

**DETERRENCE AND THE DEATH PENALTY:
RISK, UNCERTAINTY, AND PUBLIC POLICY CHOICES**

**Testimony to the
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Chairman Brownback, Senator Feingold, and Honorable members of the Subcommittee, thank you for inviting me to testify before you today on this most urgent topic. This is an important moment historically in the debate on capital punishment, both in the states and the nation. New developments in social science and law have rekindled the debate on the effectiveness of the death penalty as a deterrent to murder. Both legal scholars and social scientists have transformed this new social science evidence into calls for more executions that they claim will save lives.¹ Others challenge the scientific credibility of these new studies,² and warn about the moral hazards and practical risks of capital punishment.³ Thus, public policy choices on capital punishment

¹ Cass R. Sunstein & Adrian Vermeule, *Is Capital Punishment Morally Required? Acts, Omissions, and Life-Life Tradeoffs*, 58 STAN. L. REV. —, (2005). See, also, Richard Posner, *The Economics of Capital Punishment*, http://www.becker-posner-blog.com/archives/2005/12/the_economics_o.html#trackbacks (visited December 18, 2005); Gary Becker, *More on the Economics of Capital Punishment*, http://www.becker-posner-blog.com/archives/2005/12/more_on_the_eco.html#trackbacks (visited December 18, 2005).

² John Donohue & Justin Wolfers, *Uses and Abuses of Empirical Evidence in the Death Penalty Debate*, 58 STAN. L. REV. 791 (2005) (reviewing the main study cited by Sunstein and Vermeule and finding “the empirical support for the proposition that the death penalty deters . . . to be quite weak”). See, also, Richard Berk, *New Claims About Executions and General Deterrence: Déjà vu All Over Again?*, 2 J. EMP. L. STUD. 303 (2005).

³ Carol S. Steiker, *No, Capital Punishment Is Not Morally Required: Deterrence, Deontology, and the Death Penalty*, 58 Stan. L. Rev. ____ (2005) (responding to claim of the “moral requirement” of Sunstein and Vermeule by stating that “...executions constitute a distinctive moral wrong (purposeful as opposed to non-purposeful killing), and a distinctive kind of injustice (unjustified punishment)” and concluding that “...acceptance of ‘threshold’ deontology in no way requires a commitment to capital punishment even if ...deterrence is proven”).

may depend on the accuracy, reliability and certainty of this new social science evidence. I appear today to discuss significant errors and flaws that seriously undermine the new social science claims about deterrence, and render moot calls for a vigorous new application of the death penalty. The risks of error in capital punishment, the suspect evidence of its effectiveness as a deterrent, and its high costs that foreclose local investments in basic state and local services, are critical dimensions of public policy choices facing the states and the nation on how to punish those who commit the worst crimes.

Qualifications

I am a professor of law and public health at Columbia University. My research has examined the administration of the system of capital punishment in the U.S., and also changes in homicide rates in American cities over the past three decades. I received my PhD from The University at Buffalo, State University of New York, where I was trained in econometrics, statistics, and engineering. I am also a Fellow of the American Society of Criminology, and Vice Chair of the Committee on Law and Justice of the National Research Council. Among other courses, I teach Law and Social Science to Columbia's law students. My research and writing has been supported by federal research agencies and private foundations. I frequently publish in peer-reviewed journals, and I serve on the editorial boards of several peer-reviewed journals. I have served on numerous government advisory committees and scientific review boards. I have also received research grants and fellowships from numerous government agencies and private foundations.

Summary

Recent studies claiming that executions reduce murders have fueled the revival of deterrence as a rationale to expand the use of capital punishment. Such strong claims are not unusual in either the social or natural sciences, but like nearly all claims of strong causal effects from any social or legal intervention, the claims of a “new deterrence” fall apart under close scrutiny. These new studies are fraught with numerous technical and conceptual errors: inappropriate methods of statistical analysis, failures to consider all the relevant factors that drive murder rates, missing data on key variables in key states, the tyranny of a few outlier states and years, weak to non-existent tests of concurrent effects of incarceration, statistical confounding of murder rates with death sentences, failure to consider the general performance of the criminal justice system, artifactual results from truncated time frames, and the absence of any direct test of deterrence. These studies fail to reach the demanding standards of social science to make such strong claims, standards such as replication, responding to counterfactual claims, and basic comparisons with other causal scenarios. Social scientists have failed to replicate several of these studies, and in some cases have produced contradictory results with the same data, suggesting that the original findings are unstable, unreliable and perhaps inaccurate. This evidence, together with some simple examples and contrasts including the experience in my state of New York, suggest extreme caution before concluding that there is new evidence that the death penalty deters murders.

The costs of capital punishment are extremely high. Even in states where prosecutors infrequently seek the death penalty, costs of obtaining convictions and executions in

capital cases range from \$2.5 to \$5 million dollars per case (in current dollars), compared to less than \$1 million for each killer sentenced to life without parole. Local governments bear the burden of these costs, diverting \$2 million per capital trial from local services – hospitals and health care, police and public safety, and education – or infrastructure repairs – roads and other capital expenditures – and causing counties to borrow money or raise local taxes. The costs are often transferred to state governments as “risk pools” or programs of local assistance to prosecute death penalty cases, diffusing death penalty costs to counties that choose not to use – or have no need for -- the death penalty in capital cases.

The high costs of the death penalty, the unreliable evidence of its deterrent effects, and the fact that the states that execute the most people also have the highest error rates⁴, create clear public policy choices for the nation. If a state is going to spend \$500 million on law enforcement over the next two decades, is the *best* use of that money to buy two or three executions or, for example, to fund additional police detectives, prosecutors, and judges to arrest and incarcerate murderers and other criminals who currently escape any punishment because of insufficient law-enforcement resources?

⁴ James Liebman, Jeffrey Fagan, Valerie West, & Jonathan Lloyd, *Capital Attrition: Error Rates in Capital Cases, 1973 – 1995*, 78 TEXAS LAW REVIEW 1839 (2000) (showing that 68% of all death sentences since *Furman v. Georgia* were reversed either on direct appeal, state direct appeal, or federal habeas review; most – 82% – of those reversed were re-sentenced to non-capital punishments, 7% were exonerated, and the remainder were re-sentenced to death); see also Brian Forst, BRIAN FORST, ERRORS OF JUSTICE: NATURE, SOURCES, AND REMEDIES, 201-04 (2004) (noting that the errors in these cases were the result of misidentification of witnesses, prosecutorial or police misconduct, incompetent defense counsel, prejudicial instructions by judges, and biased jury selection procedures); James Liebman et al., *A Broken System, Part I: Error Rates in Capital Cases, 1973-1995* (2000), available at <http://www2.law.columbia.edu/instructionalservices/liebman/>; James Liebman et al., *A Broken System Part II: Why There Is So Much Error in Capital Cases, and What Can Be Done About It* (2002), available at <http://www2.law.columbia.edu/brokensystem2/report.pdf>.

Also, most states rarely use the death penalty,⁵ and both death sentences and executions have declined sharply over the past five years, even as murder rates have declined nationally. We cannot expect the rare use of the death penalty to have a deterrent effect on already declining rates of murder. Justice White noted long ago in *Furman v. Georgia* that when only a tiny proportion of the individuals who commit murder are executed, the penalty is unconstitutionally irrational: a death penalty that is almost never used serves no deterrent function, because no would-be murderer can expect to be executed.

Accordingly, a threshold question for state legislatures across the country is whether their necessary and admirable efforts to avoid error and the horror of the execution of the innocent won't --- after many hundreds of millions of dollars of trying --- burden the state with a death penalty that will be overturned again because of this additional constitutional problem?

