

# Does Capital Punishment Deter Murder?

A brief look at the evidence

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In light of the massive amount of evidence before us, I see no alternative but to conclude that capital punishment cannot be justified on the basis of its deterrent effect.

Justice Marshall, U.S. Supreme Court,  
*Furman v. Georgia*, 1972

Contrary to the views of some social theorists, I am convinced that the death penalty can be an effective deterrent against specific crimes.

Richard M. Nixon (March 10, 1973)

Ethical, philosophical and religious values are central to the continuing controversy over capital punishment. Nevertheless, factual evidence can and should inform policy making. The evidence for capital punishment as an uniquely effective deterrent to murder is especially important, since deterrence is the only major pragmatic argument on the pro-death penalty side.<sup>1</sup> The purpose of this paper is to survey and evaluate the evidence for deterrence.

We must define the question correctly. We are not asking whether the threat of punishment, in general, deters crime, nor whether there should be heavy penalties for murder. The issue at stake is this: Does capital punishment, in a form which has been or might be practiced in the United States, provide a *better* deterrent to murder than long imprisonment? In particular, is it likely that expanding the death penalty in New Hampshire will lead to fewer murders? If not, capital punishment offers no practical benefits to weigh against its social costs.<sup>2</sup>

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<sup>1</sup> It is often suggested that executing convicted murderers can at least save money. This common belief is wrong; executions are far more expensive than life imprisonment. See Mark Costanzo and Lawrence White, "An overview of the death penalty and capital trials: history, current status, legal procedures, and cost," *Journal of Social Issues* **50**, no. 2 (summer 1994), pp. 1-18.

<sup>2</sup> The greatest cost is that innocent people have been executed, and that others surely will be in the

A small (but still substantial) portion of the vast literature on crime and prevention deals with factual evidence about deterrence. This evidence is statistical and the problems of interpretation are difficult. Nevertheless, there is a broad consensus about the answer to our question. We will begin the survey after some general remarks about statistical reasoning.

## **Two examples of statistical evidence**

Statistical analysis is essential for interpreting complex data and making decisions in the face of uncertainty. It's useful to recall two notable cases where statistics helped form social policies.

In 1954 the Public Health Service organized "the biggest public health experiment ever," a field test of the Salk polio vaccine. The purpose was to determine whether the new vaccine could substantially reduce the incidence of paralytic polio. Several difficulties had to be overcome. The occurrence of polio varied from year to year and place to place in a seemingly random manner. Moreover, even without any preventive measures the incidence of the disease was low, on the order of 50 cases per 100,000 susceptible children. This meant that large chance variations in the number of cases were to be expected in the study population, and these variations might either mask a positive effect from the vaccine or produce the illusion of an effect where none existed.

To overcome these problems a carefully designed experiment was performed, involving nearly a million children. A "control group" received placebo injections instead of the real vaccine; the rest, of course, were inoculated with the Salk vaccine. The children in the control group were chosen at random from all those who volunteered for the experiment, and neither they, their parents, nor the doctors who examined them knew which children had received the actual vaccine. This process insured that there were no systematic differences between those receiving the vaccine and the placebo. The incidence of paralytic polio in the control group turned out to be nearly three times that for the vaccinated children, and because of the experimental design a clear conclusion emerged: It was virtually impossible that such an outcome could have happened unless the treatment had a positive effect. Thus the Salk vaccine, though not perfect, was judged a definite success.

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future. For an up to date review of cases in which people were wrongly sentenced to die, see chapter 25 in Hugo Adam Bedau (ed.), *The Death Penalty in America: Current Controversies* (Oxford, 1997). See also Charles Black, *Capital Punishment: The Inevitability of Caprice and Mistake* (Norton, 1974).

The second example is the problem of cigarette smoking and health, especially the effect of smoking on the occurrence of lung cancer. A relationship was first suspected during the 1920s and 30s when physicians in the U.S. and England observed that nearly all their lung cancer patients were heavy smokers. The problem of proof here is more difficult, since an experiment such as the one described above is not possible. Instead, researchers must observe the habits and health histories of people who cannot be neatly separated into experimental and control groups. Thus although it was soon clear that there is an *association* between heavy smoking and lung cancer, it was much more difficult to prove a *causal* relationship.

