The Discovery of Innocence and the Decline of the Death Penalty

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Introduction

A majority of Americans has long supported the death penalty and, on moral grounds, most still do.[1] However, like any issue under the right circumstances, even capital punishment is subject to framing effects. In this paper we draw from a larger book project (Baumgartner, De Boef, and Boydstun 2008) to explore the impact of framing on public opinion and public policy. We document the dramatic rise of a new way of thinking about the death penalty in America, the "innocence frame." This frame rests simply on the recognition that the American criminal justice system, dealing as it does with thousands of cases, is not immune from mistakes. Attention to the possibility of error in the particular case of the death penalty raises concerns among even those who support capital punishment in the abstract, as most Americans do. As the innocence frame has become more prominent in public discussion, the traditional morality and constitutionality frames have declined in relative importance. The result has been a marked shift in aggregate public opinion and, even more strikingly, a dramatic decline in the willingness of juries to impose death sentences across the country. We demonstrate these powerful framing effects while controlling for relevant rival hypotheses, including the rate of crime and the number of actual exonerations. Media framing of the issue affects death penalty public policy above and beyond these real-world cues.

The link between framing and public policy is well established. Shifts in the framing of nuclear power, pesticides, tobacco and, we demonstrate here, the death penalty, have dramatic effects on policy (Baumgartner and Jones 1993, Schneider and Ingram 1993, Riker 1986). Here, we expand on previous analyses, tracing framing of the death penalty debate and its impact on public policy and building a statistical model that predicts a firm measure of policy outcomes

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and shows strong framing effects even while controlling for the relevant real-world indicators. Our focus is on the rise of the appeal of innocence-based arguments against the death penalty and their effect on the annual number of death sentences in the United States. Our emphasis here is on aggregate, national-level framing effects, public opinion, and policy change.

The way an issue is defined can powerfully affect the audience's perception of the issue, as many authors have shown (Druckman 2001, Jacoby 2000, Nelson et al. 1997, Nelson and Oxley 1999, Pollock 1994, Terkildsen and Schnell 1997, Tversky and Kahneman 1986). Sometimes the effect of framing augments events, sometimes it trumps them, and sometimes framing effects can set in motion a social cascade. Such is the case in the recent history of the death penalty. Arguments that the system is broken, that the process, run by bureaucrats, is prone to errors, have resulted in a dramatic reduction in the number of death sentences handed down by juries in the United States beyond that explained by the empirical evidence that mistakes are made. Further, as we show in greater detail in the larger project from which this paper is drawn, initial success in drawing attention to the new innocence frame has produced positive feedback effects, promoting the mobilization of student-led "innocence projects" in many journalism and law schools throughout the country. These innocence projects have uncovered more examples of innocents on death row, which in turn have led to greater attention to the problem. The positive feedback mechanism we note here is typical of many social cascades and in this case explains a dramatic explosion in attention to the concept of innocence since the late 1990s.

We begin by documenting and measuring the rise of the innocence frame, presenting evidence that public discussion of the death penalty has been altered by a new and unprecedented focus on the possibility of errors in the system, an eventuality with which no one is comfortable.

The "innocence frame" has resonated more than previous arguments, bringing together a cluster of previously existing, but distinct, arguments into a single frame likely to have greater effect on public discourse than the same arguments considered separately. More broadly, we show attention has focused on different dimensions of the debate during different historical periods. Through a comprehensive analysis of the content of over 3,600 stories relating to the death penalty in the past 45 years, we trace these substantive shifts in the nature of the debate. And against the backdrop of this shifting debate we demonstrate the unprecedented power of the new "innocence" frame in influencing public policy, measured here by the annual number of death sentences issued in the United States over this same time period.

A Theory of Dynamic Framing and a Method of Measurement

Many have noted the importance of framing and issue-definition on public policy. From Schattschneider (1960) to Cobb and Elder (1972) to Kingdon (1984) to Baumgartner and Jones (1993) such a focus has been a staple in studies of agenda-setting. Baumgartner and Jones were the most systematic in tracing the level and tone of news coverage to particular issues over time. They showed for example that news coverage toward the pesticides and nuclear industries was sometimes overwhelmingly positive, but later switched to be overwhelmingly negative. Public policy, they argued, was closely related to these shifting foci of public discussion—where there were "waves of enthusiasm," government actions supported the development of the industry; where "waves of criticism" were apparent, officials attacked and regulated those same industries (Baumgartner and Jones 1993, 84). "Good news" and "bad news" have policy consequences.

Policy issues are much more complex than only positive and negative, good and bad, or any other single dimension; more recently the focus in the empirical study of issue-definition has moved to the analysis of how multidimensional issues are simplified in public debate so that only

a few dimensions are the object of significant discussion. The multidimensional nature of policy debates has been the object of attention from dozens of scholars ranging from Riker (1983, 1984, 1986, 1988, 1996) to Schneider and Ingram (1993) to Stone (1988, 1989) to Poole and Rosenthal (1991), who note that no matter how complex the underlying set of issues, congressional responses can be arrayed along one or two dimensions. Bryan Jones discussed these issues in some detail in developing a model of decision-making based on multidimensional choice (2001). In their most recent work Jones and Baumgartner (2005) have developed a model focusing on the implications of bounded rationality and the implications of "attention-shifting." This is when individuals or organizations move their focus from one dimension of a debate to another. They argue that attention-shifts are inevitable in any complex decision-making environment and that these shifts explain the punctuated-equilibrium nature of public policy response. Most policies, most of the time, follow a strongly inertial, status-quo oriented track, but are occasionally up-ended through fundamental reconsiderations of how to approach the issue: attention-shifts. We believe that the death penalty has undergone such a transformation in recent years, and hence we study it in considerable detail here. The death penalty, of course, in many ways represents a "most difficult case" for framing effects since for most people it has been so strongly associated with deeply felt religious or moral views. These do not change lightly. But the shift that we document is all the more remarkable because it simply reorients the debate away from the morality dimension to an entirely different way of thinking of the issue. If it can happen on such a morally charged issue as capital punishment, it can happen to virtually any issue.

The death penalty itself is the object of a voluminous literature and we do not propose a comprehensive analysis of the topic (see Banner 2002 for an excellent recent overview; see also Bedau 1997, Haines 1996, Jost 2001). We focus here on demonstrating quantitatively the

important shifts in attention that have occurred in media coverage of the death penalty, the impact of these shifts on the overall tone of coverage, and finally the impact of the tone of discussion on public policy outcomes. We begin with a simple content analysis of *New York Times* coverage of the topic since 1960.[2] Our comprehensive coding system allows us to go into much greater detail than others have done before to show the shifting topics of public attention, and we show how feasible it is to incorporate multi-dimensional coding into content analysis.

Media Coverage of the Death Penalty

The death penalty has long been understood and discussed in the media in terms of constitutionality and morality. Since the mid-1990s, however, a new issue definition has arisen, and dramatically. This is the "innocence" frame, or the idea that no matter what one thinks about the morality of capital punishment, we should ask whether the justice system is capable of administering the penalty across thousands of individual judicial proceedings with no errors. The idea of flaws in the system, of innocent people being on death row, of the wrong people possibly being executed, has transformed the debate. In 1996, thirty articles appeared in the *New York Times* concerning capital punishment; the bulk of these reported opinions, news, or events leading toward the application of the death penalty. In 2000, 235 articles appeared and the overwhelming majority of them were critical. In just a few short years, the issue was reframed to focus on errors, mistakes, and the possibility of executing the wrong person.

[2] We use the *New York Times* index because the *Times* represents the closest we can find to a single national source for public policy stories. Our main interest is in how coverage shifts over time, so we are less concerned with how the *Times* may differ from other newspapers in its editorial stance on the death penalty or coverage of the issue; the key question is how coverage changes over time. To test the robustness of our findings using the *Times*, we also reviewed coverage in the *Readers' Guide to Periodical Literature*. Although there is only a partial correlation of .53 between the two series overall (1960-2003), both show the same dramatic rise in attention in recent years coinciding with the rise in the innocence frame. In the year 2000, both the *Times* and the *Readers' Guide* printed a higher number of articles—235 and 106, respectively—than in any previous year, both dominated by arguments against the death penalty. On the use of the *New York Times* as an indicator of media coverage, see Woolley 2000; Althaus, Edy, and Phalen 2001; Soroka 2002. We also compare the Times to nine other newspapers and show high correlations in coverage over time (.7) and in particular in coverage of the innocence frame (.9); see Baumgartner De Boef and Boydstun 2008.