I. Introduction

Since 1996, more than a dozen studies have been published claiming that the death penalty has a strong deterrent effect that can prevent anywhere from three to 18 homicides.⁶ But this is not a new claim. In 1975, Professor Isaac Ehrlich published an influential article saying that during the 1950s and 1960s, each execution averted eight murders.⁷ Although Ehrlich's research was a highly technical article prepared for an audience of economists, its influence went well beyond the economics profession.

⁵ See, Richard Berk, *New Claims about Executions and Deterrence*, *supra* note 2.

⁶ A list of these studies is appended to this testimony.

⁷ Isaac Ehrlich, *The Deterrent Effect of Capital Punishment: A Question of Life and Death*, 65 *AMERICAN ECONOMIC REVIEW* 397 (1975); Isaac Ehrlich, *Capital Punishment and Deterrence: Some Further Thoughts and Additional Evidence*, 85 *JOURNAL OF POLITICAL ECONOMY* 741 (1977)

Ehrlich's work was cited in *Gregg v. Georgia*⁸, the central U.S. Supreme Court decision restoring capital punishment. No matter how carefully Ehrlich qualified his conclusions, his article had the popular and political appeal of a headline, a sound bite and a bumper sticker all rolled into one. Reaction was immediate: Ehrlich's findings were disputed in academic journals such as the *Yale Law Journal*⁹, launching an era of contentious arguments in the press and in professional journals.¹⁰ In 1978, an expert panel appointed by the National Academy of Sciences issued strong criticisms of Ehrlich's work.¹¹ Over the next two decades, economists and other social scientists attempted (mostly without success) to replicate Ehrlich's results using different data, alternative statistical methods, and other twists that tried to address glaring errors in Ehrlich's techniques and data. The accumulated scientific evidence from these later studies also weighed heavily against the

⁸ *Gregg v Georgia*, [428 U.S. 153 \(1976\)](#)

⁹ See Editor's Introduction, Statistical Evidence on the Deterrent Effect of Capital Punishment, 85 *Yale Law Journal* 164 (1975); David C. Baldus & James W.L. Cole, *A Comparison of the Work of Thorsten Sellin and Isaac Ehrlich on the Deterrent Effect of Capital Punishment*, 85 *YALE LAW JOURNAL* 170 (1975); William J. Bowers & Glenn L. Pierce, *The Illusion of Deterrence in Isaac Ehrlich's Research on Capital Punishment*, 85 *YALE LAW JOURNAL* 187 (1975); Isaac Ehrlich, *Deterrence: Evidence and Inference*, 85 *Yale Law Journal* 209 (1975).

¹⁰ See, for critiques of Ehrlich's work, Michael McAleer & Michael R. Veall, *How Fragile are Fragile Inferences? A Re-Evaluation of the Deterrent Effect of Capital Punishment*, 71 *REVIEW OF ECONOMICS AND STATISTICS* 99 (1989); Edward E. Leamer, *Let's Take the Con out of Econometrics*, 73 *AMERICAN ECONOMIC REVIEW* 31 (1983); Walter S. McManus, *Estimates of the Deterrent Effect of Capital Punishment: The Importance of the Researcher's Prior Beliefs*, 93 *JOURNAL OF POLITICAL ECONOMY* 417 (1985); Jeffrey Grogger, *The Deterrent Effect of Capital Punishment: An Analysis of Daily Homicide Counts*, 85 *Journal of the American Statistical Association* 295 (1990).

See, for support and extensions of Ehrlich's work, Stephen A. Layson, *Homicide and Deterrence: A Reexamination of the United States Time-Series Evidence*, 52 *SOUTHERN ECONOMIC JOURNAL* 68 (1985); James P. Cover & Paul D. Thistle, *Time Series, Homicide, and the Deterrent Effect of Capital Punishment*, 54 *Southern Economic Journal* 615 (1988). George A. Chressanthis, *Capital Punishment and the Deterrent Effect Revisited: Recent Time-Series Econometric Evidence*, 18 *JOURNAL OF BEHAVIORAL ECONOMICS* 81 (1989).

¹¹ See Lawrence R. Klein, Brian Forst, & Victor Filatov, *The Deterrent Effect of Capital Punishment: An Assessment of the Estimates*, pp. 336-60 in Alfred Blumstein, Jacqueline Cohen and Daniel Nagin (eds), *Deterrence and Incapacitation: Estimating the Effects of Criminal Sanctions on Crime Rates*. Washington, DC: National Academy of Sciences (1978)

claim that executions deter murders.¹²

The new deterrence studies analyze data that span a 20 year period since the resumption of executions following the U.S. Supreme Courts decisions in *Furman v Georgia*¹³ and *Gregg v. Georgia*.¹⁴ The claims of these new studies are far bolder than the original wave of studies by Professor Ehrlich and his students.¹⁵ Some claim that pardons, commutations, and exonerations cause murders to increase.¹⁶ One says that even murders of passion, among the most irrational of lethal acts, can be deterred.¹⁷ Another says that the deterrent effects of executions are so powerful that it will reduce robberies and even some non-violent crimes.¹⁸ Thus, the deterrent effects of capital punishment apparently are limitless, leading some proponents to offer execution as a cure-all for everyday crime.¹⁹

¹² Id. See, also, William C. Bailey, *Deterrence, Brutalization, and the Death Penalty: Another Examination of Oklahoma's Return to Capital Punishment*, 36 CRIMINOLOGY 711 (1998); Jon Sorenson, Robert Wrinkle, Victoria Brewer, & James Marquart, *Capital Punishment and Deterrence: Examining the Effect of Executions on Murder in Texas*, 45 CRIME & DELINQUENCY 481 (1999).

¹³ *Furman v. Georgia*, [408 U.S. 238 \(1972\)](#)

¹⁴ *Gregg v Georgia*, [428 U.S. 153 \(1976\)](#)

¹⁵ Joanna Shepherd, an author of several studies finding a deterrent effect, has recently argued before Congress that recent research has created a "strong consensus among economists that capital punishment deters crime," going so far as to claim that "[t]he studies are unanimous." Terrorist Penalties Enhancement Act of 2003: Hearing on H.R. 2934 Before the Subcommittee on Crime, Terrorism, and Homeland Security of the House Committee on the Judiciary, 108th Cong. 10-11 (2004), available at <http://judiciary.house.gov/media/pdfs/printers/108th/93224.pdf>.

¹⁶ See, for example, H. Naci Mocan and R. Kaj Gittings, Getting Off Death Row: Commuted Sentences and the Deterrent Effect of Capital Punishment, 46 JOURNAL OF LAW AND ECONOMICS 453 (2003).

¹⁷ Joanna M. Shepherd, Murders of Passion, Execution Delays, and the Deterrence of Capital Punishment, 33 JOURNAL OF LEGAL STUDIES 283 (2004).

¹⁸ Zhiqiang Liu, Capital Punishment and the Deterrence Hypothesis: Some New Insights and Empirical Evidence, 30 EASTERN ECONOMIC JOURNAL 237 (2004)

¹⁹ Id.

