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An Evaluation of Conservative Crime Control Theology

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The last quarter century has been particularly turbulent for crime control theories and theorists. The crime rate soared in the 1960's, and the American public has become increasingly impatient with what is perceived as a failure of crime control policy. Two very different schools of causation theories have dominated the political landscape during the last three decades. The opposite theoretical poles underlying these schools may be simplified as economic/social at the liberal pole and moral/individual at the conservative pole. The economic/social school attributes causation to the effects of poverty and the attendant social breakdown in the world's richest country; the moral/individual school blames a failure of individual responsibility that is exacerbated by a lenient attitude toward crime. Both theories are, in truth, theologies because they depend on faith in unproven assumptions.[1]

The 1960's saw an implementation of crime control policy based on the economic/social theory of crime.[2] Most crime is acquisitive,[3] and the economic/social theory posits that people who have adequate income will have no incentive to commit crime.[4] Thus, the long-term solution to the crime problem is to guarantee proper education and sufficient job opportunities to make everyone a productive member of society;[5] the short-term solution is to provide income maintenance to those who lack job opportunities.[6] It is impossible to evaluate the long-term solution

1   See S. WALKER, SENSE AND NONSENSE ABOUT CRIME 7-11 (1985).

2   See id. at 211.

3   See, e.g., FBI, 1986 UNIFORM CRIME REPORTS 44 (1987) (recording over 11 million property crimes and fewer than 1.5 million violent crimes).

4   See R. CLARK, CRIME IN AMERICA 57 (1970) (finding a "clear connection between crime and the harvest of poverty").

5   See id. at 67 (concluding that controlling crime requires "a massive effort to rebuild our cities and ourselves, to improve the human condition, to educate, employ, house and make healthy").

6   See id. at 43 (concluding that the "basic solution for most crime is economic").

because, as a practical matter, government failed to produce a uniformly well-educated citizenry[7] or anything approaching full employment.[8]

On the other hand, the short term effort to blunt crime rate increases with income maintenance can be evaluated because the number of people receiving maintenance payments and the total amount of these payments increased dramatically in the 1960's.[9] The crime rate rose spectacularly during this period.[10] Many factors contributed to the crime . rate increase, including a large increase in the number of people in the crime-prone age groups.[11] Thus, the crime rate might have escalated even more rapidly without the public expenditures. Moreover, it is entirely possible that the liberal theology is correct[12] but that its implementation in the War on Poverty was flawed.[13] Still, if "success" means being able to blunt the effect of societal factors causing more crime, the short-term liberal solution (as opposed to basic liberal theology) was a failure.

American voters appeared to conclude rather quickly that whatever was being done in the name of crime control in the 1960's was a failure. One of the reasons given by historians for Richard Nixon's victory over Hubert Humphrey in the 1968 Presidential election was Nixon's hard line approach to crime.[14] Nixon's accusations that Democrats were "soft on crime" were less strident than those of George Wallace,[15] the third party candidate, but they were nonetheless effective in painting liberals as social do-gooders who were hopelessly naive.[16]

When Nixon won the election, the moral/individual responsibility theory of crime began to emerge as a politically feasible alternative to liberal policy. Under this conservative theology, the decline in moral val-

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7 *See, e.g.*, NATIONAL COMMISSION ON EXCELLENCE, A NATION AT RISK—THE IMPERATIVE FOR EDUCATIONAL REFORM 8-9 (1983) (noting that 23 million Americans and 13% of all 17-year-olds are functionally illiterate).

8 The overall adult unemployment rate almost doubled between 1969 (5.3%) and 1982 (9.7%). *See* U.S. DEPARTMENT OF LABOR, HANDBOOK OF LABOR STATISTICS, 63-64 (1980) and U.S. BUREAU OF THE CENSUS: STATISTICAL ABSTRACT OF THE UNITED STATES: 1984 408 (104th ed. 1983).

9 *See* S. LENS, POVERTY: AMERICA'S ENDURING PARADOX—A HISTORY OF THE RICHEST NATION'S UNWON WAR 315 (1969) (citing a 50% increase in the number of citizens on relief between 1956 and 1968 and an increase of over three billion dollars in the cost of that relief).

10 The robbery rate, for example, more than quadrupled between 1962 and 1974. *See* FBI 1963 UNIFORM CRIME REPORTS 49 (1964) (reporting rate of 51.3 per 100,000 inhabitants) and FBI 1975 UNIFORM CRIME REPORTS 51 (1976) (reporting rate of 209.3 per 100,000 inhabitants).

11 *See* S. WALKER, *supra* note 1, at 216 (concluding that much of the increase can be explained by increases in persons aged 14-24 and in unemployment among black teenagers).

12 *See* Danziger & Wheeler, *The Economics of Crime: Punishment or Income Distribution*, 33 REV. OF SOC. ECON. 113 (1975) (concluding that income distribution is negatively associated with the crime rate).

13 *See* S. WALKER, *supra* note 1, at 211-12 (concluding that the War on Poverty was little more than "social tinkering" that did not address fundamental structural problems in our society).

14 *See* J. MCGINNIS, THE SELLING OF THE PRESIDENT 1968 15 (1970) (recounting the making of a television commercial in which candidate Nixon claimed that the crime rate had been going up nine times as fast as the population); T. WHITE, THE MAKING OF THE PRESIDENT—1968 400 (1969) (concluding that the great issue of the 1968 election was law and order).

15 *See* T. WHITE, *supra* note 14, at 346 (quoting Wallace that "people are going to be fed up with the sissy attitude of Lyndon Johnson and all the intellectual morons and theoreticians he has around him [and] with a Supreme Court that [is] a sorry, lousy, no-account outfit . . . .").

16 *See* J. MCGINNIS, *supra* note 14, at 15 (quoting one of candidate Nixon's 1968 commercials stating that "there's one issue on which there is a complete difference of opinion between the two candidates for President. And that's on the issue of law and order in the United States."); *id.* (quoting Nixon commercial criticizing Humphrey's defense of "the attorney general and his policies").

ues must be reversed;[17] punishment should follow rule breaking; and the criminal justice system should be strengthened to ensure the punishment of as many guilty people as possible.[18] In addition, society should be willing to "up the ante" on potential criminals by making law violations sufficiently costly to prevent their occurrence.[19]

Effectuating conservative theology demands consequences to crime that are certain, swift, and terrible.[20] Humans appear to share an intuitive belief that the threat of unpleasant consequences shapes the conduct of actors who know of this threat.[21] The more certain, swift, and terrible are these consequences, the less likely humans are to risk them.[22]

To be sure, crime control is not the only reason to punish serious crimes with severe penalties. The retributive "eye for an eye" principle requires a severe punishment in order to somehow right the wrong that has been done to society.[23] Or, as one of our colleagues suggested, the legislature "may just be mad as hell."[24] Since neither of these justifications promises measurable results, the present study focuses instead on conservative theology that defines its goal as reducing the level of crime.

In 1979 Tennessee adopted a comprehensive crime bill that fulfilled the promise of gubernatorial candidate Lamar Alexander to "get tough" with violent criminals.[25] The legislation singled out certain serious crimes, to be called Class X crimes, and sought to make justice swift, sure, and costly for persons arrested for these crimes.[26] The legislation thus applies conservative theory to the judicial system without making any change in the likelihood of arrest. This article first summarizes the

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17 *See* T. WHITE, *supra* note 14, at 325 (quoting one of candidate Nixon's speeches attributing America's failure to a general moral decline); PRESIDENT'S ADDRESS TO NATIONAL CONFERENCE OF U.S. ATTORNEYS, 19 WEEKLY COMP. PRES. DOC. 1652 (Dec. 12, 1983) (quoting President Reagan that putting more people in jail for longer periods of time is "a reflection of the return to common sense and moral values") [hereinafter cited as "PRESIDENT'S ADDRESS"].

18 *See* PRESIDENT'S ADDRESS, *supra* note 17, at 1652 (quoting Reagan that cause of decline in crime rate in 1980's was "will of a society to punish those who prey on the innocent and the willingness of the leaders of that society . . . to enforce that will.").

19 *See id.* (quoting Reagan that crime rates are "starting to come down because for the first time in many years . . . we are putting career criminals in jail in greater numbers and for longer periods of time").

20 *See* S. WALKER, *supra* note 1, at 8-9.

21 *See Deuteronomy* 19:18-20 (calling for punishment of those who give false witness "[a]nd the rest shall hear, and fear, and shall never again commit any such evil among you") (Revised Standard Version); J. BENTHAM, THE PRINCIPLES OF MORALS AND LEGISLATION 2 (1948 ed.); S. WALKER, *supra* note 1, at 9 (noting that "[m]any people were raised this way and raise their own children in the same manner").

22 Chambliss, *The Deterrent Influence of Punishment*, 12 CRIME & DELINQ. 70 (1966) (attributing this position to Jeremy Bentham and the "Classical" school of criminology). *See generally* H. PACKER, THE LIMITS OF THE CRIMINAL SANCTION 39-45 (1968).

23 *See, e.g.*, I. KANT, THE METAPHYSICAL ELEMENTS OF JUSTICE 102 (J. Ladd trans. 1965) (concluding that retribution prevents the "bloodguilt" of crime from being "fixed on the people because they failed to insist on carrying out the [necessary] punishment"); H. MORRIS, ON GUILT AND INNOCENCE, ESSAYS IN LEGAL PHILOSOPHY AND MORAL PSYCHOLOGY 34 (1976) (arguing that retribution simply "restores the equilibrium of benefits and burdens by taking from the individual what he owes, that is, exacting the debt"); H. PACKER, *supra* note 22, at 38 (concluding that one version of the retributive theory "means that the criminal is paid back").

24 Conversation with James C. N. Paul, Professor of Law and S. I. Newhouse Scholar, Rutgers School of Law-Newark (June 16, 1987).

25 *See* The Tennessean, May 10, 1979, at 17, col. 5.

26 *See* 1979 Tenn. Pub. Acts ch. 318. *See infra* note 59 for a list of Class X crimes.

Class X legislation in the context of conservative crime control theory. It then evaluates the success of the Tennessee experiment and considers its implications for other jurisdictions.

I. The Goal: Class X Protects

Justice was to be swift because the Tennessee legislation required trial within 150 days of arraignment for Class X crimes.[27] Justice was to be sure in a number of ways. The legislation prohibited dismissal of a Class X charge or reduction to a lesser charge without consent of the trial judge[28] (presumably making it more difficult to plea bargain to avoid a Class X conviction). It categorically forbade three judicial actions that could allow a convicted person to escape or postpone incarceration: bail pending appeal, suspended sentences, and probation.[29] A person convicted of a Class X crime had to serve his sentence in a maximum security prison and was ineligible for "work release, trustyship status, furlough of any sort, educational or recreational release or any other program whereby the prisoner's term of imprisonment may be reduced or whereby the prisoner may participate in supervised or unsupervised release into the community."[30] Class X offenders were to be identified by having their official files "stamped or otherwise prominently marked to signify" their Class X status.[31] Finally, Class X parole was to be supervised more closely than parole for non-Class X offenders.[32]

Most of the ways of making justice more sure have the effect of making it more costly as well. Thus, the limitations on bail, plea bargaining, probation, and recreational release into the community effectively increased both the potential severity and certainty of a Class X conviction. In addition, the legislation required a determinate sentence[33] and forbade parole until forty percent of the sentence had been served.[34] Governor Alexander summed up the goals of Class X in a news conference the day before the new law became effective: "[I]t should help assure that people who commit violent crimes serve a sentence."[35]

Underlying any legislative change that seeks to reduce crime are three crime control effects: general deterrence, special deterrence, and

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27 *See* 1979 Tenn. Pub. Acts ch. 318, § 19 (codified at TENN. CODE ANN. § 40-18-103 (1985)).

28 *See id.* at § 23 (codified at TENN. CODE ANN. § 8-7-103(21) (1980)).

29 *See id.* at §§ 16 & 17 (codified at TENN. CODE ANN. §§ 40-11-113 & 40-21-101 (1985)).

30 *See id.* at § 20(c), *repealed by* 1985 (1st E.S.) Tenn. Pub. Acts ch. 5, § 7. For a discussion of the repeal of this section and any impact it might have on the study, see *infra* notes 122 & 123 and accompanying text.

31 *See id.* at § 20(b), *repealed by* 1985 (1st E.S.) Tenn. Pub. Acts ch. 5, § 7. For a discussion of the repeal of this section and any impact it might have on the study, see *infra* notes 122 & 123 and accompanying text.

32 *See id.* at § 22, *repealed by* 1985 (1st E.S.) Tenn. Pub. Acts ch. 5, § 7. For a discussion of the repeal of this section and any impact it might have on the study, see *infra* notes 122 & 123 and accompanying text.

33 *See id.* at § 3 (codified at TENN. CODE ANN. § 39-1-703(1) (1982)).

34 *See id.* at § 20 (codified at Tenn. Code Ann. § 40-28-301(d) (1982)), *repealed by* 1985 (1st E.S.) Tenn. Pub. Acts ch. 5, § 7. For a discussion of the repeal of this section and any impact it might have on the study, see *infra* notes 122 & 123 and accompanying text.

35 The Tennessean, August 30, 1979, at 17, col. 3.

incapacitation.[36]   Both types of deterrence are premised on the Benthamite notion that rational actors seek to maximize pleasure and minimize pain.[37] The legislature accomplishes general deterrence by increasing the severity of available sanctions and announcing these changes to the citizenry, thereby deterring more of those who consider committing crime.[38] The goal of special deterrence is to deter the particular person who is being punished. Increasing the severity of the sanction sufficiently to create a greater general deterrent effect should also create an increased special deterrent effect, but the relationship does not necessarily work the other way. Not all sanctions that might be effective special deterrents will create general deterrence. Being identified as a "Class X offender" may, for example, create special deterrence.[39] It is unlikely that fear of the Class X label would create a general deterrent effect that exists independantly of the fear of being convicted of robbery and sentenced to prison.

