



The Influence of Criminal Justice Research

Joan Petersilia

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PREFACE

This study was sponsored by the National Institute of Justice (NIJ) as part of its continuing effort to increase the practical influence of the research it sponsors. This report describes some of the NIJ's successful research projects, summarizes their findings, and discusses their influence on criminal justice policy and practice.

These projects are testimony to the real influence research and the knowledge it produces can have on public policy. This review suggests that research findings have significantly shifted the way we as a society look at crime, criminal offenders, and the ability of criminal justice agencies to counter the threat they pose.

This report should be of interest to federal policymakers interested in assessing the benefits of investing in criminal justice research, and to researchers and practitioners who wish to become familiar with major research findings and methods for improving the research-to-practice link.

SUMMARY

In 1968, Congress acted on a recommendation of the President's Crime Commission of 1967 and established a federal agency, the National Institute of Law Enforcement and Criminal Justice (NILECJ), to sponsor criminal justice research. That recommendation was prompted by the Commission's discovery that very little systematic information was available for assessing the nation's problems with crime or the criminal justice system's efforts to deal with those problems. Since that time, the federal government has invested more than \$300 million in criminal justice research. Much of that investment has been made by the National Institute of Justice (NIJ), which was established in 1979 to continue and expand the functions of the NILECJ.

The Commission's recommendation implicitly recognized that the federal government would have to take primary responsibility for supporting a comprehensive agenda in criminal justice research. States and local jurisdictions have neither the incentives nor the resources to support the large-scale data gathering and analyses, experimental programs, evaluations, and dissemination efforts required to develop and maintain a systematic research effort in criminal justice.

One major effect of this investment has been the development of criminal justice research into a recognized and respected academic field. But however significant that may be for the research community, it does not reflect the Commission's intentions or justify the federal investment in research. The return on investment must finally be assessed in terms of the influence of the research on criminal justice policy and practice. This study attempts to make that assessment for NIJ-supported research on policing, prosecution, sentencing, corrections, and system technology.

Our assessment is based on three questions: Has the research addressed issues and problems that are central and critical to criminal justice policy and practice? Has it affected law enforcement and other functions of the system? Has it ultimately helped improve the system's effectiveness in dealing with crime and criminals? We began by asking NIJ staff to "nominate" research efforts that, in their opinion, had influenced policy and practice in the past two decades. We then interviewed high-level managers and policymakers about their knowledge and use of the research. Finally, we reviewed the relevant criminal justice literature to see whether the changes in the field reflected or paralleled directions suggested by the research.

Establishing the influence of social science research is a difficult and imprecise undertaking. In early "knowledge utilization" studies, researchers attempted to track the influence of research by asking users of such research whether their decisions or operations had been influenced by particular findings or recommendations. The model of influence assumed by these studies is appropriate for research in the "hard" sciences, because it assumes a tangible or intellectual product that has a specific function in a given context. However, it is largely inappropriate for assessing the influence of social science research because the research "products" are often not "functional." Applying this model, the early studies concluded that social sciences research was having little influence on policy or practice in the various areas studied, including criminal justice.

More recently, knowledge utilization research has recognized the inappropriateness of this model in light of the different objectives, methods, and products of social science research. It is now generally agreed that social science research is largely intended to inform the policy process and that its effects on the way policymakers conceptualize problems and alternatives and, ultimately, make policy decisions can usually be measured only over the long term. In the case of criminal justice research, the intent of many studies is to challenge policy assumptions, project the effects of policy alternatives, or evaluate programs of service delivery. It is not reasonable to expect the results to have immediate, visible effects on policy, much less on practice.

A careful review of criminal justice policy and practice over the past two decades provides convincing evidence that research has strongly influenced both. The concepts and conclusions of some research studies have, in fact, been so thoroughly assimilated in policy and practice that some of the people interviewed in this study had forgotten where they originated. Once reminded, however, they agreed on the critical influence of such research studies as that of Martinson et al. on the effectiveness of rehabilitation; the Police Foundation's work on preventive patrol, response time, and spouse abuse; The RAND Corporation's research on criminal investigation, career criminals, and selective incapacitation; the Wisconsin Division of Corrections' development of risk/needs assessments; the Vera Institute of Justice's work on bail guidelines and pretrial release; the work of the Institute for Law and Social Research (INSLAW) on case attrition and the development of the PROMIS (Prosecutor's Management Information System) computerized case tracking system; the Federal Parole Board's development of the Salient Factor Score (SFS); and Oscar Newman's research on architectural design for crime prevention.

Our study indicates that research has indeed helped shape the way criminal justice policymakers and practitioners think about issues, how they identify problems that need attention, which alternatives they consider for dealing with their problems, and their sense of what can be accomplished.

MAJOR AREAS OF RESEARCH INFLUENCE

Policing

Over the past 20 years, crime has steadily increased, while police department budgets have remained the same or even decreased. In this context, researchers have been helping police departments understand the relationships among some of their traditional (and expensive) practices and their goals (e.g., solving crimes, making citizens feel safe).

In most police departments, patrol operations consume the lion's share of the budget, and traditionally, much of that share has gone to "preventive patrol." Police administrators have assumed that by driving more or less randomly in a given area, patrol cars prevented crime, made citizens feel more secure, and could respond more quickly to calls after a crime had been committed. Quick response was thought to improve the chances of arresting the suspect. Both preventive patrol and quick response time increased requirements for sworn personnel, cars, sophisticated communications systems, and other technological innovations. As the strain on police budgets grew, police administrators needed to know whether their assumptions about these practices were valid and justified the expense.

Researchers at the Police Foundation, among others, designed several studies to test the effects of preventive patrol and fast response time. The Kansas City Preventive Patrol Experiment found that preventive patrol did not necessarily prevent crime or reassure the citizens. Although the findings were hotly debated in the field, they gave police managers latitude to investigate and experiment with alternative patrol strategies. Several departments assigned patrol units to proactive patrol, that is, they gave patrol officers specific proactive assignments rather than having them cruise the streets randomly.