Figure 1 shows the number of stories in the *New York Times* relating to capital punishment from 1960 to 2005.[3]

(Insert Figure 1 about here)

A total of 3,939 stories appeared during this time, with substantial peaks of coverage in 1976-77, just after the Supreme Court's *Gregg v. Georgia* ruling reinstating the death penalty following the 1972 *Furman v. Georgia* decision invalidating state capital punishment laws; and then again in 2000. During these two periods, the newspaper carried over 150 articles per year: More than three stories per week. The figure makes clear that the death penalty emerged onto the media agenda in the 1970s; there was little coverage, less than one article per week, before 1972. Coverage has grown substantially in recent years, even though there has been no monumental Supreme Court decision such as those of 1972 and 1976. Rather, more recent coverage, especially that peaking in the unprecedented levels of coverage in 2000, has related to various challenges to the system based on juvenile offenders, the mentally handicapped, and the concept of "innocence." The number of front-page stories has grown as well: From just one in 1960, there were two in 1970, four in 1980, eight in 1990, and 19 in 2000.

Capital punishment raises many different dimensions of debate, from constitutionality to morality to efficacy and others. We coded each story for the presence of a comprehensive list of 65 different arguments, clustered into seven main themes or dimensions. We show in this section how the component arguments have waxed and waned over time, how the topic of discussion is systematically related to the tone of the debate, and how the tone of the debate has

[3] We coded every abstract listed under the heading "capital punishment," noting whether or not the abstract mentioned any of an exhaustive list of 65 different arguments, with abstracts being allowed to receive multiple codes as appropriate. Thanks to Cheryl Feeley for doing the bulk of this work for her Senior Thesis and for allowing us to use and update the data she collected. See Baumgartner and Boydstun 2005 for a description of the coding process.

shifted in response to the shifting topics of discussion. We begin in Figure 2 with a simple presentation of the number of stories mentioning the most prevalent arguments.

(Insert Figure 2 about here)

Issues of constitutionality are the single most common theme in *New York Times* coverage over most of this period; over 1,467 articles mentioned discussions of this type, with peaks coming in 1972, 1976 and the years following that, in the mid- to late-1980s, and finally in the early 21st century as the constitutionality of capital punishment for juveniles and the mentally handicapped became important controversies. Morality issues have been less prominent over time, with a total of 622 stories focusing on these. Discussion of morality has been prominent since 1972, especially from 1972 to 1978 when the constitutionality of the entire death penalty was hotly debated. Since then moral issues have never completely disappeared from the media agenda, but they have been significantly less prevalent. The fairness dimension, of which the innocence frame is one part, was not prominent before the 1980s, but grew rapidly beginning in 1983. It reached a peak in 2000 with 134 stories in that year alone; over the entire period there were 1,099 stories with innocence / fairness arguments. Many stories fit into other categories focusing on international comparisons, efficacy (whether the penalty serves as a deterrent or not, for example), cost, mode of execution, or "other" topics. None of these categories was used in more than 241 stories across the entire period. In general, we can see from Figure 2 that constitutionality is a perennial theme; that morality has been an important theme as well; and that innocence has shown a dramatic increase from virtually no coverage before the 1980s to constituting more than half of the entire amount of coverage annually in many recent years.

Some topics, such as the heinousness of a crime, are almost always associated with an overall pro-death penalty theme of coverage. Others, such as international comparisons, lead

almost always to an anti-death penalty story. In fact, knowing the topic of the story allows us to predict the tone, as Figure 3 shows.

(Insert Figure 3 about here)

Stories mentioning morality issues may mention arguments on either side of the death-penalty debate, of course. These stories in fact are quite evenly split between pro- and anti-death penalty tones. Similarly, stories mentioning constitutionality questions may focus on issues favoring the defendant or those favoring the state; here too the tone is quite split (though with a net anti-death penalty tendency of 60 to 40 percent). When the topic shifts to fairness, however, the vast majority of the coded articles are anti-death penalty. International comparisons, while less common, similarly have a powerful anti-death penalty bias. The various tendencies present in Figure 3 make clear that the shifting attention to various topics that we demonstrated in Figure 2 can be expected to relate to powerful changes in the overall tone over time.

We noted whether the abstract mentioned anything about the victim(s) or the defendant and Figure 4 shows that this simple question goes far in determining the overall tone of the article.

(Insert Figure 4 about here)

Most articles mention neither a victim nor a defendant, discussing such things as the implications of Supreme Court decisions in general or state legislative debates about revising capital punishment laws and procedures. In fact, more than two-thirds of the stories (2,817 abstracts) mentioned neither a victim nor a defendant, and of the 2,159 stories in this group that were given either a pro- or anti-death penalty tone, about 40 percent were coded pro-death penalty, very similar to the overall total. Over 570 stories mentioned something about the victim with no discussion of the defendant; of the 505 stories among this group that were toned pro- or

anti- approximately 71 percent had a pro-death penalty tone. Similarly, 392 stories mentioned something about the defendant without mentioning the victim; of the 308 toned stories in this group only 21 percent were coded pro-death penalty. Those stories that mentioned both the victim and the defendant were similar to the stories mentioning neither in their overall tone. Clearly, something about discussing the defendant can be said to humanize him or her, or is associated with discussions about imperfections or problems in the trial. Similarly, a focus on the victims of crime typically is related to pro-death penalty stories, explaining for example the heinous nature of the crime itself.[4] The subject matter of the article goes far in determining the tone, and as we will see the subjects of attention change over time. In Figure 5 we trace relative attention to the victim and the defendant since 1960.

(Insert Figure 5 about here)

Figure 5 shows the increased discussion of the victims of capital crimes during the 1970s (associated with significantly more pro-death penalty discussion in general during that time), some decline in these numbers after the reinstatement of the death penalty in 1976, a steady rise in attention to the victims of crime in discussions of death-penalty issues until 1993, and then a dramatic and sustained reversal after that date. Since 1993, attention has increasingly focused on questions relating to the defendants in criminal trials rather than to victims. This of course is strongly associated with the increased concern with "innocence" and the fairness and accuracy of judicial proceedings. Combined, the data in Figures 3 and 4 make clear why proponents and opponents of the death penalty have different foci. While certainly not all of those close to the

[4] Contrary to some common expectations, *what* the article mentioned about the victims, including whether they were police officers, women, children, or if there were multiple victims had no significant impact on the tone of the article overall; *any* discussion of the victim was related to a pro-death penalty tone overall. Similarly, there were few differences across types of defendants: be they female, of various racial categories, etc. However, if the defendant was characterized as a terrorist, the tone was more likely to be pro-death penalty. There were few such cases, however, as a proportion of the total.

victims of violent crime support the death penalty, attention to victims is clearly associated with more stories favorable to the application of the death penalty. Again, we see that topic of discussion determines the tone.

We can see the dramatic rise of the innocence question by examining the number of stories each year presenting any of the following: 1) claims of innocence; 2) problems relating to evidence used in trial; 3) problems or imperfections in the justice system; or 4) characteristics of the defendant.

(Insert Figure 6 about here)

This cluster of issues, ranging from simple humanization of the defendant to demonstrations of actual innocence through exonerations, has always been present in the death penalty debate, as Figure 6 shows. However, none of these issues was a prominent aspect of media coverage of the death penalty until they collectively surged to unprecedented levels of coverage in 2000. From 1960 to the mid-1980s there was trivial coverage of these questions, typically fewer than ten articles even mentioning them. Coverage grew from the 1980s to the 1990s, but rocketed to new levels in 2000.

We have shown how the nature of the death penalty debate has been transformed over the last 45 years. The shifting foci of attention have caused systematic variations in the overall tone of attention over time. Figure 7 shows these trends, captured in the "Net Tone" of *New York Times* coverage: The number of pro- minus the number of anti-death penalty stories.