II. Less Than Meets the Eye

The bar is very high when science makes such causal claims.²⁰ Professors Leigh Epstein of Washington University and Gary King of Harvard University have written an important article that articulates the standards for making causal inferences in law and social policy.²¹ Their standards are consistent with the demands of science generally, and reflect a consensus on causal inference that durably exists in the highest halls of science, including, for example, the National Academy of Science, the Institute of Medicine, the National Institutes of Health, and the American Association for the Advancement of Science.²² These standards are neither technical nor mysterious. Rather, they reflect just a bit of common sense: the ability to replicate the original work under diverse conditions by an independent researcher, the use of measures and methods that avoid biases from inaccurate “yardsticks” and faulty “gauges,” the ability to tell a simple and persuasive causal story, and the testing and rejection of competing causal factors. These hallmarks of science have been recognized by the U.S. Supreme Court in a series of cases that demand that scientific evidence meet these very high yet commonsense standards for science.²³

²⁰ See, Christopher Winship and Martin Rein, *The Dangers of ‘Strong’ Causal Reasoning in Social Policy*, 36 SOCIETY 38 (July/August 1999); Michael E. Sobel, *An Introduction to Causal Inference*, 24 SOCIOLOGICAL METHODS & RESEARCH 353 (1996); Richard A. Berk and David A. Freedman, *Statistical Assumptions as Empirical Commitments*, in T.G. Blomberg and S. Cohen (eds.), *Punishment and Social Control* (2nd ed.) 235 (2003); Paul A. Rosenbaum, *Observational Studies* (1995).

²¹ Lee Epstein and Gary King, *The Rules of Inference*, 69 UNIVERSITY OF CHICAGO LAW REVIEW 1 (2002).

²² See, for examples, Lee Epstein and Gary King, *Creating an Infrastructure for the Creation, Dissemination, and Consumption of High-Quality Empirical Research*, 53 THE JOURNAL OF LEGAL EDUCATION 311 (2003)

²³ *Daubert v Merrill Pharmaceuticals*, 509 US 579 (1993); *Kumho Tire Co v Carmichael*, 526 US 137 (1999); *General Electric Co. v Joiner*, 522 US 136 (1997).

A close reading of the new deterrence studies shows quite clearly that they fail to touch this scientific bar, let alone cross it. Consider the following:

- All but one of the new studies lump all forms of murder together, claiming that all are equally deterrable. But logic tells us that some types of murder may be poor candidates for deterrence, such as crimes of passion or jealousy. Yet the one study that looked at specific categories found that “domestic” homicides are more deterrable than others,²⁴ a claim that flies in the face of six decades of theory, research and facts on homicide²⁵ and especially murders of spouses and intimates.²⁶ Some homicide offenders simply are not responsive to threats of punishment.²⁷ It also belies the empirical fact that “domestic” or intimate partner homicides have been declining steadily since the early 1970’s,²⁸ at a steady pace, regardless of fluctuations in the number of executions since capital punishment was reinstated following *Gregg*.

²⁴ Joanna M. Shepherd, *Murder of Passion, Execution Delays, and the Deterrence of Capital Punishment*, 33 JOURNAL OF LEGAL STUDIES 283 (2004).

²⁵ See, Franklin Zimring and Gordon Hawkins, *CRIME IS NOT THE PROBLEM: LETHAL VIOLENCE IN AMERICA* (1997).

²⁶ Kenneth Polk, *WHEN MEN KILL SCENARIOS OF MASCULINE VIOLENCE* (1994). See, also, Jeffrey Fagan and Angela Browne, “Violence toward Spouses and Intimates: Physical Aggression between Men and Women in Intimate Relationships,” in *UNDERSTANDING AND PREVENTING VIOLENCE, VOL.3* (A.J. Reiss, Jr., & J.A. Roth, eds.) 115 (1994).

²⁷ Jack Katz, *SEDUCTIONS OF CRIME: THE MORAL AND SENSUAL ATTRACTIONS OF DOING EVIL* (1988) (describing “stone cold killers” who are insensitive to punishment threats, and whose homicides can only be described as the pursuit of domination and pleasure). See, also, Richard B. Felson & Henry J. Steadman, *Situational Factors in Disputes Leading to Criminal Violence*, 21 *CRIMINOLOGY* 59-60 (1983); David F. Luckenbill, *Criminal Homicide as a Situated Transaction*, 25 *SOCIAL PROBLEMS* 176 (1977); Richard B. Felson, *Impression Management and the Escalation of Aggression and Violence*, 45 *SOCIAL PSYCHOLOGY QUARTERLY* 245 (1982); David F. Luckenbill & Daniel P. Doyle, *Structural Position and Violence: Developing a Cultural Explanation*, 27 *CRIMINOLOGY* 422-23 (1989); William Oliver, *THE VIOLENT SOCIAL WORLD OF BLACK MEN* 138-40 (1994).

²⁸ See, e.g., Laura Dugan, Daniel Nagin and Richard Rosenfeld, *Explaining the Decline in Intimate Partner Homicide: The Effects of Changing Domesticity, Women's Status, and Domestic Violence Resources*, 3 *HOMICIDE STUDIES* 187 (1999) (attributing the two-decades-long decline in the intimate partner homicide rate in the U.S. as a function of three factors that reduce exposure to violent relationships: shifts in marriage, divorce, and other factors associated with declining domesticity; the improved economic status of women; and increases in the availability of domestic violence services).

- The studies produce erratic and contradictory results, and some find that there is no deterrent effect that can be attributed to executions.²⁹ For example, one of the studies shows that executions are as likely to produce an increase in homicides in states following execution as there are states where there seems to be a reduction in homicides.³⁰ Moreover, depending on the year, some states exhibit “brutalization” effects from executions in some periods and deterrent effects in others.³¹ A constitutional and moral regime of capital punishment cannot tolerate such inconsistency in one of its bedrock theoretical and constitutional premises. Moreover, such inconsistencies are the antithesis of what social scientists and economists demand when considering causal inference: robustness in their conclusions, or consistency across a range of conditions and tests. When the hypothesized deterrent effects of executions are so unstable over time, one must reject a hypothesis of deterrence.
- Many of the same processes that produce murder rates also produce death sentences and executions,³² so that determining the marginal causal effects of the death penalty is difficult. More important, the models used in most of the current studies conflate these effects by including homicide, social structure, death sentences and executions in the same model. This is what social scientists would decry as a “specification error”: the piling on of correlated predictors – social

²⁹ Lawrence Katz, Steven D. Levitt, & Ellen Shustorovich, *Prison Conditions, Capital Punishment, and Deterrence*, 5 *AMERICAN LAW AND ECONOMICS REVIEW* 318 (2003).

³⁰ Joanna M. Shepherd, *Deterrence versus Brutalization: Capital Punishment’s Differing Impacts Among States*, 104 *MICHIGAN LAW REVIEW* 203 (2005).

³¹ *Id.*

³² Andrew Gelman, James S. Liebman, Valerie West and Alex Kiss, *A Broken System: The Persistent Patterns of Reversals of Death Sentences in the United States*, 1 *JOURNAL OF EMPIRICAL LEGAL STUDIES* 209 (2004).

- forces, homicides and executions – can defeat efforts to reliably estimate the effects of capital punishment or any other correlated set of predictors on murder rates.³³ These errors in modeling, a general sources of bias caused by multicollinearity and endogeneity, inflates regression results and undermines the reliability of estimates of deterrent effects.
- At the same time, many of these studies fail to account for a variety of explanations for the rise and fall of murders over time. For example, the current crop of studies ignores the contemporaneous and severe effects of drug epidemics on homicide rates,³⁴ and also on broader social conditions that elevate homicide rates.³⁵ In addition, many of the social structural factors that explain and predict homicide rates – demographic composition, concentrated poverty – at the state level also predict death sentencing rates.³⁶ A similar omission is the effect of firearms on murders. Nearly all of the increase and decline in the U.S. in

³³ See, e.g., Lauren J. Krivo & Ruth D. Peterson, The Structural Context of Homicide: Accounting for Racial Differences in Process, 65 *AMERICAN SOCIOLOGICAL REVIEW* 547 (2000); Kenneth C. Land et al., Structural Covariates of Homicide Rates: Are There Any Invariances Across Time and Social Space?, 95 *AMERICAN JOURNAL OF SOCIOLOGY* 922, 922-32 (1990). See generally Robert J. Sampson & Janet H. Lauritsen, Individual-, Situational-, and Community-Level Risk Factors, in *UNDERSTANDING AND PREVENTING VIOLENCE*, VOL. 3 (A.J. Reiss, Jr. & J.A. Roth eds.) 1 (1994).