The point is worth stressing, for similar problems arise in investigating capital punishment. Heavy smokers have a much higher incidence of lung cancer than do people who never smoked. This is important, but it does not prove that smoking *causes* cancer. It might happen that a third factor (or a combination of factors) causes the cancer, and that this factor is also correlated with smoking. If that were true then even though smokers run higher risks of lung cancer than non-smokers there would be no gain in quitting; smoking would be an indication, but not a cause, of cancer proneness. To settle the question, something more is needed--either evidence for the hypothetical third factor on one hand, or some clarity about the causal mechanism on the other. In the smoking/lung cancer case no "third factor" has been found, and additional evidence of a genuine link has indeed developed. In 1963 a scientific commission submitted a report to the U.S. Surgeon General concluding that heavy smoking *is* a cause of lung cancer, and that conclusion is now almost universally accepted.

## **Capital Punishment in the United States**

The question of the death penalty and deterrence of homicide has something in common with the smoking/lung cancer problem. Both deal with rare phenomena subject to random fluctuations, and neither can be studied by a controlled experiment like the Salk vaccine trial. However, there is a major difference. In the case of smoking and cancer, initial observations revealed a strong positive association between the two variables, and subsequent research had to determine whether this association was due to a causal relationship. In the deterrence problem, the situation is the opposite; the first look at the data suggests no such association.

For decades, murder has been more common in states *with* capital punishment than in those where it is not used. Data from 1973 to 1984 show that murder rates in the states without the death penalty were consistently lower

and averaged only 63% of the corresponding rates in the states retaining it.<sup>3</sup> No deterrence can be seen here--but it might exist and yet be masked by other factors. Many things affect homicide rates; the problem is to separate the impact, if any, of capital punishment from that of all the other variables. How can this be done?

An early approach consisted of comparing homicide rates in states with and without capital punishment, choosing groups of neighboring states as nearly alike as possible in other respects. Such comparisons were made by Thorsten Sellin for the years from 1920 to 1958.<sup>4</sup> This method is a far cry from the controlled experiment performed to test the Salk vaccine, since "other things being equal" is never exactly true when comparing units as large and varied as states. Still, if deterrence plays a significant role its effect should show up as lower homicide rates in the death penalty states when compared to similar, neighboring abolition states. Here are Sellin's conclusions:

The data examined reveal that

1. The level of the homicide death rates varies in different groups of states. It is lowest in the New England areas and in the northern states of the middle west and lies somewhat higher in Michigan, Indiana and Ohio.

2. Within each group of states having similar social and economic conditions and populations, it is impossible to distinguish the abolition state from the others.

3. The trends of the homicide death rates of comparable states with or without the death penalty are similar.

The inevitable conclusion is that executions have no discernible effect on homicide death rates which, as we have seen, are regarded as adequate indicators of capital murder rates.

Another method is to follow the murder rate in a fixed state or jurisdiction and see what happened when capital punishment was abolished, and, in some cases, when it was reintroduced. Sellin and others did studies of this kind too. These investigations again failed to reveal any additional deterrent effect due to capital punishment.<sup>5</sup> Both types of study have been updated by other researchers and the changing practice of executions since 1967 (first a ten-

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<sup>3</sup> Data from Ruth Peterson and William Bailey, "Murder and capital punishment in the evolving context of the post-*Furman* era," *Social Forces*, March 1988, pp. 774-807. The exception to this pattern is the District of Columbia, which has no death penalty and very high homicide rates. (Of course D.C. is not a state, and special circumstances apply.)

<sup>4</sup> Thorsten Sellin, *The Death Penalty* (1959). Excerpts from this book and many other sources were reprinted (along with some new material) in a useful anthology *The Death Penalty in America*, edited by Hugo A. Bedau (1964). Sellin was a leading criminologist and a pioneer in death-penalty studies until his death in 1994.

