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SENTENCING AND SOCIAL SCIENCE: RESEARCH FOR THE FORMULATION OF FEDERAL SENTENCING GUIDELINES

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INTRODUCTION

One distinctive characteristic of public policy in recent years is that it incorporates considerably more social science evidence than in earlier times. Whereas Presidents once formulated economic policy based on advice from Wall Street, they now are more inclined to turn to Harvard or the Brookings Institution. Similarly, national commissions that have addressed policy issues in virtually every major sphere of public concern have begun to draw heavily on scholarly research findings.

Social science evidence is also being used more extensively in the courts. Beginning with Louis Brandeis' use of empirical evidence before the Supreme Court to demonstrate that the ten-hour workday is detrimental to the health and economic well-being of the community,¹ persuasive social science evidence has been presented to the courts on topics as disparate as school desegregation²

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† Views stated in this Article are those of the authors and do not necessarily represent the views of their respective organizations.

1. *Muller v. Oregon*, 208 U.S. 412 (1908). The positive impact this evidence had on the outcome of Brandeis' case led to a wave of similar uses of data in cases brought to improve the working conditions of laborers. *See, e.g., Hammer v. Dagenhart*, 247 U.S. 251 (1918); *Bunting v. Oregon*, 243 U.S. 426 (1917); *Bosley v. McLaughlin*, 236 U.S. 385 (1915); *Miller v. Wilson*, 236 U.S. 373 (1915).

2. *See Brown v. Board of Educ.*, 347 U.S. 483 (1954), a celebrated case in which social science evidence shaped public policy. Based largely on Kenneth Clark's inferences about the effects of bigotry and segregation on the self-image of black children, the Supreme Court struck down a rigid tradition of school segregation. While the specific methods of carrying out the Court's ruling have been challenged, the importance of Clark's research, and later that of James Coleman, to the shaping of major national policy of desegregation is beyond question. *See J. COLEMAN, EQUALITY OF EDUCATION OPPORTUNITY* (1966).

and the six-person jury.³ While empirical evidence used in support of particular judicial decisions at times has failed to withstand subsequent scholarly scrutiny,⁴ its use has unquestionably been expanding.⁵ According to one observer, this trend should continue: "[E]ven though the use of social research in the courts has intensified, particularly in the past decade, sociolegal cooperation is nowhere near the realization of its full potential."⁶

Sentencing is one prominent area of the law in which scientific evidence has been specifically called for. Judge Marvin Frankel has observed: "We have in our country virtually no legislative declarations of the principles justifying criminal sanctions."⁷ Judge Frankel

3. See *Williams v. Florida*, 399 U.S. 78 (1970). The Supreme Court relied on research findings that indicated trial outcomes are not negatively affected by a reduction in jury size from 12 to 6 members. See also Zeisel & Diamond, "Convincing Empirical Evidence" on the Six Member Jury, 41 U. CHI. L. REV. 281 (1974). The authors point out that most federal district courts have, since *Williams*, reduced their civil jury requirements from 12 to 6. *Id.* at 293.

4. Two prominent examples are *People v. Collins*, 68 Cal. 2d 319, 438 P.2d 33, 66 Cal. Rptr. 497 (1968), and *Gregg v. Georgia*, 428 U.S. 153 (1976). In *People v. Collins*, a jury was "[u]ndoubtedly . . . unduly impressed," 68 Cal. 2d at 327, 438 P.2d at 41, 66 Cal. Rptr. at 505, by the testimony of a mathematics professor that the prosecutor claimed demonstrated that the chance the codefendants were not the true offenders was one in 12 million. *Id.* at 323, 438 P.2d at 37, 66 Cal. Rptr. at 501. After hearing more rigorous scientific evidence, the California Supreme Court reversed the conviction and ordered a new trial.

In *Gregg v. Georgia*, the Solicitor General of the United States submitted an amicus curiae brief to the Supreme Court citing statistical evidence that "when capital punishment was *actually used* a significant number of lives were saved: . . . approximately eight murders for each execution actually carried out." Brief for the United States as Amicus Curiae at 38, *Gregg v. Georgia*, 428 U.S. 153 (1976) (emphasis in original) (citation and footnote omitted). Although the Court ruled in favor of the Government, it was not persuaded by the statistics: "[T]here is no convincing empirical evidence either supporting or refuting this view [that the death penalty deters]." 428 U.S. at 185. Subsequently, Professor Hans Zeisel assembled evidence refuting that presented by the Solicitor General in *Gregg*, describing a mass of recent studies that found no deterrent effect from the death penalty. Zeisel concluded that the evidence against the deterrent effect is "quite sufficient; . . . the request for more proof is but the expression of an unwillingness to abandon an ancient prejudice." Zeisel, *The Deterrent Effect of the Death Penalty: Facts v. Faiths*, 1976 SUP. CT. REV. 317, 318.

5. See D. HOROWITZ, *THE COURTS AND SOCIAL POLICY* (1977); Collins, *The Use of Social Research in the Courts*, in KNOWLEDGE AND POLICY 145, 147 (L. Lynn ed. 1978); Geis, *The Social Sciences and the Law*, 1 WASHBURN L.J. 569 (1962); Greenberg, *Social Scientists Take the Stand: A Review and Appraisal of Their Testimony in Litigation*, 54 MICH. L. REV. 953 (1956).

6. Collins, *supra* note 5, at 147.

7. M. FRANKEL, *CRIMINAL SENTENCES* 106 (1973). Judge Frankel has been a leading proponent of sentencing guidelines as a means of structuring judicial discre-

proposed that lawmakers enact "an effective program of research" to provide a basis for federal laws and rules pertaining to sentences, corrections, and parole.⁸

Judge Frankel's proposal did not fall on deaf ears. In January 1978, the Senate passed S. 1437,⁹ the Criminal Code Reform Act of 1978.¹⁰ If enacted, the bill would limit indeterminacy in federal sentencing and establish a guidelines system aimed to reduce sentence disparity. A United States Sentencing Commission would be created to promulgate guidelines,¹¹ establishing sentence ranges¹² within which federal courts would impose criminal sanctions.¹³ The drafters of S. 1437 were acutely aware of the central role of research in developing and maintaining an "effective, humane, and rational sentencing policy."¹⁴ The Commission is required to "establish sentencing policies and practices for the federal criminal justice system that . . . reflect, to the extent practicable, advancement in knowledge of human behavior as it relates to the criminal justice process."¹⁵ In furtherance of this goal, the Commission is

tion in the United States. See also Tyler, *Sentencing Guidelines: Control of Discretion in Federal Sentencing*, 7 HOFSTRA L. REV. 11 (1978). A work by Professor D.A. Thomas of Cambridge University provides an earlier basis for structuring sentencing discretion. While Thomas' work grows out of the English sentencing appeals court setting, the principles are applicable to the guidelines setting as well. See D.A. THOMAS, *PRINCIPLES OF SENTENCING* (1970).

8. M. FRANKEL, *supra* note 7, at 119.

9. 124 CONG. REC. S860 (daily ed. Jan 30, 1978). Although the bill technically died when the 1978 Senate session ended, the Criminal Code Reform Act will be reintroduced in the 96th Congress.

10. S. 1437, 95th Cong., 2d Sess. (1978). This Article deals with §§ 101 and 124 of the bill. *Id.* § 101, 124. Section 101 of the bill, if enacted, will amend Title 18 of the United States Code regarding, *inter alia*, sentencing guidelines. All subsequent textual and footnote references to § 101 of the bill are to the proposed section numbers in Title 18 of the United States Code, and are hereinafter cited as Proposed 18 U.S.C. Section 124 of the bill, if enacted, will amend Title 28 of the United States Code to establish a Sentencing Commission. All subsequent textual and footnote references to § 124 of the bill are to the proposed section numbers in Title 28 of the United States Code, and are hereinafter cited as Proposed 28 U.S.C.