The crime control effect of incapacitation is that incarcerated criminals will not commit crimes against free society. This effect is not open to speculation as long as the change in the legislation increases the average incarceration within any given time period.[40] Thus, the restrictions on plea bargaining to a lesser offense (with a presumably shorter sentence) as well as the prohibition of early parole should, in theory, create an incapacitative effect.[41] The effect of prohibiting bail for convicted offenders will create a short-term increase in incapacitative effect by preventing crime during the appeal and thus accelerating the incapacitative crime control effect that would have occurred at a later time.[42]

Many of the provisions of the Class X law should create more than a single crime effect and may interact with each other to produce a greater effect. For example, speedier justice has a short-term incapacita-

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36 See NATIONAL RESEARCH COUNCIL, DETERRENCE AND INCAPACITATION: ESTIMATING THE EF-FECTS OF CRIMINAL SANCTIONS ON CRIME RATES 50 (1978) (noting that the effects of deterrence and incapacitation show up as an aggregate effect in crime rates); Nagin, *General Deterrence: A Review of the Empirical Evidence*, in NATIONAL RESEARCH COUNCIL, *supra* at 95, 129-36 (discussing mathematical methods of disaggregating these combined effects).

37 See J. BENTHAM, *supra* note 21, at 2.

38 See NATIONAL RESEARCH COUNCIL, *supra* note 36, at 3 (defining general deterrence as "the inhibiting effect of sanction on the criminal activity of people *other than* the sanctioned offender") (emphasis in original). The general deterrence impact of the Class X changes depends, of course, on speculation about human nature—that is, it assumes more deterrence will flow from a system that guarantees a quick trial, no bail during appeal, and a prison sentence commensurate with criminal culpability than from a system in which any number of different outcomes is possible (charge reduction, suspended sentence, long delays prior to trial, and early parole eligibility).

39 Letter from Clayburn Peeples, District Attorney General, Tennessee Twenty-Eighth Judicial District (December 22, 1987) [hereinafter "Peeples Letter"] (stating that the fear of being identified as a Class X offender is a strong "incentive in plea bargaining" to a non-Class X charge).

40 See Loftin & McDowall, *"One with a Gun Gets You Two": Mandatory Sentencing and Firearms Violence in Detroit*, 455 ANNALS 150, 157 (1981) (focusing "on possible deterrence mechanisms" from new law because law had "very limited impact on the length of sentences and the probability of incarceration"); Shinnar & Shinnar, *The Effect of the Criminal Justice System on the Control of Crime: A Quantitative Approach*, 9 LAW & SOC'Y REV. 581 (1975) (concluding that incapacitation could reduce the crime rate by as much as 80%).

41 See *infra* notes 82-90 and accompanying text for an evaluation of the likely impact of increased incapacitation on the crime rate.

42 See *infra* notes 82-83 and accompanying text for a discussion of the long-term effect of prohibiting bail.

tive effect and may have a deterrent effect. Its deterrent effect is presumably enhanced by the limitations on plea bargaining and bail since the combination should create the impression that the system treats offenders harshly. Limitations on plea bargaining, probation, and suspended sentences will help ensure that offenders are punished in accordance with their culpability; in turn, this should deter more potential offenders and incapacitate convicted offenders for longer periods. Limitations on how Class X offenders must serve their sentences will prevent their escape and increase the severity of their punishment (creating both an incapacitative and a deterrent effect). Finally, the limitation on parole is a somewhat unusual way to increase the severity of the sentence[43] or, at least, to create a threat of greater severity.[44] The conservative theory holds that creating the impression of greater severity should create a general deterrent effect;[45] actually imposing a longer sentence should, of course, accomplish incapacitation as well as general and special deterrence.

Tennessee officials hailed the Class X Felonies Act as a major piece of crime control legislation. The governor's Safety Commissioner, for example, said: "We want people to know about this law. We believe knowing will deter crime. All of us in law enforcement believe this law will help."[46] The Nashville police chief echoed this view: "The police chiefs believe in this legislation and believe it will be a deterrent to crime."[47] Several of the legislators were less sanguine about the likely impact of Class X, however. Almost 20% of the Tennessee Senate voted against the bill,[48] and one senator said, "We are not going to solve crime by locking them up and throwing away the key."[49]

Governor Alexander announced a statewide educational campaign to publicize the law.[50] The campaign included billboards, radio and television commercials, and decals pointing out details of the new law.[51] The most commonly seen decal featured a silhouette of an armed person

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43 Limiting parole is an interesting variation on the theme of just raising the maximum or minimum sentences. A system that guarantees a minimum period in prison, beginning with the day of conviction, might create more deterrence than a system with longer potential maximum and minimum sentences but no guarantee about the eventual outcome.

44 For a discussion concluding that the parole limitations did not lengthen the average robbery sentence served, see *infra* note 90 and accompanying text.

45 *See* S. WALKER, *supra* note 1, at 9. This is, of course, true whether or not the greater penalty is actually imposed; it is the impression that counts. In this regard, the newspapers helped along the general deterrent effect by misstating the severity of the change in parole eligibility. *See* The Tennessean, May 13, 1979, at B2, col. 5-6 (reporting the Class X legislation as forbidding parole); *Cf.* Beha, *"And* Nobody *Can Get You Out": The Impact of a Mandatory Prison Sentence for the Illegal Carrying of a Firearm on the Use of Firearms and on the Administration of Criminal Justice in Boston—Part II*, 57 B.U.L. REV. 289, 322 (1977) (noting that "the publicity surrounding the [new law] often overstated the law's scope and thereby increased compliance with related requirements as well, even though the related requirements did not involve the [change in law]").

46 The Tennessean, August 30, 1979, at 17, col. 3.

47 *See id.* at col. 5.

48 *See* The Tennessean, May 10, 1979, at B2, col. 1.

49 *See id.* (quoting Senator Ortwein, Democrat, Chattanooga).

50 *See* The Tennessean, August 30, 1979, at 17, col. 3. *Cf.* Loftin & McDowall, *supra* note 40, at 151 (noting presence of "billboards and bumper stickers in the Detroit area announc[ing] that 'One With a Gun Gets You Two' " to publicize mandatory sentencing law in Michigan).

51 *See* The Tennessean, August 30, 1979, at 17, col. 3.

inside a circle with a line drawn through it, proclaiming "Class X Protects." Many stores prominently displayed these decals, presumably hoping to increase the deterrent effect.[52]

Eight years have passed, long enough to allow the effects of Class X to manifest themselves. Indeed, this is a particularly appropriate time to evaluate Class X because the Tennessee legislature is currently considering a complete revamping of its criminal code that could eliminate Class X entirely.[53] Measuring the Class X effects is, unfortunately, a rather complex task. A "before and after" measurement necessarily combines the effects of all the Class X provisions. To add to the uncertainty, the legislature made one major and several minor changes in Class X in 1982 and 1985,[54] thus making it more difficult to draw conclusions based on data from the entire 1979-86 time period. Moreover, mandating change in the judicial machinery is not always a guarantee that change will result. Anecdotal evidence indicates that the Tennessee judicial system adjusted to (and essentially nullified) the speedy trial requirement and the restrictions on plea bargaining.[55] This evidence of nullification confirms the experience of other jurisdictions that have attempted to mandate changes in the behavior of actors in the judicial system.[56] A nullification principle that promotes a steady state equilibrium in the judicial system thus seems to exist.[57]

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52 Peeples Letter, *supra* note 39, at 3 (concluding that the decals were "in truth, the main objective of the program" and "all that seemed to matter").

53 *See* TENN. CODE ANN. §§ 49-37-204, -205 (1987) (requiring revision of penal code and submission of legislation effectuating proposed revision no later than October 1, 1988).

54 The major change was the 1985 repeal of the provision that forbade parole consideration until 40% of the sentence had been served. *See* TENN. CODE ANN. § 40-28-301(d) (1985), *repealed by* 1985 (1st E.S) Tenn. Pub. Acts ch. 5, § 7. For a discussion of this change, including the conclusion that the parole rules were implicitly repealed in 1982, *see infra* note 122 and accompanying text. The minor changes included repeal of the provisions specifying where a Class X felon served his sentence and how he served his parole. *See* TENN. CODE ANN. §§ 40-28-301, -302, *repealed by* 1985 (1st E.S.) Tenn. Pub. Acts ch. 5, § 7.

55 Peeples Letter, *supra* note 39 (stating that an informal survey of fifteen Tennessee district attorneys produced unanimous agreement that Class X had effected no changes in plea bargaining or timing of trials).

56 *See* S. WALKER, *supra* note 1, at 32-35 (summarizing several studies concluding that the judicial system often adjusts and nullifies any mandated change); NATIONAL INSTITUTE OF JUSTICE, U.S. DEPARTMENT OF JUSTICE, POLICY BRIEF, MANDATORY SENTENCING: THE EXPERIENCE OF TWO STATES 15 (1982) (concluding that mandatory sentencing may inevitably fail because laws "designed to eliminate sentencing discretion may only succeed in displacing that discretion in ways that may be counter to legislative intent"); JOINT COMMITTEE ON NEW YORK DRUG LAW EVALUATION, NATIONAL INSTITUTE OF LAW ENFORCEMENT AND CRIMINAL JUSTICE, U.S. DEPARTMENT OF JUSTICE, THE NATION'S TOUGHEST DRUG LAW: EVALUATING THE NEW YORK EXPERIENCE 18-19 (Final Report 1978) (concluding that "there was very little enthusiasm" for severe New York drug law mandating minimum sentence among prosecutors and judges and that this contributed to its lack of effectiveness) [hereinafter JOINT COMMITTEE]. *Cf.* Beha, *supra* note 45, at 119 (paraphrasing critics of Massachusetts' mandatory sentencing law as predicting failure because "participants in the criminal justice system would find ways to avoid or evade the mandatory sentence, perhaps even to the point that no real change in the processing of firearm violation cases would occur."); *but see id.* at 146 (concluding that, in general, Massachusetts courts "are prepared to enforce the new law").

57 *See* JOINT COMMITTEE, *supra* note 56, at 22-23 (noting that, despite mandatory prison sentences for repeat offenders, risk of imprisonment actually declined); Loftin & McDowall, *supra* note 40, at 151 (noting, as effect of new mandatory sentencing law, likelihood of "uneven and varied response from the complex organization of police, defendants, attorneys, and judges who ulitmately produce criminal sanctions").

But, with all of that uncertainty, the question before us is actually quite clear-cut. The governor proposed and the legislature passed a comprehensive crime control bill in 1979. We simply want to know whether that legislation, amended as time went on, had an impact on the crime rate in the years following 1979. If it had no effect, for whatever reason, then the Class X experiment was a failure. This conclusion does not necessarily mean that all parts of the legislation are worthless as crime control measures, only that they did not work in the Tennessee environment of that time. In short, we will measure the legislative impact on the crime rate (LICR) from the Tennessee Class X experience during the years 1979-86.[58]

Although Class X applies to eleven categories of serious felonies,[59] we selected only one, robbery, as the primary measure of the law's deterrent effect. There are two reasons for this limitation. First, most of the other Class X crimes prohibit acts that are, in the terminology of Professor Chambliss, "expressive."[60] Chambliss' theory is that deterrence is more likely to affect "instrumental" acts (those that anticipate a palpable benefit) than "expressive" acts (those that express part of the offender's personality).[61] Thus, aggravated rape (also a Class X crime) should be much more difficult to deter than robbery.[62] Although robbery has an assaultive (expressive) dimension, the potential financial gain is a very

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58 The concept of LICR includes an increased general deterrent effect (marginal deterrence); increased special deterrence; and additional incapacitation effect. Sometimes the article will attempt to isolate, in a theoretical sense, one of these effects. When we look at the change in the crime rate and control for other variables, however, we are attempting to measure the combination of all three effects which we shall call LICR. From the legislature's crime control point of view, any distinction among the three effects is merely academic. *See* Nagin, *supra* note 36, at 135.

59 *See* TENN. CODE ANN. § 39-1-702 (1982). The following is a list of crimes currently denominated as Class X in Tennessee:
  (1) Murder in the first degree;
  (2) Murder in the second degree, but excluding vehicular homicide in violation of the Tennessee Code Annotated;
  (3) Aggravated rape and aggravated sexual battery;
  (4) Aggravated kidnapping;
  (5) Robbery accomplished by use of a deadly weapon;
  (6) Aggravated arson;
  (7) Conspiracy to take human life or to commit a felony on the person of another;
  (8) Assault with intent to commit murder, with bodily injury to the victim;
  (9) The manufacture, delivery or sale or possession with intent to manufacture, deliver or sell or conspiracy to manufacture, deliver or sell certain quantities of a controlled substance as prohibited by § 39-6-417(c),(d);
  (10) Assault from ambush with a deadly weapon; and
  (11) Willful injury by explosives.
Id.

60 *See* Chambliss, *Types of Deviance and the Effectiveness of Legal Sanctions*, 1967 WIS. L. REV. 703, 712.

61 *See id.* at 712. Chambliss' theory is essentially a refinement of Jeremy Bentham's "rational man" calculus. Bentham posited that all persons evaluate the costs and benefits of contemplated action and act only when it is in their rational self interest. *See* J. BENTHAM, *supra* note 21, at 2.

62 *See* Chambliss, *supra* note 60, at 715 (identifying sex offenses as "not likely to be deterred"). *But see* Lewis, *The General Deterrent Effect of Longer Sentences*, 26 BRIT. J. CRIMINOLOGY 47, 49 (1986) (summarizing 15 statistical studies and concluding that "the deterrent effect is strongest for rape and assault, weakest for hijacking and fraud with robbery, burglary, auto-theft, larceny and murder in between").

strong instrumental component.[63] Therefore, we chose robbery as the primary measure of the LICR of Class X in order to increase the likelihood that we would find a measurable effect.[64]

In addition, the data are substantially better for robbery than for the other Class X crimes. The crime rate is traditionally measured by the FBI Uniform Crime Report statistics, and these statistics limit the study. For example, the FBI definition of aggravated assault encompasses a much broader category of crimes than the Tennessee Class X assault offenses.[65] If Class X assaults represent only a small fraction of all aggravated assaults, as seems likely,[66] a very real LICR as to these Class X assaults might be masked by a small increase in the more common assault offenses. Indeed, the problem may be one of displacement as well as masking.[67] If Class X created an increased deterrent effect, persons who otherwise would commit a Class X assault might, instead, commit a less serious form of assault because their behavior was "channelled."[68]

In sum, the study is limited to robbery because robbery should be one of the easiest Class X crimes to deter and because the FBI data are better for our purposes. To conclude that this data set is better is not, however, to conclude that it is without difficulties. The FBI crime definition for robbery includes "strong-arm" robberies, those that occur by force or threat of force but without a weapon.[69] Class X applies only to robberies "accomplished by use of a deadly weapon."[70] Thus, the same potential masking/displacement problem exists here as we saw with regard to the assault offenses. But the problem is less severe here because "strong-arm" robberies are substantially less frequent than armed rob-

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63   *See* Zimring, *Determinants of the Death Rate from Robbery: A Detroit Time Study*, 6 J. LEGAL STUD. 317, 329 (1977) (speculating from the "high and apparently weapon-related death rate from robbery" that it may not be appropriate "to consider the robbery event as solely instrumental").