Police Foundation researchers also discovered that police response time had little relationship to the probability of making an arrest or locating a witness. The determining factor turned out to be the time it takes a citizen to report a crime, not the speed with which the police respond. Using these empirically based assumptions, researchers at the Police Executive Research Forum (PERF) developed systems that allow police to handle noncritical calls for service by means other than

quick dispatch of patrol units. These systems have been adopted by a number of police departments across the country. Other departments have focused on educating the public to notify the police more quickly when a crime has occurred.

Like patrol, criminal investigation consumes a large proportion of police resources, including personnel. A number of NIJ-supported projects have studied the process of criminal investigation, with the aim of making it more effective. These studies found that "detective work" alone rarely leads to an arrest. The probability of arrest is largely determined by the information that patrol officers get in their preliminary investigation at the crime scene. Research has established that without this information, chances of solving a case are low, no matter how intense the follow-up investigation. Patrol officers are now being trained to conduct preliminary investigations more effectively, and detectives are now able to concentrate on more serious crimes, on the cases most likely to be solved, and on getting sufficient evidence to support prosecution.

Criminal investigation research led to one of the more important developments in modern policing, the identification of "solvability factors." In many departments, for less serious crimes, information collected at the crime scene is now assessed using solvability-factor scoresheets. The assessment determines which cases are likely to be solved, given the initial information obtained. Those cases are handed over to the detective division for follow-up investigation; the rest are often closed on the basis of the preliminary investigation and reopened only if additional information is uncovered.

Researchers have also studied police response to particular kinds of crime, for example, spouse abuse. In the past, police treated spouse abuse differently from other kinds of assault. This inconsistency sprang primarily from the sense that spouse abuse was "a family matter" and that families should work it out. Unfortunately, spouse abuse is usually a repeated crime, and it sometimes culminates in murder. Recently, research has influenced some police departments to reconsider their response to spouse abuse.

A Police Foundation experiment showed that individuals who were formally arrested for spouse abuse (as opposed to being counseled or simply separated from their victim) had the lowest levels of repeated incidents in the next six months. This finding is currently being tested in other jurisdictions but has already affected legislation and police policy. A recent survey showed that police departments in larger cities are using arrest rather than mediation as a preferred policy for dealing with minor domestic assault cases. Many of them cite the Police Foundation research findings as influencing that change in policy.

Prosecution

Research has now documented that jurisdictions across the nation have a common problem of case attrition. On average, half of all felony arrests fail to result in conviction. Research has also identified the major causes of case attrition: problems with victims and witnesses and insufficient coordination between the police and prosecutors. Both causes create evidentiary problems for the prosecution and undermine prosecution efforts in other ways as well.

From the research, a consensus has emerged regarding both issues and has resulted in various initiatives to address them. It is commonly agreed that police need to share responsibility for the final outcome of a case and must believe that their work does not end with the filing of the case. Further, evidence that many arrests do not result in filings has led to the development of formal filing policies and prosecutor checklists. The checklists itemize information that prosecutors need to justify formal filing of specific charges, and police use the lists to ensure that they submit only those cases for which they have sufficient evidence.

Successful prosecution relies heavily on cooperative victims. Case studies have established that "noncooperative" victims often fail to cooperate because they know the offender and have decided to reconcile the problem in another, nonlegal manner. In addition, witnesses and victims often misunderstand directions about when and where to appear in court. Research has urged that police make greater efforts to locate and deal with witnesses and victims.

Research has shown that case attrition is also aggravated by the fact that several distinct agencies handle offenders as they pass from arrest to conviction, and these agencies have separate record-keeping systems. Lack of communication among these agencies often lets offenders "slip through the cracks." Most large prosecutors' offices now employ a computerized case tracking system, either PROMIS, or a system modeled after it.

More than one hundred prosecutors' offices now have Career Criminal Prosecution Units, which support special prosecution efforts to identify and convict career criminals. The research that led to this development showed that a small proportion of the criminal population—the career criminals—contributed disproportionately to the crime problem. Furthermore, these career criminals had relatively low probabilities of being arrested, convicted, and incarcerated. Prosecution efforts were initiated, most with federal support, to assure that such persons would not continue to evade the criminal justice system.

Researchers have continued to study career criminals, with an eye to learning more about their contribution to the crime problem and the characteristics of the criminal career. By examining the characteristics of repeat offenders' backgrounds and relating those characteristics to the level of crime committed, researchers helped to create a profile of the career criminal. This information has been useful to police and judges, as well as prosecutors, in distinguishing high-rate career criminals from the rest of the offender population.

Sentencing

Researchers have played a critical role in U.S. sentencing policy, particularly in assessing the extent to which sentencing practice achieves the goals of rehabilitation, deterrence, and incapacitation.

Reviews of the outcomes of rehabilitation programs have shown that rehabilitation is often not a viable goal of sentencing and that participating in rehabilitation programs does not, in general, significantly reduce the probability of recidivism. This research prepared the ground for the shift from indeterminate to determinate sentencing, for removing treatment participation as a primary consideration in parole decisions, and for developing objective-based sentencing guidelines.

With the discrediting of rehabilitation, researchers began to evaluate how well sentencing meets the objectives of incapacitation and deterrence. Using information about the prevalence and incidence of crime among various offenders, they have estimated the decreases in overall levels of crime that have resulted from incarcerating these offenders for various lengths of time. These modeling efforts have been extremely important because they have enabled policymakers to estimate the effect of targeted sentencing strategies on crime. The National Academy of Science recently reviewed this work, noting its policy relevance.

Corrections

The prison overcrowding crisis has forced research to focus on helping correctional administrators manage incarceration, parole, and probation operations with the limited resources that overburdened public budgets have made available to them. In the process, researchers have become involved in efforts to classify inmates according to risk of violence while incarcerated and risk of recidivism if released.

Research warned the policy community about the impending corrections crisis and the need for planning. Researchers at Abt Associates used historical data on sentencing to project future prison populations

and identified correlates of incarceration rates. It also provided suggestions for managing the population. Since then, researchers in several states have developed prison classification systems designed to improve the assignment of offenders to minimum-, medium-, and maximum-security prisons. Several other states have now replicated these classification instruments and are increasingly using them, rather than clinical judgment, to guide prison security assignments.