(Insert Figure 7 about here)

The data in Figure 7 capture the net results of all the shifting foci of debate explained in the previous section. As attention has moved from the victims to the defendants, from morality and constitutionality to mode of execution and to the possible imperfections in the justice system

itself, the net result has been a movement towards greater anti-death penalty reporting. Of course, the data also show the rise of the pro-death penalty discussion during the 1970s and 1980s. In sum, our combined analysis of the topics and the tone of coverage allows us to address both the multidimensional nature of the debate as well as the simpler question of its tone. We have developed a single measure valid for tone across the entire historical period, and we have shown how this is explained not by the same arguments over time, but by different arguments and shifting attention during different historical periods. The topics of discussion explain the tone, and the tone explains the public policy response (as we show in the next section). Shifting attention from one topic to another therefore can be linked clearly to important policy shifts, reversing long-standing policy equilibria.

The Impact of Framing on Capital Sentencing

The number of Americans sentenced to death has varied quite substantially over time. From 1961 until the 1972 moratorium approximately 100 Americans were sentenced to death annually. A substantial drop in numbers followed the moratorium, but death sentences quickly began to rise in anticipation of the reinstatement of the death penalty, hitting nearly 300 in 1975. The number of yearly sentences dropped after this reinstatement surge, but to levels higher than the pre-moratorium years. And for two decades the number of sentences continued to rise, growing from 137 in 1977 to 317 in 1996. Then, in 1997, the trend began a dramatic reversal that continues today; only 128 Americans were sentenced to death in 2005, less than one-half the number of nine years before and a lower number than in any year since the moratorium. Figure 8 shows the annual numbers of capital sentences, executions, and death row inmates over time.

(Insert Figure 8 about here)

The number of executions has always been substantially lower than the number of death sentences, of course. In fact, a substantial majority of death sentences are overturned on appeal, often after many years of the inmate living on death row. While overturned convictions are not exonerations, they do indicate serious flaws in the original trial or sentencing phase; serious enough that an appeals court orders the initial decision vacated and sent back for a new trial. Executions peaked in the US in 1935 and declined regularly from that date until the late 1960s, when they reached zero, where the series stayed until 1977 when Gary Graham became the first modern executionee. Executions grew substantially in the 1990s until they reached 100; since they have declined by almost half. The figure also shows the size of the various death rows across the country; cumulatively over 3,500 individuals were on death row in the late 1990s, a number which had grown steadily from fewer than 500 in the 1950s, 60s and 70s. Both the number of executions and the number of people on death row are driven largely by the number of individuals sentenced to death, and this number as we have mentioned has fluctuated widely over the past decades. There was particularly wild variation in the period immediately surrounding the constitutional ban and subsequent reinstatement of the death penalty in 1972 and 1976, respectively. As discussed above, the number of death sentences increased steadily each year from 1977 until a peak of 317 in 1996 before declining to less than one-half that number just a few years later.

What explains the variation in the number of death sentences issued by juries? Certainly media coverage plays a large part. In particular, attention to the innocence argument and the attendant anti-death penalty tone should reduce support for the death penalty and prime jurors to resist meting it out. We have shown that different topics lead to different tone in media coverage and expect that the tone of media coverage directly influences the number of death sentences

juries hand down. But there is more to this story. We assess the responsiveness of death sentences to media framing, but also to homicides, public opinion and the objective evidence that the system is prone to error: the number of individuals who are exonerated of the crimes for which they were sentenced to death. We also control for the effects of the constitutional ban on executions.

We test the hypothesis that media framing influences death sentences using a simple multivariate time series regression. Drawing on previous work, we hypothesize that as violent crime rates increase, the number of death sentences should increase. Not only do the numbers of potential capital cases before juries increase with the number of murders, but also concern about crime increases with crime rates, leading to the view that more should be done to be tough on crime—namely sentence more people to death. We use the annual number of homicides (measured in thousands) as reported in the FBI Uniform Crime Reports as our indicator of violent crime rates.

Public opinion has been linked to political behavior and public policy in a variety of settings (Erikson et al. 2002, Page and Shapiro 1983). Public sentiment with regard to the death penalty is historically both supportive and stable. Yet recent years have seen a small but steady and sustained drop in support. The hypothesized effect on the number of death sentences takes two forms. The first is simple and direct. As more Americans come to oppose the death penalty, the number of death sentences is expected to drop; displeasure with the policy should result in fewer death sentences. The second effect is indirect. As opinion becomes less supportive, prosecutors become less inclined to pursue the death penalty—the costs, both in dollars and political capital become too high—resulting in fewer capital trials and fewer death sentences. Our measure of public opinion is an annual time series created by combining information from

all available survey data pertaining to the death penalty using Stimson's (1998) dimensional analysis algorithm.

The constitutional ban on the death penalty also had a predictable and dramatic effect on the annual number of death sentences, of course. With the 1973 *Furman v Georgia* decision to abolish the death penalty, the number of death sentences fell. Prior to *Gregg v Georgia*, strong anticipation of the death penalty's reinstatement explains the jump in death sentences in 1975 as pent up demand for the policy was realized. We thus account for the beginning and the end of the moratorium period with variables measured 1 in 1973, the first year of the moratorium, and 1 in 1975, the year that by all historical accounts the reversal was socially anticipated, and 0 in all other time periods.

Much of the variation in the number of death sentences has come in the last decade, the period in which the innocence frame has risen and grown. It is reasonable to ask whether mounting evidence of the flaws in the system, rather than media coverage, explains the drop in death sentences. We test whether the number of exonerations alone or in conjunction with media coverage can explain the drop. We perform this test by including a measure of the number of individuals exonerated in each year, beginning with the reinstatement of capital punishment in 1976. By including in our model a measure of exonerations alongside the Net Tone measure of media framing from Figure 7, we can determine empirically whether it is the direct evidence of innocence itself (the prevalence of exonerations) or the media coverage of this concept of innocence that explains the shifts in death sentences that we observe.[5]

[5] In fact, as we show in more detail elsewhere, individual exonerations generate widely divergent amounts of news coverage, with much more coverage of recent exonerations than those occurring in previous years. There are marginally more exonerations today than 30 years ago, but much more news coverage of each one on average. The average number of stories an individual exonerated from death row today is likely to get is more than 13 times the number that someone exonerated in the pre-innocence frame era could expect. Something changed, and it was not the facts. Exonerees are simply more newsworthy today than before the innocence movement began. See Baumgartner, De Boef, and Boydstun 2008.

Our analysis covers the time period from 1961 to 2005, giving us 45 years of data with which to work in testing our hypotheses. For each year, we want to know whether we can predict the number of death sentences and the relative role of each of the variables in explaining the number of death sentences. The model we estimate is a simple regression analysis of the number of death sentences as a function of the number in the previous period—recognizing the inertial nature of the number of death sentences each year—and the previous years' media framing (Net Tone), homicide level, and opinion, accounting as well for both the beginning and end of the moratorium period.[6] Analyses that include exonerations of necessity begin in 1976.

Analysis

Our results are presented in Table 1. We focus our attention on the influence of media framing, comparing the magnitude of the estimated effects with those of the number of homicides. The entries in the table show the expected change in annual death sentences for a one-unit change in each of the row variables.

(Insert Table 1 about here)

The results show strong and robust framing effects. Our model of death sentences shows significant inertia, here directly assessed by the size of the coefficient of the number of sentences in the previous year. Looking first at Model 1, the first coefficient tells us that when large numbers of people were sentenced to death last year, it is likely that a large number will be sentenced to death this year. The number of sentences in the previous year propagates forward at the rate of 0.316. The inertia has two important implications. First, it makes clear that we should not expect dramatic shifts in death sentences in any given year; the series has a significant bias toward the status quo. The value in one year is a major predictor of the value of the series in

[6] The number of death sentences is large enough that the variable is approximately normally distributed so that OLS regression, rather than models designed especially for the unique problems associated with count data, is appropriate for the analysis.

the subsequent year. Second, and obviously related to the first, it takes several years for the effect of new information to enter the system and reach its full impact. To calculate the full effect of any variable in the system, consider that it will have an impact in the first year equal to the coefficient listed, but in each subsequent year it will continue to affect the system at the rate of nearly 32 percent of its initial impact, then 32 percent of that number in the following year, and so on. This means that the long-term impact of shifts in any of the independent variables is about 1.5 times as great as its immediate impact, and that it takes about four years for effects to reach their full impact. So we have modeled a slowly evolving system; the first coefficient in the system shows the degree of inertia, in Model 1 about 32 percent (with very similar numbers for Models 2 and 3).