64   The most instrumental crime to which Class X applies is the manufacture, delivery, sale, or possession with intent to manufacture, deliver, or sell certain controlled substances. *See* TENN. CODE ANN. § 39-1-702(9) (1982). However, no FBI crime category corresponds with this offense.

65   *Compare* FBI, 1985 UNIFORM CRIME REPORTS 21 (1986) (defining aggravated assault as any "unlawful attack . . . for the purpose of inflicting severe or aggravated bodily injury") *with* TENN. CODE ANN. § 39-1-702(8), (10) & (11) (1982) (making Class X crimes of, respectively, assault with intent to murder with bodily injury to victim, assault from ambush with a deadly weapon, and willful injury by explosives). Obviously, many assaults with intent to inflict severe injury (the FBI definition) would fall outside the Class X definitions.

66   An aggravated assault without intent to kill or with intent to kill but without bodily injury to the victim would not be a Class X assault. *See supra* note 65.

67   *See* Pierce & Bowers, *The Bartley-Fox Gun Law's Short-Term Impact on Crime in Boston*, 455 ANNALS 120, 128 (1982) (finding evidence of displacement from gun assaults to nongun armed assaults following implementation of Massachusetts mandatory sentencing law for carrying firearm); *id.* at 134 (finding similar displacement effect for gun and nongun armed robberies). An illustration will make this point more clearly. In 1978, the FBI calculated that 8,286 aggravated assaults were reported in Tennessee. Let us assume that Class X assaults represented approximately 10% of all aggravated assaults in 1978 or 829 in raw numbers. Let us also assume, for sake of argument, that Class X had a dramatic and immediate deterrent effect on Class X assaults and they dropped to 622 by 1980, a decline of about 25%. If the class of aggravated assaults not covered by Class X increased by only 2.8%, this increase would totally obscure the deterrent effect on Class X assaults, producing an FBI rate for aggravated assault that is exactly the same in 1980 as in 1978. Even more potentially distorting, if non-Class X aggravated assaults rose more than 2.8% it would make the total figures look at first blush as if the change in the law had actually encouraged assaults.

68   *See* Morris & Zimring, *Deterrence and Corrections*, 381 ANNALS 137, 140 (1969).

69   *See, e.g.*, FBI, 1986 UNIFORM CRIME REPORTS 16 (1987).

70   *See* TENN. CODE ANN. § 39-1-702(5) (1982).

beries,[71] and a meaningful change in the armed robbery rate is likely to show up in the robbery data. Moreover, independent data from the Tennessee Department of Correction confirm the absence of a significant masking/displacement effect with respect to armed robbery and robbery.[72]

A final methodological problem is the familiar one: how to control for other variables that might affect the robbery rate in Tennessee. This problem will be discussed in Part II. In order to neutralize confounding influences to the extent possible, we will apply several tests to the data. Each test confirms the results of the other tests, and most of the results are statistically significant.[73] Methodological problems notwithstanding, the authors offer the results of the statistical tests as arguments in favor of a limited proposition: the Class X experiment did not overcome the forces causing the robbery rate to increase in Tennessee. Indeed, Class X appears to have failed by every definition and over every time period.

Because the relevant actors may not have fully implemented the Class X mechanisms,[74] the failure of Class X cannot be generalized into an indictment of all conservative crime control proposals. Moreover, Class X applied conservative theory only to the judicial process. A complete application of the theory would increase the certainty of criminal consequences by also increasing the arrest rate. However, the results of the Class X evaluation do serve to effectively discredit the venerable conservative proposal that the mere threat of a more severe sanction is sufficient to induce deterrence.[75]

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71 *See* FBI, 1985 UNIFORM CRIME REPORTS 18 (1986).

72 *See infra* note 108 and accompanying text.

73 The concept of statistical significance will appear frequently in the rest of the article. It is simply a way of ruling out chance as the sole explanation for the results in question. It does not tell us whether one event caused another, only that (by whatever degree of mathematical certainty we choose) chance does not seem a sufficient explanation for the outcome observed. For example, statisticians often define a rare occurrence as one that would happen less than 1% of the time. Suppose we tossed a coin six times and obtained "heads" each time. What we want to know is whether this constitutes a "rare" occurrence (according to the hypothesis that the coin is a fair one) or, equivalently, whether it is significant at the .01 level. Probability tells us that the chances of tossing six "heads" using a fair coin are .0156. Since this is greater than 1%, we would not be able to regard this as a "rare" occurrence for a fair coin. The result of six "heads" in a row, although unlikely for a fair coin, is not statistically significant according to the standard we have chosen. Seven "heads" in seven trials would, however, be considered significant since the probability that we would observe this from a fair coin is .0078—less than 1%. This, then, would constitute a statistically significant result (although it still could be classified as merely due to randomness if we used a stricter test of significance than the .01 level). We cannot explain, based only on this conclusion, why we managed seven "heads" in a row, but the importance of the conclusion is that it tells us we must look at models other than the "fair coin" model to attempt to explain the outcome—e.g., is the coin a bent one?

    Unless stated otherwise, statistical significance in this article will be tested by the .01 (1%) standard.

74 Prison sentences for armed robbery actually declined after Class X went into effect. *See infra* note 90 and accompanying text. Moreover, anecdotal evidence indicates that the speedy trial and plea bargaining provisions had no practical effect. *See supra* note 55 and accompanying text.

75 *See, e.g.,* J. BENTHAM, 1 WORKS 396 (1843); F. ZIMRING & G. HAWKINS, DETERRENCE—THE LEGAL THREAT IN CRIME CONTROL 75 (1973). *See generally* C. BECCARIA, ON CRIMES AND PUNISHMENTS 30 (1764; Paolucci trans. 1963). Other researchers have also concluded that an increased threat by itself cannot sustain a deterrent effect. *See, e.g.,* Ross, *Law, Science, and Accidents: The British Road Safety Act of 1969,* 2 J. LEG. STUD. 1, 67 (1973) (noting that mere threat without objective change is "subject to subversion by the test of experience").

The remainder of the article has three parts. First, it examines the logical underpinnings of crime control theory to develop support for the hypothesis that Class X would create a measurable crime control effect.[76] Second, the article examines the crime data in various ways.[77] All of these tests fail to find any Class X impact on the robbery rate, thus accepting the null hypothesis that Class X created no measurable effect. Finally, the article discusses the implications of its findings for other jurisdictions and for other applications of conservative theory to the judicial process.[78]

II.   Did It Work? Developing A Theoretical Model

Many researchers have attempted to determine whether the severity of sanctions is negatively associated with the crime rate. The results of these studies have been inconsistent or inconclusive.[79] The present study attempts to answer a more specific question: can the legislature achieve an increased crime control impact through a comprehensive change in the judicial system designed to make the law a more credible threat with respect to certain crimes?[80]

The LICR concept is, as noted earlier, composed of three somewhat distinct crime control effects: general deterrence, incapacitation, and special deterrence. Previous research and theoretical modeling suggest, however, that any LICR will result principally from an increase in general

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76   *See infra* notes 79-100 and accompanying text.

77   *See infra* notes 101-34 & Tables B-M and accompanying text.

78   *See infra* notes 135-48 and accompanying text.

79   *Compare* Lewis, *The General Deterrent Effect of Longer Sentences*, 26 BRIT. J. CRIMINOLOGY 47, 48 (1986) (concluding that "[m]ost of the studies reviewed here provide evidence that is consistent with the hypothesis that longer sentences deter most types of crime") *with* Avio & Clark, *The Supply of Property Offences in Ontario: Evidence on the Deterrent Effect of Punishment*, 11 CAN. J. ECON. 1, 13 (1978) (finding no statistically significant correlation between sentence length and crime rate) *and* Tittle, *Crime Rates and Legal Sanctions*, 16 SOC. PROB. 409, 419 (1969) (concluding that "severity of punishment has little consistent independent or additive effect"). *See also* Palmer, *Economic Analyses of the Deterrent Effect of Punishment: A Review*, 14 J. RES. CRIME & DELINQ. 4, 17 (1977) (concluding that "it is possible for researchers with identical data sets to reach contrary conclusions" because of different assumptions and methodologies).

Even if one assumes the accuracy of the statistical models constructed to estimate the negative effect of crime control efforts, a significant cause-and-effect problem remains. Do longer sentences cause less crime or do increasing crime rates cause shorter sentences? Higher crime rates could actually drive the other variables, causing early release from prison and more probation. If this relationship is true, a model that compares states depending on sentence lengths would show the short-sentence states with high crime rates and the long-sentence states with low rates, but the relationship would not suggest deterrence at all—rather, it would suggest that the system was adjusting to produce a "stability of punishment." *See* Blumstein & Cohen, *A Theory of the Stability of Punishment*, 64 J. CRIM. L. & CRIMINOLOGY 198, 199 (1973) (proposing that society acts to hold stable "the level of punished criminal acts" by redefining threshold of what is considered punishable). *But see* Ehrlich, *On Positive Methodology, Ethics, and Polemics in Deterrence Research*, 22 BRIT. J. CRIMINOLOGY 124, 134-35 (1982) (criticizing the "constant level of punishment" theory as an *"ad hoc"* theory providing only "scholarly justification" for results explained equally as well by deterrence theory).

80   Although the question of marginal deterrence and absolute deterrence are often confused in the literature, they are obviously quite different concepts. *See* F. ZIMRING & G. HAWKINS, *supra* note 75, at 13-14. We might find, for instance, that the increased deterrent effect of increasing the average sentence from 20 to 21 years is zero, but this conclusion tells us nothing about how much absolute deterrence is created by an average sentence of 20 years.

deterrence[81] (increased general deterrence is often termed "marginal deterrence"). In the context of Class X, practical reasons also dictate that the incapacitation and special deterrent effects will be very small.

As a theoretical matter, an increased incapacitation effect from restrictions on work release and parole supervision might occur in isolated cases, but it should be quite rare.[82] With respect to denial of bail, any net incapacitative effect is almost wholly illusory. If a person is free on bail he can commit crimes during that period but, all other factors being constant, he will receive and serve the same sentence whether or not he is denied bail. The effect of bail denial is simply to accelerate the incapacitation that will occur if a conviction results.[83]

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81 *See* Nagin, *supra* note 36, at 135 (concluding that, under one mathematical model, incapacitation explains only a small portion of the total crime control effect); Ehrlich, *On the Usefulness of Controlling Individuals: An Economic Analysis of Rehabilitation, Incapacitation and Deterrence*, 71 AM. ECON. REV. 307, 321 (1981) (estimating that deterrence accounts for more than 90% of the estimated crime control effect of longer sentences).

82 There is no data on the number of crimes committed during work release or parole supervision and, moreover, no way to estimate the effect of the Class X restrictions on this type of crime. Intuitively, one would suspect that the restrictions would not have a major impact.

83 Class X prohibits bail only after conviction, thus impacting only those defendants who seek to appeal their convictions, a much smaller number than the number arrested or convicted. Within this smaller class, if a defendant is convicted of armed robbery and given a ten year sentence, and all other factors are held constant, it should make no difference whether he serves the sentence beginning with the date of the conviction or beginning two years later—it still has the effect of removing him from the free world for the same period. One might argue that all other factors are not constant, that a convicted defendant has more incentive to commit crimes under a "last fling—nothing to lose" theory. *See* S. WALKER, *supra* note 1, at 48 (citing studies that found rearrest rates for bailed robbery defendants to be 30% to 70%). But the contrary argument is equally plausible—that a convicted offender knows he has *more* to lose at this stage because another conviction might lead to consecutive sentences or, at the very least, might have a negative impact on whether he would get parole after serving the 40% minimum term. *See id.* at 51 (citing studies of bailed defendants who were charged with violent crime; only 5% were subsequently rearrested for another violent crime). It appears unlikely that any net increase in incapacitation occurs because of imprisonment that begins at the time of conviction.

There would be, of course, a very small additional incapacitative effect for the class of offenders whose convictions are reversed and who are not reconvicted. With respect to this class, the time served during appeal represents incapacitation that would not have existed if the defendant had been free on bail during appeal. There is no data from which we could compute the size of this class, but intuition tells us that it is extremely small.

Thus, the incapacitation effect from requiring defendants to begin serving sentences after conviction, rather than at the end of the appellate process, should approach zero so closely that it cannot be measured. For similar reasons, an absolute prohibition of bail from the moment of *arrest* rather than after conviction has no potential to create a significant incapacitative effect, notwithstanding conservative claims to the contrary. Most states require that time served prior to conviction and sentencing be credited to the sentence. *See, e.g.,* TENN. CODE ANN. § 40-23-101 (1982); Stubbs v. State, 216 Tenn. 567, 393 S.W.2d 150 (1965) (holding provision regarding credit for time served is mandatory). Thus, unless the judge compensates for this requirement by imposing a longer sentence, prohibiting bail prior to conviction does not increase the total period of incarceration for the class of defendants found guilty.