11. Proposed 28 U.S.C., *supra* note 10, § 994(a)(1).

12. *Id.* § 994(b).

13. Proposed 18 U.S.C., *supra* note 10, § 2003(a)(2). S. 1437 directs courts to impose a sentence within the guideline range unless it finds "an aggravating or mitigating circumstance . . . that was not adequately taken into consideration by the Sentencing Commission in formulating the guidelines and that should result in a difference." *Id.*

14. Proposed 28 U.S.C., *supra* note 10, § 995(a)(20).

15. *Id.* § 991(b)(1), (b)(1)(C). The need for a sentencing commission has been identified by numerous experts in the field, including Judge Harold Tyler. See generally Tyler, *supra* note 7. See also Coffee, *Repressed Issues of Sentencing: Account-*

empowered to create an ongoing research and development component to assist the entire federal system in attaining "sound sentencing practices."¹⁶ The bill further requires systematic collection of relevant data,¹⁷ including "data obtained from studies, research, and the empirical experience of public and private agencies concerning the sentencing process."¹⁸

The Senate's proposal for sentencing reform has not yet been endorsed by the House of Representatives.¹⁹ Whether or not Congress eventually adopts the specific measures of S. 1437, one point seems clear: The development of rational sentencing policies—whether formulated by legislature, sentencing commission, or individual judge—can only be enhanced by systematic assessment of sentencing goals and empirical analysis of data relevant to these goals.

In support of these general propositions and in anticipation of eventual legislation requiring research on sentencing policies, the Federal Justice Research Program of the Department of Justice has contracted with the Institute for Law and Social Research to conduct research for use in formulating federal sentencing guidelines.²⁰ The remainder of this Article describes this research program and its scientific precedents: The first section reviews relevant prior research on sentencing; the next section sets forth the basic elements of the research design for the project; and finally, a mechanism for translating research into specific sentences for particular offenses is described.

ability, Predictability, and Equality in the Era of the Sentencing Commission, 66 GEO. L.J. 975, 1047, 1056 (1978).

16. Proposed 28 U.S.C., *supra* note 10, § 995(a)(12)(B).

17. S. 1437 empowers the Commission to "collect systematically and disseminate information concerning sentences actually imposed, and the relationship of such sentences to the factors set forth in [the Act]" to be considered in imposing a sentence. *Id.* § 995(a)(15). In addition, data are to be collected "regarding effectiveness of [the] sentences imposed." *Id.* § 995(a)(16).

18. *Id.* § 995(a)(13).

19. See Tyler, *supra* note 7, at 25-27.

20. Discussions in this Article regarding the research to be conducted grew out of the Institute's technical proposal for the contract. See Institute for Law and Social Research, Study for Formulation of Sentencing Guidelines for Federal Offenses (May 11, 1978). In the absence of a legislative mandate to develop sentencing guidelines, research on sentencing may well be ignored; however, judges and decisionmakers throughout the criminal justice system will find the data useful in any voluntary efforts to reform sentencing practices.

PREVIOUS RESEARCH ON SENTENCING

As a topic for research, sentencing is both interesting and treacherous. It is interesting because it represents the culmination of the judicial process, the juncture at which society learns what sanction shall actually be selected to correspond to a particular criminal situation; hence it is a reference point around which most criminal justice research issues logically revolve. It is treacherous because it is interwoven with the most difficult of moral and ethical questions, which typically are not conducive to scientific assessment.²¹ Moreover, because data on sentencing have not been of the high quality that scientists are typically accustomed to analyzing, sentencing practices have been difficult to scrutinize. Consequently, one can find considerably more scientific attention devoted to white mice and rhesus monkeys than to sentencing. Nonetheless, a fairly substantial body of literature describing empirical research on sentencing is now emerging.

Evenhandedness

An awareness of the fundamental importance of evenhandedness as a goal of sentencing²² has resulted in an important body of literature on this topic.²³ While support for this goal appears to conflict with a second objective, maintaining individualized judicial discretion, proponents of judicial discretion do not argue against evenhandedness per se.

However, available evidence suggests that such a conflict exists. Because no two cases are identical, it cannot be proved scientifically that sentences actually imposed contain unwarranted variation. Some lack of evenhandedness is, nonetheless, inferable from available data. Systematic differences in sentencing patterns between judges have been found in studies by Diamond and Zeisel,²⁴

21. For ethical objections to general deterrence as a goal of sentencing, see, e.g., note 48 *infra*.

22. See Proposed 28 U.S.C., *supra* note 10, § 994(f) (The Commission in promulgating guidelines "shall promote the purposes set forth in [the Act], with particular attention to the requirements . . . for providing certainty and fairness in sentencing and reducing unwarranted sentencing disparities").

23. See, e.g., FRANKEL, *supra* note 7; Tyler, *supra* note 7.

24. Diamond & Zeisel, *Sentencing Councils: A Study of Sentence Disparity and its Reduction*, 43 U. CHI. L. REV. 109 (1975).

Dungworth,²⁵ Partridge and Eldridge,²⁶ Gaudet,²⁷ Hogarth,²⁸ Remington and Newman,²⁹ Zumwalt,³⁰ and others. Evidence of a more anecdotal nature is further suggestive of such differences.³¹ Of course, the conduct of judges is not the sole factor responsible for sentencing disparity. Other participants in the process, including prosecutors, defense counsel, and probation officials,³² contribute to the differences in sentencing results.

Offender Behavior: Recidivism

A substantially larger body of empirical research on sentencing has been compiled on effects of alternative criminal sanctions on offender recidivism. Under the theory of *special deterrence*, an offender is discouraged from committing a subsequent crime after experiencing the hardship of punishment; thus, recidivism declines. Under the theory of *rehabilitation*, an offender receives correctional treatment that provides educational opportunities, specific occupational skills, moral uplift, or other stimulants for improving behavior; thus, recidivism declines.

Unfortunately, neither theory has received convincing empirical validation. Study after study reveals that little or no reduction in recidivism occurs, regardless of the correctional strategies imple-

25. T. Dungworth, *An Empirical Assessment of Sentencing Practices in the Superior Court of the District of Columbia* (July 7, 1978) (forthcoming in 1979).

26. A. Partridge & W. Eldridge, *Second Circuit Sentencing Study: A Report to the Judges of the Second Circuit*, reprinted in *Reform of the Federal Criminal Laws, Hearings on S. 1 and S. 1400 Before the Subcomm. on Criminal Laws and Procedures of the Senate Comm. on the Judiciary*, 94th Cong., 1st Sess. 8101 (1974).

27. Gaudet, *The Sentencing Behavior of the Judge*, in *ENCYCLOPEDIA OF CRIMINOLOGY* 449 (V. Brandon & S. Katash eds. 1949); Gaudet, *Individual Differences in the Sentencing of Judges*, 32 *ARCHIVES OF PSYCH.* 1 (1938).

28. J. HOGARTH, *SENTENCING AS A HUMAN PROCESS* (1971). The general line of inquiry used by Hogarth was developed earlier by Herbert A. Simon. Simon argued that the human decisionmaking process is limited by the costs of obtaining relevant information, by the failure to set sufficiently explicit objectives, and by computational barriers. H. SIMON, *ADMINISTRATIVE BEHAVIOR* (2d ed. 1957).

