

DETERRENCE AND THE DEATH PENALTY: A CRITICAL REVIEW OF NEW EVIDENCE

Testimony to the New York State Assembly Standing Committee on Codes,
Assembly Standing Committee on Judiciary and
Assembly Standing Committee on Correction

Hearings on the Future of Capital Punishment in the State of New York

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Thank you for inviting me to address the Committees on this most urgent of topics. This is an important moment historically in the debate on capital punishment, both in the state and the nation. This moment presents opportunity for the citizens of New York State to carefully consider this most serious exercise of the state's authority and power.

Qualifications

I am 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 have a PhD from SUNY Buffalo, where I was trained in econometrics, statistics, and engineering. I am a Fellow of the American Society of Criminology, and a member 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 have frequently published 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.

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 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, 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 and basic comparisons with other scenarios. Some simple examples and contrasts, including a careful analysis of the experience in New York State compared to others, lead to a rejection of the idea that either death sentences or executions deter murder.

I. Introduction

Since 1995, 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.¹ 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.² Although Ehrlich's research was a highly technical article prepared for an audience of economists, its influence went well beyond the economics profession.

Ehrlich's work was cited in *Gregg v. Georgia*³, 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*⁴, launching an era of contentious arguments in the press and in professional journals.⁵ In 1978, an expert panel appointed

¹ A list of these studies is appended to this testimony.

² 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)

³ *Gregg v Georgia*, [428 U.S. 153 \(1976\)](#)

⁴ 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).

⁵ 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. Chressanthi, *Capital Punishment and the Deterrent Effect Revisited: Recent Time-Series Econometric Evidence*, 18 *Journal of Behavioral Economics* 81 (1989).

by the National Academy of Sciences issued strong criticisms of Ehrlich's work.⁶ 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 claim that executions deter murders.⁷

The new deterrence studies analyze data that spans the entire period since the resumption of executions in the U.S. following the 1973 decision in *Furman v Georgia*.⁸ The claims of these new studies are far bolder than the original wave of studies by Ehrlich and his students. Several claim that pardons, commutations, and exonerations cause murders to increase.⁹ Some say that even murders of passion, among the most irrational of lethal acts, can be deterred.¹⁰ Others say that the deterrent effects of execution are so powerful that it will reduce robberies and even some non-violent crimes.¹¹ Thus, the deterrent effects of capital punishment apparently are limitless, and

⁶ 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)

⁷ 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).

⁸ *Furman v. Georgia*, [408 U.S. 238 \(1972\)](#)

⁹ 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).

¹⁰ Joanna M. Shepherd, *Murders of Passion, Execution Delays, and the Deterrence of Capital Punishment*, 33 *Journal of Legal Studies* (forthcoming 2004).

¹¹ Zhiqiang Liu, *Capital Punishment and the Deterrence Hypothesis: Some New Insights and Empirical Evidence*, *Eastern Economic Journal* (forthcoming)

some proponents offer execution as a cure-all for everyday crime.¹²

II. Less Than Meets the Eye

The bar is very high when science makes such causal claims.¹³ 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.¹⁴ 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.¹⁵ 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,” and the ability to tell a simple and persuasive causal story. 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.¹⁶

¹² *Id.*

¹³ 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).

¹⁴ Lee Epstein and Gary King, *The Rules of Inference*, 69 *University of Chicago Law Review* 1 (2002).

¹⁵ 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)

¹⁶ *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,¹⁷ a claim that flies in the face of six decades of theory, research and facts on homicide.¹⁸ It also belies the empirical fact that “domestic” or intimate partner homicides have been declining steadily since the early 1970’s,¹⁹ at a steady pace, regardless of fluctuations in the number of executions since capital punishment was reinstated following *Gregg*.
- The studies produce erratic and contradictory results, and some find that there is no deterrent effect.²⁰ 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.²¹ Moreover, depending on the year, some states exhibit “brutalization” effects from executions

¹⁷ Joanna M. Shepherd, Murder of Passion, Execution Delays, and the Deterrence of Capital Punishment, *Journal of Legal Studies*, (forthcoming)

¹⁸ See, Franklin Zimring and Gordon Hawkins, *Crime is Not the Problem: Lethal Violence in America* (1997).

¹⁹ 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).

²⁰ Lawrence Katz, Steven D. Levitt, & Ellen Shustorovich, Prison Conditions, Capital Punishment, and Deterrence, 5 *American Law and Economics Review* 318 (2003).