There may be a small incapacitative effect from incarcerating offenders who are factually guilty but who are acquitted due to a failure of proof. We decided to estimate the size of this class assuming, hypothetically, that Tennessee forbade bail for persons arrested for armed robbery. We assumed that the number of acquittals is 2.9 per 1,000 FBI index crimes. *See* U.S. PRESIDENT'S COMM'N OF LAW ENFORCEMENT & ADMINISTRATION OF JUSTICE, THE CHALLENGE OF CRIME IN A FREE SOCIETY 262-63 (1967). Tennessee averaged about 8,000 robberies during 1979-85 and theoretically had 23 acquitted robbers per year. Armed robbery comprises approximately 60% of all robberies in Tennessee. *See infra* note 153, Table O. Thus, there were, theoretically, 14 acquitted armed robbers each year. Moreover, we can presume that some of the acquitted armed robbers were not career criminals (either because they were in fact the wrong person or because their crime was a "one-time" event); no incapacitative effect flows from incarcerating either of these groups. We assumed these

An increased average sentence, on the other hand, has a real, but surprisingly small, effect on the crime rate.[84] Convicted criminals form only a small part of the pool of potential criminals, and other individuals take their place in a variety of ways.[85] Moreover, unless society is willing to keep criminals in prison forever, the extended incapacitation effect merely delays a return to crime by those who are "career criminals."[86] One theoretical model estimates that high-crime states would have to increase prison populations by 23% to 57% to achieve a 10% decrease in violent crimes through incapacitation.[87] The same model estimates that a 10% reduction in all FBI index crimes would require prison population increases from 157% to 310%.[88] It is not likely that in a time of budget cutbacks much enthusiasm can be found for greatly expanded prison budgets if the effect is a relatively small reduction in the crime rate.[89]

As a practical matter, the increased Class X incapacitation effect from parole restrictions for armed robbers is precisely zero. In-house data from the Tennessee Department of Correction indicate, rather surprisingly, that the average length of a sentence served by an armed rob-

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false-positive groups together constitute half of all acquittals, thus leaving seven defendants as the class of guilty-but-acquitted career armed robbers who were denied bail under the hypothetical bail law. Finally, many of this group (perhaps all) would have been denied bail by the old-fashioned method of setting a high money bail because judges perceive the function of bail is, at least in part, to keep career criminals off the streets. *See* Suffet, *Bail-Setting: A Study of Courtroom Interaction*, 12 CRIME & DELINQ. 318 (1966). This means that the class of seven guilty-but-acquitted career robbers is down to an annual class of zero to perhaps two or three career criminals who would have spent a few months in jail because of the hypothetical system of denying bail from the moment of arrest. Any incapacitative effect from this additional incarceration would, obviously, be too small to measure.

84 *See* NATIONAL RESEARCH COUNCIL, *supra* note 36, at 75 (noting that the effect on crime rates "through incapacitation is not very large in high-crime-rate jurisdictions"); Zeisel, *The Limits of Law Enforcement*, 35 VAND. L. REV. 527, 532 (1982) (finding "effect of this incapacitation" to be "smaller than one might think").

85 Ehrlich, *supra* note 81, at 312 (noting phenomenon of "replacement of individual offenders who are successfully removed from the market for offenses by veteran offenders or new entrants who are induced by the prevailing opportunities for illegitimate rewards to fill the vacancies created by the departing offenders").

86 The "career criminal" concept derives from M. WOLFGANG, R. FIGLIO & T. SELLIN, DELIN-QUENCY IN A BIRTH COHORT (1972). *See* S. WALKER, *supra* note 1, at 39-41. Several reserchers have constructed sophisticated models to estimate the increase in the incapacitative effect from increasing sentences. *See* Cohen, *The Incapacitative Effect of Imprisonment: A Critical Review of the Literature*, in NA-TIONAL RESEARCH COUNCIL, *supra* note 36, at 187; Greenberg, *The Incapacitative Effect of Imprisonment: Some Estimates*, 9 LAW & SOC'Y REV. 541 (1975); Shinnar & Shinnar, *supra* note 40.

87 *See* Cohen, *supra* note 86, at 226 (greatest estimated percentage increases are New York (57%), Massachusetts (26.6%), and California (22.8%)). The estimates are smaller for states with lower crime rates. Thus, New Hampshire could, according to the model, achieve a 10% reduction in violent crimes by increasing its prison population by only 8.4%.

88 *See id.* (greatest estimated percentage increases are Massachusetts (310.5%), New York (263.5%), and California (157.2%)).' New Hampshire would require a 118% increase to achieve a 10% reduction in all FBI index crimes. The lowest percentage estimate in this category was 22.7% for Mississippi. *But see infra* notes 130-134 and accompanying text for a discussion of the Mississippi restriction on parole for armed robbers and the ensuing explosion of armed robberies.

89 The rate of robberies has often fallen at least ten percent from year to year. See Table A. These year-to-year declines probably result in part from random fluctuation or record-keeping discrepancies. Indeed, some sizable declines in individual state rates in Table A occur at a time when the national rate is rising. See, e.g., Arkansas 1978-79; North Carolina 1974-75; Virginia 1972-73. It seems unlikely that citizens would pay billions of dollars to achieve an effect that might be lost in random fluctuations of data or obscured by other effects no one understands. *See* S. WALKER, *supra* note 1, at 59-61 (estimating minimum cost of 120 billion dollars to build enough prisons to effect significant crime control through incapacitation).

ber declined after Class X went into effect.[90] This data set also makes it very unlikely that Class X created any increased special deterrent effect for individual offenders.[91] Although other provisions arguably make a Class X conviction more unpleasant,[92] the most significant way to achieve added severity is with a longer sentence. Moreover, it is possible that a special deterrent effect simply does not exist. Research data suggest that the brutalizing effect of prison vitiates the deterrent effect induced by the unpleasantness of punishment.[93] Since special deterrence is problematic at best, and since the average length of armed robbery sentences declined, we did not expect to find a measurable impact from increased special deterrence. If there is an impact, it would show up only in the last year or two of the study.[94]

Thus, we expected any LICR to consist almost exclusively of marginal deterrence. No study has examined the marginal deterrent effect of a comprehensive implementation of conservative theory to the judicial system. However, several studies have examined the effect of raising the potential penalty; these studies suggested that we would find no marginal deterrent effect from the general threat of increased severity associated with Class X.[95] This may seem counter-intuitive. Indeed, it is tempting

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90 *See infra* note 153, Table N. One Tennessee district attorney concludes that the parole board quickly turned the "floor" of forty percent into a "ceiling" and thus Class X indirectly caused the reduction in sentences. Peeples Letter, *supra* note 39.

91 As a matter of theory, the incapacitative and special deterrent effects overlap but are distinct. If, for example, the average sentence for armed robbery was 3 years before Class X and 5 years after, then the year four data should reflect an incapacitative effect, but the special deterrent effect will not be fully reflected in the data set until 5 years have passed.

92 *See supra* notes 27-32 and accompanying text.

93 *See* Morris & Zimring, *supra* note 68, at 142 (concluding that the results of a British study "painfully established what all correctional workers already well know—that longer sentences of imprisonment have an injurious effect on a man's capacity to live without crime in the community, even if he wants to"). *See also* NATIONAL RESEARCH COUNCIL, *supra* note 36, at 66 (concluding that available research indicates "no statistically significant differences between the subsequent recidivism of offenders, regardless of the form of 'treatment' " and that, therefore, incarceraton has no appreciable positive or negative effect on crime rates); Nagin, *supra* note 36, at 96 (concluding that preliminary evidence "suggest[s] that recidivism rates cannot be affected by varying the severity of punishment, at least within acceptable limits").

94 The period of the study was seven years (1980-86). The average sentence imposed on a Class X robber during the first two years of the study was approximately 14 years. The earliest parole date for these individuals was slightly over 5 years (forty percent of 14 years). Thus, a few of the persons convicted early in 1980 could have been paroled by the end of 1985, and a special deterrent effect could be present in the 1986 data set, but the vast majority of those who were convicted of Class X robbery during the study period must still have been in prison at the end of 1986.

95 *See* JOINT COMMITTEE, *supra* note 56, at 9-10 & 65-70 (concluding that mandatory sentences for recidivist offenders under New York drug law "did not deter the commission of crime by repeat offenders"); Andenaes, *General Prevention—Illusion or Reality?* 43 J. CRIM. L., CRIMINOLOGY, AND POLICE SCI. 176, 191 (1952); Crowther, *Crimes, Penalties, and Legislatures*, 381 ANNALS 147, 150-51 (1969) (concluding that increased penalties for a wide variety of offenses had no deterrent effect); Loftin & McDowall, *supra* note 40, at 163 (finding no deterrent effect from Michigan mandatory sentence law for use of gun to commit felony and suggesting that "costs of reducing gun violence will be greater, perhaps much greater than we might have hoped"); Robertson, Rich & Ross, *Jail Sentences for Driving While Intoxicated in Chicago: A Judicial Policy that Failed*, 8 LAW & SOC'Y REV. 55 (1973) (concluding that implementing a mandatory jail sentence for drunk driving had no significant effect on drunk driving behavior); Shover & Bankston, *Some Behavioral Effects on New Legislation*, unpublished, University of Tennessee (summarized in Zimring, *Policy Experiments in General Deterrence: 1970-75*; published in NATIONAL RESEARCH COUNCIL, *supra* note 36, 183-84) (same conclusion with respect to state-wide change in drunk driving law); Schwartz, *The Effect in Philadelphia of Pennsylvania's Increased Penalties for Rape and Attempted Rape*, 59 J. CRIM. L., CRIMINOLOGY & POLICE SCI. 509 (1968) (concluding that

to assume that doubling the potential severity of the criminal threat would decrease the frequency of commission by half.

The reader should not be too surprised to find that human nature fails to operate with mathematical precision. One reason is that human reactions, emotions, and temptations are not mathematically quantifiable. An additional reason is that no criminal law threat is perfectly credible. Assume, for instance, a person is thinking of committing an armed robbery in 1980 in Tennessee. Before Class X can deter this individual, two different thought processes must occur. First, the individual must know about the change in the law. Humans cannot be deterred by threats they do not perceive. Second, the individual must also perceive some level of risk of being apprehended.[96] Otherwise, the potential robber would not care what penalty might be imposed.

The offense of speeding on the interstate can demonstrate the apprehension aspect of the credibility problem. If a typical driver were in a hurry and became convinced (by CB radio or radar detector) that no police were in the vicinity, would he be deterred by the prospect of a $500 fine? Probably not. Notice here that he might be misinformed; his radar detector might be malfunctioning, or his CB contacts might be mistaken or lying. But what matters more than the actual risk of apprehension is the perceived risk.[97] On the other hand, if the driver believed (mistakenly or not) that radar was in place over the next hill, would he speed even if the fine were only $1? Probably not, because being caught would still entail the embarrassment of arrest and the inconvenience of being temporarily detained (not to mention the potential effect on insurance rates and license revocation).

Thus, returning to the hypothetical potential robber, Class X is a meaningful deterrent only if he knows of its detailed provisions and perceives a sufficient risk of arrest to precipitate a rational calculus[98] that

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increasing penalties had no deterrent effect even when accompanied by extensive publicity); *cf.* Phillips, Ray & Votey, *Forecasting Highway Casualties: The British Road Safety Act and a Sense of Deja Vu*, 12 J. CRIM. JUST. 101, 111 (1984) (concluding that British Road Safety Act increased risk of conviction for drunk driving explained only 2.7% of variations in serious traffic accidents while miles driven and amounts of rainfall explained 48.8%); *id.* at 114 (concluding that "[o]ne must wonder about the social priority of concern about the drunken driver" and that "marginal productivity of public expenditure may well be much higher in trying to get the average driver to be more cautious in rainy weather"). *But see* Chambliss, *supra* note 22, at 74 (concluding from survey of traffic violators that "the change in the certainty and severity of punishment did in fact deter the more frequent violators, but it had no effect upon those who violated the rules [less frequently]"); *id.* at 75 (concluding that deterrence theory should focus on specific applications of punishment rather than attempting to prove, in abstract, whether punishment deters crime).

96 Most of the studies that have found a marginal deterrent effect from a change in the law can be explained by increased risk of apprehension rather than purely as a result of the increased penalty. *See, e.g.,* S. WALKER, *supra* note 1, at 83-84 (concluding that reduction in drunk driving in Great Britain following 1967 change in law resulted principally from perception of increased risk of apprehension); Chambliss, *supra* note 22 (concluding that reduction in parking offenses following increase in parking fines resulted principally from simultaneous change in the enforcement policy).

97 *See, e.g.,* Ross, *supra* note 75, at 67 (concluding that available evidence suggests it is "necessary and sufficient for deterrence that *subjective* perception of certainty" increase. (emphasis in original)). *See also* Carrington, *Deterrence, Death, and the Victims of Crime: A Common Sense Approach*, 35 VAND. L. REV. 587, 591 (1982) (discussing lack of deterrence if offender perceives low risk of being apprehended or of going to jail).

98 *See supra* note 61; H. PACKER, *supra* note 22, at 39-45.

weighs the risk of a swift trial, of a determinate sentence, of being incarcerated from the date of conviction, and of not being paroled until he had served 40% of his sentence. Because the Class X changes were complex, and because Class X did nothing to increase the risk of apprehension, we expected a small deterrent effect at best.

The principle of diminishing returns shrinks the deterrent effect even more.[99] If speeding is punishable by a $1000 fine, the legislature should not expect much additional deterrence by making it punishable by a $2000 fine. Anyone who is not deterred from speeding by the threat of a $1000 fine is obviously certain he will not be caught and, in all likelihood, would be willing to risk a $2000 fine. Since Tennessee already punished armed robbery quite severely prior to the Class X legislation (a minimum sentence of ten years and a maximum sentence of life),[100] the principle of diminishing returns suggests a minimal marginal deterrent effect. A potential robber who is willing to risk life imprisonment for armed robbery is hardly likely to be impressed (or deterred) by the prospect of being denied bail after conviction.

In sum, several factors suggest skepticism about the existence of Class X deterrence: the legislation did nothing to increase the probability of arrest; the changes in the judicial system were complex; some of the changes would affect the convicted person years in the future rather than immediately upon arrest or conviction; and the principle of diminishing returns would reduce any effect that might otherwise exist. Despite this theoretical skepticism, the authors sought to find evidence of Class X deterrence in order to accept the hypothesis that the law had a negative impact on the robbery rate.

The simplest way to look for LICR is to compare the crime rate before and after the legislative change. In the abstract, of course, this tells researchers nothing for reasons that can be illustrated with an example. Assume an observer from a very different world lands on earth just before a thunderstorm. With the first sound of thunder, a dog begins barking and continues barking until the storm passes. The observer repeats the observation many times and discerns that the dog always barks and the storm always subsides. Based only on this information, the observer could not rule out the possibility that the dog caused the storm to pass. (One assumes the dog also believes this to be true.)[101] When we look only at Tennessee's crime rate change after the enactment of Class X, we are in the same one-dimensional position as the observer from another world. We cannot determine whether one event has an impact on the other because we lack crucial information. The other-world observer needs to know whether the storm would pass if the dog did not

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99   *See* NATIONAL RESEARCH COUNCIL, *supra* note 36, at 72 n.76 (hypothesizing "that there are diminishing returns from deterrence as sanction levels increase"); Andenaes, *Deterrence and Specific Offenses*, 38 U. CHI. L. REV. 537, 553 (1971) (concluding with the following observation: "He who invests in increased severity must calculate with diminishing returns").