³⁴ See, e.g., Jeffrey Grogger and Michael Willis, The Emergence of Crack Cocaine and the Rise in Urban Crime Rates, 82 *REVIEW OF ECONOMICS AND STATISTICS* 519 (2000); Graham Ousey and Matthew Lee, Examining the conditional nature of the illicit drug market-homicide relationship: A partial test of the theory of contingent causation, 40 *CRIMINOLOGY* 73 (2002); Daniel Cork, Examining Space-Time Interaction in City-Level Homicide Data: Crack Markets and the Diffusion of Guns Among Youth, 15 *JOURNAL OF QUANTITATIVE CRIMINOLOGY* 379 (1999); Eric Baumer et al., The Influence of Crack Cocaine on Robbery, Burglary, and Homicide Rates: A Cross-City, Longitudinal Analysis, 33 *JOURNAL OF RESEARCH IN CRIME AND DELINQUENCY* 316 (1998).

³⁵ Roland Fryer, Paul Heaton, Steven Levitt and Kevin D. Murphy, Measuring the Impact of Crack Cocaine, Working Paper, Harvard University Department of Economics, http://post.economics.harvard.edu/faculty/fryer/papers/fryer_heaton_levitt_murphy.pdf (visited December 20, 2005).

³⁶ See, Liebman et al., A Broken System, Part II, *supra* note 4; Gelman et al., *supra* note 3.2 .

- homicides since 1985 was in gun homicides.³⁷ Yet none of the studies take into account the flat secular trend of decline in non-gun homicides since the early 1970s, none accounts for gun availability, and none control for the complex interaction of drug epidemics with gun violence.³⁸
- All the studies fail to control for autoregression, which is the tendency of trends in longitudinal or time series data to be heavily influenced by the trends in preceding years.³⁹ In other words, the thing that tells us most about what the murder rate will be next year is what it was last year. Failing to account for autoregression leads to underestimates of standard errors that seriously bias results and give a misleading picture of precision. For example, ignoring autocorrelation means that each year in a longitudinal panel of years is treated as a separate case with no ties to similar cases. In fact, powerful social, economic and legal forces influence state homicide rates, and these forces operate dynamically over time and change at a relative slow pace. Statistically and conceptually, it is unlikely that effects of extremely rare events such as executions can influence these large forces, and in turn deflect trends that are so heavily influenced by their own history and context.⁴⁰ A change in statistical modeling techniques to account for the strong

³⁷ See, e.g., Philip J. Cook and John H. Laub, "The Unprecedented Epidemic in Youth Violence," 24 *CRIME AND JUSTICE: AN ANNUAL REVIEW OF RESEARCH – YOUTH VIOLENCE* 27 (1998); See, also, Jeffrey Fagan, Franklin Zimring, and June Kim, *Declining Homicide in New York: A Tale of Two Trends*, 88 *JOURNAL OF CRIMINAL LAW AND CRIMINOLOGY* 1277 (1998); Zimring and Hawkins, *CRIME IS NOT THE PROBLEM*, *supra* note ____.

³⁸ See, e.g., Eric Baumer, et al., *supra* note 33; See, also, Alfred Blumstein, *Youth violence, guns, and the illicit-drug industry*, 86 *JOURNAL OF CRIMINAL LAW & CRIMINOLOGY* 10 (1995).

³⁹ See, e.g., William Greene, *ECONOMETRIC ANALYSIS* (5th edition) (2003)

⁴⁰ Richard Berk, *New Claims about Executions and General Deterrence: D'ej`a Vu All Over Again?* *JOURNAL OF EMPIRICAL LEGAL STUDIES* (forthcoming, 2005). See, also, Badi H. Baltagi, *Econometric Analysis of Panel Data* (2001); Badi H. Baltagi and Q. Li, *Testing AR(1) Against MA(1) Disturbances In An Error Component Model*. 68 *JOURNAL OF ECONOMETRICS* 133 (1995).

- year-to-year correlation of murder rates over time produces dramatic changes in the statistical significance and effect size of executions on murder rates.⁴¹ Such instability in the coefficients under varying measurement and analytic conditions should be a serious warning sign to those who would embrace the new deterrence evidence.
- There are few statistical controls for the general performance of the criminal justice system, specifically clearance rates for violent crimes. Some of the studies control for punishment, such as imprisonment rates, but not for the ability of local law enforcement to identify homicide offenders or high rate offenders generally. Accordingly, it is hard to evaluate the deterrent effects of execution without first knowing the clearance rate for homicides. Decades of research confirms that such efficiency in homicide detection and apprehension would be a more effective deterrent than poorly publicized and infrequent executions. These important but omitted variables are potential sources not just of errors in these analyses, but they produce misleading results.⁴²
 - The studies ignore large amounts of missing data in important states such as Florida. Most of the studies rely on the same data, a compilation of death sentences published by the Bureau of Justice Statistics of the U.S. Department of Justice, and the published homicide rates from the Federal Bureau of

⁴¹ Jeffrey Fagan, *Death and Deterrence Redux: Science, Alchemy and Causal Reasoning on Capital Punishment*, — OHIO ST. J. CRIM. L.— (forthcoming 2006).

⁴² See, e.g., Mocan and Gittings, *supra* note 9, reporting significant negative effects on deterrence for the homicide arrest rate. See, also, Katz et al., *supra* note 28.

Investigation.⁴³ Yet the FBI's data for Florida is missing in these national archives for four years in the 1980s and another four years in the 1990s. By simply leaving out these states, the results are most likely to be heavily biased. The studies fail to investigate alternate data sources that might fill in important gaps in annual homicide rates.⁴⁴ For example, when a complete homicide victimization data set from the National Center for Health Statistics is substituted for the incomplete FBI homicide data in the Mocan and Gittings dataset and regression programs, model results change dramatically and the magnitude of a putative deterrent effect is reduced by nearly half.⁴⁵

- The studies avoid any direct tests of deterrence. They fail to show that murderers are aware of executions in their own state, much less in far-away states, and that they rationally decide to forego homicide and use less lethal forms of violence. A few studies measure newspaper accounts of executions,⁴⁶ but no one knows the newspaper reading habits or television viewing preferences of murderers. Moreover, the extension of traditional rational choice theories to would-be murderers faces several conceptual and real challenges. Numerous studies that directly examine the reactions of individuals to punishment threats consistently show the limits of the assumptions of rationality that underlie deterrence,

⁴³ See, Michael D. Maltz, *The Effect of NIBRS Reporting on Item Missing Data in Murder Cases*, 8 HOMICIDE STUDIES 193 (2004).

⁴⁴ Michael Maltz, *Bridging Gaps in Police Crime Data* (NCJ 176365), available at <http://www.ojp.usdoj.gov/bjs/pub/pdf/bgpced.pdf> (visited November 12, 2005). In some specifications with these data, the deterrent effect becomes insignificant.

⁴⁵ See, Jeffrey Fagan, *Science, Ideology and the Illusion of Deterrence*, *supra* note ____.

⁴⁶ Joanna M. Shepherd, *Brutalization*, *supra* note 30.