A great deal of correctional research has focused on predicting recidivism, to assist in pretrial, probation, and parole decisionmaking. The methods and objectives of these efforts have basically been the same: study a group of offenders and identify the characteristics that are associated with recidivism. Once the correlates of recidivism have been identified, decisionmakers can utilize that information to make better release decisions.

Information on offender characteristics has also had a major effect on bail decisions. Research has found that defendants who have roots in the community are not likely to flee, regardless of their financial ability to pay a bondsman. Researchers at the Vera Institute of Justice have devised a point system which weighs information about the defendant's residential stability, employment, family contacts, and prior criminal record. The point score a defendant achieves places him in a particular flight-risk category. The criteria developed in the Vera system have been validated in several cities and are now being used by over 200 U.S. court systems.

Similar research has been conducted on parolees. The Salient Factor Score (SFS), a recidivism prediction device developed by researchers at the U.S. Parole Commission, has dramatically influenced parole release in the past two decades. The use of objective information to decide parolee release has been called "one of the most significant reforms in Anglo-American law." Parole guidelines modeled after the SFS are now used in fourteen states, the District of Columbia, and the federal system.

Probation systems are also using recidivism prediction devices to assign community supervision levels. Researchers at the Wisconsin Division of Corrections developed a "risk/needs" scale which is now in use in over 200 probation offices.

SYSTEM TECHNOLOGY RESEARCH

In addition to funding large, conceptually oriented research projects, federal agencies have sponsored studies of existing and emerging technologies to develop products for handling specific operational problems. For example, the NIJ took a prominent role in the development and

testing of the kevlar vest. This lightweight bullet-resistant garment is now used by hundreds of police officers across the country. It has been estimated that during 1986 alone, eighteen police deaths were prevented by the use of kevlar vests.

Research has also helped improve jury management through the development of a one-day/one-trial jury system. In this system, jurors are eligible for jury selection for one day only. If they are not selected by the end of that day, they have fulfilled their obligation for a year. Researchers also developed methods to computerize the jury selection process, eliminate the jury qualification interview by mailing questionnaires to jurors, and eliminate the need for large standby jury pools. NIJ pilot-tested the project and discovered that it not only saved money, but jurors were more satisfied and the resulting juror pool was more representative of the community in general. At present, about 20 percent of the nation's population live in areas where the one-day/one-trial system has been implemented.

Research has also established the role of architectural design in crime prevention. Architect Oscar Newman first advanced the notion that the physical environment, particularly the placement of buildings and lighting, affects a neighborhood's susceptibility to crime. With federal funding, he developed detailed architectural plans for safe neighborhoods and tested them in various locales across the nation. In several of the neighborhoods, crime did decrease. While it was not empirically demonstrated that the change in architecture was directly responsible for the crime decrease, planners and architects have incorporated many of Newman's major features in numerous building projects both here and abroad.

CONCLUSIONS AND POLICY RECOMMENDATIONS

This review provides strong evidence that criminal justice policy has benefited greatly from empirical research during the past twenty years, the majority of which would not have been possible without federal support. Federal interest in and support of research has also shaped the criminal justice research agenda, stimulated the growth of that research as an academic field, and helped forge a stronger and more productive link between the research and criminal justice communities.

Both communities would undoubtedly benefit from even closer involvement. This could be achieved by establishing a formal collaborative framework for focusing research, disseminating results, and implementing recommended policies and practices. Researchers could more easily seek advice from the policy community in framing research

questions, and policymakers could help researchers make their analyses more relevant to the field. Both groups could help managers see the relevance of research and use its results.

Researchers also need to report and disseminate their results effectively. Practitioners commonly complain that research reports are difficult to read and fail to make their relevance to operations explicit. Policymakers want policy-relevant research results distilled and clearly related to their concerns. The NIJ's *Research in Brief* series was cited by many practitioners as an exemplary model of how this could be accomplished. Affiliate organizations can also be used to effectively debate and disseminate research information.

The findings of this study suggest that implementation is the weakest link in the criminal justice research-to-practice process. Relatively few resources and little attention are devoted to implementation assistance. To provide the maximum benefit, research must obviously do more than come to the attention of practitioners; it must make the potential benefits of its findings and recommendations clear. Managers are often receptive to implementing research recommendations, but they need more direct and practical help than the documentation of the research offers. When implementation activities are built into the funding process, research has consistently had more successful and productive results.

Finally, the research-to-practice process can be improved by recognizing the limits of research. Social science research is not intended to be an unambiguous guide to policy, and its limitations must be recognized. Policymakers must take into account not only empirically based general findings, but also the political and fiscal conditions in their own locales. Furthermore, the dollars allocated to research have never exceeded a fraction of 1 percent of the total resources expended for criminal justice.

The demand for solid, rigorous, and nonpartisan criminal justice research will continue to grow. There is unprecedented public examination of the strengths and weaknesses of the criminal justice system. Debates are being initiated at the state and federal levels on the objectives of sanctions, and agencies comprising the system are being scrutinized in terms of how well they are helping to achieve those objectives. These debates are forcing policymakers to deal systematically with criminal justice choices and to quantify the effects of various policy choices. The research that the federal government continues to support will provide the empirical base for this process.

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I. INTRODUCTION

In 1965, President Lyndon Johnson appointed a commission to assess the nation's crime problems and to recommend appropriate changes in the criminal justice system. The commission soon found that there was very little systematic data available to help them with this charge. There was, in fact, so little empirical information that the President's Crime Commission Report of 1967 qualified its conclusions by stating that much of its work had been guided more by common sense than by systematic data. Given what they had found (or, more precisely, what they had not found), one of their strongest recommendations was the establishment of a national center for criminal justice research. The Commission wrote "the greatest need is the need to know" (President's Commission, 1967, p. 273).

WHY A FEDERAL RESEARCH ROLE?

This recommendation implicitly recognized that strong federal support would be essential for development of systematic research on the criminal justice system, its functions, and its problems. Past performance certainly supported that implication. For various reasons, local jurisdictions, states, and universities had failed to produce the kind of research data and analysis that would have enabled the commission to meet the Presidential objectives effectively.