100   *See* Miller v. State, 584 S.W.2d 758 (Tenn. 1979) (stating that application of death penalty would be unconstitutional); TENN. CODE ANN. § 39-2-501 (1975) (stating maximum penalty of death by electrocution).

101   *See also* F. ZIMRING & G. HAWKINS, *supra* note 75, at 27-28 (retelling a story that raises a similar causation question).

bark, and we need to know what the robbery rate would have been if Class X did not exist.

If it is not possible to observe directly what we need to know, and it surely is not in the case of Class X, we must look for other information that will allow us to infer the crucial information. The other-world observer might learn about the physical causes of storms and the behavior of dogs and then conclude that the dog's barking was caused by the storm but had no effect on the storm passing. We can infer what the robbery rate would have been in Tennessee without Class X by observing robbery rates over the same time frame in states similar to Tennessee in all ways except for Class X.[102]

Rather obvious imperfections exist in this quasi-experiment method. To say that states are similar is not to say that they are identical.[103] Subtle differences may exist in the social structure, the economy, or the political arena that could cause variations in the crime rate from state to state. Indeed, the existence of a major change in the law in one state but not in similar states is an indication that social forces may be operating differently in the state that made the change.[104] Table A bears out this inference to some extent since Tennessee's robbery rate increased by roughly 50% between 1972 and 1978 while the national average went up only slightly.[105]

Thus, it is difficult to prove conclusions suggested by a control group comparison.[106] Since we cannot perform a true laboratory experiment to observe the crime rate both with and without Class X in the same

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[102] The control group was initially chosen by physical proximity to Tennessee. *See* Shover & Bankston, *supra* note 95 at 183-84 (utilizing same control group to test effect of change in Tennessee legislation); *see generally* F. ZIMRING & G. HAWKINS, *supra* note 75, at 257-66 (1973). We examined the criminal laws of the contiguous states and eliminated any state that enacted legislation to significantly increase the severity of sanction for armed robbery during the years 1973-85. This criterion eliminated Mississippi and Missouri. Missouri in 1978 enacted a law that required a separate conviction and sentence for use of a deadly weapon in committing a felony. *See* Mo. ANN. STAT. § 57.015 (Vernon 1979). We rejected Missouri as a control state because this law effectively increases the penalty for armed robbery. *See* Thomas, *Multiple Punishments for the Same Offense: The Analysis after Missouri v. Hunter*, 62 WASH. U.L.Q. 79 (1984). Mississippi adopted a severe restriction on parole eligibility for armed robbers in 1977. *See* MISS. CODE ANN. § 47-7-4(1)(d) (Supp. 1987). The similarity of the Mississippi parole restriction to the Class X minimum parole requirement, however, makes Mississippi useful for validating the results of the Tennessee experiment. *See infra* notes 130-34 and accompanying text.

We then examined other relevant criteria for the six remaining states: the urban-rural mix; the unemployment rates; and the percentage of black population. The significance of the first two criteria is obvious. The black population criteria is relevant because a number of researchers have concluded that the percentage of black teenagers in the population has an effect on the crime rate. *See, e.g.*, S. WALKER, *supra* note 1, at 216. These comparisons convinced us that the six remaining states are sufficiently similar to serve as a control group.

[103] *See* F. ZIMRING & G. HAWKINS, *supra* note 75, at 266 (concluding that if "differences in punishment policy are systematically related to other variables that influence rates of crime, it may not be possible to find areas that differ in this one respect that do not differ in what may be related respects").

[104] *See id.* at 276.

[105] The increases in some states were comparable to Tennessee's increase, thus making Table A only a partial confirmation that something different was happening in Tennessee than in the contiguous states. For example, Mississippi's rate increased by about 80 percent between 1972 and 1978 while the rate in Alabama and Arkansas increased by about 40 percent.

[106] *See* F. ZIMRING & G. HAWKINS, *supra* note 75, at 268-70 (citing danger of false inferences and need to find independent, confirming evidence).

state over the same time period, however, the control-group comparison is a useful place to begin the analysis. Table A summarizes the data.

Table A
Robbery — Annual Rate Per 100,000
Selected States 1972 - 1986

	72	73	74	75	76	77	78	79
Tennessee	101.1	130.5	157.2	166.8	147.5	145.8	152.4	166.1
Alabama	68.6	79.4	99.6	123.0	96.0	96.8	99.1	109.5
Arkansas	54.8	71.5	80.7	87.6	76.7	83.2	80.0	74.6
Georgia	134.3	158.1	176.5	166.5	142.4	140.5	166.3	213.7
Kentucky	83.2	85.1	92.3	103.2	98.7	81.1	81.3	92.1
Mississippi	39.9	46.8	48.0	54.6	64.1	65.7	70.2	70.7
N. Carolina	66.2	71.4	92.3	82.2	70.6	61.3	65.9	77.2
Virginia	109.4	101.0	127.4	138.5	108.2	92.1	97.1	111.6
US Average	180.0	182.6	209.3	218.2	195.8	187.1	191.3	212.1

	80	81	82	83	84	85	86
Tennessee	180.6	171.7	175.7	172.8	166.8	180.9	207.7
Alabama	132.1	126.5	112.0	98.4	96.1	105.4	111.6
Arkansas	80.9	77.4	78.8	69.3	67.6	68.5	79.7
Georgia	197.6	196.4	154.6	144.2	144.1	164.2	213.9
Kentucky	95.2	100.7	97.3	87.1	70.7	75.7	82.5
Mississippi	81.0	81.4	73.0	63.8	60.5	62.6	64.6
N. Carolina	82.3	80.8	85.9	79.6	74.8	78.2	87.7
Virginia	120.1	133.2	122.2	110.5	102.3	100.2	105.7
US Average	243.5	250.6	235.9	216.5	205.4	208.5	225.1

Source: FBI Uniform Crime Reports

III. Dogs and Thunderstorms: Testing the Hypothesis With
Comparative Data

Table B averages the data for robbery in Tennessee and the control states for a seven-year baseline period prior to enactment of Class X in 1979 and for a seven-year period after enactment. We excluded 1979 because the law was enacted in May of that year and was not effective until September 1,[107] thus potentially causing a confounding effect if included in either period. Seven year periods should reduce the effect of randomness and provide both a historic baseline and a follow-up period that reflect long-term trends.

Table B compares Tennessee's change in robbery rate, from its baseline period to its follow-up period, with each state in the control group and with the group average. The national average serves as a further control. Tennessee, the only state in the group to enact a tough new law directed at armed robbers, had by far the greatest increase in robberies.

Tennessee's increase was over 350% of the average increase for the control group taken as a whole and over 150% of the national increase. This table contains no evidence of an LICR from Class X. Half the con-

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107 *See* 1979 Tenn. Pub. Acts, ch. 318.

Table B
Change In Average Robbery Rates*

	1972-78 Average Rate	1980-86 Average Rate	Chg.	Pct. Chg.
Tennessee	143.0	179.4	36.4	25.5%
Control Group Average	99.7	106.9	7.2	7.2%
U.S. Average	194.9	226.5	31.6	16.2%
Individual Control States .				
Alabama	94.6	111.7	17.1	18.1%
Arkansas	76.4	74.6	−1.8	−2.3%
Georgia	154.9	173.6	18.7	12.1%
Kentucky	89.3	87.0	−2.3	−2.6%
N. Carolina	72.8	81.3	8.5	11.6%
Virginia	110.5	113.5	3.0	2.7%

* All rates per 100,000 population
Source: FBI Uniform Crime Reports

trol group states experienced either declines or increases less than 3% while Tennessee's rate increased 25.5%.

As a preliminary matter, we sought to establish whether Class X had displaced armed robberies to unarmed robberies, thus creating a type of deterrence that was lost in the FBI figures because they contain both categories of robberies. If Class X caused a significant displacement effect toward simple robbery it should show up in the post-1979 data set. It does not. For example, 62.5% of the persons admitted to prison for robbery in Tennessee during the 1985-86 fiscal year had committed armed robbery while the average for the South in 1985 was 61.9%.[108] That Tennessee robbers were choosing to commit armed robberies in the same proportion as robbers in comparable states indicates that Class X failed to channel potential armed robberies into unarmed robberies.

Rejecting a significant displacement effect lends credibility to the data in Table B. A statistical analysis of this data set shows that an increase as large as that observed in Tennessee would be observed less than 1% of the time if Tennessee were representative of the other states sampled. Thus, there is a statistically significant difference in the Tennessee rate change, and it is in the opposite direction from what conservative crime control philosophy predicts. Indeed, Table B is consistent with the hypothesis that Class X encouraged armed robberies. Because this conclusion is so strongly counter-intuitive[109] we must hypothesize other explanations for the increase in Tennessee robberies.

Obviously the cause might lie in some exogenous factor, a subtle and yet unperceived difference between Tennessee and the states used as controls that is causing a greater increase in Tennessee. One way to

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108 *Compare* TENNESSEE DEPARTMENT OF CORRECTION, FISCAL YEAR 1985-86 ANNUAL REPORT 36 (1987) *with* FBI, 1985 UNIFORM CRIME REPORTS 18 (1986).

109 *See* Andenaes, *General Prevention—Illusion or Reality?* 43 J. CRIM. L., CRIMINOLOGY & POLICE SCI. 176, 191 (1952) (concluding that "regardless of what we may think of the efficacy of harsh sentences in preventing crime, we certainly cannot think that they increase it").

check for this confounding influence is to compare changes in Tennessee robbery rates with rate changes of other serious felonies in Tennessee that are not Class X crimes. This test is performed in Part IV.

We also considered the effect of the inevitable inaccuracies contained in the FBI figures. These figures are based on police records of reported crimes, and their accuracy depends on two quite different (and potentially variable) factors. Someone must report the crime, and the police must accurately categorize the information given to them. Thus, the FBI figures are not the true crime rate itself but only a proxy for the crime rate. Usual (random) errors in reporting will cancel each other out in long time periods, and the FBI figures are a good proxy for the actual rate unless reporting practices changed in a systematic (nonrandom) way during the study. If reporting practices changed systematically during the study (either in the frequency with which citizens come forward, or the accuracy of the police categorization, or both) the FBI rate could show an increase in robberies during the follow-up period in Tennessee when there were in fact fewer robberies.

If the FBI rates for Tennessee in the two periods do not bear the same relationship to the true crime rate, then the comparison figures in the tables are meaningless. It is possible that Class X itself caused reporting practices to change in a systematic way beginning in 1979. The increased publicity surrounding Class X could have encouraged individuals to report more robberies and police to record a larger percentage of acquisitive crimes as robberies. In Norway, for example, a dramatic increase in the rate of sex offenses followed new legislation that increased sanctions for these offenses. Professor Andenaes explained this anomaly as follows: "The discussion and agitation that went with the revision [of sex offenses legislation] and the stricter view that the new provisions gave expression to, doubtless caused many sex offenses that would not have been reported before to be reported now—and perhaps the police now investigated such cases more energetically as well."[110] Professor Andenaes concluded that this example "show[s] how careful we must be in drawing conclusions from the ordinary crime statistics."[111]

The analogy to Class X robberies is not convincing. The increase in the rate of sex offenses in the Andenaes study was found "overwhelmingly in the types of cases that one would assume would often go unreported or unsolved—e.g., illicit relations with girls 14 to 16 years old."[112] Thus, legislative changes reflecting a new view of the seriousness of certain conduct may create an increased reporting effect that distorts the true crime rate and obscures any potential deterrent effect. But it is very difficult to conclude that Class X represented a new view of the seriousness of armed robbery, a crime which has been viewed for centuries as

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110   *Id.* (concluding that 68% increase in sex offenses, while other offense rates remained "fairly constant," cannot be explained as a result of the increase in sanctions). *See also* F. ZIMRING & G. HAWKINS, *supra* note 75, at 279.

111   *See* Andenaes, *supra* note 109, at 191.

112   *See id; see also* F. ZIMRING & G. HAWKINS, *supra* note 75, at 278.

extremely serious.[113] Prior to Class X, the Tennessee sentence structure for armed robbery was the most severe of any offense other than murder,[114] and it remained the same after Class X. The only new awareness manifested in Class X would appear to be a consensus that certain lenient judicial or administrative actions should be unavailable for a category of convicted persons.

Thus, no factor suggests a Class X incentive for citizens to report robberies more frequently or for police to record other acquisitive crimes as robbery.[115] Although a distortion in the FBI rate caused by Class X cannot be ruled out, it does not seem a realistic possibility. Therefore, the official robbery rate, while imperfect, is probably as valid a measure of the true robbery rate after Class X as it was before Class X.

Having rejected the likelihood of a confounding influence from displacement and distorted reporting, we looked for other influences by dividing the follow-up period into shorter time periods. One influence that might manifest itself in this analysis is a temporary deterrent effect caused by publicity surrounding the passage of Class X.[116] Thus, Table

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113   Common law robbery was punishable by death. 2 F. POLLOCK & F. MAITLAND, THE HISTORY OF ENGLISH LAW 511 (2d ed. 1968). Moreover, it was recognized as a crime even earlier than larceny. *See* MODEL PENAL CODE, Art. 206, app. A (Tent. Draft No. 1, 1953). *See also* Blumstein & Cohen, *supra* note 79, at 204 (noting that, even under theory that level of punishment remains constant over time, the punishment "thresholds for some serious crimes, say murder and robbery, can remain fairly constant").

114   *See* TENN. CODE ANN. § 39-2-501 (1975) (providing minimum term of ten years and maximum of death by electrocution).

115   Two additional factors bear out the conclusion that police would not "overreport" acquisitive crimes. First, although institutional pressure may exist to *charge* Class X crimes whenever possible in order to trigger the more onerous sanctions associated with Class X, the police decision on how to *report* crimes is not in any way connected with the charging decision. The FBI reports are separate from charging documents and, moreover, are based on standardized definitions that may not even correspond with local statutes. *See* FBI, 1985 UNIFORM CRIME REPORTS 1 (1986). Thus, no incentive exists to record a crime on the FBI reports as more serious than it actually appeared to be. Indeed, to the extent that the publicity associated with Class X influenced police reporting behavior, police might be tempted in precisely the opposite way—that is, to "underreport" the severity of what might appear to be Class X crimes in order to make the legislation appear successful. *See* Nagin, *supra* note 36, at 113 (concluding that "some [police] departments will manipulate [arrest] statistics" to make themselves appear more effective).

