensive, prosecutors were apt to pursue death sentences in many cases with even one

aggravating circumstance, which led to a large number of death sentences in otherwise low-aggravation robbery-murder cases. However, by 2004, and even more so by 2014, death penalty prosecutions became more complicated and expensive because of the U.S. Supreme Court having ratcheted up the standard for effective assistance of counsel in death penalty cases beginning in 2000 with *Williams v. Taylor* (Baicker, 2004; Rupp, 2003). Thus, by 2004, prosecutors were no longer as likely to pursue death sentences in low-aggravation cases in a knee-jerk manner but rather were inclined to consider whether additional aggravating circumstances made a case arguably among the “worst of the worst.” Because robbery is the most frequently occurring aggravator, robbery was significantly affected by this newfound reluctance to pursue the death sentence in low-aggravation cases. It is also possible that the rise of a life-without-parole alternative, especially in Texas, may have contributed to the drop in death sentences in robbery-murder cases (McCord, 2011).

Regarding limited-resource counties, the same explanation seems likely. As death penalty cases became more expensive, prosecutors looked more favorably on saving resources by plea bargaining cases to life sentences. It was interesting to note that small county population was not a significant predictor in any year, even though limited resources was. One might have expected both to follow the same pattern inasmuch as a small population often correlates with limited resources. However, the analysis shows that limited revenue is the key factor, not small population. Another explanation for this finding may be that several states had implemented specialized capital defender units by 2014.⁴ As a result, in certain states by 2004 or 2014, someone facing capital murder charges in a limited-resource county was more likely to be defended by a first-rate capital defender than by a local court-appointed attorney.

As to defendants with intellectual disability, it seems likely that after the U.S. Supreme Court abolished the death penalty for this group in 2002, prosecutors in 2004 and 2014 took such claims more seriously and became willing to plea bargain to life-without-parole sentences rather than face a tooth-and-nail fight at trial over whether a defendant was intellectually disabled. It should be noted that even if the prosecutor won this battle, the jury could still decide that the defendant’s low level of mental functioning was a substantial mitigator, even if that level was not low enough to constitute intellectual disability.

Factors Consistently Significant in Predicting Death Sentences

We were very interested in examining whether aggravation level became a stronger predictor of death sentencing over time. If aggravation level had become a stronger predictor in 2014, that

⁴ Five states with steady volumes of death penalty cases established capital defender units: Mississippi, North Carolina, Georgia, and Virginia. (Ga. Code. Ann. § 17-12-12, Miss. Code. Ann. § 99-18-3, N.C. call to Office of the Capital Defender on 11/3/17, S.C. <https://sccid.sc.gov/about-us/capital-defenders>, Va. Code Ann. § 19.2-163.01). Unfortunately, this variable could not be tested in the regression models because the capital defender units did not come into existence until 2000 (Mississippi), 2001 (North Carolina), 2004 (Georgia and Virginia), and South Carolina (2008). Moreover, because of the limited amount of state variability, even in the later years, it was not possible to include this variable in the regression models. (Five low-volume states—Colorado, Kansas, Kentucky, New Hampshire, and Wyoming—also have such units, as do five states that no longer have the death penalty—Connecticut, Delaware, Maryland, New Mexico, and New York (email from Brandon Garrett 11/9/2017).

would indicate that prosecutors and/or sentencers were becoming more selective in choosing the “worst of the worst” cases for death sentences. However, although high and low aggravation levels were predictive of death sentences in all 3 years, high aggravation was predictive to roughly the same degree when 1994 and 2014 were compared. On the other hand, however, the analysis does show that a low aggravation level became increasingly more predictive of non-death sentences. Thus, our analysis provides partial support for the conclusion that prosecutors and/or sentencers have become increasingly selective in death sentencing, at least in steering low-aggravation cases away from the death penalty. There does not appear to be any indication that death sentencing became less arbitrary on the basis of high levels of aggravation. However, it does appear that low-aggravation cases were more likely to result in non-death sentences by 2014.

Multiple perpetrators were predictive of non-death sentences in all 3 years. This comports with common sense because who is the “worst” perpetrator in a case with multiple defendants is often hard to prove, which may create a tendency for prosecutors and sentencers to hand out non-death sentences.

Age younger than 18 to 20 years, even though short of legal juvenile status, was a ready-made mitigating factor even before the U.S. Supreme Court exempted juveniles from death sentences. Thus, it is not surprising that this was predictive of non-death sentences in all 3 years.

The most puzzling finding was that in each year, a larger number of mitigators was predictive of death sentences, not of life sentences. We attribute this finding to a possible imbalance in the data we were able to obtain. We found mitigating factors mentioned in most cases that went to trial—that is, cases in which the defendants either received death sentences or were spared by sentencers. However, we rarely found mention of mitigators in cases in which the defendant was spared by the prosecutor before trial—and these prosecutor-spared cases outnumbered the total number of death sentence and sentencer-spared cases. Thus, we were much more likely to be able to code mitigators in death sentence cases, which then in the regression seemed to show that more mitigators were conducive to more death sentences. Unfortunately, this finding may be an artifact of one of the limitations of our data set. However, an alternative explanation for this result may be that capital jurors often conflate mitigators and aggravators, sometimes interpreting the former as the latter (Haney & Lynch, 1994). The consistent significance of these variables in determining case outcomes suggests a certain degree of predictability in death sentences over time, especially in relation to the following mitigating factors: age, multiple perpetrators, and low aggravation. This finding highlights the continued importance of these mitigating factors in death sentence outcomes, which is extremely important for understanding future death penalty policy.