Why might this inertia occur? As we noted above, death sentences vary substantially in number over time, and yet these changes evolve slowly from year to year. We can think of at least two reasons that might be the case. First, the prosecutors making decisions about whether to pursue the death penalty tend to be the same from one year to another; only slowly are prosecutors replaced. Second, standard operating procedures in the justice system mean that the process is sticky and, thus, change is very slow to occur. These two facts contribute to the likelihood that the number of death sentences handed down in a given year will look something like that in the previous year. Finally, to the degree that the processes we describe affect public opinion and juries across the country, it is clear that all people would not become aware of them instantaneously; it takes time for new information to filter through the system. Media coverage shifting from positive to negative in tone is filtered through conversations and from one media outlet to another; nothing in this process is expected to occur instantaneously or to affect public opinion and individual thinking (necessarily) immediately. Despite the slowly evolving nature

of the change that we observe, it is also clear that inertia is far from the full story here; change does occur.

The effects of media frames are substantively and statistically significant. For every ten more pro-death penalty articles in a given year, we expect more than 4 more death sentences. But about 32 percent of this effect is carried forward in the next year and 32 percent of the remaining effect carried forward into the next year after that, and so on. A pro-death penalty swing of ten points in media coverage is expected to produce about 6.5 more death sentences ((10 x .453) x 1.46 = 6.61) over four years.

Pro-death penalty coverage in the *New York Times* reached its pinnacle in 1973 and again in 1992 with a Net Tone of 36 more pro-death penalty stories than anti-death penalty stories. The situation was reversed with a 105 story anti-death penalty advantage in 2000. This 141 point swing in Net Tone translates through Model 1 then to explain a decline of 93 death sentences after the variable reaches its full effect (64 in the short term). Compare this effect to that of homicides.[7] For much of this period, homicides increased by an average of about 1,000 per year. The predicted effect on death sentences is just one additional sentence in the long run. Over the period of our study, homicides in the US have varied from 8,530 (in 1962) to 24,703 (in 1991)—a shift of 16,173. Translating this number into its effect on death sentences shows a long-term impact of 20 additional death sentences. The effect is certainly important, but considerably smaller than that of Net Tone.

[7] We estimated statistical tests—Granger causality tests—that allow us to test the null hypothesis that each of the processes we care about predicts the others. We find that homicide levels are predicted by the number of death sentences that occur in a given year. This finding means that the estimated effect of homicides on death sentences is, strictly speaking, biased. We find, however, that in estimating the full system of equations and interpreting effects in the context of a vector autoregression (VAR) we draw almost identical inferences as those produced by the simple regression analysis that we report here. Of particular note, Net Tone *is* weakly exogenous and, thus, unbiased. Given the complexities of the VAR, we choose to present the single equation in Table 1.

To further draw comparisons between the effects of Net Tone and homicides, we compare the effects of a standard deviation change in each on the number of death sentences. A standard deviation change in media framing produces an expected change in sentences of over 20, while the comparable change in homicides produces only an expected change of 5 death sentences.[8] We see that Net Tone has an effect almost 4 times larger than that of homicides, using equivalent measures of each.

Public opinion also plays a role in determining the number of death sentences in a given year.[9] The estimated short-term effect of a one-point shift in net public opinion is to change the number of death sentences by over five (5.06). The long-term effect of this change is over seven additional death sentences (5.06 x 1.46 = 7.39). When public opinion becomes more pro-death penalty, on average we experience more death sentences. When it becomes less pro-death penalty, we experience fewer death sentences on average, as hypothesized. In fact, what we present provides the upper bounds on the effects of opinion on sentences and we do not draw out the dynamic implications of these shocks because of the mutual effects of sentences on opinions. The positive and significant finding provides further evidence for the social cascade theory. Media framing effects build momentum in the death penalty system, influencing sentencing directly as well as indirectly through public opinion.

In addition to the effects of media framing, homicides, and opinion, Model 1 also controls for the effects of the constitutional ban on death sentences. We find that the estimated effects of the onset and end of the constitutional ban on the death penalty were to drop death

[8] The standard deviation of Net Tone is just over 30 stories; that of homicides 4,508.

[9] As with homicides, we find that we cannot rule out the possibility that the number of death sentences influences opinion when we test that hypothesis using Granger causality tests. This finding means that our estimated coefficient on public opinion is biased. Using more statistically sophisticated techniques that handle this possibility—again the VAR—we find that the dynamic effects we report overestimate the effect of opinion somewhat.

sentences by about 68 (estimated as 1 x –67.80) and to increase death sentences by 129, respectively, controlling for the levels of homicides, Net Tone, and opinion that existed at that time (1 x 129.49). These are contemporaneous effects and so again underestimate the total effect. The total effect is the now familiar 1.46 times the contemporaneous effect, for the onset that is –98.99 and for the end of the moratorium that is 189.06. That structural changes to the death penalty system exert such big effects should come as no surprise. One reason to include these effects in the model is so that we know that the other effects we measure are in addition to these effects, not simply reflecting them.

We turn now to test the alternative hypothesis that exonerations rather than media framing explains the annual number of death sentences. Both Model 2 and Model 3, also presented in Table 1, are run using data from 1973 through 2005. Model 2 includes the number of exonerations in the previous year. Model 3 presents an alternative operationalization of the same concept, this time including the cumulative number of exonerations from 1976 to the year in question rather than only the number in each previous year. This alternate specification allows us to test for the possibility that it took the momentum of increasing numbers of exonerations over several years to affect public policy. The main finding from these results is that exonerations themselves have no independent effect on death sentences, a finding that persists when Net Tone is omitted from the models. Further, while the effect of the number of exonerations in the last period is negative, as we would expect, the cumulative number of exonerations has an estimated effect of zero. Importantly, the inclusion of exonerations does not change the conclusion that media coverage has a substantively important impact on the annual number of death sentences. The estimated effects of all the variables in the model are highly stable.

Conclusions

The number of death sentences is a very important indicator of public policy, one that has changed a lot over the last four decades, ranging from a low of 42 in 1973 (when executions were rendered unconstitutional) to a high of to 317 in 1996, just before the rise of the innocence frame. We have shown that this variation is highly predictable. We know that it responds in parallel fashion with public opinion to the tenor of media attention and to homicide levels. It is particularly responsive to the tenor of media framing. In particular, the sentencing rate is almost four times more responsive to Net Tone than to homicides. Public opinion in turn also influences the number of death sentences.

Taken with our knowledge of actual media coverage, we can say a lot about the nature of policy change with respect to the death penalty. The paths that homicides, media framing, and public opinion have followed in recent time periods have produced a dramatic decrease in the number of people sentenced to death. Declines in the number of homicides carried out and a consistent anti-death penalty tenor in media framing have pulled opinion in an anti-death penalty direction and, both directly and indirectly via public opinion, led to a reduction in the number of death sentences. Together, these variables help us to understand the decline in the number of death sentences handed down by juries in the last ten years, from 317 in 1996 to four tenths as many (128) in 2005. This conclusion is meaningful and, moreover, it is sensible.

The innocence movement we have documented appears to have led to a shift in the focus of the death penalty debate. This redefinition has had a substantial effect on public policy. The story we tell draws first on real events and then on media's presentation of them. The consequence of these events and media framing, as we have shown, is fundamentally, but slowly, to alter public policy. This is a straightforward story, told with many tables and figures. Framing matters.

Table 1. Explaining the Number of Annual Death Sentences.

	Model 1 (1961– 2005)	Model 2 (1973– 2005)	Model 3 (1973– 2005)
Sentences $_{t-1}$	0.316^{+}	0.339^{+}	0.327^{+}
	(.097)	(.109)	(.108)
Net Tone $_{t-1}$	0.453^{+}	0.361$^{\#}$	0.432$^{\#}$
	(.137)	(.210)	(.240)
Opinion $_{t-1}$	5.059*	5.007^{+}	4.906^{+}
	(1.069)	(.137)	(1.423)
Homicides $_{t-1}$ (thousands)	0.817	2.423	2.747
	(1.437)	(2.708)	(2.727)
Exonerations $_{t-1}$		-0.966	
		(1.721)	
Cumulative Exonerations $_{t}$			0.069
			(.197)
1973	–67.80^{+}		
	(25.80)		
1975	129.49*	129.68*	131.29*
	(25.34)	(28.21)	(28.24)
Constant	22.92$^{\#}$	-10.44	-17.97
	(19.20)	(56.78)	(56.49)
N	44	32	32
R-Squared	.930	.836	.834
RMSE	23.97	25.27	25.37
StDev	83.70	62.32	62.32

Entries are regression coefficients; standard errors are in parentheses.
Note: * denotes p<.001, $^{+}$ denotes p<.05, and $^{\#}$ denotes p<.10, one tailed.