Those local jurisdictions that had research capabilities devoted them, quite reasonably, to addressing the problems of local operations in the local context. Much of this research was narrowly quantitative and concentrated on such things as adjusting the number of patrol officers on a shift in relation to the average number of calls normally received during those hours. There was very little communication between the research units of different agencies within or across jurisdictions.

In states that had criminal justice research units at the gubernatorial level, research staffs might consider problems of policing or the courts more generically. Nevertheless, their interests were focused primarily on where the state's resources were being spent. Thus, they gathered data, analyzed problems, and made policy and operational recommendations that could affect jurisdictions statewide, but there was little, if any, systematic pooling or sharing of data or results across states.

From a policy perspective, this parochial approach had serious limitations. It kept states and local jurisdictions from receiving the benefits of others' experiences. It also gave them no relative measure of either their criminal justice problems or their effectiveness in dealing with those problems. Its major limitation was that it did not permit researchers to address the larger conceptual issues involved or to challenge the traditional assumptions behind much policy and practice. Consequently, in many criminal justice operations, researchers were trying to improve practices whose very bases were invalid.

The universities might have been expected to have taken the broader view. Completely divorced from the practical problems and constraints that criminal justice agencies face, universities could afford to address the larger issues and the theoretical considerations; and they had the talent, the range of disciplines, and the most advanced analytical methods for doing so. However, with their traditional commitment to basic rather than applied, and single rather than interdisciplinary, research, the universities had produced only scattered, limited, and narrow studies of crime and criminal justice. More to the point, prior to federal involvement, criminal justice was not a generally recognized academic research discipline. And criminology had been captured by sociology, which, unlike medicine or economics, is not output-oriented, lacks a natural policy focus, and tends to emphasize social factors that are hard to change. Indeed, it could be argued that federal involvement and support are largely responsible for the subsequent development of criminology as an academic discipline.

All these limitations of past research reinforced the Commission's recommendation to establish a national center for criminal justice research. At that time, only the federal government had the higher responsibility, the motivation, and the resources to support the large-scale data gathering and analysis, experimental programs, evaluations, and dissemination efforts required to develop and maintain a systematic research agenda. Circumstances have since made the federal role even more essential: When states and local jurisdictions faced tax revolts and fiscal limitations, research resources were often the first to be cut from the criminal justice budget.

Largely in response to the Commission's recommendation, Congress established the National Institute of Law Enforcement and Criminal Justice (NILECJ) in 1968, giving it the mandate "to encourage research and development to improve and strengthen law enforcement

and criminal justice." This was the first major federal research program on crime and justice.¹

The Justice System Improvement Act of 1979 established the National Institute of Justice (NIJ) to continue and expand the functions of the NILECJ. The NIJ operates under the general authority of the Attorney General and is headed by a presidentially appointed director. It is the principal research agency of the Department of Justice (DOJ), and its functions were continued under the Justice Assistance Act of 1984.

HAS THE FEDERAL INVESTMENT PAID OFF?

Since 1968, the federal government has spent over \$300 million on criminal justice research and dissemination, averaging between about \$15 million and \$30 million per year. The nation spends about \$25 billion to \$35 billion annually to operate the criminal justice system, so dollars allocated to research have never exceeded a small fraction of 1 percent of the total expenditure for crime control. In comparison with research support in other fields, this is a small investment. Approximately 15 percent of the Defense Department's annual budget is allocated to research, and even in nondefense areas, the percentage is higher. For example, about 4 percent of federal health expenditures are allocated to research (U.S. Bureau of the Census, 1985).

Nevertheless, \$300 million is a considerable investment, and it is quite reasonable for federal legislators and taxpayers alike to ask whether support of criminal justice research is providing a reasonable return on that investment. The major questions posed are:

- Is research addressing the issues and problems most germane and critical to criminal justice policy and practice?
- Has research affected law enforcement and other functions of the system?
- Has research ultimately helped to improve the system's effectiveness in dealing with crime and criminals?

The purposes of this report are (1) to address these questions, (2) to consider how the relations between the research and the criminal

¹Within the Department of Justice, nine agencies now support research and development relating to criminal justice. Three of these agencies—the National Institute of Justice, the National Institute of Juvenile Justice and Delinquency Prevention, and the Bureau of Justice Statistics—are located within the Office of Justice Programs. The others are the Federal Bureau of Investigation, the Drug Enforcement Administration, the National Institute of Corrections, the Federal Prison System, and the U.S. Parole Commission.

justice communities have changed and developed, and (3) to suggest how researchers, practitioners, and the funding agencies could improve the return on research investment.

THE PRESENT STUDY

More general versions of those questions are central to the growing field of "knowledge use" research. Scholars in that field are continually addressing the issues of whether and how research affects policy and practice across the spectrum of national concerns.

The "knowledge use" field operates on the premise that it is extremely difficult to establish and measure how research in the "soft" sciences (e.g., sociology, political science, economics) affects policy and practice. Measuring effects is fairly straightforward in the "hard" sciences: Advances in methodology and techniques are made and are then adopted, or not adopted, in future research and experimentation; information and products are developed and used, or are not developed and used, depending on their estimated worth. This can be described as an instrumental model of research effects. In the "soft" sciences, the model applies for the effects of research techniques, methodologies, and information on the discipline itself. However, establishing the effects of their "products" is more difficult.

The effects of research that attempts to challenge policy assumptions, project the effects of alternative policies or procedures, evaluate programs of service delivery, or achieve other ephemeral ends cannot be measured in terms of immediate applications or changes. Applying the instrumental model of effect to the soft sciences helps create what Carol Weiss describes, for the social sciences, as:

a pervasive sense that government officials do not pay much attention to the research their money is buying. The consensus seems to be that most research studies bounce off the policy process without making much of a dent in the course of events. Support for this notion surfaces in many quarters—among social scientists, executive branch officials, and members of Congress (Weiss, 1977, p. 532).