- especially in the case of aggression or violence.⁴⁷ Many violent offenders have cognitive, organic and neuropsychological impairments, making it even more unlikely that they are aware of executions.⁴⁸ Others are prone to exponential discounting (“hyperdiscounting”) of risks, especially the threat of punishments and short-term harms, as well as the inflation of potential rewards of crime.⁴⁹
- Death sentences are rare, as are executions; they are a product of the jurisprudence that recognizes “death is different” and should therefore be reserved for only the most heinous murders.⁵⁰ Many states have narrowly tailored capital punishment laws that constrain the number and types of homicides that are eligible for the death penalty. However, there is no evidence that these extremely rare events would be deterrable. Consider, for example, the imposition of the death penalty for persons who kill law enforcement officers. Assuming rationality, for the moment, such rare events are unlikely to influence decision processes by motivating would-be killers to adjust to these punishment threats.⁵¹

⁴⁷ See, for an overview, Francisco Parisi and Vernon Smith, Introduction, in *THE LAW AND ECONOMICS OF IRRATIONAL BEHAVIOR* (Francisco Parisi and Vernon Smith, eds.) (2005).

⁴⁸ See, e.g., Adriane Raine et al., Reduced prefrontal and increased subcortical brain functioning assessed using positron emission tomography in predatory and affective murderers, 16 *BEHAVIORAL SCIENCES AND THE LAW* 319 (1998); L. Gatzke, Adriane Raine, et al., Temporal lobe EEG deficits in murderers not detected by PET, *JOURNAL OF NEUROPSYCHIATRY AND CLINICAL NEUROSCIENCES* (*in press*); Dorothy Otnow Lewis, Ethics Questions Raised by the Neuropsychiatric, Neuropsychological, Educational, Developmental, and Family Characteristics of 18 Juveniles Awaiting Execution in Texas, 32 *JOURNAL OF THE AMERICAN ACADEMY OF PSYCHIATRY AND THE LAW* 408 (2004); Dorothy Otnow Lewis, Neuropsychiatric, Psychoeducational, and Family Characteristics of 14 Juveniles Condemned to Death in the United States, 145 *AMERICAN JOURNAL OF PSYCHIATRY* 584 (1988).

⁴⁹ Gary Becker, Kevin M. Murphy and Michael Grossman et al., The Economic Theory of Illegal Goods: The Case of Drugs. NBER Working Paper 10976, available at <http://www.nber.org/papers/w10976> (visited January 14, 2006).

⁵⁰ Hugo Adam Bedau, DEATH IS DIFFERENT: STUDIES IN THE MORALITY, LAW, AND POLITICS OF CAPITAL PUNISHMENT 55-59 (1987); Jeffrey Abramson, Death is Different and the Role of the Capital Jury, 2 *OHIO STATE J. CRIM. L.* 117 (2004).

⁵¹ See, e.g., Paul Slovic, Howard Kunreuther and Gilbert White, Decision Processes, Rationality and Adjustment to Natural Hazards, in *PERCEPTION OF RISK* (Paul Slovic, ed.) 1 (2000).

- Assassinations of law enforcement officers are rare events. The FBI reported that 52 police officers were feloniously killed in 2003.⁵² Most of these deaths occurred in states and regions that more frequently use capital punishment: 28 occurred in the South, 13 in the West, and 8 in the Midwest. In the northeast, where most states do not have a valid death penalty statute or, if so, rarely use it, there were 3 assassinations of law enforcement officers in 2003. Evidently, the threat of execution has little influence on lethal assaults on police officers.
- Efforts to replicate the results of several of these studies have revealed their unreliability and instability. In one study, Professors John Donohue and Justin Wolfers⁵³ re-analyzed several datasets with several corrections: (1) using alternate model specifications to address autocorrelation, (2) correcting computational errors and coding anomalies,⁵⁴ and (3) subjecting the analyses to further tests using different samples of states, counties and years. They conclude that “...the existing evidence for deterrence is surprisingly fragile, and even small changes in specifications yield dramatically different results..... Our estimates suggest not just “reasonable doubt” about whether there is any deterrent effect of the death penalty, but profound uncertainty.....[W]hether one measures positive or negative effects of the death penalty is extremely sensitive to very small changes in econometric specifications”⁵⁵

⁵² FBI, Uniform Crime Reports, LEOKA files, various years.

⁵³ John Donohue & Justin Wolfers, Uses and Abuses of Empirical Evidence in the Death Penalty Debate, *supra* note 2.

⁵⁴ Two of the datasets, one from Mocan and Gittings and a second from Shepherd, used unconventional methods to address recurring problems of missing data and instances where some calculations required division by zero. In each case, Donohue and Wolfers made appropriate corrections.

⁵⁵ Donohue and Wolfers, *supra* note 2 at 836.

- I obtained similar results analyzing the Mocan and Gitting dataset, correcting for: (a) biased coding of missing data⁵⁶, (2) replacement of missing cases (years with no murders) with true zero values, (3) use of alternate measures of homicide from national death registry data⁵⁷ to avoid missing data problems in the Department of Justice data from Florida and other states, (4) alternate model specifications that accounted for autoregression, and (5) model controls to isolate the effects of Texas, a state that accounts for more than one third of all executions. The analyses produced unstable results that varied in the size of the putative deterrent effect, with unstable levels of statistical significance. In about half of the 15 alternate analyses, there was no evidence of a statistically significant deterrent effect.
- An analysis of executions and murders by Professor Richard Berk also challenges the accuracy of the claims of deterrence.⁵⁸ Professor Berk also undertook alternate specifications, including one test that shows that nearly all of the presumed deterrent effects are confined to one state – Texas – and only for a handful of years when there were more than five executions. No other state has reached that rate of executions in a single year, and it is highly unlikely that any will in the future. The general conclusions in the new deterrence studies are heavily influenced by these few outlier observations.⁵⁹ In fact, Berk shows that

⁵⁶ Cases that were missing due to division by zero were recoded to .99 by Mocan and Gittings, instead of coding these cases to a value closer to zero. I recoded them to .01.

⁵⁷ Data were obtained from the National Center for Health Statistics.

⁵⁸ Richard Berk, *supra* note 2.

⁵⁹ *Id.* Not only are executions clustered in Texas, but most states in most years have no executions, a statistical burden that none of the new deterrence studies competently address. To address this problem statistically, one must first estimate a model that explains which states have any executions, and then a

- eliminating Texas eliminates any hint of deterrence from the relationship between execution and homicide.⁶⁰ It would be a grave error to generalize from the Texas data to any other state. Professor Berk states that ...“it would be bad statistics and bad social policy” to generalize from 1% of the data to the remaining 99%. He concludes that “for the vast majority of states for the vast majority of years there is no evidence for deterrence” and that even for the remaining 1%, “credible evidence for deterrence is lacking”⁶¹.
- Perhaps most important, the studies fail to take into account the deterrent effects of Life Without Parole sentences (LWOP). LWOP has the same incapacitative effect as does execution. For a few death row inmates, it has a deterrent effect: at least 100 executions since *Gregg* were “voluntary” – death row inmates who elected to not fight their execution, and at least some of these persons explicitly said that death was preferable to life in prison. When multiple murderers like

second model to show the factors that predict the frequency of its use. Such models are called “hurdle” regressions. See, e.g., Christopher J. Zorn, *An Analytic and Empirical Examination of Zero-Inflated and Hurdle Poisson Specifications*, 26 SOCIOLOGICAL METHODS AND RESEARCH 368 (1998). See, also, Yin Bin Cheung, *Zero-Inflated Models for Regression Analysis of Count Data: A Study of Growth and Development*, 21 STAT. IN MED. 1461, 1462-67 (2002). Statistical methods that fail to account for this two part process will produce unreliable and inflated results. There have been 965 executions from 1976 to June 2004, more than one in three (340) have occurred in Texas. One consequence of these data patterns is that computing deterrent effects based on a simple average would be deceptive. Even a simple estimate – there are 38 death penalty states, each with a valid law in effect for an average of 20 years since *Gregg* – suggests that on average, there is fewer than one execution per year per state. Since Texas accounts for more than one in three executions, the median state-year average is quite a bit lower. In Mocan and Gittings, *supra* note 9, for example, executions range from 0 to 18, with 859 of the 1000 over the 21 years (86%) equal to 0. As a result, the median is also 0. There are 78 values (8%) equal to 1. There are but 11 values (1%) larger than 5, ranging from 7 to 18 executions. Obviously, the distribution is highly skewed, and the mean is dominated by a few extreme values. Most states in most years execute no one.