29. Remington & Newman, *The Highland Park Institute on Sentence Disparity*, *FED. PROBATION*, Mar. 1962, at 3.

30. Zumwalt, *The Anarchy of Sentencing in the Federal Courts*, 57 *JUD.* 96 (1973).

31. See, e.g., J. BENNETT, *I CHOSE PRISON 177-78* (1970); H.J. GRISWOLD, *AN EYE FOR AN EYE* 78-83 (1970).

32. Robert Carter and Leslie Wilkins have found that probation officials vary in the manner in which they prepare presentence investigation reports, and that these differences contribute to unwarranted variation in sentences. Carter & Wilkins, *Some Factors in Sentencing Policy*, 58 *J. CRIM. L.C. & P.S.* 503, 510-13 (1967).

mented, when "treatment" is applied to a general population of offenders. Walter Bailey, reviewing 100 empirical studies that evaluate correctional treatments, concluded:

[I]t seems quite clear that, on the basis of this sample of outcome reports with all of its limitations, evidence supporting the efficacy of correctional treatment is slight, inconsistent, and of questionable reliability.

. . . [A]lthough the operational means and resources of correctional outcome research have substantially improved, there has been no apparent progress in the actual demonstration of the validity of various types of correctional treatment . . .³³

More recently, Robert Martinson reviewed scores of studies on rehabilitation and, like Bailey, found no empirical support for the theory of rehabilitation.³⁴ It appears, then, that if any effective and morally acceptable method of treating offenders has been devised, it has not yet clearly revealed itself.³⁵

These findings are especially relevant to understanding the historical roots of sentencing guidelines. The guidelines approach has grown largely out of a heightened sense of dissatisfaction with the indeterminate sentencing system and its apparent failure to realize the goal of rehabilitation. According to Judge Frankel, "[J]ustifying an indeterminate sentence in any particular case . . . would consist of identified needs and resources for effective rehabilitation."³⁶ As belief in rehabilitation as a realistic goal of imprison-

33. Bailey, *Correctional Outcome: An Evaluation of 100 Reports*, 57 J. CRIM. L.C. & P.S. 153, 157 (1966). Bailey evaluated 22 studies that used experimental designs, 26 that he classed as "systematic," and 52 that were less rigorously designed. *Id.* at 153.

34. R. MARTINSON, D. LIPTON & J. WILKS, *THE EFFECTIVENESS OF CORRECTIONAL TREATMENT* (1975). Soon afterward, Fishman evaluated 18 rehabilitation and diversion projects, concluding: "The quantity, quality, types, and mix of services provided by projects to their clients—as well as their staff-client ratios, proportions of paraprofessional staff, per capita funding, and other project characteristics—had no apparent effect on the projects' ability to influence the arrest recidivism of their clients." Fishman, *An Evaluation of Eighteen Projects Providing Rehabilitation and Diversion Services*, in 3 CRIME AND JUSTICE 45, 66 (2d ed. L. Radzinowicz & M. Wolfgang 1977).

35. Judge Tyler has similarly concluded: "[G]iven our present state of knowledge we must cease pretending that rehabilitation is a primary goal of punishment, particularly imprisonment." Tyler, *supra* note 7, at 18.

36. M. FRANKEL, *supra* note 7, at 98. A student commentator has added that even if we knew how to make rehabilitation work, "the present state of the social sciences is not sufficiently advanced to permit precise decisions as to the best time

ment has declined, so has support for the indeterminate sentence. According to one prominent spokesman, "The era of the indeterminate sentence . . . is quickly drawing to a close."³⁷

Offender Behavior: Deterrence

Another theoretically important basis for imposing criminal sanctions is *general deterrence*, or simply "deterrence." That the government actually may impose a particular sanction on a person who is caught violating a particular law is widely understood to discourage others from committing that offense.³⁸ Thus deterrence is based on the fundamental proposition that human behavior is influenced by incentives. In determining sentencing policy, the central empirical question relevant to deterrence is this: To what extent does a particular sanction (such as one year of incarceration) compared to an alternative sanction (such as probation) dissuade people from violating a particular law?

Social scientists were unable to address this question seriously until the 1950's, when both criminal justice data and computational capabilities began to improve rapidly.³⁹ By the mid-1970's it had become possible to review scores of major empirical studies on deterrence.⁴⁰

The principal method that has been used in the empirical research on deterrence is to measure the statistical association be-

to release an incarcerated offender in order to promote rehabilitation." Project, *Parole Release Decisionmaking and the Sentencing Process*, 84 YALE L.J. 810, 848 (1975) (footnote omitted).

37. Dershowitz, *Criminal Sentencing in the United States: An Historical and Conceptual Overview*, ANNALS, Jan. 1976, at 117, 130. Jessica Mitford's language is much sharper: "The untrammelled discretion now invested in the authorities via indeterminate sentences should be eliminated." J. MITFORD, *KIND AND USUAL PUNISHMENT* 294 (1973).

38. The conspicuously public nature of punishment in imperial Rome and medieval Europe suggests a very early belief in the theory of deterrence. This theory was formally articulated in the 18th century by Cesare Beccaria and Jeremy Bentham. C. BECCARIA, *DEI DELETTI E DELLE PENE* (1764); J. BENTHAM, *AN INTRODUCTION TO THE PRINCIPLES OF MORALS AND LEGISLATION* (Hafner pub. 1948).

39. Studies of the deterrent effect of capital punishment by Thorsten Sellin and Karl Schuessler were among the first studies on deterrence to be distinctly empirical in nature. T. SELLIN, *THE DEATH PENALTY* (1959); Schuessler, *The Deterrent Influence of the Death Penalty*, ANNALS, Nov. 1952, at 54.

40. See generally Nagin, *General Deterrence: A Review of the Empirical Evidence*, in NATIONAL RESEARCH COUNCIL PANEL ON RESEARCH ON DETERRENT AND INCAPACITATIVE EFFECTS, *DETERRENCE AND INCAPACITATION* 95 (A. Blumstein, J. Cohen & D. Nagin eds. 1978) [hereinafter cited as *DETERRENCE AND INCAPACITATION*]; Tullock, *Does Punishment Deter Crime?*, PUB. INTEREST, Summer 1974, at 103.

tween crime rates and sanction levels, based on observed fluctuations in both. Under deterrence theory, as the sanction becomes more severe the crime rate will decline, assuming all other factors remain constant. In fact, the vast majority of studies documented within the past fifteen years report findings that support deterrence theory. These studies find both the certainty and severity of sanction levels to be negatively correlated with the crime rate based on data that fluctuate both from jurisdiction to jurisdiction⁴¹ and over successive time periods.⁴² These correlations have been interpreted as supporting the recommendation that sanctions be made more certain and more severe.⁴³

Of course, these estimates have limitations. First, the studies do not really isolate general deterrence effects from those of recidivism and incapacitation; rather, the estimates have combined these individual effects in a single correlation measure. Thus, while general deterrence may be the predominant factor underlying the findings reported in these studies, it is misleading to refer to these findings as estimates of the "deterrence" effect.⁴⁴

More importantly, a negative correlation between crime rates

41. Studies of the variation in particular factors across geographical units are commonly referred to as "cross-sectional" studies. For examples in the study of deterrence, see Ehrlich, *Participation in Illegitimate Activities: A Theoretical and Empirical Investigation*, 81 J. POL. ECON. 521 (1973); Forst, *Participation in Illegitimate Activities: Further Empirical Findings*, 2 POL'Y ANALYSIS 477 (1976); Wilson & Boland, *Crime*, in THE URBAN PREDICAMENT 179 (W. Gorham & N. Glazer eds. 1976).

42. The study of variation in factors over successive time periods is commonly referred to as "time series" analysis. For examples in the study of deterrence, see Ehrlich, *The Deterrent Effect of Capital Punishment: A Question of Life and Death*, 65 AMER. ECON. REV. 397 (1975); Klein, Forst & Filatov, *The Deterrent Effect of Capital Punishment: An Assessment of the Estimates*, in DETERRENCE AND INCAPACITATION, *supra* note 40, at 336; Phillips & Votey, *An Economic Analysis of the Deterrent Effect of Law Enforcement on Criminal Activity*, 63 J. CRIM. L.C. & P.S. 330, 336-42 (1972).