²¹ Joanna M. Shepherd, Deterrence versus Brutalization: Capital Punishment’s Differing Impacts Among States (Working Paper, Emory University Law School, 2004).

- in some periods and deterrent effects in others.²² Capital punishment cannot tolerate such inconsistency in one of its bedrock theoretical premises. Moreover, such inconsistencies are the antithesis of what social scientists and economists seek: robustness in their conclusions, or consistency across a range of conditions and tests. When the hypothesized deterrent effects of execution are so unstable over time, one must reject a hypothesis of deterrence.
- 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.²³ In other words, the thing that tells us most about what the murder rate will be next year is what it was last year. Statistically and conceptually, it is unlikely that effects of extremely rare events such as executions can influence trends that are so heavily influenced by their own history.²⁴
 - 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

²² Id.

²³ See, for example, William Greene, *Econometric Analysis* (5th edition) (2003)

²⁴ 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)

- 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.
- 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 Investigation.²⁵ 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 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,²⁶ but no one knows the reading habits of murderers. Many have cognitive impairments, making it even more unlikely that they are aware of executions. Numerous studies that directly examine the reactions of individuals to punishment threats consistently show the limits of the assumptions of rationality that underlie deterrence, especially in the case of aggression or violence.²⁷

²⁵ See, Michael D. Maltz, The Effect of NIBRS Reporting on Item Missing Data in Murder Cases, 8 *Homicide Studies* 193 (2004).

²⁶ Joanna M. Shepherd, Brutalization, *supra* note 21.

²⁷ See, for example, Francisco Parisi and Vernon Smith, Introduction, in *The Law and Economics of Irrational Behavior* (Francisco Parisi and Vernon Smith, eds.) (2005, in press).

- An analysis of executions and murders by Professor Richard Berk 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 5 executions.²⁸ No other state has reached that rate of executions in a single year, and it is highly unlikely that any will in the future. In fact, Berk shows that eliminating Texas eliminates any hint of deterrence from the relationship between execution and homicide.²⁹ So, policymakers cannot generalize from the Texas data to any other state. Moreover, with this type of outlier, the general conclusion is strongly inflated by these few observations.
- 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. 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.³⁰ In 2000, there were 121 life sentences compared to 12 death sentences.³¹ In California, there were 3,163 inmates serving life without parole

²⁸ Richard Berk, id.

²⁹ Id.

³⁰ 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).

³¹ 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).

- on February 29, 2004, compared to 635 on death row.³² The omission of this alternate and competing explanation for the decline in murder rates in California and other states is irresponsible and borders on incompetence. Integrating the potential effects of LWOP is critically important to fully understand “deterrence” and to compare its effects to executions. Moreover, 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, the in New York, a state with no death penalty until April 1995 and no executions, homicide rates declined over the next decade by 65.5% since the peak in 1990. In comparison, homicide rates in Texas declined by 61.4% since its peak rate in 1991.³³
- The studies fail to consider other alternate causes of fluctuations in the murder rate. For example, nearly all of the increase and decline in the U.S. in homicides since 1985 was in gun homicides.³⁴ 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 ravaging effects of the

³² 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).

³³ See, Uniform Crime Reports, Federal Bureau of Investigation, U.S. Department of Justice, various years.

³⁴ 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 18.

crack epidemic in the nation's cities in the late 1980s and early 1990s and its complex interaction with gun violence.³⁵

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.

III. False Inference and Junk Science

The mistake in the enterprise of 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.³⁶ 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. There is no reliable, scientifically sound evidence that execution can exert an effect that either acts separately and sufficiently powerfully to overwhelm these consistent and recurring epidemic patterns. This body of work, based on infrequent capital punishment, its geographical spread across a large nation with little publicity, and the omission of numerous competing but untested explanation of homicide changes, fails to provide a

³⁵ Eric Baumer, Janet L. Lauritsen, Richard Rosenfeld, & Richard Wright, The influence of crack cocaine on robbery, burglary, and homicide rates: A cross-city, longitudinal analysis, 35 *Journal of Research in Crime & Delinquency* 316 (1998); see, also, Alfred Blumstein, Youth violence, guns, and the illicit-drug industry, 86 *Journal of Criminal Law & Criminology* 10 (1995).

³⁶ See, for example, Franklin E. Zimring, *The Contradictions of American Capital Punishment* (2003).

reliable much less a dispositive test of deterrence of murder. To accept it uncritically invites errors that have the most severe human costs.