⁶⁰ See, Berk, *Id.*

⁶¹ *Id.* at 328.

Michael Ross in Connecticut now say they prefer execution to life in prison, one must ask whether life without parole isn't a stronger deterrent than death.⁶²

LWOP is a more frequent sentence in murder convictions today, far more frequent than death sentences. For example, there were 137 LWOP sentences in Pennsylvania in 1999, compared to 15 death sentences.⁶³ In 2000, there were 121 life sentences, compared to 12 death sentences.⁶⁴ In California, there were 3,163 inmates serving life without parole on February 29, 2004, compared to 635 on death row.⁶⁵ In North Carolina, when the state passed a law allowing capital murderers to plead guilty to first-degree murder and receive a sentence of life without parole rather than go to trial and risk the death penalty, death sentences fell from an average of 18.5 from 1999-2001 to seven in 2002, six in 2003, and four in 2004.⁶⁶ Analyses of the National Judicial Reporting Program in 2002 shows that LWOP sentences were more than three times more frequent in murder cases than were death sentences, and nearly 10 times more common than

⁶² See, e.g., Court TV, *Died Willingly*, available at http://www.crimelibrary.com/serial_killers/predators/michael_ross/8.html?sect=2. See also, Gene Warner, The Death Penalty Debate Goes On, BUFFALO EVENING NEWS, July 11, 2005, at A1 (quoting convicted murderer Michael Grinnell on the deterrent effects of his LWOP sentence in New York's Attica prison).

⁶³ Annual Statistical Report, Pennsylvania Department of Corrections, 1999, available at: <http://www.cor.state.pa.us/stats/lib/stats/ASR1999.pdf> (visited January 18, 2005).

⁶⁴ Annual Statistical Report, Pennsylvania Department of Corrections, 2000, available at: <http://www.cor.state.pa.us/stats/lib/stats/Annual%20Report%202000.pdf> (visited January 18, 2005).

⁶⁵ California Department of Corrections, Facts and Figures, Third Quarter 2004, available at http://www.corr.ca.gov/CommunicationsOffice/facts_figures.asp (visited January 18, 2005). Fewer than 100 of the LWOP sentences were "Three Strikes Convictions." See, Franklin Zimring et al., *Punishment and Democracy: Three Strikes and You're Out in California* (2003).

⁶⁶ North Carolina News and Record, November 7, 2005

- executions.⁶⁷ And Texas, where more than one execution in three takes place and where the locus of deterrent effects is thought to reside, had no life without parole statute until the 2005 legislative session. For that large and influential state, tests of the deterrent effects of execution are biased and unrepresentative of the norms in the states, and consequently, there has been no valid test of the incapacitative effects of LWOP compared to the death penalty.⁶⁸
- The omission by researchers of this critical alternate and competing explanation for the decline in murder rates in California and other states is a fatal flaw in most of these studies. Integrating the potential effects of LWOP is critically important to fully understand “deterrence” and to compare the effects of incarceration to executions. Moreover, by examining declines in homicide rates in California, Texas and New York, since each state’s peak homicide rate in the early 1990’s, one can see the strong effects of such incapacitative sentences on murder rates. For example, in New York, a state with no death penalty until April 1995, 143 LWOP sentences from 1995 through 2004 and no executions, homicide rates declined over the next decade by 65.5% since the peak in 1990.⁶⁹ In comparison, homicide rates in Texas, a state that until last year did not permit juries to

⁶⁷ U.S. Dept. of Justice, Bureau of Justice Statistics. NATIONAL JUDICIAL REPORTING PROGRAM, 2002: [UNITED STATES] [Computer file]. Compiled by U.S. Dept of Commerce, Bureau of the Census. ICPSR04203-v1. Ann Arbor, MI: Inter-university Consortium for Political and Social Research [producer and distributor], 2005-04-01.

⁶⁸ Texas Penal Code § 12.31, effective September 1, 2005.

⁶⁹ There have been 10 additional LWOP sentences in 2005, a year in which the murder rate in New York City and State are headed to new 50-year lows, despite the absence of executions and a declining incarceration rate.

- sentence capital defendants to life without parole, declined by 61.4% since its peak rate in 1991.⁷⁰
- Recent research suggests the importance of incapacitation – via efficient policing and effective use of imprisonment – in reducing rates of some crimes in recent panel studies identifying the sources of the nation’s decline in crime.⁷¹ Indeed, the only new deterrence study to directly test imprisonment patterns, by economists Lawrence Katz and colleagues, shows no deterrent effect from executions, but some type of suppression effect on murder from the rate of natural deaths in prison.⁷² And, Mocan and Gittings find far larger (and statistically significant) effects for both incarceration and homicide arrests than for “deterrence,” but they call no attention to this important finding.

The 1978 National Research Council Panel on Research on Deterrence and Incapacitation⁷³ noted the complex relationship between deterrence and incapacitation, and showed the difficulty of separating the effects of each. To claim deterrence when there are simultaneous incapacitation effects from LWOP is a particular type of social science error, that of omitted variable bias.⁷⁴ The omission of this alternate and competing explanation for the decline in murder

⁷⁰ See, Uniform Crime Reports, Federal Bureau of Investigation, U.S. Department of Justice, various years.

⁷¹ Steven D. Levitt, Why Do Increased Arrest Rates Appear to Reduce Crime: Deterrence, Incapacitation, or Measurement Error? 36 ECONOMIC INQUIRY 353 (1998).

⁷² Lawrence Katz, Steven D. Levitt, & Ellen Shustorovich, *Prison Conditions, Capital Punishment, and Deterrence*, 5 AMERICAN LAW AND ECONOMICS REVIEW 318 (2003).

⁷³ Alfred Blumstein, Jacqueline Cohen and Daniel Nagin (eds), *Deterrence and Incapacitation: Estimating the Effects of Criminal Sanctions on Crime Rates* (1978)

⁷⁴ Omitted variable bias occurs when a regression estimate of a parameter does not have the appropriate form and data for other parameters that may also influence the observed phenomenon. See, <http://economics.about.com/cs/economicsglossary/g/omitted.htm>.

rates in most death penalty states obscures and inflates the effects of deterrence when no other explanation is included in the estimating models. Integrating the potential effects of LWOP is critically important to fully understand “deterrence” and to compare its effects to incapacitation effects on murder rates.

The central mistake in the enterprise of the new deterrence research is the attempt to make causal inferences from a very flawed and limited set of observational data. One cannot treat these data as an experiment, where all the competing influences are ruled out by randomly assigning states to specific conditions.⁷⁵ Murder is a complex and multiply-determined phenomenon, with cyclical patterns for over 40 years of distinct periods of increase and decline that are not unlike epidemics of contagious diseases.⁷⁶ There is no reliable, scientifically sound evidence that pits execution against a robust set of competing explanations to identify whether it can exert a deterrent effect that is uniquely and sufficiently powerful to overwhelm these consistent and recurring epidemic patterns in homicide. This new body of empirical work, based on infrequent capital punishment that is geographically spread across a large nation with little publicity and omits numerous competing but untested explanations of homicide changes, fails to provide a reliable, much less a dispositive, test of deterrence of murder.