43. For example, the editors of the *Wall Street Journal*, citing Tullock's work, *supra* note 40, state that such studies "certainly suggest that society could profitably concentrate on convicting and imprisoning criminals at a much higher rate." *Wall St. J.*, Sept. 17, 1974, at 22, col. 1. A more celebrated example is the introduction by the Solicitor General of the United States of a study by Isaac Ehrlich as evidence supporting the use of the death penalty. Brief for the United States as Amicus Curiae at 34 n.13, 38 app., at 9a, 16a, *Gregg v. Georgia*, 428 U.S. 153 (1976).

44. See generally Nagin, *supra* note 40, at 129-35. In theory, one could estimate the general deterrent effect by estimating the total effect of a sanction on a particular crime rate and subtracting the incapacitation and special deterrent (or rehabilitation) effects. However, existing estimates of the total effects, and of the incapacitation and special deterrence effects, do not appear sufficiently reliable to justify confidence in estimates of general deterrence produced by such a construction.

and sanction levels does not necessarily imply that more certain or more severe punishment leads to less crime. It may equally imply that large increases in the crime rate weaken the ability of law enforcement institutions to apply sanctions, so that as crime expands, the probability of capture and conviction declines,⁴⁵ and the average term of incarceration grows shorter.⁴⁶ This correlation may also be the result of errors in the measurement of crime.⁴⁷ In short, we may really know very little more about the deterrent effect of punishment than we did prior to the rapid advancements that were made in measuring statistical associations in criminal justice data.⁴⁸

Offender Behavior: Incapacitation

Even if deterrence and rehabilitation had no empirical support, crime control objectives might be realized by incarcerating certain offenders to prevent them from inflicting additional harm

45. For example, an increase in the crime rate will probably draw on the existing resources of the police, prosecutor, and court, thereby reducing the likelihood that a given offense will result in arrest, prosecution, and conviction. To the extent that this is true, a negative correlation between crime rates and sanction levels will result that does not reflect the deterrent effect of the certainty of punishment.

46. An increase in the number of offenses can be expected to increase the number of incarcerations (although not the incarceration rate, *see* note 45 *supra*). To the degree that prison capacity is constant, an increase in the number of incarcerations will correspond to a decline in the average term of incarceration. Thus an increase in crime will tend to cause a decline in the term of incarceration, so that the two will be negatively correlated, but not because of the deterrent effect of the severity of punishment.

47. In determining the crime rate, the number of reported crimes is divided by the population size of a geographical area; the probability that an offense will result in punishment is computed by dividing the number of those punished by the number of reported crimes. Therefore, the numerator of the crime rate is identical to the denominator of the probability of punishment. To the extent that offenses are underreported more in some places (or at some times) than in others, the crime rate will be artificially lower and the probability of punishment artificially higher. Thus, variation in crime reporting rates will produce an artificial negative correlation between the crime rate and the certainty of punishment. Klein, Forst & Filatov, *supra* note 42, at 347-49.

48. This conclusion is consistent with that of the National Research Council Panel on Research on Deterrent and Incapacitative Effects: "The major challenge for future research is to estimate the magnitude of the effects of different sanctions on various crime types, an issue on which none of the evidence available thus far provides very useful guidance." *Report of the Panel*, in DETERRENCE AND INCAPACITATION, *supra* note 40, at 1, 7.

Perhaps a more fundamental objection to deterrence as a basis for sentencing policy is the ethical argument that no offender should be punished to deter *other* potential offenders. *See generally* H.L.A. HART, PUNISHMENT AND RESPONSIBILITY (1967); H. PACKER, THE LIMITS OF THE CRIMINAL SANCTION (1968); J. RAWLS, A THEORY OF JUSTICE (1971).

on society during the period of their imprisonment. The theory of incapacitation suggests that offenders who are most criminally active should receive the more serious sanctions. For many categories of offense or offender, the effect of incapacitation on crime may, indeed, be greater than that of deterrence.⁴⁹

The relevance of the incapacitation issue to sentencing policy revolves around the following empirical question: How much crime do we prevent a particular class of convicted offenders (classified by crime category, age, criminal record, and so on)⁵⁰ from committing by incarceration for one year? Two years? Five years? To address this question, it is necessary to determine what and how many crimes are committed by each class of offender while *not* incarcerated. Such estimates are possible, but difficult. One estimation procedure, referred to as "self-reporting," consists of interviews with offenders to obtain candid responses about the number and nature of crimes they have committed.⁵¹ Another method of estimating incapacitative effects involves use of aggregated data: Estimates of the number of offenses per unit of time (such as a year) are divided by estimates of the number of offenders not incarcerated during that time to calculate the ratio of the number of offenses per offender "on the street" per unit of time.⁵² A further approach uses rearrest or reconviction data to estimate *known* recidivism rates for each class of offender; these estimates are then adjusted based on self-report statistics and estimates derived from aggregated data.

49. Interest in this potentially important area has been more recent than in rehabilitation or deterrence. A widely cited study that developed much of the basis for subsequent models of the incapacitation effect is Avi-Itzhak & Shinnar, *Quantitative Models in Crime Control*, 1 J. CRIM. JUST. 185 (1973). For an in-depth review of literature on incapacitation, see Cohen, *The Incapacitative Effect of Imprisonment: A Critical Review of the Literature*, in DETERRENCE AND INCAPACITATION, *supra* note 40, at 187.

50. P. Greenwood, J. Chaiken, J. Petersilia & M. Peterson, *The Rand Habitual Offender Project: A Summary of Research Findings to Date 5-9* (Mar. 1978) (unpublished paper on file in office of the *Hofstra Law Review*).

51. The Rand Corporation appears to have made important breakthroughs in obtaining such responses. See J. PETERSILIA, P. GREENWOOD & M. LAVIN, *CRIMINAL CAREERS OF HABITUAL FELONS* (1977) [hereinafter cited as *CRIMINAL CAREERS*]; H. STAMBUL, M. PETERSON & S. POLICH, *DOING CRIME: A SURVEY OF CALIFORNIA PRISON INMATES* (1977).

52. This basic approach has been used by Clarke and by Greenberg, although not by crime category and without precisely accurate adjustments for time on the "street" for convicted offenders. See Clarke, *Getting 'Em Out of Circulation: Does Incarceration of Juvenile Offenders Reduce Crime?* 65 J. CRIM. L. & CRIMINOLOGY 528 (1974); Greenberg, *The Incapacitative Effect of Imprisonment: Some Estimates*, 9 LAW & SOC'Y REV. 541 (1975).

Each of these methods has its shortcomings. Offenders may only rarely give candid responses in interviews; even when they are candid, memories may falter. Data on the total number of reported offenses are likely to understate seriously the true extent of crime, especially for offenses in which individual victims are not readily identifiable⁵³ (e.g., smuggling, narcotics, and illegal immigration). Estimates of the number of offenders will be biased downward in those categories in which offenders are more likely not to be caught or even discovered. Moreover, it is unclear how one should define the offender population; incapacitation estimates based on a definition restricted to the most "hardcore" offenders will be higher than if based on a less restrictive definition. This myriad of technical barriers has caused estimates of the incapacitative effects of incarceration to vary widely.⁵⁴

Other problems associated with the incapacitation logic remain even in the absence of these technical difficulties. For example, increasing prison time for some classes of offenders to achieve incapacitative benefits may produce unanticipated increases in recidivism.⁵⁵ In addition, incapacitation theory fails to account for crimes committed while in prison.⁵⁶

The logic of incapacitation also can be easily misapplied in practice. For example, authorities may impose unnecessarily severe sanctions against older offenders who are relatively inactive, but who, because they are older, have longer criminal histories than younger, more criminally active offenders.⁵⁷ Furthermore, incarcerating one convicted offender for a longer period because he or she is in a "class" of relatively active offenders may be unconstitutional.