   Even assuming, for sake of argument, that police enthusiasm for Class X would consciously or unconsciously influence them to overreport acquisitive crime as Class X armed robbery, it would appear to have no likely impact on the FBI figures. The most logical pool of lesser crimes to be upgraded to Class X robbery status would be unarmed robbery. But the upgrading of simple robbery to armed robbery would not distort the FBI robbery figures because the official figures lump both types together. *See, e.g,* FBI, 1985 CRIME REPORTS 18 (1986). Thus, police overreporting would not create a confounding influence unless they began to report larcenies and burglaries as Class X armed robberies. This type of overreporting seems much less likely since it would require police to invent, in most cases, both a dangerous weapon and the presence of the victim. Larceny is distinguishable from robbery in that it does not require the presence of the victim or the use of force. *See* TENN. CODE ANN. § 39-3-1101 (1982) (defining larceny as "the felonious taking and carrying away the personal goods of another"). Burglary traditionally requires neither the presence of the victim nor a weapon. *See, e.g.,* TENN. CODE ANN. § 39-3-401 (1982) (defining burglary as the breaking and entering of a dwelling house with intent to commit a felony).

116   *See* Beha, *supra* note 45, at 322 (concluding, based on Bartley-Fox firearm law, that a "high degree of publicity about significant penalties can increase citizen compliance with the law"); Pierce & Bowers, *supra* note 67, at 126-8 (noting one-year decline in gun assaults, relative to control group, followed by slight increase and raising "question of whether the duration of the Bartley-Fox impact was short-termed, lasting perhaps less than a year").

C measures the robbery rate change in periods that increase by one year, again comparing Tennessee to the control group states.

Table C
Percentage Changes Between Baseline 1972-78
Robbery Rate and Selected Periods

	79	79-80	79-81	79-82	79-83	79-84	79-85	79-86
Tennessee	16.2	21.2	20.8	21.4	21.3	20.5	21.3	24.3
Control Group								
Average	11.8	15.8	17.0	14.9	11.6	8.5	7.1	7.6
U.S. Average	8.8	16.9	20.8	20.8	18.9	16.6	15.2	15.3
Individual Control States								
Alabama	15.6	27.6	29.6	26.7	18.2	18.7	17.6	17.7
Arkansas	−2.4	1.7	1.6	2.0	0.0	−2.1	−3.2	−2.4
Georgia	38.0	32.7	30.8	23.0	17.0	13.0	12.0	15.3
Kentucky	3.1	4.8	7.5	7.8	5.7	1.0	−1.0	−1.8
N. Carolina	6.0	9.5	10.0	12.1	11.4	10.0	9.6	10.4
Virginia	1.0	4.8	10.0	10.2	8.1	5.6	3.4	2.4

Source: FBI Uniform Crime Reports

The Tennessee rate is closer to the control group average in the early years of this table than in the later years, perhaps suggesting a temporary deterrent effect. To check further for a temporary deterrent effect and other confounding influences, Table D compares the fluctuation in rates (from the baseline period) on a year by year basis. With the proviso that year to year data sets are subject to larger sampling variations, and should be viewed with some suspicion, the Table does show a striking change in the rate differential beginning in 1982. Prior to 1982, Tennessee's year to year rate change was not all that different from the control group average.

Table D
Percentage Changes Between Baseline 1972-78
Robbery Rate and Year-by-Year Rates

	Percentage Change Year-by-Year Compared to Base Rate							
	79	80	81	82	83	84	85	86
Tennessee	16.2	26.3	20.1	22.9	20.8	16.6	26.5	45.2
Control Group								
Average	11.8	18.3	19.5	8.8	−1.5	−7.1	−0.1	13.9
U.S. Average	8.8	24.9	28.6	21.0	11.1	5.4	7.0	15.5
Individual Control States								
Alabama	15.7	39.6	33.7	18.4	4.0	1.6	11.4	17.8
Arkansas	−2.4	5.9	1.3	3.1	−9.3	−11.5	−10.3	4.3
Georgia	38.0	27.6	26.8	−0.2	−6.9	−7.0	6.0	38.1
Kentucky	3.1	6.6	12.8	9.0	−2.5	−20.8	−15.2	−7.6
N. Carolina	6.0	13.0	11.0	18.0	9.3	2.7	7.4	20.4
Virginia	1.0	8.7	20.5	10.6	0.0	−7.4	−9.3	−4.3

Source: FBI Uniform Crime Reports

Tables C and D allow conjecture that an initial deterrent effect existed but disappeared by 1982 when Tennessee led all the control states in percentage of increase. By 1983, four of the control states had decreases or no net change, the other two had single digit increases, and Tennessee had an increase of 20.8%. This trend continues in the 1984-86 data. Since many of the convicted robbers released in 1985-86 were sentenced under Class X,[117] the great disparity between Tennessee and the control group in these years suggests the lack of a special deterrent effect as well as a disappearing (and very weak) general deterrent effect.

Two specific confounding influences appeared in Tennessee in 1982. One was the disarray in the Tennessee prison system caused by serious overcrowding problems. This overcrowding led to a 1982 federal district court decision that Tennessee was in violation of the eighth amendment.[118] Although the state made sporadic efforts to reduce overcrowding, matters did not substantially improve and finally, in 1985, the federal courts began to forbid the admission of prisoners into the state system until certain numerical levels were reached.[119] Controversy surrounded the entire three year period. Most citizens of this former Confederate state viewed negatively the imposition of federal court authority over a traditional state function.[120] Perhaps this controversy and attend-

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117 Internal data from the Tennessee Department of Correction indicate that armed robbers released in 1985-86 had served an average sentence of five years, eight months. This means that many of the armed robbers released in these years had been sentenced under Class X, which was effective for crimes committed after September 1, 1979.
118 *See* Grubbs v. Bradley, 552 F. Supp. 1052 (M.D. Tenn. 1982).
119 *See* Grubbs v. Norris, Nos. 80-3404, 80-3518, 80-3616, 80-3617, slip op. at 1-2 (M.D. Tenn. 1985).
120 Resentment of federal control of Tennessee prisons explains the rather unusual actions of a Tennessee sheriff. At 6:30 a.m. on Nov. 13, 1985, Shelby County Sheriff Gene Barksdale delivered twelve prisoners to the state prison reception center, despite a federal court order forbidding the admission of any new prisoners. The Commercial-Appeal, Nov. 14, 1981, at A-1, col. 1. When the

ant publicity caused potential armed robbers to disbelieve the credibility of the Class X threat.[121]

The second confounding influence, almost surely the effect of the overcrowding problem, was action by the legislature to undermine part of the Class X threat. The Judge Sentencing Act of 1982, a superficially unrelated legislative enactment, had the effect of eliminating the Class X parole restrictions for persons who committed crimes after July 1, 1982.[122] Thus, external and internal forces vitiated to some extent the credibility of the threat of restrictions on parole eligibility. In order to compensate for the possibility that the threat lost its impact after 1982, the test period could begin in 1979 and end with 1982 (beginning in 1979 under the theory that the publicity itself would have a deterrent impact even before the law became effective on September 1, 1979). The 1979-82 column in Table C contains this data set.

Using this period as a measurement does give Tennessee a slightly better performance than Alabama and Georgia and only slightly worse than the national average (though still not as good as the other four control states or the control group average). However, it is difficult to draw definitive conclusions from this time period. Everything being equal, comparisons made over shorter periods are subject to more sampling

guards at the state prison refused to accept the prisoners, Barksdale "shackled them together and secured them to a fence" surrounding the prison. *Id.* After Barksdale left the prison, prison guards released the prisoners from the fence and guarded them for the rest of the day outside the prison. *Id.* at A-11, col. 1-5. Federal District Judge Thomas Higgins "warned that the convicts would be freed at 6:00 p.m. if they were not moved," and the prisoners were taken to a nearby county facility. *Id.* at A-11, col. 1. Judge Higgins called Barksdale's actions "extortion and blackmail." He amended his order forbidding new admissions to require the state to release any prisoners "dumped" at state prisons in the future, "even if it means cutting off the handcuffs and chains." *Id.* at A-1, col. 1 & A-11, col. 1.

A local newspaper reported a "positive" reaction to Barksdale's "handling of the prison situation." *Id.* at A-11, col. 1. State Representative Joe Kent said, "I think [Barksdale's actions] would be popular with the everyday person." *Id.* A member of the Memphis City Council, Minerva Johnican, said that Barksdale "took a gutsy stand" that the public would admire. *Id.*

121 *See* Peeples Letter, *supra* note 39, at 2 (stating that there were "numerous articles in every newspaper in the State concerning reduced sentence lengths" in the years after 1982 and that overcrowding "was usually listed as the reason"). *See also* Ross, *supra* note 75, at 67 (noting that "rumor or publicity can influence perception in the absence of objective changes" although publicity without objective change is eventually "subject to subversion by the test of experience").

122 *See* TENN. CODE ANN. § 40-35-112(b) (1986) (requiring that the parole release date for crimes occurring after July 1, 1982 be determined under the provisions of the Judge Sentencing Act rather than under Class X).

The legislature did not repeal the Class X provisions with respect to parole eligibility until three years after the effective date of the Judge Sentencing Act. *See* 1985 (1st E.S.) Tenn. Pub. Acts ch. 5, § 7. In the meantime, one who looked up Class X parole restrictions in § 40-28-301 would have found the old 40% rule and no cross-reference to § 40-35-112. Thus, unless one knew independently that the Judge Sentencing Act had repealed part of Class X, one would not know to look under chapter 35 to find the repeal provisions. Moreover, the existence of two contradictory provisions, requiring statutory construction to resolve the contradiction, meant that even a person who found both provisions might be in doubt as to which was valid. Because the 40% provision under the Class X section was more specific and began with "[n]otwithstanding *any* provision of the Tennessee Code Annotated to the contrary" (emphasis added), it would not be unreasonable to conclude that the Class X provision, not the Judge Sentencing Act, was the proper section to apply. *See* Peeples Letter, *supra* note 39, at 2 (stating that "no one in the media ever seemed able to grasp" that the Judge Sentencing Act had an effect on sentence length). But the existence of general public knowledge about overcrowded prisons and resulting shorter sentences, *see supra* notes 118-21 and accompanying text, was a potential confounding effect that existed independently of any public knowledge about the repeal of the parole restrictions.

fluctuations and are less likely to be informative. Moreover, the confounding influence of prison overcrowding and the relaxation of the parole restrictions is a virtually inevitable consequence of conservative crime control proposals that include increased severity of sentences. These proposals will enhance the likelihood of overcrowded prison conditions because the influence of conservative thinking has affected society's willingness to tax itself as well as the societal attitude toward crime and criminals. Thus, legislatures are likely to increase prison sentences and refuse to build new prisons at the same time. As this somewhat inconsistent mix of ideas is endemic to conservative philosophy in the present era, overcrowding and a subsequent reduction in the severity of sanctions to compensate for the overcrowding are predictable outcomes of a Class X-type proposal.[123] Thus, both of these confounding influences should be viewed not as undermining the validity of the evaluation but, rather, as a part of the experiment.

Most importantly, Tennessee's rate change for the 1979-82 period is still above the average for the region and the nation. Thus, even if one assumes that the federal court takeover of the prisons and the gutting of the parole restrictions substantially reduced the Class X threat, the only difference in the data is that Tennessee's rate change during the 1979-82 period was not statistically different from the control group (though it is still above the average). Evidence of marginal deterrence never appears under any organization of the data. Even in the years immediately after the Act was passed, Tennessee's rate increase (considered as a moving average in Table C) was never more favorable than the national average or more than two of the six control states.[124] Looking at the year to year changes from the baseline in Table D, the dismaying pattern is even clearer. Although the Tennessee rate is lower than the national average in one year (1981), it is the only state among the control states not to record at least two years with single digit increases. Four of the six states had at least two years in which the change was negative. The lowest rate change Tennessee experienced was a 16.2% increase in 1979.

Computing similar rate change comparisons using murder, aggravated assault, and rape confirms the lack of Class X marginal deterrence. Each of these offenses presents a less clear picture than robbery because the percentage of Class X offenses within the broader FBI crime definition is either smaller or less certain. The exercise is useful, however, because there is a Class X component in all of these categories,[125] and

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123 Although the average sentence for armed robbery in Tennessee did not increase as a result of Class X, see supra note 90 and accompanying text, the pressure to reduce the parole restriction would have been even greater (given the prison overcrowding problems) if the average sentence had increased.

124 Tennessee's rate increase always exceeds the group average in Table C and never comes closer than 3.8% to the average. Moreover, in the control group states, percentage increases in the periods before 1983 surpassed Tennessee's in only seven instances (Georgia in 1979, 1979-80, 1979-81, and 1979-82; Alabama in 1979-80, 1979-81, and 1979-82). The other seventeen comparisons showed Tennessee performing worse than the control group states. If 17 of 24 comparisons show Tennessee's rate higher than the control group, it is difficult to make a case for a deterrent effect, however temporary.

125 The Class X component of the corresponding FBI offense seems to be the smallest with aggravated assault. According to data from the Tennessee Department of Correction, assault with

the results show that there is nothing atypical about robbery. All of the other offenses showed greater increases (or smaller decreases) in Tennessee than in the control group.

Table E
Change in Average Aggravated Assault Rates*

	1972-78 Average Rate	1980-86 Average Rate	Chg.	Pct. Chg.
Tennessee	194.4	222.1	27.7	14.2
Control Group Average	219.2	239.1	19.9	9.1
U.S. Average	222.1	296.1	74.0	33.3
Individual Control States				
Alabama	247.5	312.4	65.0	26.3
Arkansas	200.8	222.8	22.0	11.0
Georgia	235.9	289.2	53.3	22.6
Kentucky	120.8	185.2	64.4	53.3
Mississippi	227.8	185.3	−42.5	−18.7
N. Carolina	329.3	322.2	−7.1	−2.2
Virginia	172.3	156.4	−15.9	−9.2

* All rates per 100,000 population
Source: FBI Uniform Crime Reports

Table F
Change in Average Murder Rates*

	1972-78 Average Rate	1980-86 Average Rate	Chg.	Pct. Chg.
Tennessee	11.4	9.5	−1.9	−16.7
Control Group Average	12.2	9.6	−2.6	−21.3
U.S. Average	9.2	8.8	−0.4	−4.3
Individual Control States				
Alabama	14.4	10.6	−3.8	−26.3
Arkansas	9.8	8.2	−1.6	−16.3
Georgia	15.4	11.9	−3.5	−22.7
Kentucky	10.0	8.1	−1.9	−19.0
Mississippi	14.0	12.0	−2.0	−14.3
N. Carolina	11.9	8.9	−3.0	−25.2
Virginia	9.6	7.6	−2.0	−20.8

* All rates per 100,000 population
Source: FBI Uniform Crime Reports

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intent to commit murder (only some of which are Class X offenses; *see supra* note 65) is a much less frequent offense than the more general offense of aggravated assault. *See infra* note 153, Table O. Aggravated rape, however, appears to be about as frequent as simple rape in Tennessee, *see id.*, thus meaning that the Class X component of FBI rape is roughly 50%. Using the same data set, Class X murder appears to bear approximately the same relationship to FBI homicide as Class X robbery bears to FBI robbery. Voluntary manslaughter (an FBI homicide offense that is not included in Class X) constituted approximately 1/3 of the class of voluntary manslaughter and murder. *See infra* note 153, Table O (noting 110 persons convicted of murder and 53 persons convicted of voluntary manslaughter).