⁷⁵ See, e.g., Franklin E. Zimring, *THE CONTRADICTIONS OF AMERICAN CAPITAL PUNISHMENT* (2003). See, also, Richard A. Berk, *Knowing When to Fold 'Em: An Essay on Evaluating the Impact of CEASEFIRE, COMSTAT, and EXILE*, *CRIMINOLOGY AND PUBLIC POLICY* (2005, in press); Paul R. Rosenbaum, *Observational Studies* (1995).

⁷⁶ See, e.g., Malcolm Gladwell, *The Tipping Point* (2nd ed.) (2001); Eric Monkkonen, *MURDER IN NEW YORK CITY* (2003); Jeffrey Fagan and Garth Davies, *The Natural History of Neighborhood Violence*, 20 *JOURNAL OF CONTEMPORARY CRIMINAL JUSTICE* 127(2004).

These are serious flaws and omissions in a body of scientific evidence that render it unreliable, and certainly not sufficiently sound evidence on which to base laws whose application leads to life-and-death decisions. The omissions and errors are so egregious that this work falls well within the unfortunate category of junk science. To accept it uncritically invites errors that have the most severe human costs.

III. The Costs of Capital Trials

The high costs of capital cases, from trial to execution, dramatically raise the stakes in the gamble on deterrence-based policies. A review of cost estimates across the country in the past decade shows that the trial, incarceration and execution of a capital case costs from \$2.5 to \$5 million dollars per inmate (in current dollars), compared to less than \$1 million for each killer sentenced to life without parole.⁷⁷ Examples abound. In North Carolina, a 1993 study showed that *per execution* costs were \$2.16 million greater than the costs of non-capital murder cases that produced life sentences.⁷⁸ Florida, for example, spent between \$25 million and \$50 million more per year on capital cases than

⁷⁷See, e.g., Aaron Chambers, *Resources a Concern in Death Penalty Reform*, Chi. Daily L. Bull., Apr. 24, 1999, at 19, available in Westlaw, News Library, CHIDLB file (estimating that a capital case costs \$5.2 million from pretrial proceedings to execution); Margot Garey, *The Cost of Taking a Life: Dollars and Sense of the Death Penalty*, 18 U.C. DAVIS LAW REVIEW. 1268, 1268-70 (1985); Samuel R. Gross, *The Romance of Revenge: Capital Punishment in America*, 13 STUDIES IN LAW, POLICY & SOCIETY 71, 78 (1993) (reporting a \$3.2 million cost per execution in Florida, and Kansas' rejection of the death penalty because of the cost); Paul W. Keve, *The Costliest Punishment—A Corrections Administrator Contemplates the Death Penalty*, FEDERAL PROBATION, Mar. 1992, at 11; Duncan Mansfield, *The Price of Death Penalty? Maybe Millions*, A.P. Newswires, Mar. 26, 2000, available in Westlaw News Library, APWIRE file (estimated \$1 to \$2 million cost per Tennessee execution); David Noonan, *Death Row Cost Is a Killer: Capital Cases Can't Be Handled Fairly and Affordably, Critics Claim*, N.Y. Daily News, Oct. 17, 1999, at 27, available in 1999 WL 23488045 (giving cost of prosecuting and defending New York capital cases at the trial phase, in a period during which only five capital sentences were imposed (from 1994 to 1999 as \$68 million); A. Wallace Tashima, *A Costly Ultimate Sanction*, The Los Angeles Daily J., June 20, 1991 (cost per execution to California taxpayers is \$4 to \$5 million).

⁷⁸ See, e.g., Philip J. Cook & Donna B. Slawson, *The Costs of Prosecuting Murder Cases in North Carolina*, 1993.

it would if all murderers received life without parole.⁷⁹ The Indiana Legislative Services Agency estimated that had the state sentenced its death row population to life without parole, Indiana taxpayers would have been spared approximately \$37.1 million.⁸⁰ The excessive costs of capital trials and executions have led Gerald Kogan, Chief Justice to the Florida Supreme Court, to ask Florida citizens to "...seriously reconsider whether the death penalty is a truly viable remedy for first degree murder."⁸¹ In Tennessee, the State Comptroller reported in 2004 that death penalty trials cost an average of 48% more than the average cost of trials in which prosecutors seek life imprisonment.⁸² And in Kansas, a 2003 study by the state legislature estimated cost of a death penalty case was 70% more than the cost of a comparable non-death penalty case.⁸³

⁷⁹ S.V. Date, "*The High Price of Killing Killers*", Palm Beach Post, Jan. 4, 2000, at 1A. Based on the 44 executions in Florida from 1976 to 2000, the state has spent \$51 million *per year* more on death penalty cases beyond what it would cost to obtain sentences of life without parole. The Post's figure was derived using estimate of how much time prosecutors and public defenders at the trial courts and the Florida Supreme Court spend on extra work needed in capital cases. It accounts also for the time and effort expended on defendants who are tried but convicted of a lesser murder charge and whose death sentences are overturned on appeal as well as those handful of condemned inmates who are actually executed.

⁸⁰ Kelly Lucas, "*Death Penalty is Fair and Proportionate*," THE INDIANA LAWYER, Nov. 21, 2001.

⁸¹ Martin Dyckman, "*Death Penalty Repair*," St. Petersburg Times, Dec. 7, 1997 at 1D. Chief Justice Kogan noted that the Florida Supreme Court spends approximately half of its time devoted to death penalty cases, "an inordinate amount of time...when there is so much out there that affects the average citizen much more."

⁸² John G. Morgan, *Tennessee's Death Penalty: Costs and Consequences* (2004), available at <http://www.comptroller.state.tn.us/orea/reports/deathpenalty.pdf>

⁸³ Legislative Post Audit Committee, *Costs Incurred for Death Penalty Cases: A K-GOAL Audit of the Department of Corrections* (2003), available at http://www.kslegislature.org/postaudit/audits_perform/04pa03a.pdf.

Death penalty case costs were counted through to execution (median cost \$1.26 million). Non-death penalty case costs were counted through to the end of incarceration (median cost \$740,000).

These extreme cost differentials for capital cases reflect the longer duration of capital trials.⁸⁴ These higher costs are generated by the high rate of reversals and retrials in capital cases, estimated at 68% in two recent studies by researchers at Columbia University⁸⁵. Most of these defendants are sentenced to something less than death.⁸⁶ Thus, when these post-trial review costs are factored in, the average *per execution* cost is nearly \$24 million dollars per prisoner, compared to \$1 million for each inmate serving a sentence of life without possibility of parole.⁸⁷

The burden of these costs are borne by local governments, diverting \$2 million per capital trial from local services – hospitals and health care, police and public safety, and education -- or causing counties to borrow money or raise taxes, or diverting costs from

⁸⁴ See, e.g., Philip J. Cook & Donna B. Slawson, *The Costs of Prosecuting Murder Cases in North Carolina*, 1993; Margot Garey, Comment, *The Cost of Taking a Life: Dollars and Sense of the Death Penalty*, 18 U.C. DAVIS. LAW REVIEW 1221, 1257 (1985).

⁸⁵ James Liebman, Jeffrey Fagan, Valerie West, & Jonathan Lloyd, *Capital Attrition: Error Rates in Capital Cases, 1973 – 1995*, 78 TEXAS LAW REVIEW 1839 (2000) (showing that 68% of all death sentences since *Furman v. Georgia* were reversed either on direct appeal, state direct appeal, or federal habeas review; most – 82% – of those reversed were re-sentenced to non-capital punishments, 7% were exonerated, and the remainder were re-sentenced to death); see also Brian Forst, BRIAN FORST, ERRORS OF JUSTICE: NATURE, SOURCES, AND REMEDIES, 201-04 (2004) (noting that the errors in these cases were the result of misidentification of witnesses, prosecutorial or police misconduct, incompetent defense counsel, prejudicial instructions by judges, and biased jury selection procedures); James Liebman et al., *A Broken System, Part I: Error Rates in Capital Cases, 1973-1995* (2000), available at <http://www2.law.columbia.edu/instructionalservices/liebman/>; James Liebman et al., *A Broken System Part II: Why There Is So Much Error in Capital Cases, and What Can Be Done About It* (2002), available at <http://www2.law.columbia.edu/brokensystem2/report.pdf>.