Figure 1. The Number of Stories on Capital Punishment in the *New York Times Index*, 1960–2005.

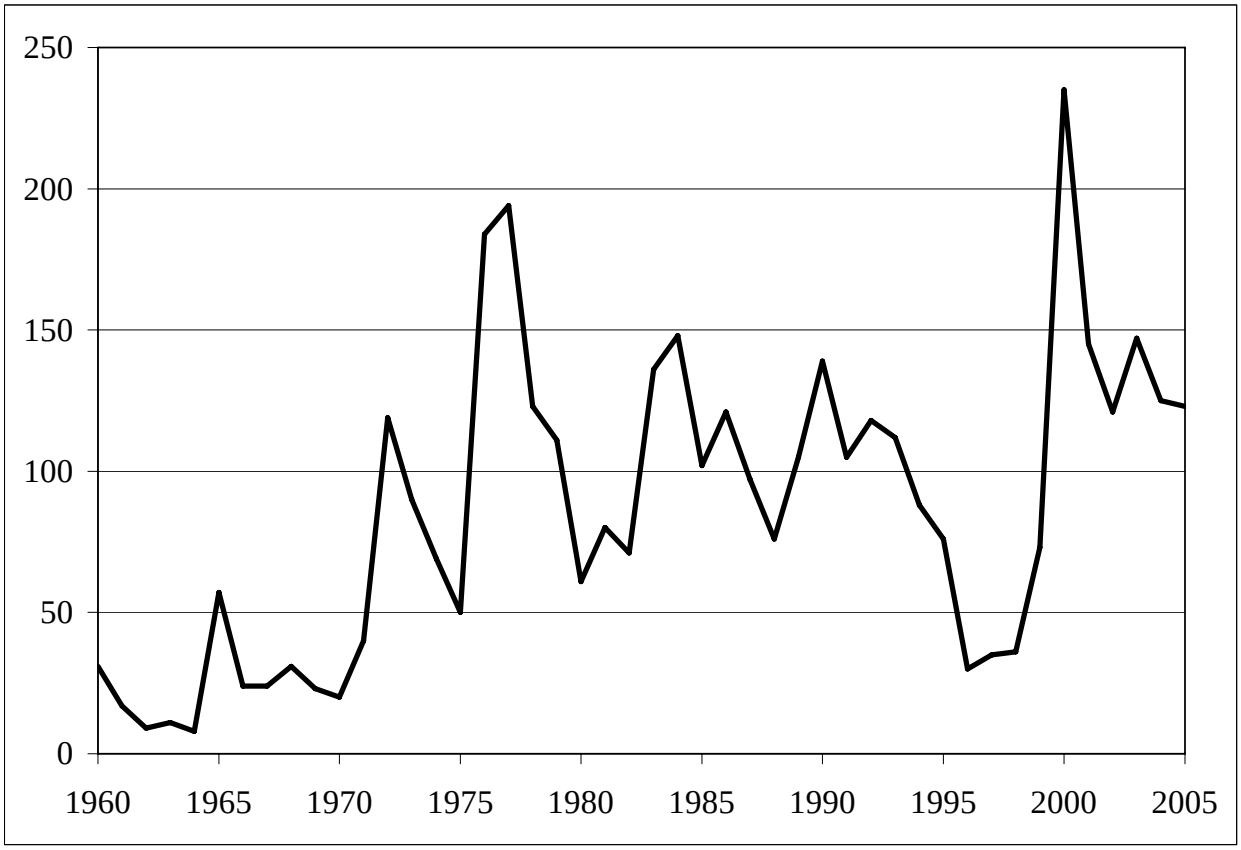


Figure 2. Topics of Attention in the *New York Times Index*, 1960–2005.