Knowledge use research over the last decade has thus led to the development of an "enlightenment model," which is more appropriate than the instrumental model for evaluating the influence of the social sciences.

The literature suggests that in addition to making deliberate and targeted use of findings from individual studies, policymakers and managers absorb concepts and generalizations from many studies. They integrate research ideas along with other information into their

interpretation of events. As they become more sensitive to social science perspectives, those perspectives affect what they think and do in policy decisions. The literature indicates that this is not, usually, planned and conscious use, and it is not directed toward immediate application. Instead, research information and ideas percolate and are absorbed into the intellectual store the policymakers regularly bring to bear in their work.²

Certainly, criminal justice is a fertile area for studying these issues and the generic versions of the questions posed above. However, the purposes of the present study are more pragmatic and less conceptual. No attempt is made to grapple with the theoretical issues of knowledge use research or to demonstrate exactly how research has influenced policy and practice—and certainly no attempt is made to prove beyond a doubt that the research is more than indirectly related to changes. The objectives of the study are simply to establish that federally funded research has addressed the major problems and issues in criminal justice, to summarize what that research has found and recommended, and to describe how criminal justice research and practice have changed in ways that parallel these conclusions and recommendations.

Three methods have been used to accomplish those objectives:

- The parallel developments in research and policy and practice have been traced as they are represented in the literature of both areas.
- Case studies have been made of “successful” research projects.
- Key criminal justice policymakers and practitioners have been interviewed about their interests in and use of research.³

The “success stories” are primarily NIJ-funded projects that members of the NIJ agency staff and some of our interviewees believed had affected policy and operations. The study focuses primarily on projects funded by that agency for two reasons: First, the NIJ is the principal research agency of the DOJ, and second, its tenure roughly overlaps the development of the criminal justice research field, and its continuing interest and support are largely responsible for creating and sustaining that field.

It is important at the outset to understand the purpose and limitations of this report. This examination of studies that *have* influenced

²For a more complete discussion, see Weiss (1977), and Weiss and Bucuvalas (1980).

³The interviewees are listed in the Appendix. These individuals were chosen because they had contributed greatly to the research literature or were senior criminal justice administrators.

criminal justice policy is not meant to imply that all, or even the majority, of the federally funded efforts have produced positive effects; rather, it concludes simply that there have been important instances where research has exerted significant effects. Also, as discussed in Sec. II, this is not a study of implementation or knowledge use, per se. Such an effort would deal more directly with the process by which ideas become integrated into practice. And finally, no attempt is made to review the quality of the research projects themselves, in terms of either method or substance. The scope of the report is limited to identifying research projects or products that have shaped criminal justice policy in the United States.

Criminal justice research studies could reasonably be categorized in several ways. The categories of policy and systems analysis studies used in this report represent the major system nodes through which offenders pass: policing (Sec. II), prosecution (Sec. III), sentencing (Sec. IV), and corrections (Sec. V). Section VI discusses technical studies (more analogous to the hard sciences) that have developed products which are instrumental in criminal justice operations. Section VII discusses the larger benefits of criminal justice research and sets forth the author's recommendations for improving the return on research investments.

II. THE INFLUENCE OF RESEARCH ON POLICING

The past ten years have been marked by growing urban tensions, rising crime rates, increasing street violence, and limits or cuts in policing budgets. In a 1985 national survey, 44 percent of police and sheriffs' departments reported having the same number or fewer personnel than they had five years earlier. One police chief wrote, "The management associated with declining or stagnating programs appears to be the rule, not the exception, as in the past" (Cunningham and Taylor, 1985). In this context, police leaders have been under considerable pressure to manage personnel and operations as efficiently and effectively as possible. This pressure may help explain why police administrators have apparently been even more willing than leadership in other criminal justice areas to question traditional assumptions and methods, to entertain the conclusions of research, and to test research recommendations.

That willingness is exemplified by the continued growth and development of two important policing organizations, the Police Foundation and the Police Executive Research Forum (PERF). These organizations are dedicated to the comprehensive improvement of law enforcement through research, open debate, and the professionalization of leadership. PERF's founders stated: "In a time of growing public cynicism about institutions of government . . . of tighter municipal budgets . . . we refuse to accept archaic styled leadership, or to rely on untested traditional police methods." Subsequently, the Police Foundation and PERF have promoted, sponsored, and disseminated the results of solidly grounded research.

Although systematic research on policing began less than 15 years ago, it has already influenced major changes in the way police departments operate and in public perceptions of policing. Changes in policy and practice around the country suggest that research has had particularly important conceptual and operational effects in:

- Patrol operations.
- Criminal investigation.
- Specialized offense and offender operations.

PATROL OPERATIONS

Research on Patrol Operations

Patrol operations consume a larger percentage of most police departments' resources than any other activity. In the past, patrol policies, operations, and budgets reflected several assumptions:

- Preventive patrolling of city streets (i.e., driving more-or-less randomly in an area in order to maintain police visibility) prevents crime and makes citizens feel more secure.
- The police should respond immediately to all service calls.
- Quick response to all calls prevents harm to citizens, improves chances of arresting suspects, and is demanded by the public.

During the 1960s and early 1970s, operations research elaborated on the preventive model these assumptions dictated, and the Law Enforcement Assistance Administration (LEAA) poured vast sums of money into the development of technology and hardware, including complex patrol allocation models, computer-aided dispatch, and vehicle locator systems. As local governments made fighting crime a major priority and backed it up with increased funding, police departments hired more officers and bought more cars for patrol. While that commitment remains, the resources to support it do not. Thus, the challenge has been to make the most productive use of existing or even reduced patrol complements.

Just as police departments were struggling to meet this challenge, research was producing empirical evidence that questioned the traditional assumptions about patrol operations. A series of NIJ-funded studies systematically removed first one and then another support for extensive preventive patrol and blanket response.