Factors That Switched From Being Predictive of Death Sentences to Being Predictive of Life Sentences

A case venue in one of the five idiosyncratic counties switched from being a predictor of death in 1994 to being a predictor of life in 2004 and 2014. This finding supports our hypothesis that local political factors in those counties exerted substantial influence against death sentences sometime between 1994 and 2014.

Finally, the murder rate was not a significant predictor in 1994 but became significant in 2004 and 2014. States with higher murder rates were more likely to impose death sentences. This is likely to be true according to a theory that prosecutors in jurisdictions with higher murder rates may be more likely to seek death sentences because of their belief in a greater need for general

deterrence. It also is plausible that this factor was not significant in 1994 because murder rates were relatively high and were on the rise in many jurisdictions. However, by 2004 and 2014, the states with relatively high murder rates stood out amid an overall pattern of decline. Finally, another explanation for this result may be that other factors were more important predictors in 1994, such as robbery-murder and limited-resource counties. As to the long-term prospects for the continued existence of capital punishment in the United States, although there is no one fatal factor, there seems to be an ongoing “death by a thousand cuts”—such that if the several micro-trends identified in this paper continue, eventually hardly any defendants will be sentenced to death. Thus, the American death penalty may be consigned to the dustbin of history “not with a bang, but with a whimper.” (Eliot, 1980).

Declaration of Conflicting Interests

The author declares no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The author received no financial support with respect to the research, authorship, and/or publication of this article.

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APPENDIX: Aggravation Weight

[other crimes]

- (5) Two murder victims
- (10) Three murder victims
- (15) Four or more murder victims
- (3) Attempted murder with serious injury
- (1) Attempted murder without serious injury
- (1) Serious assaults short of attempted murder
- (2) Robbery
- (1) Robbery-part of series
- (3) Rape
- (2) Rape-part of a series
- (3) Kidnapping
- (2) Burglary of home
- (2) Arson
- (3) Escape incarceration
- (1) Drug deal/theft of drugs
- (1) Drug dealing-ongoing
- (2) Escape arrest/flee officers
- (2) Violating protective order
- (2) Physical abuse of a child-ongoing

[Other Reprehensible Motives]

- (3) Insurance/inheritance/other
- (2) Eliminate/retaliate witness
- (1) Gang-related
- (4) Anti-government/terroristic
- (2) Love triangle
- (1) Male obsession/stalking
- (2) Hate crime
- (3) Thrill

[Defendant's Criminal History]

- (5) Murder conviction
- (5) Murder-no conviction
- (2) Other violent felony(ies)
- (1) Less serious crimes history

[Bad Incarceration Behavior]

- (4) Murder while incarcerated
- (1) Lesser acts of threats or violence
- (2) Escape attempted
- (1) Possession of a weapon
- (1) Seeking outside help

[Particularly Sympathetic Victim]

- (2) Twelve years or younger
- (1) Seventy years or older
- (1) Frail/handicapped not aged
- (4) Police/C.O. officer on duty
- (4) Other government servant

[Particularly Bad Killing Method]

- (4) Torture-physical
- (1) Three or more handgun wounds
- (1) Rifle/shotgun
- (2) Execution style
- (2) Three or more stab wounds
- (2) Slitting throat
- (2) Blunt force
- (2) Strangle/suffocate/drown
- (2) Poisoning
- (2) Burning to death
- (2) Starving
- (1) Multiple forms of violence

[Other Particularly Bad Details/Aftermath]

- (4) Hiring killer or acting as killer
- (1) Luring victim to homicide
- (2) Victim bound
- (2) Victim begged
- (1) In the presence of child
- (2) Killing child in the presence of parents
- (2) Behavior remarks/relishing
- (3) Sexual perversity that is beyond rape
- (1) Causing great risk to others
- (1) Killing pet
- (2) Mutilating corpse
- (1) Dumping or burying corpse
- (2) Callousness afterward

Year:**Name:****Sentence code:****Mitigating Factors:****[Mitigation Mentioned]**

- In news reports
- In appellate opinion(s)

[Type of Defense Witness(es)]

- Non-expert (family, friends)
- Expert

[Type of Excuse Mitigation Evidence]

- Seventeen years of age or younger
- Eighteen-twenty years of age
- Mental retardation
- Head trauma
- Mental illness
- Emotionally disturbing event
- Terrible upbringing
- Intoxicated at time of crime
- Alcohol/drug abuse-history of
- Multiple perpetrators
- Other excuse

[Type of Positive Mitigation]

- Good son/parent/friend/relative
- Good character usually
- Military veteran
- No/little criminal history
- Good employment history
- Remorseful
- Cooperated with police
- Religious
- Other positive

[Not Likely a Future Danger]

- Well behaved in structure
 - Violence out of character
-