53. Since crimes are usually reported by victims, crimes in which victims are not readily identifiable or are not aware a crime has been committed will be reported at lower rates than crimes with identifiable victims aware of specific crimes.

54. Barbara Boland has reported that researchers have estimated that violent offenders with prior convictions commit less than two violent crimes per year. Boland, *Incapacitation of the Dangerous Offender: The Arithmetic Is Not So Simple*, 15 J. RESEARCH CRIME & DELINQUENCY 126, 127 (1978). On the other hand, Petersilia found that a sample of 49 more serious habitual offenders had reported committing over 10,500 serious crimes (214 per offender), including 2,331 burglaries, 855 robberies, and 993 grand larcenies. CRIMINAL CAREERS, *supra* note 51, at 18.

55. Specifically, prisons may serve as "schools of crime." See Wilson & Boland, *supra* note 41, at 212.

56. This problem is also a technical difficulty that biases downward estimates of incapacitation effects.

57. See Boland & Wilson, *Age, Crime, and Punishment*, PUB. INTEREST, Spring 1978, at 22.

The individual offender may well be an exception to the empirically documented patterns of the particular category of which he or she is a member.⁵⁸

Against this backdrop of divergent estimates and ethical difficulties, it must be noted that this area of empirical research is yet in its infancy. While ethical problems are likely to remain, estimates of incapacitation effects should improve substantially over the coming years.

Improvements in these estimates, as well as those pertaining to deterrence, rehabilitation, and other issues of obvious relevance to sentencing, can only enhance their utility to the process of setting sentencing policy.

A RESEARCH DESIGN FOR SENTENCING REFORM

Social science can continue to play a useful role in formulating and implementing sentencing policies and practices. First, it can indicate the extent to which certain sentencing goals are achievable, at least within the limits of scientific measurement. Conflicts in attaining various goals concurrently also can be pinpointed and examined. Goals can then be reassessed and realistically modified or abandoned.⁵⁹ The results of empirical research on rehabilitation and the recent shift away from the indeterminate sentence is an excellent example of this phenomenon.

Second, research can be undertaken to help construct a workable framework for translating sentencing goals and research results into actual criminal sentences.⁶⁰ It is also appropriate to design procedures to transmit this information in a usable form to judges, correctional officials, and others responsible for implementing sentencing policies.

While designed to meet the requirements of a particular contract, the research project described below represents a specific at-

58. See A. VON HIRSCH, *DOING JUSTICE* 87-88 (1977). See also note 48 *supra*. Errors in classifying offenders as dangerous have been documented. See Monahan, *The Prediction of Violent Criminal Behavior: A Methodological Critique and Prospectus*, in *DETERRENCE AND INCAPACITATION*, *supra* note 40, at 244, 250.

59. In conjunction with this, once goals are enunciated, research can calculate the effects of different practices and sanctions on achieving these goals. Under S. 1437, for example, the Sentencing Commission must "develop means of measuring the degree to which the sentencing, penal, and correctional practices are effective in meeting the purposes of sentencing as set forth in [the Act]." Proposed 28 U.S.C., *supra* note 10, § 991(b)(2).

60. See text accompanying notes 73-104 *infra*.

tempt to support reform of sentencing policy. The primary purpose of the project is to provide information necessary to formulate sentencing policy in general and guidelines in particular, with a minimum of disruption to the institutions that must implement and live with these policies. The project is presently attempting to achieve this purpose by organizing recent federal data and surveying selected populations.

The study plan consists of three major components, the first of which analyzes sentence severity. To construct sentencing guidelines, there must be information regarding the actual sentences presently imposed and the time actually served under these sentences. In fact, unless the Commission determines that such sentences are inconsistent with the goals set forth in the bill, S. 1437 requires that the guidelines reflect the results of such research.⁶¹ Thus, our research will consist of an examination of a large number of recent individual sentencing decisions, focusing on selected crime categories (such as embezzlement, income tax fraud, mail fraud, forgery, bank robbery, and narcotics). Presentence investigation reports provide the major source of relevant information. These are analyzed to identify those factors that systematically determine the harshness of the sentence handed down. Because the sentence allotted and the amount of time actually served can differ substantially, a case-by-case examination of these differences will be undertaken. Based on this information, guidelines can be formulated for the selected crime categories that serve as prototypes for all federal offenses.

This research will also identify those factors that account for variations in federal sentencing and parole patterns. Estimates of the amount of reduction in variation associated with alternative guidelines approaches can be made; undesirable and unwarranted sentence disparities can be reduced.

The second major facet of the project consists of analyzing the effects of sentencing decisions on crime control and individual behavior, done largely to support construction of sentencing guidelines based on utilitarian logic.⁶² One essential element of this research effort is to examine offender recidivism. Whereas the federal data are being organized around a large number of individual *sentencing decisions*, to analyze the determinants of sentence severity, the data relating to this phase of the project are to be or-

61. Proposed 28 U.S.C., *supra* note 10, § 994(l).

62. See Figure 2, p. 374 *infra*.

ganized around a large number of individual convicted *defendants*. Characteristics of the offender and his or her criminal history, together with characteristics of the offense, will be analyzed to estimate statistically the factors that are related to recidivism. This will provide a basis for formulating guidelines that account for reduction in the criminal behavior of individuals both during and after the imposition of sentence.⁶³

This phase also focuses on the possibility of achieving specific aims of sentencing, including special deterrence, rehabilitation, and incapacitation.⁶⁴ It will include assessment of the effects of particular sanctions or "treatments" (for example, probation versus short-term incarceration, short-term versus long-term incarceration) on the frequency and seriousness of subsequent criminal involvement for particular offender populations. This analysis of special deterrence is to be carried out using statistical techniques that permit separation of sanction effects from the effects of other factors that may influence recidivism (such as offender and offense characteristics).⁶⁵

The third major research task consists of surveying judges, offenders, defense counsel, prosecutors, probation and parole officials, and the general public to provide information about the ac-

63. The Supreme Court has held that recidivism propensity is a legitimate determinant of sentencing. In *Pennsylvania ex rel. Sullivan v. Ashe*, 302 U.S. 51 (1937), the Court held:

For the determination of sentences, justice generally requires consideration of more than the particular acts by which the crime was committed and that there be taken into account the circumstances of the offense together with the character and propensities of the offender. His past may be taken to indicate his present purposes and tendencies and significantly to suggest the period of restraint and the kind of discipline that ought to be imposed upon him.

Id. at 55. See also *Williams v. Oklahoma*, 358 U.S. 576, 585 (1959); *Williams v. New York*, 337 U.S. 241, 247 (1949).

64. See notes 33-37, 49-57 *supra* and accompanying text.

65. Ethical barriers preclude use of controlled experimentation to analyze the effects of alternative sentencing decisions on subsequent defendant behavior. For example, one randomly selected group of burglary offenders could not be sentenced to probation while another is incarcerated for four years. Therefore, it has become a widely accepted practice to draw inferences about the effects of alternative sanctions by using multivariate statistical procedures that provide substitutes for the pure experimental setting. Such procedures permit a researcher to isolate the effects of particular factors. See generally *STRUCTURAL EQUATION MODELS IN THE SOCIAL SCIENCES* (A. Goldberger & O. Duncan eds. 1973). For an example of the use of multivariate statistical analysis in the study of recidivism, see K. Williams, *The Scope and Prediction of Recidivism* (Aug. 25, 1978) (forthcoming in 1979).

ceptability and effectiveness of alternative sentencing policies.⁶⁶ While some questions are directed to all these populations—for example, questions concerning fundamental goals of sentencing—each group will also be asked a unique set of questions to gather the point of view, expertise, and special concerns of that group. Judges, for example, will be asked questions designed to establish the factors that are most relevant in determining sentence severity and to elicit responses directed to the appropriateness of using certain factors as sentence determinants (such as the existence of a plea rather than a trial verdict of guilty, prior arrest information, and the sex and age of the defendant).⁶⁷ Inquiries of offenders will be aimed at providing a basis for estimating the amount of crime prevented through “incapacitating” various classes of convicted defendants.⁶⁸ Members of the general public will be questioned on their willingness to pay to reduce crime, so that utilitarian objectives can be considered in developing sentencing policy.⁶⁹ Prosecutors will be asked questions designed to provide insights into how plea bargaining presently affects sentences imposed and how sentencing guidelines might affect the plea negotiation process.