Preventive Patrol. The first and best-known of these studies was the Kansas City (Missouri) Preventive Patrol Experiment conducted by George Kelling and a research team at the Washington, D.C., Police Foundation. The purpose of the experiment was to determine how patrolling affects crime rates and the public's sense of safety (Kelling et al., 1974). The researchers divided one part of the city into fifteen beats, which were then categorized into five groups of three matched beats each. Each group comprised neighborhoods that were similar in terms of population, crime characteristics, and calls for police services. The three beats were then patrolled using one of three techniques: (1) no preventive patrol activities (police cars entered the area only to answer specific calls), (2) customary service, or (3) increased preventive patrol (cars cruised the streets two to three times more frequently than

normal). These experimental conditions remained in effect for one year.

Before and after the experiment, Kelling and his colleagues interviewed residents in the different locales to learn whether they had been victims of crime, what they thought of the quality of police service, and the extent of their fear of crime. The results showed that neither crime rates nor citizens' perception of their safety were significantly affected by changes in the amount of random preventive patrol. The study concluded that, for all practical purposes, these operational changes made no discernible difference. Similar experiments, with similar results, were subsequently conducted in St. Louis, Missouri, and Minneapolis, Minnesota.

Several conclusions emerged from these studies which undercut the traditional assumptions supporting preventive patrol:

- The practice of having marked police cars conduct random patrol on preassigned beats does not necessarily prevent crime or reassure the citizens, even if police strength is increased significantly.
- Police can stop routinely patrolling beats for up to a year without necessarily being missed by the residents, and without a rise in crime rates in the patrol area.

The findings were national news and produced intense debate and some shock waves in the policing community. Police chiefs criticized the Kansas City experimental design and questioned its conclusions. Some argued that the "no patrol" condition was not maintained, since police cars were going to and from other areas through that police beat. But most of the chiefs who were interviewed went on to say that regardless of the methodology, the findings were consistent with their own experience. Like the other policing studies, the Kansas City Preventive Patrol Experiment was important because it challenged a traditional police practice. J. L. Ray LeGrande, of the Miami Beach Police Department, said of the study, "It was a breakthrough in research—as important as using the police radio for the first time."

In terms of operational procedure, the preventive patrol experiments opened up the possibility that uncommitted patrol officers might more profitably do something other than preventive patrol. The studies suggested that resources could safely be shifted away from preventive patrol activities, and that perhaps as much as 60 percent of the time officers spent on such patrol duties could be invested in other policing activities, such as investigation, surveillance, or community service.

The challenge was to determine what alternative activities would be more effective.

Response Time and the Nature of Calls. Even if extensive patrolling does not affect crime rates or reassure the public, isn't it necessary to have a fleet of patrol cars ready for fast response to calls? It has been axiomatic in policing policy that the faster the response to a call, the more likely the patrol officers will apprehend the criminal at or near the scene, and the greater the citizen's satisfaction. Research has shown that these assumptions, which have also supported an inordinate investment in patrol activities, are questionable. Further, it has undercut another implicit assumption about the nature of calls, i.e., that all calls require immediate response.

Rapid police response to citizen calls for service is commonly believed to be associated with feelings of community security and satisfaction, a high level of police efficiency, and a greater probability of criminal apprehension. In an effort to attain quicker response time, many departments have increased the number of sworn personnel, purchased faster cars, and expended large amounts of money on sophisticated communications systems and other technological innovations. Unfortunately, these efforts were being made without the benefit of data which had established an empirical relationship between rapid police response and arrest, witness availability, or other meaningful outcomes. One early study of policing concluded: "This knowledge gap is one of the most important factors limiting the development of effective aids to police patrol decisionmaking" (Kakalik and Wildhorn, 1971).

Because of the vast (and increasing) expenditures being devoted to improving response time, the NIJ deemed it important to empirically test the underlying assumptions upon which the policy decisions were based. In 1977, the NIJ awarded a grant to the Kansas City, Missouri, Police Department to analyze the effect of response time on the outcomes of various police field services (i.e., criminal arrests, citizen injury, witness availability, and citizen satisfaction).

Over a two-year period, the Kansas City Police Department collected detailed information on Part I crimes (i.e., major crimes) in 56 of their 207 beat-watches. Observers riding with police officers collected travel-time data, and research interviewers collected reporting-time data from victims and witnesses. Interviewers also questioned citizens about their satisfaction with police response time. Variations in the time intervals were then analyzed to see how they affected the probability of making an on-scene arrest, the probability of contacting

a witness at the scene, recovery from injuries sustained during the commission of the crime, and citizen satisfaction.

Results indicated that police response time was unrelated to the probability of making an arrest or locating a witness. And neither dispatch nor travel time were strongly associated with citizen satisfaction. The researchers discovered that the time it takes a citizen to report a crime—not the speed with which police respond—is the major determinant of whether an on-scene arrest takes place and whether witnesses are locatable. Furthermore, citizen reporting delays constitute a significant proportion of the total recorded police response time. According to the study, if the victim or witness waits an hour before calling the police, the speed with which the police subsequently respond is likely to be unimportant—the perpetrator of the crime has had ample time to flee the scene.

The researchers concluded that “because of the time citizens take to report crimes, the application of technological innovations and human resources to reduce police response time will have negligible impact on crime outcomes” (Van Kirk, 1978, p. 24).

NIJ-supported replications of the Kansas City Response Time Study in Jacksonville, Florida, San Diego, California, Peoria, Illinois, and Rochester, New York, basically confirmed the Kansas City findings (Pate et al., 1976a; Spelman and Brown, 1982).

Differential Response to Calls. As the response-time study findings became known, police began to consider the possibility of responding differentially to citizen calls for service. To understand the ramifications of such policies, the NIJ in 1981 sponsored a PERF study of differential police response strategies. This study sought to determine the percentage of citizen inquiries that involve noncritical matters (and hence do not require prompt response) and to assess whether citizens were willing to accept a delayed response to nonemergency calls, provided they were advised of the delay in advance. Police departments in Wilmington, Delaware, and Birmingham, Alabama, participated in the study.

The results from these cities were quite consistent. In Birmingham, the researchers found that about 15 percent of the citizen calls were critical, 55 percent were routine and did not require immediate patrol response, and 30 percent could be handled by other means. Thus, up to 85 percent of calls did not require fast response and could potentially be handled differently. And a survey of citizens who had made noncritical calls and who had received the traditional response of a patrol car to the scene indicated that they would have been just as satisfied with alternative, less expensive responses. Victim satisfaction with police response time was more closely associated with citizens'

expectations and perception about response time than with actual response time.