Table G
Change in Average Rape Rates*

	1972-78 Average Rate	1980-86 Average Rate	Chg.	Pct. Chg.
Tennessee	26.3	39.4	13.1	49.8
Control Group Average	21.0	27.4	6.4	30.5
U.S. Average	26.5	35.7	9.2	34.7
Individual Control States				
Alabama	22.2	26.6	4.4	19.8
Arkansas	23.1	27.4	4.3	18.6
Georgia	27.6	41.3	13.7	49.6
Kentucky	17.5	21.3	3.8	21.7
Mississippi	18.0	25.8	7.8	43.3
N. Carolina	16.2	23.0	6.8	41.9
Virginia	22.6	26.4	3.8	16.8

* All rates per 100,000 population
Source: FBI Uniform Crime Reports

Although none of the data demonstrates a crime control impact, this conclusion does not rule out a deterrent effect. Despite our attempt to control other variables by comparing Tennessee to the national average and to the control states, it is possible that the Tennessee robbery rate increase would have been even greater without the Class X changes. In order to rule out this possibility, we need to avoid the contaminating influence of idiosyncratic forces within Tennessee. Part IV of this article does this in two ways. First, it compares various Tennessee crime rates, thus, in a manner of speaking, comparing Tennessee to itself. Then it uses multiple regression analysis to estimate the effect of Class X on the robbery rate.

IV.   Understanding Thunderstorms I: Avoiding Idiosyncratic Forces

The robbery figures give us no reason to reject the null hypothesis that Class X had no impact on the Tennessee robbery rate. Although we tried to control for other variables by comparing Tennessee to similar states, it is possible that something unique about Tennessee caused the rate of all serious crimes to escalate much more rapidly than in other, apparently similar, states. To check for this confounding effect, we looked at the burglary rates during the same time period used in the robbery comparisons.

Burglary is an appropriate comparison because it is the most serious of the FBI index crimes that is *not* a Class X crime in Tennessee.[126] In addition, burglary usually involves intent to commit theft.[127] Thus, burglary is similar to robbery in all respects save one: it is a preparatory

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126   Burglary of a residence is punishable by a maximum sentence of 15 years in Tennessee, see TENN. CODE ANN. §§ 39-3-401, -403 (1982), while armed robbery is punishable by 10 years to life.
127   Burglary requires proof of intent to commit a felony, TENN. CODE ANN. § 39-3-401 (1982), and this intended felony is usually theft, see R. PERKINS & R. BOYCE, CRIMINAL LAW 265 (3d. ed. 1982).

crime which (in the abstract) poses less risk of personal injury to its victims.

If Tennessee is simply a suddenly more fertile environment for acquisitive crime, then its burglary rate should show a dramatic increase similar to that for robbery. A similar increase in burglary and robbery rates would confirm the null hypothesis that Class X was merely an extraneous factor. If, on the other hand, the increase in the Tennessee burglary rate, when compared to the control states, was greater than Tennessee's robbery rate increase, it might suggest the presence of a Class X marginal deterrent effect for robbery that was masked by the unique crime-producing environment of Tennessee.

As Table H indicates, however, we found something more surprising than either of these two possibilities: Tennessee's burglary rate increase was less than the average for the control group and thus less than its robbery increase by a statistically significant amount.

Table H
Change in Average Burglary Rates*

	1972-78 Average Rate	1980-86 Average Rate	Chg.	Pct. Chg.
Tennessee	1204	1285	81	6.7
Control Group Average	1007	1129	122	12.1
U.S. Average	1369	1431	62	4.5
Individual Control States				
Alabama	1061	1215	154	14.5
Arkansas	940	1012	72	7.7
Georgia	1381	1450	69	5.0
Kentucky	830	927	97	11.7
Mississippi	750	1091	341	45.5
N. Carolina	1099	1252	153	13.9
Virginia	988	957	−31	−3.1

*All rates per 100,000 population
Source: FBI Uniform Crime Reports

This finding superficially indicates that Class X was criminogenic since the rate of increase for a Class X crime was significantly above the group norm at the same time that the rate of increase for a comparable non-Class X crime was below the norm. We repeated the experiment with larceny-theft (also not a Class X crime) and observed similar results, summarized in Table I:

Table I
Change in Average Larceny Rates*

	1972-78 Average Rate	1980-86 Average Rate	Chg.	Pct. Chg.
Tennessee	1709	2134	425	24.9
Control Group Average	1715	2317	602	35.1
U.S. Average	2532	2990	458	18.1
Individual Control States				
Alabama	1566	2443	877	56.0
Arkansas	1730	2166	436	25.2
Georgia	1976	2838	862	43.6
Kentucky	1520	1838	318	20.9
Mississippi	1092	1802	710	65.0
N. Carolina	1767	2461	694	39.3
Virginia	2352	2673	321	13.6

* All rates per 100,000 population
Source: FBI Uniform Crime Reports

Tables H and I suggest a displacement effect among acquisitive crimes. Assuming a relatively constant level of acquisitive crime, something in Tennessee during 1980-86 seems to have displaced some less serious crimes to robberies.[128] This displacement effect is further evidence that Class X had no impact and is consistent with the hypothesis that Class X encouraged more robberies.

To check the hypothesis that Class X is positively related to the robbery rate in Tennessee from 1980-86, we developed three multiple regression models with the Class X effect as the "dummy variable" in a linear equation in which the Tennessee robbery rate is the dependent variable. The purpose of these models is to estimate the importance of the dummy variable in the linear equation. The other variables in the equation are summarized in Table J.

All three models attributed an overwhelmingly significant net increase to the Class X dummy variable. In each case, the T-statistic measure of statistical significance indicates that the probability of chance fluctuations producing a result this extreme is less than .001 (actually nearer to 1 in 1 million). Again, it appears that Class X was criminogenic.

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128 The smaller increase in burglary and larceny in Tennessee than in the control group states suggests that some of the Tennessee burglary/larceny offenses are showing up in the robbery figures. Since larcenies and burglaries occur at a rate roughly ten times that of robberies, a very small change in reporting practices for acquisitive crimes could significantly distort the robbery rate in an upward direction. For the reasons stated in the text accompanying *supra* notes 113-15, however, this seems an unlikely occurrence. Moreover, another explanation is more plausible. Tables B, E, F, and G, *see supra*, demonstrate a greater increase in the Tennessee rates for robbery, aggravated assault, murder, and rape. Tables H and I indicate a smaller increase for larceny and burglary. It is possible that some societal condition in Tennessee is accelerating the rate of violent crimes and reducing the rate of similar nonviolent crimes.

Table J
Robbery Rate in Ala., Ark., Ga., Ky., N.C., Tenn., and Va. as a
Function of Year Effect, State Effect, and/or Burglary Rate
(With Allowance for Fixed Increase or Decrease in Tenn.
During the Class X Period)

Model	R^2	Est. Incr. in Rate (pct.)	$T_{inc.}$ $p_{obs.}$
Burglary, Class X	61%	54.4 (39.1%)	5.63 < .001
Yr., State, Class X	92%	33.1 (23.8%)	4.82 < .001
Burg., Yr., St., Cl. X	94%	33.5 (24.1%)	5.66 < .001

EXPLANATION OF TABLE J. The first model attempts to describe the variation in Robbery Rate for each state and year by the Burglary Rate, with an allowance for an additional fixed increase (or decrease) in Tennessee during the Class X period. The second model attempts to describe the variation in Robbery Rate as an additive function of Year and State effects, also with an allowance for a fixed increase (decrease) in Tennessee during the Class X period. The third model is a combination of the first two models. The R^2 statistic is a measure of the percentage of the variation observed in the Tennessee rates which may be described by the fitted model (a measure of fit). The estimated increase in crime rate (for each type of crime, in occurrences per hundred thousand) denotes the average *net* increase from the period 1972-78 to 1980-86 as estimated from the model, and the corresponding percentage increase is this number divided by the average observed crime rate for the earlier period. The student t-statistic $T_{increase}$ is a measure of the importance of including the Class X period variable in the model, with large positive and negative values indicating that the variable seems important, and values near zero suggesting that the variable might be superfluous. The observed significance level p_{obs} is the probability of observing an estimated increase this large or larger in the absence of a unique deterministic factor in Tennessee.

To test this hypothesis further, we fitted a multiple regression model that attempted to relate the variation in the Tennessee rate for several crimes to a composite regional and national rate and to a Class X dummy variable. The purpose of this analysis was to see whether the Class X variable caused any net increase or decrease in addition to regional and national trends. This particular analysis told us that there was a Class X effect that increased the robbery rate, but it was far from statistical significance. (Indeed, in 72% of cases chance fluctuation would produce a result that large or larger.)

Table K
Regression of Tennessee Rates for Various Crimes as a Function of
Corresponding Rates in Ala., Ark., Ga., Ky., N.C., Va., and U.S. ave.
(With Allowance for Fixed Increase or Decrease
During the Class X Period)

Crime	R^2	Est. Increase in Rate (pct.)		$T_{inc.}$	$p_{obs.}$
Ag. Assault	70%	1.0	(0.5%)	0.01	1.00
Burglary	95%	−45.0	(−3.7%)	−0.81	.66
Larceny	98%	213.0	(12.5%)	1.79	.14
Murder	75%	−1.9	(−16.7%)	−0.80	.66
Rape	98%	−0.46	(−1.7%)	−0.11	.92
Robbery	89%	23.0	(16.1%)	0.37	.72

The R^2 for each model denotes the percentage of variation in Robbery Rate which may be described by the model for the data set in question. The estimated increase in Rate is given (in occurrences per hundred thousand in the population) along with the estimated percentage increase (with respect to the average robbery rate in Tennessee during 1972-78).

Since none of these values is low enough to be considered 'rare' (e.g., below the 5% level), it may be stated that, in a statistical sense, the observed crime rates do not demonstate anything unusual in Tennessee (as compared to the other states) during the period 1980-86 for any of the types of crimes analyzed.

At first blush, this conclusion might appear inconsistent with our earlier conclusion from Table B that there was a significant difference between the change in Tennessee robbery rate and the change in the rate for the control groups.[129] The difference is in the sensitivity of the mathematical models. The Table B model averages the control group rates, thus obscuring the presence of one or two states with rate changes similar to Tennessee's. Alabama had a somewhat similar rate change in Table B (and, to a lesser extent, so did Georgia and North Carolina). The control group average is made much smaller than Tennessee's in Table B by the very dissimilar experiences in Arkansas, Kentucky, and Virginia.

On the other hand, the multiple regression model compares the Tennessee change with each of the control group states, essentially enhancing the similar comparisons and discounting the highly dissimilar comparisons. In this way, the multiple regression model is more sensitive than merely averaging the rates in the control group states. This more sensitive analysis indicates that chance fluctuation might be responsible for the difference between Tennessee's robbery rate change and that of the control group states.

Because intuition tells us that Class X probably did not cause an increase in the robbery rate, the second multiple regression analysis may be the most meaningful analysis. Nonetheless, all analyses agree on one point: Class X had no negative impact on the robbery rate in Tennessee. It was, from a crime control standpoint, an apparently meaningless exercise.

The next attempt at confirmation is to look at the robbery experience in another state that adopted restrictions on parole eligibility.

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129 *See supra*, Table B.

V.   Understanding Thunderstorms II: The Mississippi Experience

Mississippi is contiguous to Tennessee and similar in many ways (though substantially more rural). We excluded Mississippi from the robbery control group because the Mississippi legislature enacted a limitation on parole for robbers that was similar to Tennessee's Class X parole restrictions.[130] Under the Mississippi parole rules, after January 1, 1977 a person convicted of robbery with a firearm cannot be paroled if sentenced to a term of ten years or less. If sentenced to a term of more than ten years, parole is possible only after serving ten years.[131]

The masking or displacement problem is somewhat greater here than in analyzing the Tennessee data. The Tennessee Class X law applies to any robbery with a dangerous weapon (not just to robberies with firearms). The 1985 FBI data set indicates that robberies with a firearm constituted only about 42% of all robberies in the South.[132] Therefore, it is more likely that a corresponding increase in the other categories of robberies could mask a significant deterrent effect on robberies with firearms.

Because the Mississippi data is merely a potential confirmation of the Tennessee hypothesis, this somewhat greater chance of a false result is acceptable. Table L shows that Mississippi's parole restrictions were spectacularly unsuccessful in reducing the rate of robberies, which increased at a 36.9% rate from the 1972-76 base period. No other state came close; Tennessee had the second greatest increase at 22.4%. Alabama had the greatest increase of any of the states that did not enact parole restrictions—16.5%—less than half the Mississippi increase. Two of the control states had rate decreases, and two other states had increases of less than 3%. The control group average increase was only 3.6%, or one-tenth the Mississippi increase.

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130   *See* Miss. Code Ann. § 47-7-3(1)(d) (Supp. 1987).
131   *See id.*
132   *See* FBI, 1985 Uniform Crime Reports 18 (1986).