<sup>5</sup> This work and that described below is summarized in William Bailey and Ruth Peterson, "Murder, capital punishment, and deterrence: a review of the literature," chapter 9 in Bedau (1997), note 2.

year moratorium, then their resumption) has been taken into account. The conclusions--no indications of deterrence--remain the same.<sup>6</sup>

These studies should reveal the general, long-lasting deterrent effect of the death penalty if it exists. Other investigators looked for short-term or special kinds of deterrence. In 1935 Robert Dann published an analysis of homicides in Philadelphia during 60 days before and 60 days after five highly publicized executions. Dann argued that the deterrent effect of the executions should result in lower homicide rates during the post-execution periods. The result was the opposite; rates were higher than usual. Some 20 years later Leonard Savitz did a similar study, although in his work the critical days were the ones when death sentences were pronounced after well-publicized trials. Savitz found no significant difference in homicides for the before and after periods.<sup>7</sup> Similar studies of short-term deterrence were carried out in Chicago and California, and again no deterrent effect was found.

It is sometimes suggested that capital punishment provides added protection to police or to prison guards, and a number of states which have abolished capital punishment for "ordinary" murder retain it for the killing of police or prison staff. This sort of deterrence has been investigated several times, and no evidence was found that absence of capital punishment makes police or prison work more dangerous.<sup>8</sup> One survey did, however, confirm that police in death penalty states *believe* it contributes to their safety. Interestingly, the same survey showed police in the abolition states believing by almost the same margin that absence of capital punishment did *not* add to the hazards of their jobs.

In the last quarter century, investigators have used more sophisticated statistical methods both to analyze new data and to reexamine older findings in new ways. With few exceptions (but see the next section) the results are consistent with the earlier findings. Bailey and Peterson, for example, conclude that "Deterrence and capital punishment studies have yielded a fairly consistent pattern of non deterrence." Although they find agreement that "the overall (general) homicide rate is not responsive to capital punishment," they do call for further research into particular types of crimes.<sup>8</sup>

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<sup>6</sup> See Peterson and Bailey, *op. cit.* in note 3.

<sup>7</sup> Savitz's article was reprinted in Bedau's 1964 anthology cited in note 3.

<sup>8</sup> A recent investigation is Bailey and Peterson, "Murder, capital punishment, and deterrence: a review of the evidence and an examination of police killings," *Journal of Social Issues*, summer 1994, pp. 53-74.

## Regression models: Ehrlich and others

By the mid 1970s, informed opinion agreed that existing data showed no increased deterrence due to the death penalty. A study by economist Isaac Ehrlich broke that pattern. Ehrlich reexamined U.S murder and execution statistics for the period 1933-1969, together with measures of social factors such as unemployment and per capita income, and then tried to establish a mathematical model relating the murder rate to all these variables, including execution rates. His model revealed a slight negative relationship, which he found to be statistically significant, between the murder rate and the execution rate. Ehrlich concluded that "In light of these observations, one cannot reject the hypothesis that punishment, in general, and execution, in particular, exert a unique deterrent effect on potential murderers."<sup>9</sup>

This study was important for methodological reasons, since it may have been the first time multiple regression was used to investigate deterrence. (This innovation made it hard for non-mathematicians to understand and evaluate the paper.) And the fact that Ehrlich was the first researcher to claim positive evidence for added deterrence due to capital punishment guaranteed that his work would receive attention.

Ehrlich's data were soon studied by other investigators and his results reconsidered. Peter Passell and John Taylor focused on Ehrlich's observed negative relation between executions and homicide rates, and asked what happens when the time period chosen for the model is changed. They also experimented with varying his assumptions as to the model's functional form. In both cases they found that some broad aspects of the model were unchanged, but the indication of a special deterrent effect from executions disappeared completely. Passell and Taylor concluded that whatever the other virtues of Ehrlich's work, no valid inference about deterrence could be drawn from it.<sup>10</sup> Another research team, William Bowers and Glen Pierce, found much the same thing.<sup>11</sup> Others have experimented with their own regression models for both time-series and cross-sectional (interstate) studies. The results are mixed, but most of the researchers failed to find any evidence for deterrence.

I have had some personal experience with this issue. Students in a statistics class I taught at Dartmouth experimented with Ehrlich's model and data

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<sup>9</sup> "The deterrent effect of capital punishment: A question of life or death," *American Economic Review* June 1975, pp. 397-417.

<sup>10</sup> "The deterrence controversy: a reconsideration of the time series evidence," in *Capital Punishment in the United States*, H. Bedau and C. Pierce, editors, 1976.