The NIJ also provided funding for Wilmington, Delaware, to test a "management-of-demand" (MOD) system. In this system, noncritical calls for police service were handled by methods other than timely on-scene patrol unit response. The alternatives included formal, 30-minute-delay on-scene response, telephone reporting, walk-in reporting, and scheduled appointments. Michael Cahn and James Tien, of Public Systems Evaluation, Inc., assessed crime rates and victim satisfaction in Wilmington before and after the MOD system went into effect. They found that crime did not increase under these alternative response strategies, that residents continued to be satisfied with police services, and that manpower available for other policing activities increased significantly (Cahn and Tien, 1981).

PERF researchers subsequently developed a model response system, called the Differential Police Response Model. In this model, civilian complaint-takers answer all citizen calls, classify them as critical or noncritical, and transfer the critical calls to a dispatcher for immediate response. Noncritical calls are systematically stacked, and citizens are asked to file reports at a later time.

The NIJ asked the Wilmington Police Department to implement the Differential Police Response Model, and PERF to evaluate it. The results were quite positive: The system saved police resources and allowed the department to handle an increased volume of calls without a corresponding increase in patrol officers.

Abt Associates subsequently used the research findings to develop an NIJ field test of a refined version of the model. This version was tested in Toledo, Ohio, Greensboro, North Carolina, and Garden Grove, California, for a period of eighteen months. The field test was evaluated by Edward Conners and Thomas McKewen, of Research Management Associates, Inc. The results showed a substantial savings in resources with no attendant decrease in public satisfaction.

This research established that immediate and quick response to all service calls was expensive, did not in itself improve arrest rates, seemed inappropriate for many kinds of calls, and was not essential to citizen satisfaction. A number of consistent, significant conclusions emerged from the studies:

- In the areas studied, less than 5 percent of arrests made for serious crimes could be attributed to fast police response.
- The time it takes a citizen to report a crime is the major factor in determining whether or not an on-scene arrest takes place, and whether witnesses are available. When victims and wit-

nesses delay in calling the police after a crime, variation in the speed of police response accounts for so small a proportion of total elapsed time that it has almost no effect on arrest probabilities.

- Most service calls are not critical in nature and do not require fast response by patrol units. Many can potentially be handled by other means, some of them by civilian police personnel or other agencies.
- Citizens do not become dissatisfied with different types of police response, provided they are told in advance how their calls will be handled.

Like the research on preventive patrol, these studies suggested that the personnel needed to achieve fast response to all calls could be used more efficiently in other policing work. Diverting noncritical service calls allows priority treatment for calls requiring immediate response and gives patrol officers more time for directed patrol and better on-scene investigation. Patrol officers can also be used in such proactive tasks as undercover work, locating suspects, and developing community liaison. In the Garden Grove field test, for example, it was found that almost 40 percent of all incoming calls could be diverted from patrol response to other forms of response (e.g., mailed or phoned-in reports) without loss of citizen satisfaction—a policy which, according to Police Chief Francis Kessler, saved the police department over 8,000 person-hours, or more than \$223,000 in the first year.

The Influence of Research on Patrol Operations

Reviews of patrol operations and interviews with leading police officials confirm that a substantial number of police departments have changed their patrol policies, operations, and expenditures in ways suggested by the patrol and response research. There can be no doubt that the research findings cast doubt on the value of conventional patrol and, as such, allowed police managers more latitude to construct alternative patrol strategies. Neil Behan, Chief of Police in Baltimore County, Maryland, put it this way:

Evidence from the Kansas City study, and others since then, has definitely impacted the way in which I allocate resources here in Baltimore. I am not saying that I took the findings "lock, stock and barrel" and implemented them, but the research findings certainly got me focused on looking at the effectiveness of my own policies and made me do some evaluations of my own. Also, once I understood that preventive patrol does not necessarily reduce crime, I became

more flexible in using that manpower in other ways, for example, more proactive criminal investigations.

But the Kansas City experiment was important in another way. It really opened up the doors for researchers to work closely with police. Until the Police Foundation's work, research was thought to be mostly academic, done for other academics. Now there is greater acceptability of researchers, and more willingness to let them in to the departments because police have understood the benefits.

Like Baltimore County, many departments used the research findings to initiate pilot projects which varied particular aspects of the patrol function. Following the publication of findings concerning preventive patrol, the San Diego, California, Police Department developed a Community Beat Profiling Program. The New Haven, Connecticut, Police Department undertook a Directed Deterrent Patrol Program, and the Wilmington, Delaware, Police Department experimented with split-force patrols. Other departments focused on educating the public, so that when crimes did occur, victims would be encouraged to more quickly phone the police.

In 1980, Thomas Repetto, a leading policing expert, conducted a survey of changes in policing during the past decade, which revealed that many aspects of police patrol have changed significantly in the past decade. He attributed these changes largely to the influence of the policing research reviewed above (Repetto, 1980).

Repetto discovered that 74 percent of the police departments surveyed reported changing the organization of their patrol divisions. The main change was the deployment of more officers "in accordance with the trends of crime as determined by systematic analysis." About 20 percent of the departments reported relieving a certain number of patrol units from responsibility for answering routine calls. The released patrol units were then used in proactive rather than reactive policing. In many police departments, patrol divisions have been divided into proactive and reactive patrol units, with the proactive patrol officers given specific assignments rather than being required to cruise the streets randomly.

CRIMINAL INVESTIGATION

Police departments have always ranked criminal investigation—the process of connecting a suspect with a crime—as one of their most critical functions. Yet, until the late 1960s, that function had never been closely examined. It was surrounded by a mystique that had not been challenged and has been perpetuated by detective fiction, movies, and

television series. The mystique was based on the following assumptions:

- Most serious criminal cases can be solved.
- Most cases involving unknown criminals are solved through detective investigations that use special training and talents.
- All but the most minor criminal cases should be assigned for follow-up investigation.