In addition to these major areas of research, several other areas require attention to support rational sentencing policies. As noted in S. 1437,⁷⁰ it is important to assess the effects of alternative sentencing guideline policies on prison populations⁷¹ and criminal justice resources and procedures. Alternatives to incarceration such as fines, probation, and restitution also should be examined to determine their effectiveness and their future usefulness in meeting sentencing goals. An additional concern involves the need to develop workable procedures for presenting guidelines to judges. A mechanism for translating the results of the research must be created that captures the richness and complexity of the information and yet is easy to employ.

66. This part of the project is being executed by a research team from the firm of Yankelovich, Skelly, and White, Inc.

67. See note 81 *infra*.

68. For a discussion of precursors to this phase of the study, see note 51 *supra* and accompanying text.

69. See notes 84-90 *infra* and accompanying text.

70. Proposed 28 U.S.C., *supra* note 10, § 994(g).

71. A model for research in assessing the effect of sentencing policy on prison populations is provided by Professor Daniel Nagin. See D. Nagin, *The Impact of Flat-Time Sentencing Legislation on Prison Population and Sentence Length: A California Case Study (1977)* (unpublished study on file in office of the *Hofstra Law Review*).

Finally, sentencing guidelines must be reviewed and revised periodically to reflect current realities, including shifts in sentencing philosophy and goals.⁷² An analysis of data describing past shifts can provide a basis for determining how frequently sentencing guidelines should be reviewed.

ORGANIZING PRINCIPLES

Once research estimates are established, how are they pieced together to produce sentence guidelines and procedures? To be sure, the literature regarding the logic of criminal sanctions does not set forth a tidy path to determination of the "right" sentence for a particular criminal situation. Mill⁷³ and Bentham⁷⁴ suggest a utilitarian framework for determining sentences; Hart⁷⁵ and Rawls⁷⁶ emphasize fairness and equity; Packer⁷⁷ recommends a balance between due process and crime control considerations; von Hirsch⁷⁸ favors tailoring a "justly deserved" punishment to fit the offense; and Gottfredson and Wilkins⁷⁹ recommend that sentencing reform begin by modeling current sentencing practices.

While diverse, these sentencing principles provide important ingredients that can be integrated to create a structure for organizing research and achieving a coherent formulation of sentencing policy. Without such a framework, it would be extremely difficult to carry out this research. Moreover, it is useful to have a context that provides a specific rationale for including each component; thus, a set of organizing principles can supply a means of assessing the importance of each portion of a research program to the eventual development of guidelines.

The pathbreaking methodology of Gottfredson and Wilkins provides an excellent starting point in building this framework. The Gottfredson-Wilkins model has several features that make it extremely attractive: (1) It is based on actual sentencing decisions,

72. See Proposed 28 U.S.C., *supra* note 10, § 994(n).

73. See J.S. MILL, *UTILITARIANISM* (S. Gorovitz ed. 1971).

74. See J. BENTHAM, *supra* note 38.

75. See H.L.A. HART, *supra* note 48.

76. See J. RAWLS, *supra* note 48.

77. See H.L. PACKER, *supra* note 48.

78. See A. VON HIRSCH, *supra* note 58.

79. See D. GOTTFREDSON, L. WILKINS & P. HOFFMAN, *GUIDELINES FOR PAROLE AND SENTENCING* (1978); L. Wilkins, J. Kress, D. Gottfredson, J. Calpin & A. Gelman, *Sentencing Guidelines: Structuring Judicial Discretion* (Feb. 1978) (report on the feasibility study).

and thus utilizes the expertise of the judiciary in formulating guidelines; (2) by constructing sentence ranges around *existing* sentencing norms, it minimizes disruption of prisons and other criminal justice agencies;⁸⁰ (3) it structures sentencing guidelines around two well-established sets of sentencing determinants—characteristics of the offense (crime seriousness) and the defendant's observed criminal propensity (likelihood of recidivism); (4) it is methodologically straightforward, allowing persons without statistical training to use the results; and (5) perhaps most importantly, it presents judges a clear picture of their decisions, thereby providing them with a means of reviewing, assessing, and modifying sentencing policy as they see fit.

Under this approach a statistical relationship is established between the sentence on one hand and the factors that represent crime seriousness and the defendant's empirically derived likelihood of recidivism on the other. This relationship is depicted hypothetically in Figure 1. The line AB represents the locus of average sentences, given the relevant facts that pertain to both offenses and offenders.⁸¹ The hyperboloid around the line represents an arbitrary boundary⁸² beyond which a sentence might warrant special justification by the judge.⁸³

Utilitarian logic provides a basis for an orderly shifting of the line AB and the accompanying boundaries.⁸⁴ A standard calculus that has grown out of this logic can be used⁸⁵ to form estimates of

80. See Figure 1, p. 373 *infra*; Proposed 28 U.S.C., *supra* note 10, § 994(l).

81. Certain characteristics of the offender, such as race, are neither relevant nor morally acceptable as determinants of the sentence, even though they may be statistically associated with sentences. In such cases, these factors must be included in the analysis to prevent the remaining factors from serving as statistical substitutes for them. The survey of judges is designed to include questions that draw out opinions about factors that are not morally justifiable as sentence determinants. Such factors should be removed in constructing recommended guidelines.

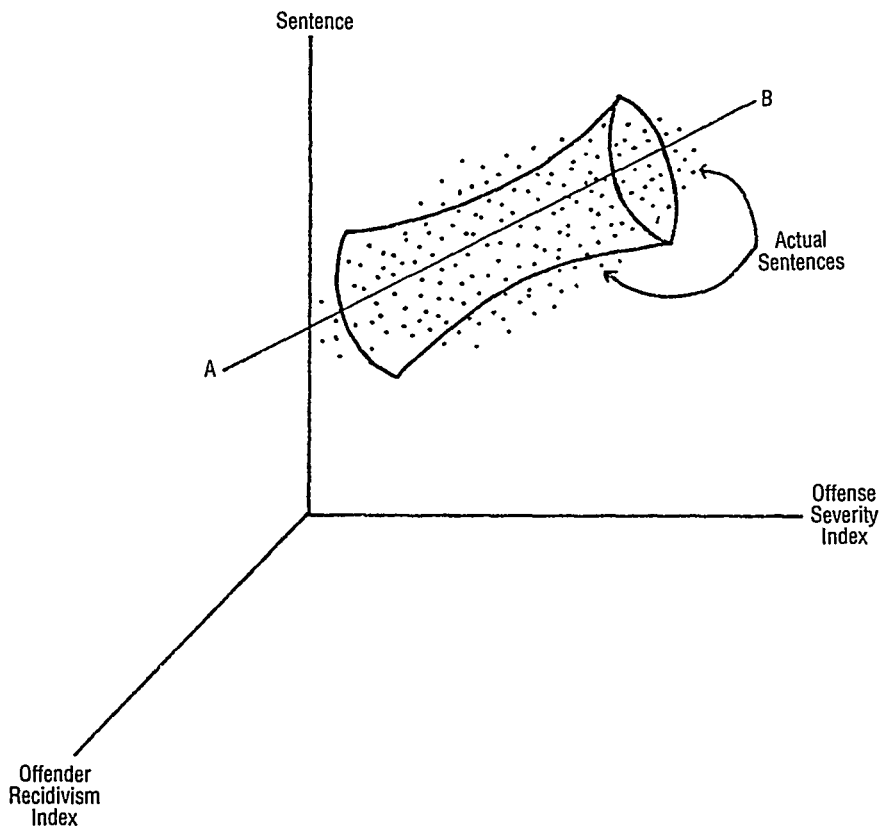
82. The hyperboloid shown in Figure 1, p. 373 *infra*, is used to convey graphically the notion of sentence boundaries around sets of offense and offender characteristics. A more realistic (but more complicated) graphical depiction would show the sentence norm as a plane rather than a line, and the boundaries as two convex surfaces, facing the plane from both above and below. Thus, one could both see how judges, in setting sentence, actually make tradeoffs between offense seriousness and offender recidivism propensity and, in turn, have a standard around which boundaries could be set.