⁸⁶ Liebman et al., *Capital Attrition*, *id.*

⁸⁷ See S.V. Date, *The High Price of Killing Killers*, Palm Beach Post, Jan. 4, 2000, at 1A, available in 2000 WL 7592885. See also Ken Armstrong & Steve Mills, *Inept Defenses Cloud Verdicts, With Their Lives at Stake*, Chi. Trib., Nov. 15, 1999, at N1, available in 1999 WL 2932352 (“in Illinois, the resources rallied on appeal often dwarf those summoned to keep a defendant off Death Row in the first place”); Armstrong & Mills, *Justice Derailed*, *supra* note 33, at N1 (discussing the “staggering” costs of capital case reversals and exonerations in Illinois: “Taxpayers have not only had to finance multimillion-dollar settlements to wrongly convicted Death Row inmates—[Dennis] Williams alone received \$13 million from Cook County—but also have had to pay for new trials, sentencing hearings and appeals in more than 100 cases where a condemned inmate’s original trial was undermined by some fundamental error.”).

capital expenditures such as roads and other infrastructure.⁸⁸ The estimated increase in taxes and expenditures for capital trials from 1983-99 was more than \$5.5 billion, borne by small and large counties alike.⁸⁹ The high costs to counties for death penalty cases has forced them to seek help from state legislatures, persuading them in some cases to create “risk pools” or programs of local assistance to prosecute death penalty cases. This has the net effect of diffusing death penalty costs to counties that choose not to use – or have no need for – the death penalty in capital cases.

Implications for the Nation

What do the experiences and cost burdens in other states forecast for the future? New York’s recent experience may be the most appropriate example to anticipate the costs of a system of capital trials and punishment in the future. In the New York paradigm, before the New York State Court of Appeals invalidated New York’s death penalty law in 2004 in *People v LaValle*⁹⁰, death sentences were rare and there were no executions.⁹¹ As usual, things cost more in New York, but the lessons can be generalized to other states and communities. Between 1995 and 2004, New York spent about \$200 million on the death penalty with *no* executions.⁹² Of the 442 first-degree murder cases

⁸⁸ See, e.g., Katherine Baicker, *The Budgetary Repercussions Of Capital Convictions*, 4 ADVANCES IN ECONOMIC POLICY AND ANALYSIS, No.1, Article 6 (2004).

⁸⁹ *Id* at 13.

⁹⁰ 3 N.Y.3d 88, 783 N.Y.S.2d 485 (June 24, 2004).

⁹¹ Compared to states like Texas, Alabama, Pennsylvania and California, New York had relatively careful trial and appellate procedures. See, Liebman et al., *Capital Attrition*, *supra* note 63, and Liebman et al., *A Broken System Part II*, *supra* note 63. The New York model mixed high costs and low numbers of both death verdicts and executions. When New York’s statute was invalidated in 2004 in *LaValle*, no executions were within a *decade* of occurring because of state and federal review proceedings that still remained to be exhausted.

⁹² Gene Warner, “The Death Penalty Debate Goes On,” BUFFALO EVENING NEWS, July 11, 2005, at A1.

decided in New York while the death penalty statute was in effect, 153 were sentenced to life without parole.⁹³

For most states to hold to this approach, the state would have to incur the same extremely high monetary costs.⁹⁴ Given the procedural and substantive restrictions in the proposed statute, there would be no more than one or two death sentences each year statewide. Given the pace of appeals, we would anticipate no more than two or three executions total in the next *15 to 20 years*. The expected cost to the State over that 20-year period would be at a minimum \$100 million in current dollars --- or about \$50-75 million per execution --- beyond what it would cost the State to rely on life without parole.⁹⁵ There may be a relatively low risk of executing innocent people – but only because of the low probability that *anyone* would be executed.

These cost estimates suggest a critical policy question that should guide the state legislatures as they debate the future of capital punishment. First, if a state is going to spend \$500 million on law enforcement over the next two decades, is the *best* use of that money to buy two or three executions -- along with a dozen or two *initial* capital prosecutions that are most likely to end up in *non-capital* plea bargains and jury verdicts, and a predictable 10 court reversals, retrials, and lesser sentences for every execution? Does a state gain more public safety by spending half a billion dollars or more to execute two or three of the state's murderers during that period or, for example, by funding

⁹³ *Id.*

⁹⁴ The proposed use of DNA and other forensic testing in each case will increase costs above the estimates in other state where these tests are less common.

⁹⁵ The emphasis on scientific testing of DNA and other evidence in the proposed bill will raise these costs even higher, especially given the necessity for high reliability in lab standards.

additional police detectives, prosecutors, and judges to arrest and incarcerate the murderers, rapists, and robbers who currently escape any punishment because of insufficient law-enforcement resources?

IV. Conclusion

The threshold question for the future of capital punishment goes to the heart of the role of deterrence in American capital punishment law and joins with the problematics of cost. In 1972, in *Furman v. Georgia*,⁹⁶ the U.S. Supreme Court reversed every capital statute in the country. Its decision was fragmented among several opinions, but the clearest was Justice White's:

“...that the death penalty could so seldom be imposed that it would cease to be a credible deterrent or measurably to contribute to any other end of punishment in the criminal justice system. It is perhaps true that no matter how infrequently those convicted of rape or murder are executed, the penalty so imposed is not disproportionate to the crime and those executed may deserve exactly what they received. It would also be clear that executed defendants are finally and completely incapacitated from again committing rape or murder or any other crime. But when imposition of the penalty reaches a certain degree of infrequency, it would be very doubtful that any existing general need for retribution would be measurably satisfied. Nor could it be said with confidence that society's need for specific deterrence justifies death or so few when for so many in like circumstances life imprisonment or shorter prison terms are judged sufficient, or that community values are measurably reinforced by authorizing a penalty so rarely invoked.

Most important, a major goal of the criminal law -- to deter others by punishing the convicted criminal -- would not be substantially served where the penalty is so seldom invoked that it ceases to be the credible threat essential to influence the conduct of others. For present purposes I accept the morality and utility of punishing one person to influence another. I accept also the effectiveness of punishment generally and need not reject the death penalty as a more effective deterrent than a lesser punishment. *But common sense and experience tell us that seldom-enforced laws become ineffective measures for controlling human conduct*

⁹⁶ 408 US 238 (1972)

and that the death penalty, unless imposed with sufficient frequency, will make little contribution to deterring those crimes for which it may be exacted (emphasis added). ”⁹⁷

When only a tiny proportion of the individuals who commit murder are sentenced to death, capital punishment is unconstitutionally irrational because it serves no identifiable penal function. A death penalty that is almost never used serves no deterrent function because no would-be murderer can expect to be executed. Nor can a rarely used death penalty serve a declarative or symbolic function to express the punishment society deems appropriate for murder, because that crime will almost never lead to that penalty. The lesson of *Furman* will once again haunt the present day reality of the 38 states that statutorily authorize capital punishment and raise critical constitutional concerns. Accordingly, a threshold question for the states and the nation is whether the necessary and admirable efforts to avoid error and the horror of the execution of the innocent won't – after many hundreds of millions of dollars of trying – burden the state with a death penalty that will be overturned because of this inevitable constitutional problem?

⁹⁷ *Id* at 311