PUBLIC POLICY CHOICES ON DETERRENCE AND THE DEATH PENALTY: A CRITICAL REVIEW OF NEW EVIDENCE

Testimony before the Joint Committee on the Judiciary of the Massachusetts Legislature on House Bill 3834, "An Act Reinstating Capital Punishment in the Commonwealth"

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Thank you for inviting me to address the Joint Committee on this most urgent of topics. This is an important moment historically in the debate on capital punishment, both in the states and the nation. This moment presents opportunity for the citizens of Massachusetts 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 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 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 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, 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. Some simple examples and contrasts, including a careful analysis of the experience in Massachusetts compared to other states, lead to a rejection of the idea that either death sentences or executions deter murder.

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 and the unreliable evidence of its deterrent effects lead create clear public policy choices for the State Legislature. If the 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? Nor can we expect the almost non-existent use of the death penalty to have a deterrent effect on 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 the Massachusetts legislature is whether these

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 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

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[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).

arguments in the press and in professional journals.[5] In 1978, an expert panel appointed 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 a 25 to 30 year period since the resumption of executions in the U.S. following the 1972 decision in *Furman v Georgia.*[8] The claims of these new studies are far bolder than the original wave of studies by Professor Ehrlich and his students. Several claim that pardons, commutations, and

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[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. Chressanthis, *Capital Punishment and the Deterrent Effect Revisited: Recent Time-Series Econometric Evidence*, 18 JOURNAL OF BEHAVIORAL ECONOMICS 81 (1989).

[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)

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, leading some proponents to 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

[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 283 (2004).

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

[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); 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).

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

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]

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] Some homicide offenders simply are not responsive to punishment threats.[19] It also belies the empirical fact that

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[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).

[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] 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). Many robbery-homicides also are not deterrable,

"domestic" or intimate partner homicides have been declining steadily since the early 1970's,[20] 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.[21] 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.[22] Moreover, depending on the year, some states exhibit "brutalization" effects from executions in some periods and deterrent effects in others.[23] 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 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.

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where the robber did not set out to kill his or her victim; these are crimes where the interactions between robber and victim escalate and deadly force ultimately is used to complete the robbery or prevent the robber's arrest. See, e.g., 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).

[20] 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).

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

[22] Joanna M. Shepherd, *Deterrence versus Brutalization: Capital Punishment's Differing Impacts Among States*, MICHIGAN LAW REVIEW (2005, in press).

[23] Id.

- The same processes that produce murder rates also produce death sentences and executions, so that determining causal direction is difficult. This simultaneity and endogeneity between social forces, homicides and executions can defeat efforts to reliably estimate the effects of capital punishment or any other correlated set of predictors on the murder rates.[24] In addition, many of the social structural factors that explain and predict homicide rates at the state level also predict death sentencing rates.[25] Including both homicide and social structure in the same model raises risks of multicollinearity and endogeneity that would distort the regression results.
- 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.[26] In other words, the thing that tells us most about what the murder rate will be next year is what is 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.[27] A change in statistical modeling techniques to account for the strong year-to-year correlation of murder rates over time produces dramatic changes in the statistical significance

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[24] *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 1 (A.J. Reiss, Jr. & J.A. Roth eds., 1994).

[25] *See,* Liebman et al., *A Broken System, Part II*, *infra* note __.

[26] *See, e.g.,* William Greene, Econometric Analysis (5th edition) (2003)

[27] 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)

and effect size of executions on murder rates.[28] Such instability in the coefficients under different 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.[29]
- 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.[30] 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

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[28] Jeffrey Fagan, *Science, Ideology and the Illusion of Deterrence from the Death Penalty*, The Walter Reckless Lecture, Morrill College of Law and the Criminal Justice Research Center, Ohio State University, April 19, 2005.

[29] *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 21.

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

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.[31]

- 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,[32] but no one knows the reading habits of murderers. Many have cognitive, organic and neuropsychological impairments, making it even more unlikely that they are aware of executions.[33] 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.[34]
- The Massachusetts bill identifies terrorism, homicides of law enforcement officials, and multiple homicides as examples of types of homicides that will be

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[31] For example, when a complete homicide victimization data set 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. In some specifications with these data, the deterrent effect becomes insignificant. See, Jeffrey Fagan, *Science, Ideology and the Illusion of Deterrence, supra* note 28.

[32] Joanna M. Shepherd, *Brutalization*, *supra* note 21.

[33] *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).

[34] See, for example, Francisco Parisi and Vernon Smith, Introduction, in THE LAW AND ECONOMICS OF IRRATIONAL BEHAVIOR (Francisco Parisi and Vernon Smith, eds.) (2005).

death-eligible, yet there is no evidence that these extremely rare events would be deterrable. The experience in states like New York with similarly restrictive death penalty statutory eligibility criteria and review standards, the proposed Massachusetts statute is likely to produce no more than one or two executions over the next decade, well below any reasonable threshold to expect deterrence. Assuming rationality, for the moment, such rare events are unlikely to influence decision processes by motivating would-be killers to adjust to these natural "hazards."[35] The high fatality rate among terrorists, including suicide bombers and the 9/11 attackers, also suggests that the hazards of execution are unrelated to the decision to engage in mass murder. Assassinations of law enforcement officers similarly are rare events. The FBI reported that 52 police officers were feloniously killed in 2003.[36] 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.

- 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 five executions.[37] No

[35] 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).

[36] FBI, Uniform Crime Reports, LEOKA files, various years.