83. See note 13 *supra*.

84. A case for shifting away from relying solely on historical norms is offered by John C. Coffee, Jr. He essentially argues that previous sentencing practices may have been inappropriate, that public tastes for punishment shift, and that the criminal justice system itself changes. Coffee, *supra* note 15, at 1034-35.

85. Certain aspects of the utilitarian model discussed in this Article are adapted

FIGURE 1

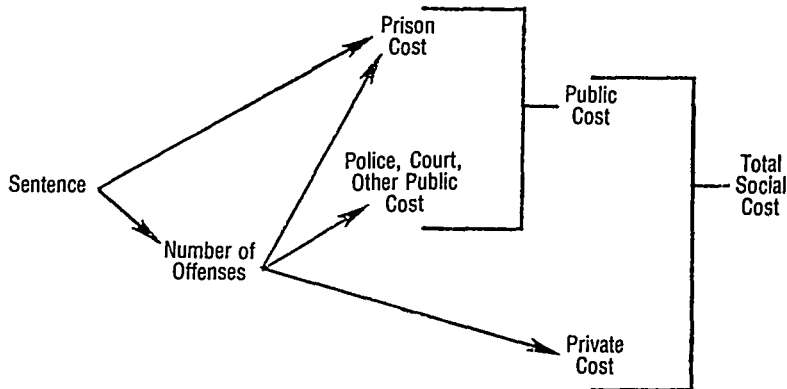
CONSTRUCTION OF GUIDELINES
BASED ON EXISTING SENTENCING NORMS

the sentence for each category of offense (and offender) that minimizes the total social cost of crime and crime control associated with that category.⁸⁶ A schematic of this model is depicted in Figure 2. Following the utilitarian logic, longer sentences can be expected to increase some social costs while decreasing others. A longer sentence should produce an increase in prison costs (other

from P. Cook, Preliminary Thoughts on a Utilitarian Sentencing Structure (Mar. 1978) (unpublished manuscript). See also R. MUSGRAVE, *THE THEORY OF PUBLIC FINANCE* (1959); C. SHOUP, *PUBLIC FINANCE* 115-18 (1969); Becker, *Crime and Punishment: An Economic Approach*, 16 J. POL. ECON. 169 (1968).

86. The total social cost of crime and crime control for any category of offense and offender consists of both the public and private costs that are associated with that category.

FIGURE 2
UTILITARIAN MODEL



factors, such as the conviction rate, held constant). On the other hand, the theories of deterrence and incapacitation⁸⁷ predict that longer sentences will also cause the number of crimes to decline, thereby reducing both the costs associated with crime control (in terms of fewer imprisonments and smaller case loads for the police and courts) and the costs of crime incurred in the private sector.⁸⁸

Thus, the utilitarian model provides an explicit framework for integrating the crime control effects of sentencing, the costs of controlling crime, and the privately incurred costs of crime.⁸⁹ By

87. See notes 38-58 *supra* and accompanying text.

88. This can be expressed more explicitly as follows: Let S_i denote the sentence for category i (where "i" denotes a particular offense/offender category); N_i denote the number of offenses in that category; CA_i and CC_i denote costs attributable to each arrest and conviction respectively; CP_i denote the cost of each offense in category i incurred by the private sector; CI denote the cost of one year of imprisonment; and PA_i , PC_i , and PI_i denote the respective probabilities of arrest, conviction, and imprisonment. The aim is to find S_i^* , the sentence that minimizes TSC_i (the total social cost associated with category i), where

$$TSC_i = (CA_i)(PA_i)(N_i) + (CC_i)(PC_i)(N_i) + (CI)(PI_i)(S_i)(N_i) + (CP_i)(N_i)$$

given the deterrent and incapacitative effects

$$N_i = f_i(PA_i, PC_i, PI_i, S_i, \dots)$$

The optimum sentence in this system can be determined by combining these expressions, differentiating TSC_i with respect to S_i , and setting the resulting expression equal to zero.

89. This latter category includes property loss, injury, fear, and private expenditures for alarm systems, locks, guards and other security devices. Costs of crime to the private sector need not be estimated by adding together separate estimates of factors such as property loss, injury, or fear; an alternative procedure is to assume that the amount that people are willing to pay to reduce crime by 10%, for example,

incorporating estimates of each of these effects and costs into this model, we can, at least in principle, calculate an estimate of the socially optimal sentence under the utilitarian logic. This framework also provides a mechanism for identifying the components of the model to which the estimation of an optimum sentence is most sensitive. Thus the model provides a basis for assessing the social value of refinements in the estimates themselves.⁹⁰

The utilitarian model could be used as follows: Suppose that the current norm for a particular crime category, based on an analysis of recent data, is the imposition of a ten-year sentence and five years of actual imprisonment. Suppose further that a utilitarian calculus suggests that a sentence of two years is optimal. A sentencing commission would probably find such information useful in setting guidelines and might well consider reducing the sentence for that category.

This is not to suggest that precise estimates of sentences that maximize social utility are imminent. One central component of the utilitarian calculus is the effect of the sentence on the crime level; such estimates have been notoriously disparate in spite of improvements in the quality of relevant data and in the technology of statistical estimation.⁹¹ Nor have estimates of the cost of crime been known to be reliable.⁹² Nonetheless, the utilitarian model

approximates the aggregate of these costs. An advantage of this alternative is that it avoids difficulties in estimating the cost of fear, which may be the largest single element of private costs.

90. As a practical matter, this model may be difficult to implement. It may be objected to on grounds that questions of justice in general and punishment in particular transcend cost considerations. See, e.g., A. VON HIRSCH, *supra* note 58, at 65. The tension between resource constraints and the goals of justice is a theme that emerges frequently in debates over plea bargaining, speedy trial legislation, the quality of counsel, and related topics.

In addition, the utilitarian logic ignores questions of equity. For example, it is questionable to assume that \$1,000 stolen from a millionaire is as costly to society as \$1,000 stolen from a poor person. A discussion of technological, constitutional, and political issues that could further limit applicability of the utilitarian model is provided by Rhodes, *Law as a Public Good: The Economics of Citizen Rights*, in *FRONTIERS OF ECONOMICS* 123 (G. Tullock ed. 1976).

91. See notes 43-48 *supra* and accompanying text.

92. According to Hawkins and Waller, "A considerable literature on the cost of crime is already extant. Much of this literature is wholly fallacious. Most of it is misleading in its general implications. Only a very small part of it is written with any conception of the methodological difficulties inherent in the problem." Hawkins & Waller, *Critical Notes on the Cost of Crime*, 26 J. CRIM. L.C. & P.S. 679, 679 (1936). See generally Martin, *The Cost of Crime: Some Research Problems*, INT'L REV. CRIM. POL'Y (1965); A. Gillespie, *The Economic Costs of Crime: Cents and Nonsense* (June 20, 1977) (paper prepared for delivery at Western Economic Association Annual Conference) (on file in office of the *Hofstra Law Review*).

does provide a relatively tight framework that can accommodate estimates that are less than tight. Its strengths are numerous: It furnishes a solidly grounded structure for organizing research; it sets an explicit goal toward which the relevant estimates can be refined; and it provides a vehicle for assessing the importance of individual research components.