<sup>11</sup> "The illusion of deterrence in Issac Ehrlich's research on capital punishment," *Yale Law Journal*, Dec. 1975, pp. 187-208.

during our study of regression analysis. We confirmed Passell and Taylor's finding that the indication of deterrence was extremely unstable when small changes were made in Ehrlich's assumptions. My own conclusion is that regression on nationally aggregated data can never yield reliable evidence on deterrence, pro or con. The signal, if any, is hopelessly buried in the noise.

In the final section of his paper, Ehrlich interpreted the negative correlation he found as suggesting a "tradeoff between executions and murders," and he estimated that over the period 1935-1969, "an additional execution per year ... may have resulted, on average, in 7 or 8 fewer murders." This dramatic statement was only slightly softened by his qualification that "the expected tradeoffs ... mainly serve a methodological purpose."

The idea that one execution might prevent 7 or 8 murders is easily grasped and remembered. This is unfortunate, because no such conclusion from Ehrlich's research can be justified. We have seen that the negative correlation between murders and executions in his model disappears when minor changes are made in certain assumptions. But even if the model were much more accurate and stable, the "tradeoff" idea would still be invalid. It requires the doubtful assumption that all other factors could remain constant while the execution rate alone was increased. Worse, it confounds association and causation.<sup>12</sup> The hope of saving seven, or any number, of lives by one additional execution can not be defended by Ehrlich's work. The earlier conclusion, that U.S. murder statistics give no evidence for a unique deterrent effect of capital punishment, still stands.

## **Deterrence--or the opposite?**

If capital punishment really has any effect on homicide rates, that effect must be small. Worse, it might go the wrong way! There are cases where the death penalty has been a cause of homicide rather than a preventive.

How could capital punishment be a *cause* of murder? In a medical paper, Dr. Louis West has described what he calls "attempting suicide by homicide."<sup>13</sup> In these bizarre cases a person actually kills in order to court death by execution. Here is one of them:

Recently an Oklahoma truck driver had parked to have lunch in a Texas roadside cafe.

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<sup>12</sup> This is presumably what Ehrlich meant when he wrote that the suggested tradeoffs "serve a methodological purpose." A number of his readers did not understand this caution.

<sup>13</sup> "Medicine and Capital Punishment," in *To Abolish the Death Penalty*, Hearings before the U.S. House Judiciary Committee, March and July, 1968, p. 124. Dr. West is chairs the Department of Psychiatry, Neurology and Behavioral Sciences at the University of Oklahoma School of Medicine.

A total stranger--a farmer from nearby--walked through the door and blew him in half with a shotgun. When the police finally disarmed the man and asked why he had done it, he replied, "I was just tired of living."

Others have also documented examples of killing to invite execution; for example, Clinton Duffy, the former warden of San Quentin prison, describes several cases in his 1963 book *88 Men and 2 Women*. In these instances the death penalty was a cause of homicide rather than a preventive.<sup>14</sup>

Another possibility is the "brutalization hypothesis," which suggests that capital punishment can encourage homicide by seeming to legitimize killing of enemies. Studies from London and New York state have found an *increase* in homicides after highly publicized executions, rather than the decrease consistent with deterrence.<sup>15</sup> How generally these findings apply is not clear.

On the other hand, there is also anecdotal evidence that some homicides may have been deterred by the death penalty. For example, in 1971 the Los Angeles Police Department reported that half of a group of suspects under arrest for robbery stated that they had decided not to carry or not use weapons in their "work" to avoid any risk of a killing which could lead to their own execution. These statements to police can hardly be taken at face value, but *some* such cases are probably genuine.

When we acknowledge that there must be instances when capital punishment helps deter a murder, we must also recognize that at other times it can encourage what it is meant to prevent. Since neither effect can be measured directly we are forced back to the statistical studies, which seek to determine the net effect. Their evidence does not prove that the death penalty is *no* added deterrent to murder, nor could it. It does show, I believe, that any "deterrent" effect is very small in magnitude, *and it might go in either direction*. That is probably all that can be said, based on present knowledge.

## **Further discussion**

How do advocates of capital punishment reply to all this? Some rely uncritically on investigations such as Ehrlich's, which claim to find evidence that deterrence is real. Others state opinions like those of Professor Ernest van den Haag of New York University. In an article "On deterrence and the

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<sup>14</sup> Further examples are described by M. W. Espy Jr. in "Capital punishment and deterrence: what the statistics cannot show," *Crime & Delinquency*, Oct. 1980, pp. 537-544.