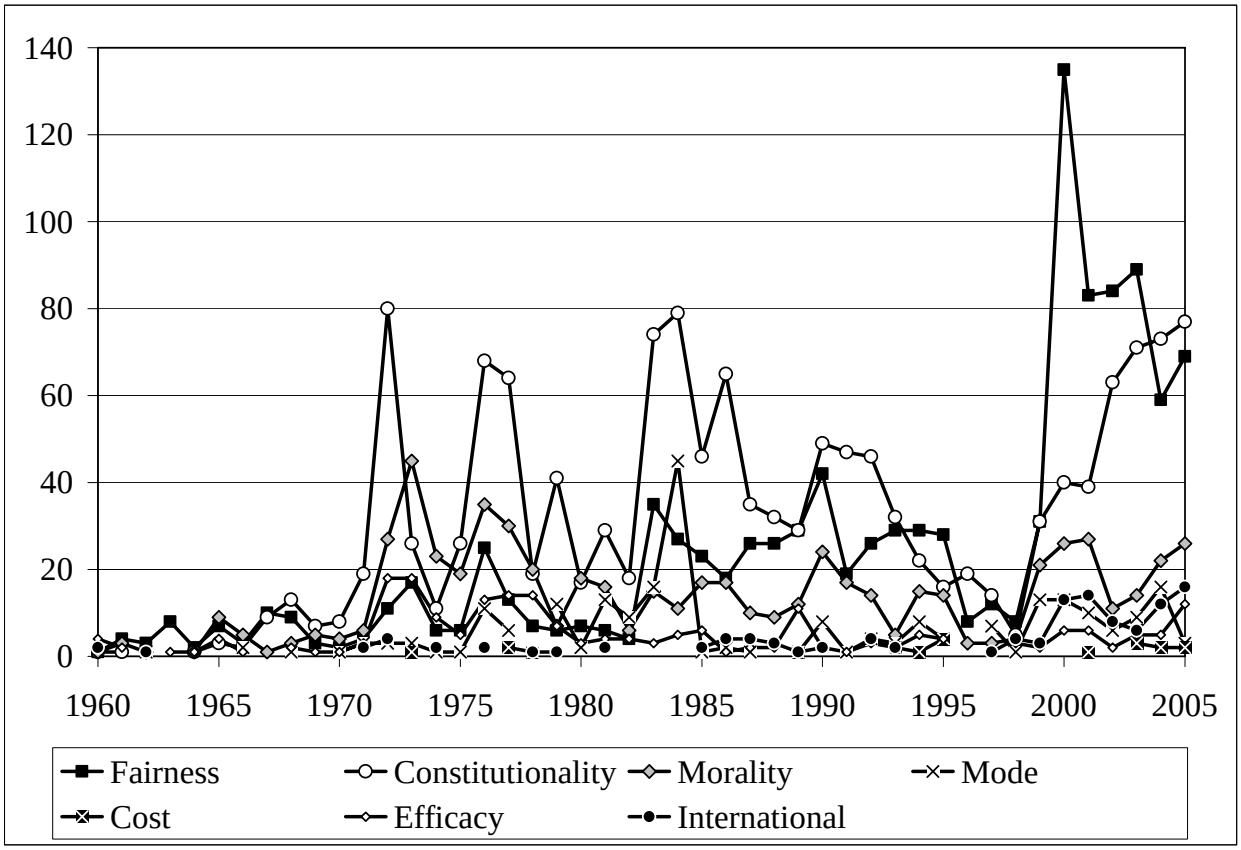
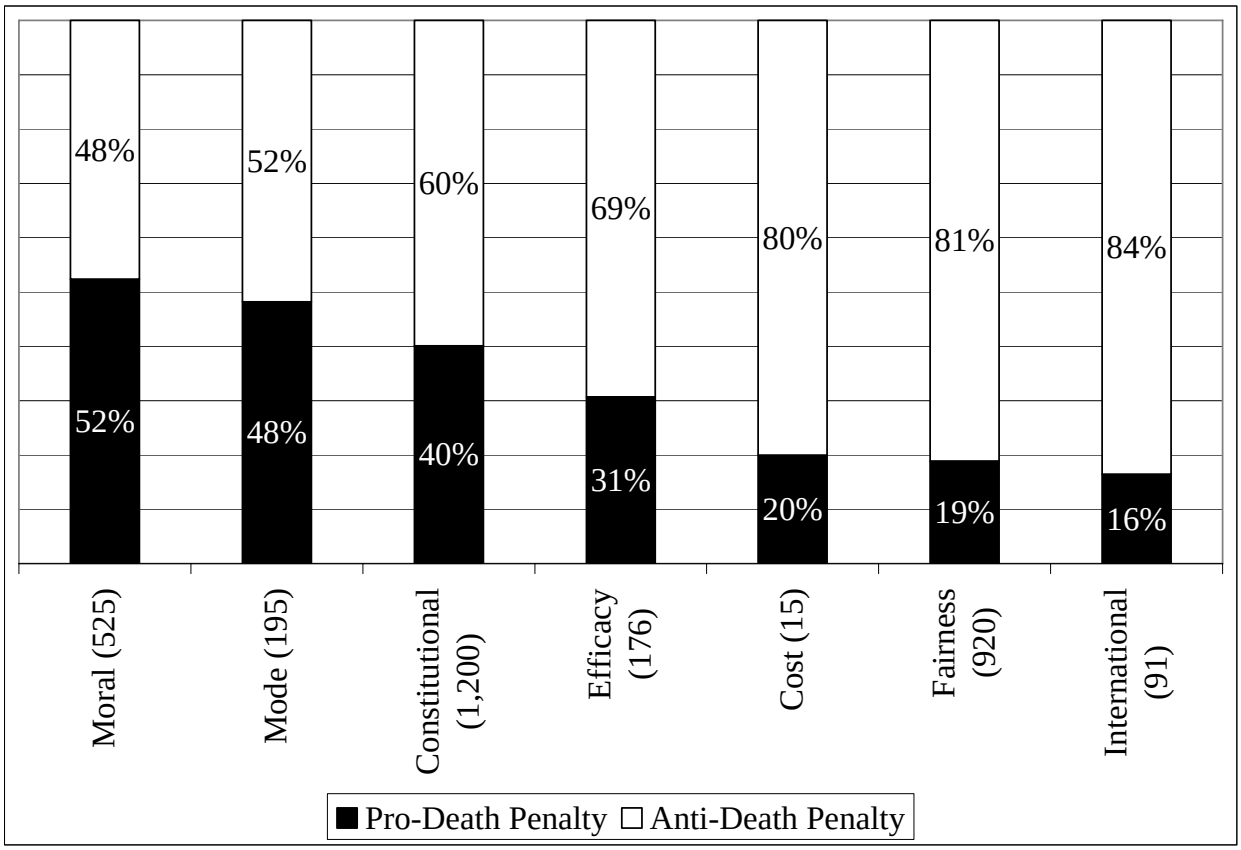
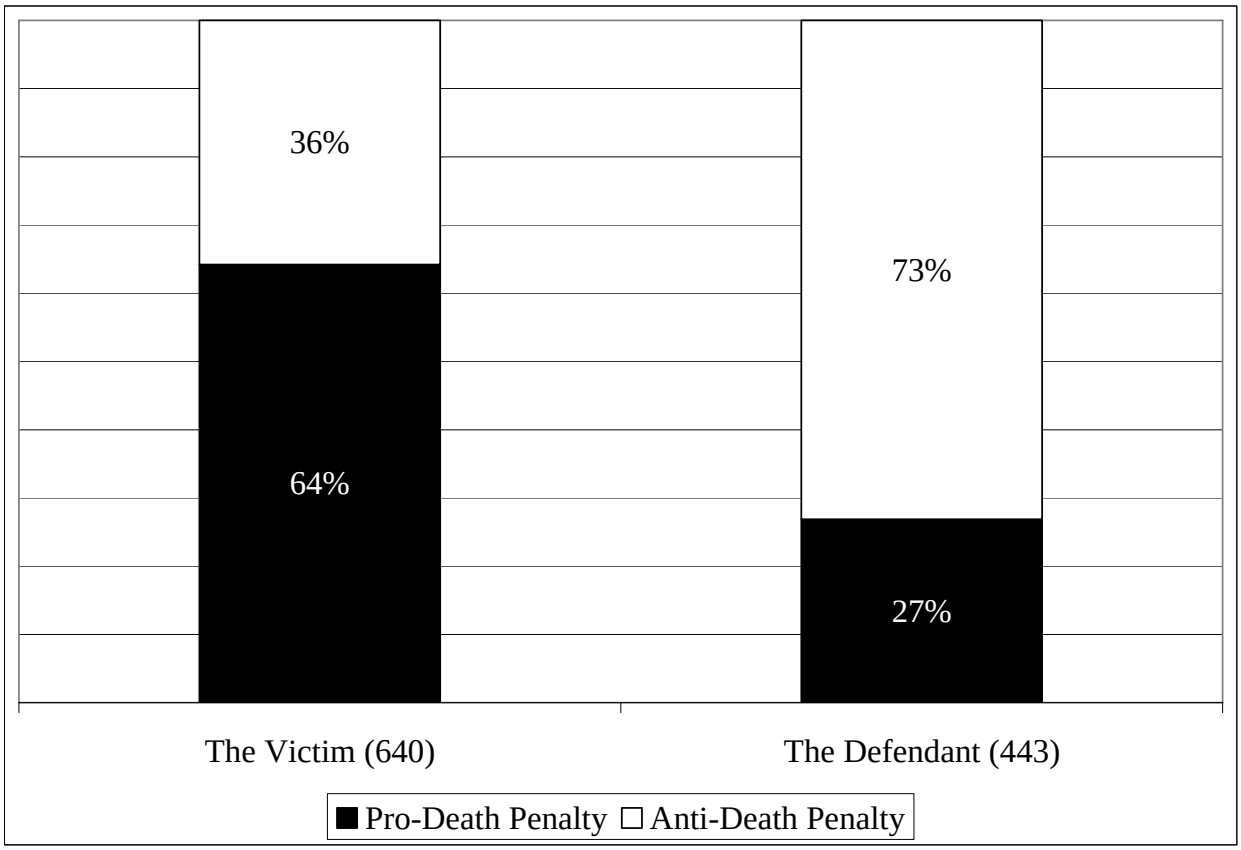


Figure 3. The Topic Determines the Tone.



Note: The figure shows the percentage of stories on each topic that were coded pro- or anti-death penalty, 1960–2005. Number of stories (with pro or anti tone) given in parentheses. Stories that were neutral or uncodeable by tone are not included.

Figure 4. Tone and Mention of Victim and Defendant.



Note: The figure shows the percentage of stories mentioning either the victim or the defendant that were coded pro- or anti-death penalty, 1960–2005. Number of stories (with pro or anti tone) in parentheses. Stories that were neutral or uncodeable by tone are not included.

Figure 5. The Number of Stories Mentioning the Victim and the Defendant, 1960–2005.