Criticism of a utilitarian rationale for sentencing policy has, however, been expressed. Foremost among these critics is Andrew von Hirsch, who argues that the evidence in support of the model is inadequate and conflicting.⁹³ He points out that the model is too easily misused, as exemplified by the failure of indeterminate sentencing to produce noticeable rehabilitation results.⁹⁴ His major criticism appears to be that the use of utilitarian logic alone to determine punishment is deficient on moral grounds.⁹⁵ Instead, he calls for a return to Kant's principle of pure legal justice, which Professor von Hirsch refers to as "just deserts":⁹⁶ Punishment should be imposed because "it is right—because it ought to be."⁹⁷ He argues, specifically, that the severity of the sentence should be directly proportional to the seriousness of the defendant's crime or crimes.⁹⁸

Like the utilitarian model, however, the just-deserts logic has practical limitations. To begin with, the specific mechanics of how to link crime seriousness to sentence severity are unclear. While crime seriousness scaling has evolved as a widely accepted practice,⁹⁹

93. A. VON HIRSCH, *supra* note 58, at 62-64.

94. *Introduction to id.* at xxxviii-xxxix.

95. A. VON HIRSCH, *supra* note 58, at 50, 65.

96. *Id.* at 66.

97. *Introduction to id.* at xxxix. See I. KANT, *METAPHYSICAL ELEMENTS OF JUSTICE* 101 (J. Ladd, trans. 1965).

98. A. VON HIRSCH, *supra* note 58, at 66-83, 89-94. See also J. KLEINIG, *PUNISHMENT AND DESERT* 110-33 (1973).

Professor von Hirsch's work has, however, not gone uncriticized. Leslie Wilkins has said of the just deserts model: "It seems that we have rediscovered 'sin,' in the absence of a better alternative!" A. VON HIRSCH, *supra* note 58, at 178 app. John Coffee has criticized the model because of its tautological justification, its potential for harshness, the difficulty in defining culpability, and the failure of the proportionality concept of punishment to manifest in practice. Coffee, *supra* note 15, at 1077, 1080. See also Gardner, *The Renaissance of Retribution—An Examination of Doing Justice*, 1976 WIS. L. REV. 781; LeFrancois, *An Examination of a Desert-Based Presumptive Sentence Schedule*, 6 J. CRIM. JUST. 35 (1978).

99. The basic original work on scaling of crime seriousness, T. SELLIN & M. WOLFGANG, *THE MEASUREMENT OF DELINQUENCY* (1964), has remained remarkably robust after tests with different populations (including college students, judges, police officers, prison inmates, prosecutors, and the general public) in various countries. See Figlio, *The Seriousness of Offenses: An Evaluation by Offenders and*

the actual process of scaling sentence severity¹⁰⁰ and translating crime and offender seriousness into sentence severity is difficult to envision.¹⁰¹ Norval Morris sums up these problems succinctly: "Desert is, of course, not precisely quantifiable."¹⁰²

Even if these difficulties could be overcome, it would be necessary to determine whether and how to integrate the utilitarian with the desert logic. The scale of proportional sentences could be included as an ingredient within a social-utility model or a system could be adopted in which the deserts notion is represented as a boundary above or below which a utilitarian sentence may not be imposed.¹⁰³ The former approach requires that a schedule of equivalence be established between the goal of just deserts and that of minimizing social costs—that is, that the two goals be expressed in terms of a single unit of measurement. It would be difficult and perhaps objectionable to assign cost to a moral concept such as deservedness. The latter approach requires the arbitrary selection of maximum and minimum justly deserved sentences.¹⁰⁴ Neither approach appears to lend itself readily to scientific validation, since both require that the desert logic be quantified.

Nonoffenders, 66 J. CRIM. L. & CRIMINOLOGY 189 (1975); Roth, *Prosecutor Perceptions of Crime Seriousness*, 69 J. CRIM. L. & CRIMINOLOGY 232 (1978); Wellford & Wiatrowski, *On the Measurement of Delinquency*, 66 J. CRIM. L. & CRIMINOLOGY 175 (1975); R. Figlio, *The National Survey of Crime Severity—Some General Findings* (1978) (unpublished manuscript).

100. Scaling of sentence severity requires construction of a single index that combines term and type of incarceration, fines, and term and conditions of probation. The difficulties in this are legion. Different populations are likely to have different views about the relative harshness of each component of the index. Assuming that convicted offenders comprise the relevant population, more affluent white-collar offenders could be expected to have a greater preference for fines as opposed to incarceration than other offenders. Moreover, it is unlikely that offenders will be perfectly candid about their preferences for alternative punishments.

101. An alternative approach would be to survey relevant populations about just punishments for various offenses, or about maximum and minimum sentences that appear to suit these offenses. Selecting the relevant populations and separating utilitarian from desert considerations would, of course, not be an easy task. Another alternative would be using offense and sentence severity scales to provide a basis for *ranking* offenses and sanctions rather than using the proportionality notion as a basis for scaling sanctions. This would, in turn, enable appropriate authorities to identify inconsistencies in sentencing (under a deserts logic) from one offense to another. It may be that sanctions for some offenses are more severe than sanctions for other offenses perceived as more serious.

102. N. MORRIS, *THE FUTURE OF IMPRISONMENT* 75 (1974).

103. Norval Morris proposes that the "concept of desert" be a "retributive maximum; a license to punish the criminal up to that point but by no means an obligation to do so." *Id.*

104. This is not to say that the selection would be irrational; rather it would be without scientific support.

CONCLUSION

The formulation of sentencing guidelines provides a unique opportunity for careful scientific analysis of available evidence regarding the effects of alternative sanctions on the behavior of both individuals and institutions. Unlike many other areas of public policy, sentencing has only very recently received this kind of attention.¹⁰⁵

The type of contribution that social scientists can make to the development of sentencing policies and practices can be seen in those areas in which a significant amount of research has already been conducted. Specific issues that are closely related to sentencing policy—such as estimates of deterrent and rehabilitative effects—have been subjected to substantial scientific assessment. While estimates of deterrence have been far from convergent,¹⁰⁶ estimates of rehabilitation have been remarkably uniform.¹⁰⁷ Indeed, these estimates have provided a basis for reassessment of indeterminate sentencing practices. The movement away from indeterminate sentencing, largely stimulated by moral considerations,¹⁰⁸ surely was accelerated by these findings.¹⁰⁹ Thus social science appears to have already made a modest contribution to sentencing policy.

Certainly, many fundamental issues of sentencing do not lend themselves to scientific scrutiny. Social scientists are not specially qualified to determine, for example, the respective importance of retribution and crime control as goals of sentencing policy. However, once fundamentally political decisions are made, research information can form the basis for determining the most effective means of achieving these goals.

Systematic assessment of relevant data also provides potentially crucial support to the judiciary in making the many thousands of awesome sentencing decisions that must be made each year. Guidelines are an important, but not a necessary, ingredient in this process. Judicial receptiveness and an appreciation by social scientists for the workaday realities of the judicial environment are.

105. See authorities cited notes 24-32 *supra*. An important exception is Gaudet, *supra* note 27.

106. See notes 43-48 *supra* and accompanying text.

107. See notes 33-35 *supra* and accompanying text.

108. See, e.g., J. MITFORD, *supra* note 37. And, according to Marvin Frankel, the broad judicial discretion associated with the indeterminate sentencing approach is "terrifying and intolerable for a society that professes devotion to the rule of law." M. FRANKEL, *supra* note 7, at 5.

109. See notes 36 & 37 *supra* and accompanying text.