<sup>15</sup> William Bowers and Glenn Pierce, "Deterrence or brutalization: what is the effect of executions?" *Crime and Delinquency*, Oct. 1980, pp. 453-484.

death penalty"<sup>16</sup> van den Haag offered neither new data nor new analysis to support his claim that capital punishment has a special deterrent value. Instead he gave psychological and "common sense" arguments on its behalf, together with a general criticism of the findings of "Professor Sellin et al." He feels that the statistics are not good enough, that "the similar areas are not similar enough, the periods are not long enough; ...." After more such criticism van den Haag concludes: "I doubt that the presence or absence of a deterrent effect of the death penalty is likely to be demonstrable by statistical means. It is on our uncertainty that the case for deterrence must rest."

That makes a weak case indeed. It is true that statistical evidence cannot prove that any effect is precisely zero. If, for example, the Salk vaccine had no impact whatever, this could not be *proved* by the sort of trial described earlier. The experimental results *would* indicate, with a high confidence level, that any benefit from the vaccine must lie below a certain level. As the amount of data increased that level would become smaller, and zero effect would be the natural conclusion. It would be perverse to then go ahead and decide to use the vaccine because the tests did not exclude the possibility that there could be *some* benefit, however small--and this is, in effect, just what van den Haag advocates in relation to capital punishment. As the negative evidence accumulates, it becomes more and more implausible to base one's "case for deterrence" on the smaller and smaller region of uncertainty which remains.

## Conclusion

We have surveyed a great deal of material. None of it has the clarity of a well-designed statistical experiment, nor could it. And yet despite that uncertainty, I believe Justice Marshall was right, and Richard Nixon wrong, in the judgments quoted at the start of this paper. Marshall's view is today supported by an overwhelming majority among America's leading criminologists, who believe that capital punishment does not contribute to lower rates of homicide.<sup>17</sup>

The consensus is international in scope. In recent years Great Britain (1973), Canada (1976), France (1981), Australia (1985), Italy (1994) and Spain (1995), among others, have eliminated capital punishment for murder after extensive study and debate. South Africa abolished capital punishment in

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<sup>16</sup> *Journal of Criminal Law, Criminology and Police Science* **60** (1969), p.141.

<sup>17</sup> Michael Radelet and Ronald Akers, "Deterrence and the death penalty: the views of the experts," *Journal of Criminal Law & Criminology* **87**, no.1 (1996), pp. 1-16.

1995 after its transition to democracy.<sup>18</sup> This trend toward abolition has not been observed to cause increases in homicide. In Canada, the 1993 homicide rate was some 25% below the rate at the time of abolition. Other nations such as Great Britain have experienced increases in murder--but even greater increases in other violent crimes which were never subject to death sentences. Some years ago this passage from a United Nations study summed it up: "It is generally agreed that the data which now exist show no correlation between the existence of capital punishment and lower rates of capital crime."<sup>19</sup> The conclusion still holds.

Those who defend the deterrent value of the death penalty offer little systematic research to support their view. Instead, they rely on an intuitive feeling that capital punishment *should* be uniquely effective. When the available evidence doesn't support that conclusion, they argue that the evidence is imperfect. It is. But if there were any substantial net deterrent effect from capital punishment under modern U.S. conditions, the studies we have surveyed should clearly reveal it. They do not.

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If executions protected innocent lives through deterrence, that would weigh in the balance against capital punishment's heavy social costs. But despite years of trying, this benefit has not been shown to exist; the only proven effects of capital punishment are its liabilities. The expansion of the death penalty in New Hampshire would be a practical and a moral step backwards.

Supreme Court Justice Blackmun, a Nixon appointee, ruled in the *Furman* case that capital punishment is not *per se* unconstitutional. That does not mean it is a good policy. An excerpt from Blackmun's *Furman* opinion can well conclude this paper:

"I yield to no one in the depth of my distaste, antipathy, and, indeed, abhorrence, for the death penalty.... That distaste is buttressed by a belief that capital punishment serves no useful purpose that can be demonstrated."

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<sup>18</sup> In addition to the United States, prominent nations retaining the death penalty include both Chinas, India, Indonesia, Japan, both Koreas, Pakistan, Russia, and the Ukraine.

<sup>19</sup> *Capital Punishment*, a United Nations study, 1968.