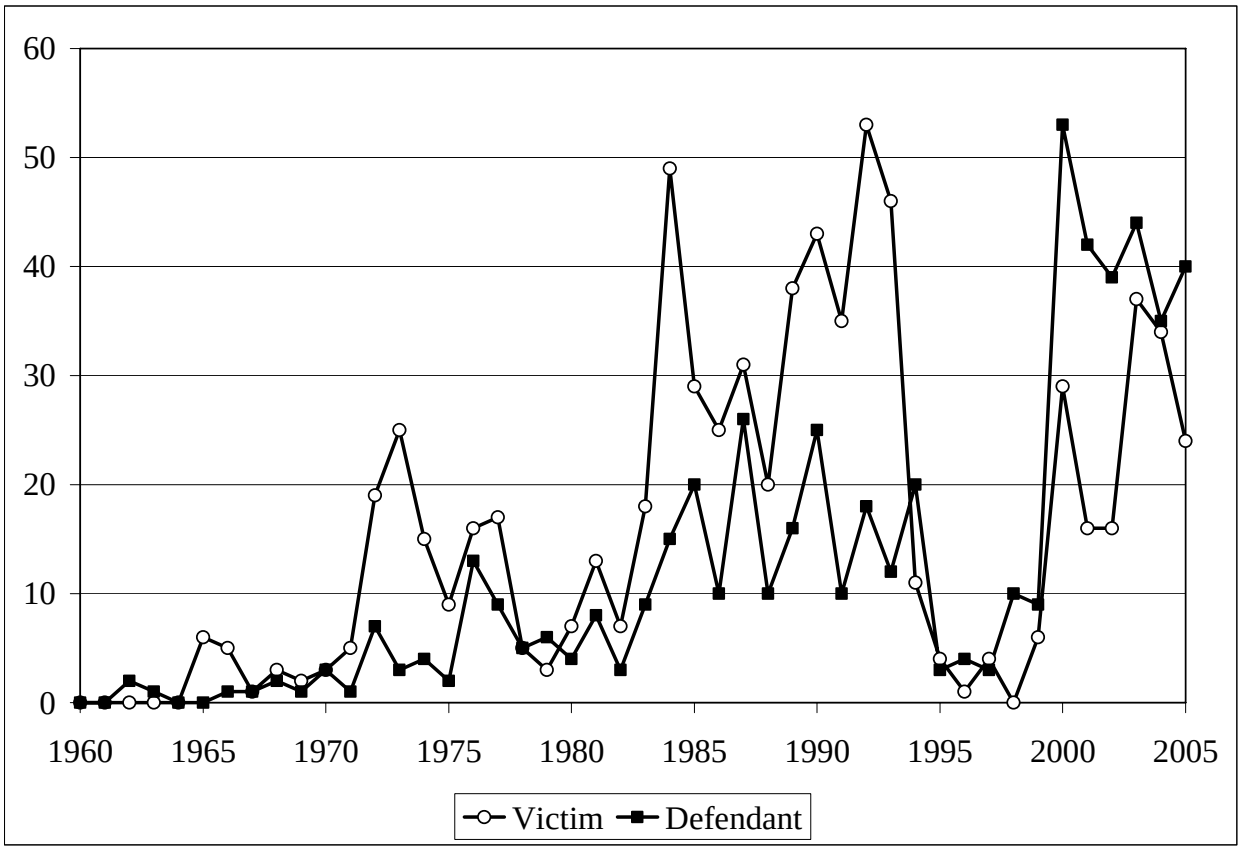


Figure 6. The Number of Stories Mentioning Innocence, Evidence, Flaws in the System, or Defendant Characteristics, 1960–2005.

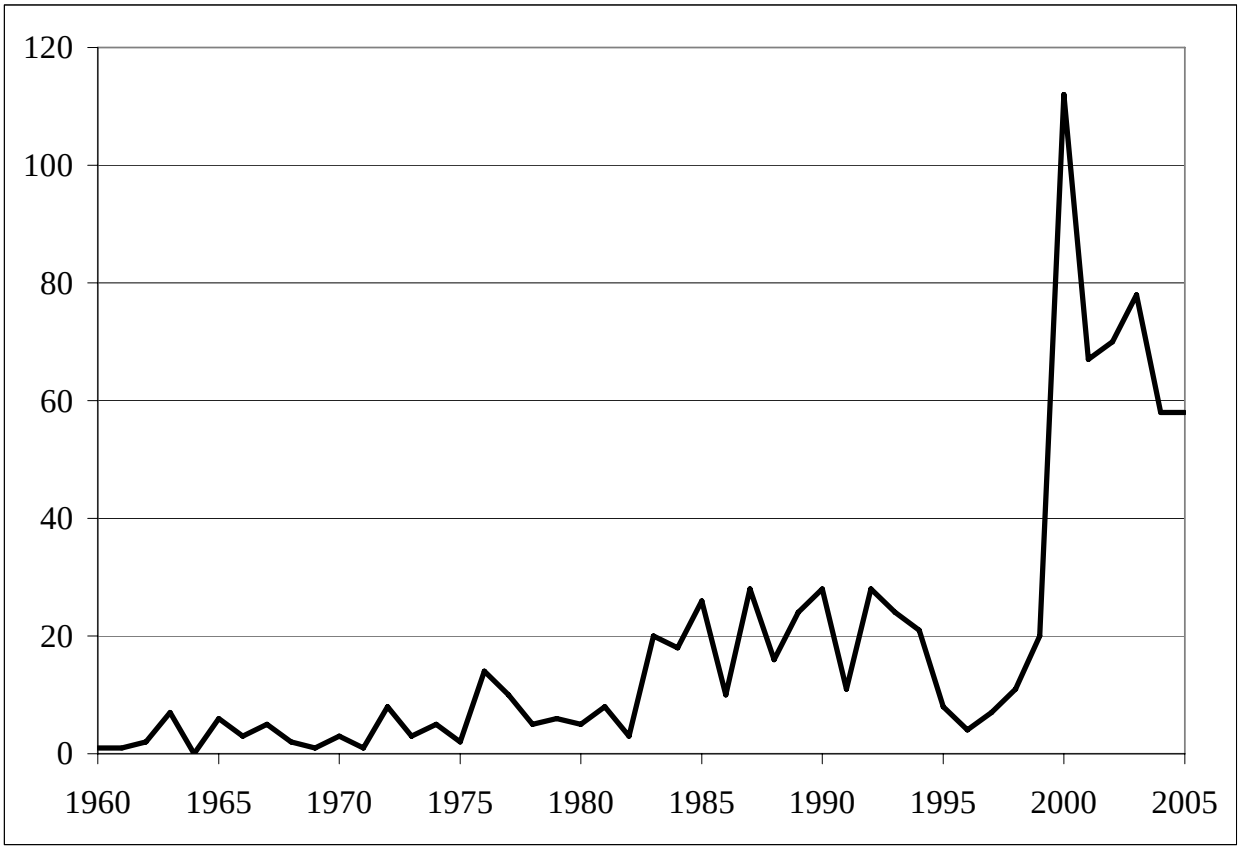


Figure 7. The Net Tone of *New York Times Index* Coverage, 1960–2005.