Table L
Percentage Changes Between 1972-76
·Baseline Robbery Rate* and 1977-86 Average Rate

	1972-76 Average Rate	1977-86 Average Rate	Chg.	Pct. Chg.
Mississippi	50.7	69.4	18.7	36.9
Tennessee	140.6	172.1	31.5	22.4
Control Group Average	101.5	105.2	3.7	3.6
United States Average	197.2	217.6	20.4	10.3
Individual Control States				
Alabama	93.3	108.7	15.4	16.5
Arkansas	74.3	76.0	1.7	2.3
Georgia	155.6	173.6	18.0	11.6
Kentucky	92.5	86.4	−6.1	−6.6
N. Carolina	76.5	77.4	0.9	1.2
Virginia	116.9	109.5	−7.4	−6.3

* All rates per 100,000 population
Source: FBI Uniform Crime Reports

Referring back, Table A does contain a hint of a crime control effect in Mississippi. After reaching a peak in 1980, the robbery rate has declined significantly. An incapacitative effect may be making itself felt although the subsequent declines could be explained equally well as a mathematical regression to the mean.[133] In any event, Table M demonstrates the lack of a general deterrent effect by comparing the five years before and after the new law went into effect with the experiences in the control states. While three of the states recorded negative changes from their baseline rates and the control group average showed a 6.6% increase, Mississippi's rate increased by 45.6%.

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133 Regression to the mean simply indicates that a historic mean is the best predictor of future events. If large short-term deviations from the mean occur, as in the Mississippi robbery rate from 1972-78, a movement back toward the historic long-term rate can be expected as a mathematical effect. *See* NATIONAL RESEARCH COUNCIL, *supra* note 36, at 57. This is also the reason why a baseball player who has a .280 lifetime average but hits .340 one year will likely hit closer to .280 than .340 the next season. *See* B. JAMES, 1987 BASEBALL ABSTRACT 132 (referring to this as the "plexiglass principle").

Table M
Percentage Changes Between 1972-76
Baseline Robbery Rate* and Average 1977-81 Rate

	72-76	77-81	Chg.	Pct. Chg.
Mississippi	50.7	73.8	23.1	45.6
Tennessee	140.6	163.3	22.7	16.1
Control Group Average	101.5	108.2	6.7	6.6
U.S. Average	197.2	216.9	19.7	10.0
Individual Control States				
Alabama	93.3	112.8	19.5	20.9
Arkansas	74.3	79.2	4.9	6.6
Georgia	155.6	182.9	27.3	17.5
Kentucky	92.5	90.1	−2.4	−2.6
N. Carolina	76.5	73.5	−3.0	−3.9
Virginia	116.9	110.8	−6.1	−5.2

* All rates per 100,000 population
Source: FBI Uniform Crime Reports

Although Mississippi did not adopt comprehensive crime control changes in the judicial system as Tennessee did with Class X, the Mississippi experience with severe parole restrictions tends to confirm the view that elaborate, complex changes in criminal law will not create a marginal deterrent effect. Therefore, any impact will depend on an increased incapacitation effect and, perhaps, increased special deterrence.[134]

VI. Understanding Thunderstorms III: Evaluation and Meaning for Other Jurisdictions

The implications of this study for other jurisdictions are significant. We began with the null hypothesis that "fine tuning" the justice system would have no impact on the crime rate in Tennessee. The data indicate that we cannot reject the null hypothesis and thus must accept a failure to find any impact on crime rates. Because Tennessee's justice system is not unique, similar attempts to "fine tune" the judicial system or the parole process in other jurisdictions should produce no impact.

It is unclear why Tennessee recorded dramatically greater increases in robbery rates than similar states like Arkansas, North Carolina, Virginia, and Kentucky, but other research suggests that any effort to increase the crime control effect of an existing serious felony has two powerful factors operating against it. At a basic theoretical level, it is difficult to increase the deterrent and incapacitative effects of a law that already provides a severe penalty.[135] To have any chance of success, the change in the sanctions must be significant, simple to grasp, and effectively communicated. At a practical level, the criminal justice system has

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134 For a discussion of whether imprisonment can create special deterrence, *see supra* note 93 and accompanying text.
135 *See* Loftin & McDowall, *supra* note 40, at 157 (noting that mandatory sentence firearm law had little impact on serious offenses because the "going rate" for such offenses prior to new law was "substantial").

its own law of equilibrium that seeks to nullify any change in its day-to-day operation.[136] The actors in the judicial system have enormous discretion in disposing of cases and a very strong incentive to do so in a wholesale fashion when the system becomes overburdened.[137] Parole boards and legislatures react to overcrowded prisons (sometimes with encouragement from federal courts) by reducing prison sentences.[138]

If these practical factors operate as powerfully as we believe they do, it is possible to change the judicial machinery only if very powerful counterforces are implemented. Thus, a decision to delay parole eligibility must be accompanied by concrete provisions that will ameliorate the added pressure on the correctional facilities. Similarly, it is possible to reduce plea bargaining or require speedy trials, but the legislation must leave no loopholes and must provide an incentive to follow its mandate (or, more accurately, a disincentive for disobedience). For example, the federal speedy trial act requires dismissal of the indictment (with prejudice, in the judge's discretion) if the deadlines are not met.[139]

The Tennessee Class X experiment did not satisfy any of the conditions that create a favorable climate for increasing the crime control effect (except, arguably, effective communication of the change). Armed robbery was already severely punished, and the changes in the judicial machinery were neither significant nor simple to grasp. In all likelihood, the failure at the theoretical level is sufficient by itself to explain the lack of a crime control effect. To make matters worse, the Class X changes were not mandated in a way that avoided their nullification. Plea bargaining was not eliminated, merely restricted (judges could give their consent to a plea bargain).[140] The speedy trial provision explicitly states that violation carries no penalty[141] and that defendants may waive its requirements.[142]

Thus, the Tennessee system adjusted to nullify Class X in a number of ways. Anecdotal evidence suggests that district attorneys plea bargain Class X cases at about the same frequency as other types of cases[143] and

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136   See id. at 163 (noting "ability of the [criminal justice] organization to moderate and soften the force" of the mandatory sentence gun law).

137   See NATIONAL RESEARCH COUNCIL, supra note 36, at 38-39.

138   See id. at 39.

139   See 18 U.S.C. §§ 3161 & 3162 (1982 & Supp. III 1985).

140   See TENN. CODE ANN. § 8-7-103 (1980). Anecdotal evidence indicates that the required judicial "consent" to a reduction from a Class X charge to a non Class X charge is merely the judge's acceptance of the guilty plea. Telephone conversation with Clayburn Peeples, Tennessee District Attorney General (February 2, 1988). Thus, affirmative consent is not forthcoming even though the legislation seems to imply that it should be necessary. If this is generally true throughout Tennessee, it represents an absolute nullification of the legislative requirement because the net effect of the Class X plea bargaining restriction would be that judges accept plea bargains in precisely the same manner as they did prior to Class X.

141   See TENN. CODE ANN. § 40-18-103(e) (1982) (providing that failure to comply "shall not act to require release of a defendant from custody or a dismissal or withdrawal of charges").

142   See id. at (a) (creating exception when "delay is occasioned by the defendant").

143   Peeples Letter, supra note 39 (concluding that, in his district, "we plea bargain Class X offenses just like all other cases"). It is problematic whether a limitation on plea bargaining has any potential for crime control effect. See Loftin & McDowall, supra note 40, at 152 (noting pledge of prosecutor not to plea bargain mandatory sentence firearm law to lower charge) and id. at 157 (noting that mandatory sentence firearm law had little impact on serious offenses).

that defendants routinely waive the speedy trial provision.[144] The legislature rescinded the parole restrictions after three years[145] and, even before then, the average prison sentence for armed robbery declined following the enactment of Class X.[146] In these significant, practical ways, the Class X legislation was a meaningless exercise in legislative hyperbole.

Given prior research in this area,[147] the lack of an impact from "fine-tuning" changes in Tennessee criminal law hardly qualifies as a surprise. However, the very existence of Class X and the high expectations held for it in 1979 indicates that this retrospective view was not universally held at the law's inception. The present study should give pause to future legislatures that are tempted to claim that they can reduce crime by making cosmetic changes in the judicial machinery.[148]

VII. Conclusion

Many have concluded that the liberal economic solution to the crime problem failed to blunt the social forces causing a crime rate explosion in the 1960's. The present study suggests that strengthening the judicial and parole systems pursuant to conservative theory failed to stem the tide of violent crime increases in Tennessee in the 1970's and 1980's. By any statistical measure or definition of success, the problem is worse now than it was in 1978-79 when candidate Alexander campaigned against violent crime and the legislature passed the Class X Felonies Act.

What, then, is the answer to the problem of escalating crime rates? One answer might be that society has yet to apply the full measure of either the liberal or conservative theories as described in this article. For instance, liberal theory is consistent with radically restructuring society to provide full and meaningful employment for everyone. Similarly, rather than merely tinker with the justice machinery to make it work more efficiently after arrest, the legislature could seek to increase the number of criminals arrested and thus the probability of imprisonment.[149]

Restructuring society is, obviously, a massive undertaking that is unlikely to occur as a response to the problem of high crime rates. To sub-

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144 Peeples letter, *supra* note 39, at 1.
145 *See supra* note 122 and accompanying text.
146 *See supra* note 90 and accompanying text.
147 *See supra* note 95.
148 *See* JOINT COMMITTEE, *supra* note 56, at 25 (noting the "key lesson to be drawn from the experience with the [more severe drug law] is that passing a new law is not enough . . . . [T]he efficiency, morale and capacity of the criminal justice system is even more of a factor in determining whether the law is effectively implemented.").
149 Preliminary research using only a few data sets has generally found a negative and significant association between crime rates and "two measures of probability of imprisonment (the ratio of prison commitments to reported crimes or prison commitments to persons charged)." *See* Nagin, *supra* note 36, at 110. *See also* P. SCHMIDT & A. WITTE, AN ECONOMIC ANALYSIS OF CRIME AND JUSTICE 214 (1984) (summarizing three previous studies as consistent with authors' own conclusion that "the deterrent effect of high probabilities of apprehension and punishment are much greater than that supporting the deterrent effect of longer prison sentences"); Ehrlich, *Fear of Deterrence*, 6 J. LEGAL STUD. 293, 309 (1977) (finding greatest negative correlation in death penalty research with risk of apprehension and least with conditional risk of execution).

stantially increase the number of criminals apprehended poses less of a problem, although preliminary studies suggest that it may be much more difficult and expensive than many assume.[150] Future research should concentrate in this area, and future legislative crime control proposals should include increased apprehension as a primary goal. It is worth noting, however, that unless the public becomes willing to spend massive amounts of money to build new prisons, increasing apprehension will necessarily require shorter sentences.[151]

It may be, of course, that there is no solution acceptable to a free society. Clayburn Peeples, a Tennessee District Attorney who assisted this project, made the following assessment of crime control in the United States: "Perhaps we should give up. Nothing works. Nothing has ever worked in a free society like ours."[152] If this assessment is correct, the self-interest of the crime control establishment (and society in general) is best served by denying its validity. Whether this assessment is correct or not, the present study indicates that tinkering with the judicial machinery is no solution to increasing crime rates.[153]

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150   See S. WALKER, supra note 1, at 102-114 (summarizing several studies and disproving the common belief that adding more police or improving the quality of police detective work will significantly impact the crime rate); Zeisel, supra note 84, at 531 (dismissing, as having only "superficial appeal," the possibility of "increasing the arrest rate from its average of twelve percent"); id. at 532 (finding "conclusion is inescapable that short of an expansion in the police by a magnitude that is politically and financially unrealistic, the number of arrests—the foundation of the law enforcement process—cannot be increased significantly").

151   See, e.g., Von Hirsch, Constructing Guidelines for Sentencing: The Critical Choices for the Minnesota Guidelines Commission, 5 HAMLINE L. REV. 164, 177 (1984) (concluding that increases in prison population without comparable increases in capacity will inevitably result in shorter sentences).

152   Peeples Letter, supra note 39.

153   In concluding that there is no discernible Class X LICR, we find ourselves faced with another question: why is Tennessee's armed robbery rate increasing so rapidly? What is it about Tennessee (and Mississippi and, to a lesser degree, Alabama) that is causing a robbery rate explosion when other, quite similar states (Virginia, Kentucky, and Arkansas) are enjoying relatively stable rates. And why is it that in Tennessee, at least, only the Class X crimes appear to be increasing significantly above the control group average?

These questions are outside the scope of the current article. We intend to analyze further the data that we have collected to attempt to isolate the causes of the robbery increase. We invite other interested researchers to do the same, and we offer to share the raw data we have collected with anyone who requests it. The following tables contain useful raw data:

Table N
Average Time Served for Class X Offenders Released 1979-86
(Sentence in Years and Months)

Offense	79-80	80-81	81-82	82-83	83-84	84-85	85-86
Murder 1	7/8	7/10	13/12	11/8	11/3	11/4	14/7
Murder 2	5/4	6/11	5/11	5/6	4/8	5/0	5/11
Agg. Rape	3/2	3/6	2/6	2/6*	1/10	2/3	4/11
Agg. Sex. Battery	5/7	—	1/11+	4/1+	1/11	1/7	2/7
Armed Robbery	6/12	5/6	5/11	5/2	5/9	5/7	5/9

Note: Offenses averaging fewer than 5 releases per year were omitted from the table. The various drug offenses were omitted because they are reported separately by type of drug and none of the subcategories averaged 5 per year.

*   Only 2 offenders
+   Only 1 offender

Source: Private Communication, Tennessee Department of Correction.

Table O
Number of Criminal Offenders Admitted to Tennessee Prisons
1985-86 By Offense: Listed in Order of Frequency

1	BURGLARY 3	252
2	BURGLARY 2	239
3	ARMED ROBBERY*	217
4	RECEIVING STOLEN PROPERTY (OVER $100)	180
5	GRAND LARCENY (OVER $100)	173
6	AGGRAVATED ASSAULT+	172
7	ATTEMPT TO COMMIT FELONY BURGLARY	143
8	SIMPLE ROBBERY	130
9	MURDER 2+	110
10	PETIT LARCENY (UNDER $100)	98
10	STOLEN PROPERTY RECEIVED (UNDER $100)	98
12	AGGRAVATED RAPE*	96
13	FORGERY-CHECKS	86
14	BURGLARY 1	84
15	RAPE	80
16	BURGLARY, AUTO	75
17	AGGRAVATED SEXUAL BATTERY	72
18	VOLUNTARY MANSLAUGHTER	53
19	ASSAULT WITH INTENT TO COMMIT MURDER+	48
19	MARIJUANA POSSESSION-SCHEDULE 6+	48

Total = 2,454

*   Class X offense
+   includes, as subcategory, a Class X Offense
Source: TENNESSEE DEPARTMENT OF CORRECTION, FISCAL YEAR 1985-86 ANNUAL REPORT 36
(1987).