[37] Richard Berk, *supra* note 27. 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.

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.[38] It would be a grave error to generalize from the Texas data to any other state. The general conclusions in the new deterrence studies are heavily influenced by these few outlier observations.

- The bill in Massachusetts anticipates an extremely low number of death sentences. Even if we were to accept the logic of deterrence, deterrence cannot be achieved by extremely rare events. In New York, for example, when a rigorous death penalty bill was in effect, there were no executions at the time the statute was overturned.[39]

- 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

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To address this problem statistically, one must first estimate a model that explains which states have any executions, and then a 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 since 1976, 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.

[38] *See*, Richard A. Berk, *Id*.

[39] *People v. LaValle*, 3 N.Y.3d 88, 783 N.Y.S.2d 485 (June 24, 2004).

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 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.[40]

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.[41] In 2000, there were 121 life sentences compared to 12 death sentences.[42] In California, there were 3,163 inmates serving life without parole on February 29, 2004, compared to 635 on death row.[43] 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 executions.[44]

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[40] 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).

[41] 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).

[42] 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).

[43] 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).

[44] 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.

- The omission of this critical 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, 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.[45] In comparison, homicide rates in Texas declined by 61.4% since its peak rate in 1991, a state that until this year did not permit juries to sentence capital defendants to life without parole.[46]
- 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 crime decline.[47] 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

[45] 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.

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

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

prison.[48] 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 Incapacitation[49] 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.[50] The omission of this alternate and competing explanation for the decline in murder 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 studies also 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

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

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

[50] 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.

> homicides since 1985 was in gun homicides.[51] 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 crack epidemic in the nation's cities in the late 1980s and early 1990s and its complex interaction with gun violence.[52]

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.[53] 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.[54] 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 unique sufficiently powerfully to overwhelm these consistent and recurring epidemic patterns in homicide. This new body of empirical work, based on infrequent capital punishment that

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[51] 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.

[52] *See, e.g.*, 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, Y*outh violence, guns, and the illicit-drug industry,* 86 JOURNAL OF CRIMINAL LAW & CRIMINOLOGY 10 (1995).

[53] *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).

[54] *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).

is geographically spread across a large nation with little publicity, and which omits numerous competing but untested explanation of homicide changes, fails to provide a reliable much less a dispositive test of deterrence of murder.

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.

IV. 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.[55] Examples abound. In North

[55]See, 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 L. REV. 1268, 1268-70 (1985); Samuel R. Gross, *The Romance of Revenge: Capital Punishment in America*, 13 STUDIES L., POL. & SOC. 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, APWIRES 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).

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.[56] Florida, for example, spent between $25 million and $50 million more per year on capital cases than it would if all murderers received life without parole.[57] 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.[58] 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."[59] 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.[60] 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.[61]

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

[57] S.V. Date, "*The High Price of Killing Killers"*, *id* 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.

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

[59] 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."

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

[61] 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.

These extreme cost differentials for capital cases reflect the longer duration of capital trials.[62] 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 University[63]. Most of these defendants are sentenced to something less than death.[64] Thus, when these post-trial review costs are factored in, the average *per execution* cost is nearly $24 million dollar per prisoner, compared to $1 million for each inmate serving a sentence of life without possibility of parole.[65]

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

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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).

[62] 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. L. Rev. 1221, 1257 (1985).

[63] James Liebman, Jeffrey Fagan, Valerie West, & Jonathan Lloyd, *Capital Attrition: Error Rates in Capital Cases, 1973 – 1995*, 78 TEX. L. REV. 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* Forst, *supra* note 56, at 200-202 (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/ [hereinafter Liebman et al., *A Broken System, Part I*]; 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 [hereinafter Liebman et al., *A Broken System, Part II*].

[64] Liebman et al., *Capital Attrition, id*.

[65] *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.[66] 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.[67] 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 Massachusetts

What do the experiences and cost burdens in other states forecast for Massachusetts? New York's recent experience may be the most appropriate example to anticipate the costs of a system of capital trials and punishment in Massachusetts. 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*[68], death sentences were rare and there were no executions.[69] As usual, things cost more in New York. Between 1995 and

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

[67] *Id* at 13.

[68] 3 N.Y.3d 88, 783 N.Y.S.2d 485 (June 24, 2004).

[69] 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 50, and Liebman et al., *A Broken System Part II*, supra note 50. 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.

2004, New York spent about $200 million on the death penalty with *no* executions.[70] Of the 442 first degree murder cases decided in New York while the death penalty statute was in effect, 153 were sentenced to life without parole.[71]

For Massachusetts to hold to this approach, the state would have to incur the same extremely high monetary costs.[72] 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 anticpate 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.[73] 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 Massachusetts legislature in its debate on this bill. First, if the 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? Will

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[70] Gene Warner, "The Death Penalty Debate Goes On," BUFFALO EVENING NEWS, July 11, 2005, at A1.

[71] *Id*.

[72] 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.

[73] 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.

Massachusetts gain more public safety by spending half a billion dollars or more to executing two or three of the state's murderers during that period or, for example, by funding 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?

V. Conclusion

The threshold question for Massachusetts goes to the heart of the role of deterrence in American capital punishment law, and then joins with the problemmatics of cost. In 1972, in *Furman v. Georgia*,[74] the US 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

[74] 408 US 238 (1972)

> 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 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)*."*[75]

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 Massachusetts, and raise critical constitutional concerns. Accordingly, a threshold question for the Massachusetts legislature is whether these 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?

[75] *Id* at 311