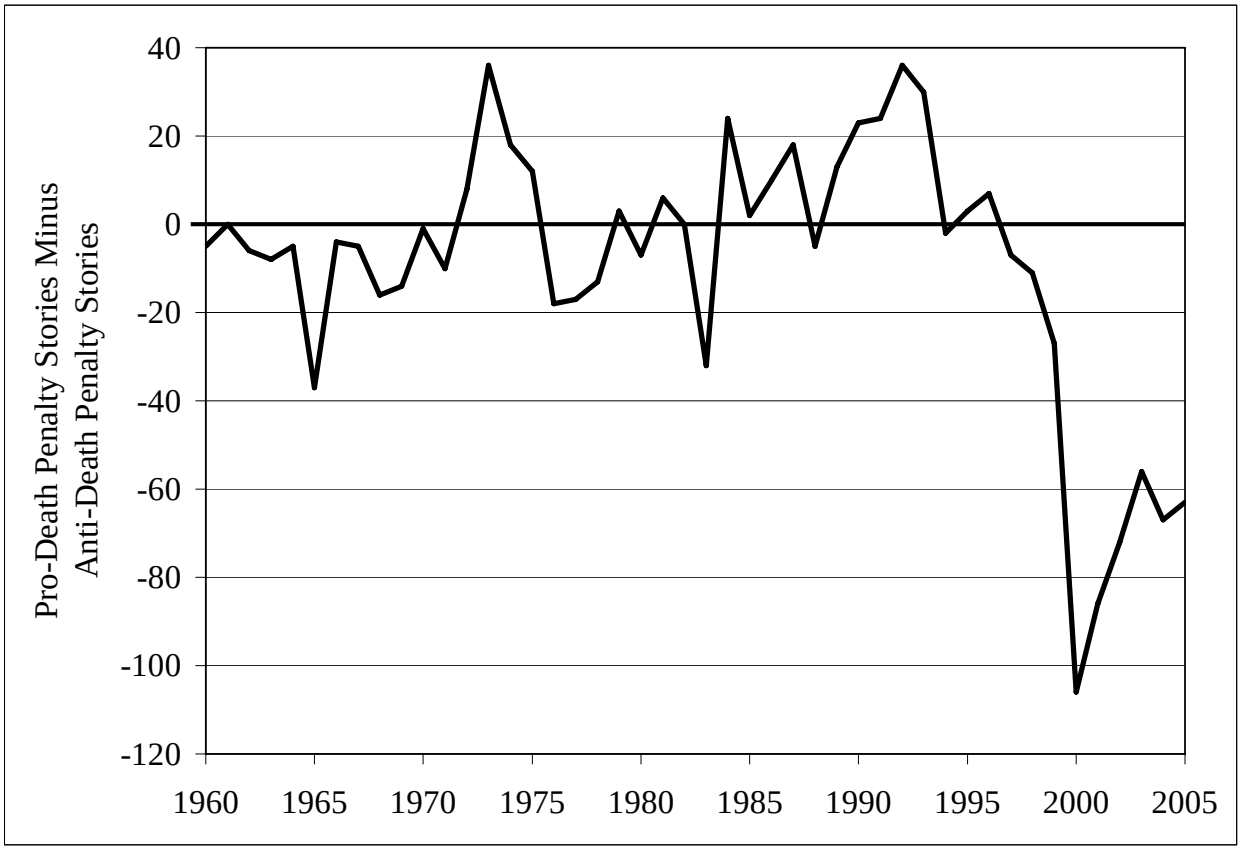
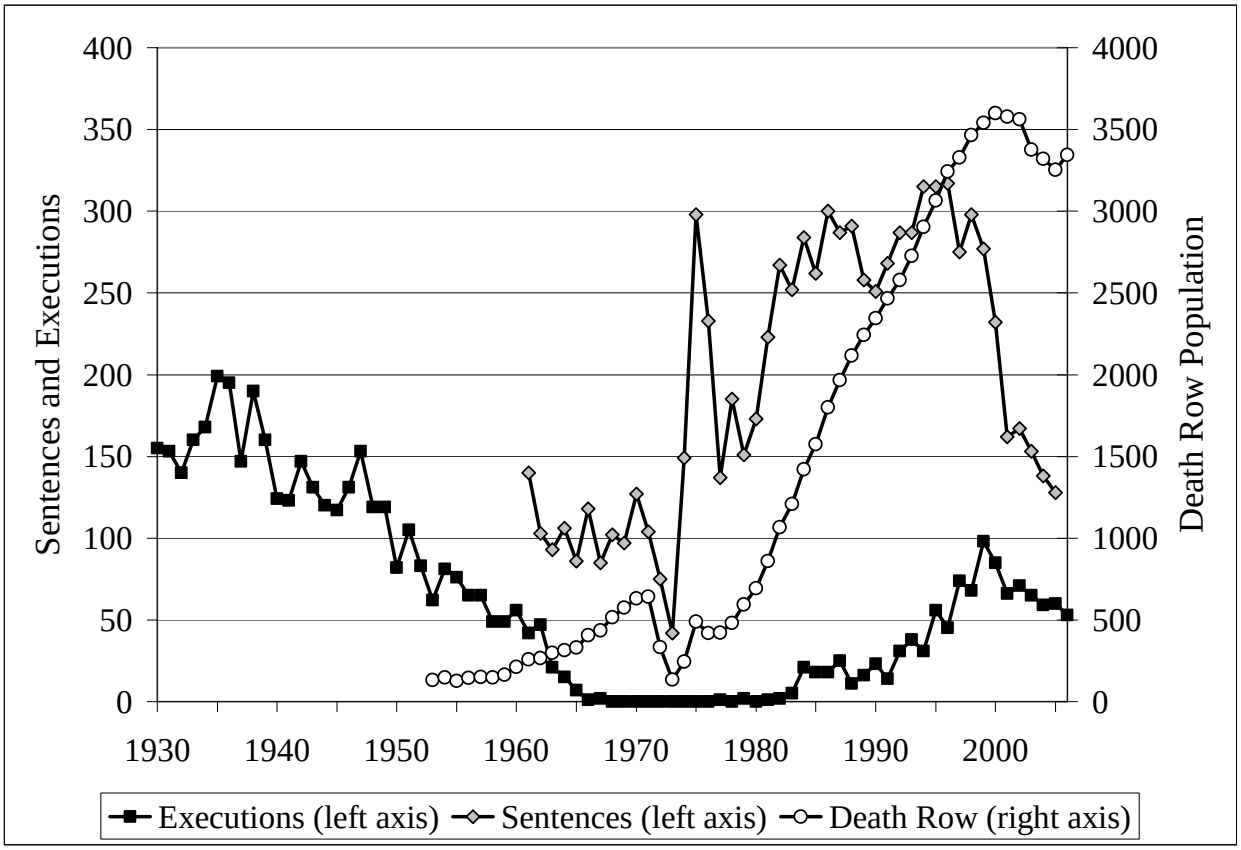


Figure 8. Capital Sentences, Executions, and the Death Row Population.



Primary Source: Snell 2005.

Appendix

Description of Data

This Appendix offers summary description of the data sources and collection procedures for the six major annual data series presented in this article: death sentences, death row inmate population, executions, exonerations, homicides, and net public opinion support.

Death Sentences: The number of death sentences handed down each year, as provided by the following sources: 1961–1972 data from United States Department of Justice 1972; 1973–2005 data from Snell 2005 (Appendix Table 2: Prisoners Sentenced to Death and the Outcome Sentence, by Year of Sentencing, 1973–2005).

Death Row Inmates: The total number of individuals under sentence of death in the United States in each year. We follow the Death Penalty Information Center in supplementing the primary Bureau of Statistics data source with the NAACP estimate for the most recent year, as reported by Snell 2005 (Figure 1: Persons under Sentence of Death 1953–2005).

Executions: The number of individuals executed in the United States in each year, as reported by Snell 2005 (Figure 4: Persons Executed, 1930–2005).

Exonerations: The number of individuals exonerated from death row in the United States in each year, as calculated from DPIC 2006. The Death Penalty Information Center makes the following statement regarding the criteria for identifying exonerations: "The DPIC uses the traditional objective criteria that have determined innocence since the founding of this country. In order to be included on the list, defendants must have been convicted and sentenced to death, and subsequently either: a) their conviction was overturned and they were acquitted at a

re-trial, or all charges were dismissed; or b) they were given an absolute pardon by the governor based on new evidence of innocence. The list includes cases in which the release occurred in 1973 or later."

Homicides: The number of homicides committed in the United States each year, as provided by the following sources: 1961–1985 data from Fox and Zawitz 2006 (Table of Homicide Victimization, 1950–2004); 1986–2005 data from Uniform Crime Reporting Program 2006 (Table 1: Crime in the United States by Volume and Rate per 100,000 Inhabitants, 1986–2005).

Net Public Support for the Death Penalty: A measure of public support for the death penalty as calculated from data collected from the following source: Gallup Organization, public opinion surveys conducted November 11, 1953–May 5, 2006. In this article, we use a variable we call "net support." This variable is calculated simply from subtracting, at each point in time, our measure of death penalty opposition from our measure of death penalty support (i.e., % pro - % anti). To gather these measures of death penalty support and opposition, we began by searching on iPoll for all public opinion polls on "capital punishment" or "death penalty." Our search yielded 780 survey items taken between December, 1936 and May, 2006. These surveys were conducted by a wide range of different survey organizations (Gallup, CBS, Roper, etc.) and employed an even wider range of question types ("Do you believe in the death penalty," "Are you in favor of the death penalty for murder?," "Do you think the death penalty prevents crime?," "Are you in favor of the death penalty for persons convicted of rape?," etc.). Although there is significant variance across these surveys in terms of survey house and question wording, we are able to incorporate different questions asked by different organizations by using the WCalc algorithm, created by James Stimson, which we describe below.

Through use of this algorithm, questions with important differences in question wording but with a common root subject—including those questions listed above and many more—can each contribute information to our overall measure of public opinion on the death penalty. Of the full set of 780 question items we downloaded from iPoll, 292 surveys meet our criteria for inclusion: directly relevant to the death penalty debate, given to a random sample of national adults, containing responses that can be categorized into pro- and anti-death penalty valences, and asked two or more times by the same survey organization. The surveys we used represented 19 distinct survey organizations and 35 distinct question wordings. In all, the data hold a total of 65 survey organization / question wording combinations.

In order to utilize this data set of 292 surveys from multiple survey houses and with multiple question types, we employed the WCalc Public Opinion Dimensional Extraction Algorithm created by James Stimson (software retrieved March 23, 2007, from http://www.unc.edu/~jstimson/resource.html). In a manner similar to the dynamic factor analysis we describe in Chapter 5, this software program calculates how the survey marginals (i.e., percentage values) for each survey question asked by each organization change over time. Having calculated relative change scores for each individual survey question series, the algorithm extracts the latent dimension underlying the shared patterns of variance across these changes, producing a single series of public opinion data. The algorithm is also equipped with an optional smoothing function, which we choose to employ in order to minimize the "noise" inherent in this kind of survey data. The result: two smoothed time series, one representing aggregate support for the death penalty and the other representing aggregate opposition. Subtracting the opposition values from the support values, we obtain the final series of "Net Support," which we employ in our analysis.

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