In the early 1970s, the NIJ initiated a line of inquiry to examine those assumptions and to establish how criminal investigations work and how they can be improved.

Research on the Investigative Process

In 1975, with NIJ sponsorship, Peter Greenwood of The RAND Corporation undertook a nationwide study of the criminal investigation process (Greenwood et al., 1977). The purpose of the study was to describe how police investigations were organized and managed, to assess how various investigation activities contributed to the overall effectiveness of policing, and to ascertain the effectiveness of new technology and systems being adopted to enhance investigative performance.

RAND surveyed 150 large police agencies nationwide and conducted interviews and observations in more than 25 police departments considered to be representative of different investigative styles. In several of these departments, detailed information was coded from crime, investigation, and arrest reports. Using the coded data, the researchers examined how much time was devoted to different types of cases, how long cases are active, and the effort expended on various activities. They then were able to identify which activities were primarily responsible for the solution of various types of cases.

During roughly the same period, the investigative process was also being examined by Bernard Greenberg at the Stanford Research Institute (SRI). Greenberg's analysis of burglary investigation practices in Alameda County, California, revealed that in more than 50 percent of the burglaries in which the perpetrators were arrested, the arrest was made within 48 hours of the report of the burglary. This implied that police investigations played a relatively minor role in the solving of burglaries (Greenberg et al., 1975).

The RAND and SRI studies tended to suggest that the information provided by patrol officers from their preliminary investigations is an extremely important determinant of whether a follow-up investigation will result in an arrest.

The interest and controversy generated by the RAND and SRI studies prompted the NIJ to sponsor a series of regional workshops to assist police administrators in assessing the reforms that had been suggested and planning for implementation. These workshops were developed and run by the University Research Corporation and drew heavily on the RAND and SRI studies.

In addition, the NIJ awarded grants to five police departments to implement some of the suggested investigative reforms. The participants were encouraged to concentrate on reforms suggested by the research findings. This field test, called Managing Criminal Investigations, was one of the major initiatives sponsored by NIJ in the late 1970s. The experimental changes made in this test were then evaluated in Santa Monica, California, Cincinnati, Ohio, and Rochester and Syracuse, New York, to determine whether, to what extent, and under what circumstances they actually improved investigative effectiveness.

Several consistent conclusions emerged from the research on the investigative process:

- Many serious crimes are not—and often cannot be—solved.
- Patrol officers are responsible, directly or indirectly, for most arrests. Either they arrest the suspect at the scene or they obtain identifications (or useful descriptions) of the criminal from victims or witnesses when the crime is initially reported.
- Only a small percentage of all index arrests result from detective investigations that require special organization, training, or skill. Special investigations bring very few *unknown* criminals to justice.
- Investigators play a critical role in the postarrest process, particularly in collecting evidence that will enable the prosecutor to file formal criminal charges.

These results suggested that patrol officers be given a larger role in conducting preliminary investigations, both to provide an adequate basis for case screening and to eliminate the need for redundant efforts by investigators. Many cases apparently can be closed on the basis of the preliminary investigation, and patrol officers can be trained to conduct that investigation adequately. Detectives can then more appropriately concentrate their efforts on the most serious crimes, on the cases most likely to be solved, and on getting sufficient evidence to support the prosecution.

The Influence of Research on Criminal Investigation

The results of this research, especially the RAND study, were given wide coverage in the media and became the subject of heated controversy in the police profession. Some police chiefs were sympathetic to the work because it supported their own impressions about the investigative process. Others were hostile, largely because the results were used by other municipal officials as an excuse for cutting police budgets. And some argued that the findings were based on geographical locations that were dissimilar to their local situations. Debates among the researchers and police chiefs were held at major professional meetings as well as in the literature.

In California, where much of the data were collected, local meetings were held between RAND researchers and police executives. As James Keane, Chief of Police in Santa Monica, California, said:

The RAND detective study initiated all kinds of discussion within our department about the detective myth—how important detectives were to overall police performance. There was a great deal of controversy between our detective and patrol divisions at the time. As it turned out, we decided to implement some of the RAND recommendations, for example, using case screening to determine which cases to follow up. We also began notifying victims more systematically about the progress of their case. Over the long haul, some of these procedures have stuck while others have been abandoned. But the important thing was that research got us talking about the detective function and what we expected from it. We had never thought much about it before.

At the national level, the NIJ sponsored a number of workshops and field studies to reexamine the investigative function. In assessing the research influence, *Police Chief* magazine, the official publication of the International Association of Chiefs of Police, reported:

Several chiefs said they had assigned detectives to beat patrol teams after reading the RAND report, though all said RAND wasn't the sole reason for the change. The RAND research helped convince Chief Roy McLaren (Arlington, Virginia) to rely more heavily on specialists who gather evidence, to check routinely for fingerprints at crime sites, and to abandon investigations that, according to certain criteria, simply cannot be solved.

In his survey of policing changes, Repetto (1980) found that most police departments have given patrol officers more responsibility for follow-up investigations. About 10 percent of the responding departments have actually merged the patrol and detective functions, with patrol officers conducting follow-up investigations, in all but the most serious criminal cases. In addition, many departments have appointed

a case-screening officer or felony-review unit to separate the promising from the unpromising cases, using "solvability factors." To encourage collection of more useful information, many departments now give patrol and investigative divisions written feedback from either the case-screening officer or the local prosecutor's office concerning final case outcomes.

More recent research on the investigative process appeared to contradict some of the earlier findings. However, analysts have since concluded that, in fact, those findings had actually wrought changes that created the apparent contradiction. In 1983, PERF published the results of a new look at the detective role:

Changes have occurred in investigative management as a result of the earlier studies. Five years have elapsed since publication of the last of those studies; all of them had a profound influence on investigative management today. For instance, there has been a greater emphasis on case screening and on improving the role of patrol officers in investigations—policy changes that were recommended by many of the earlier studies (Eck, 1983, p. xxiii).

One of the changes noted in the PERF study was that "police detectives and patrol officers contribute equally to the solution of robbery and burglary cases. But the investigation of such cases rarely consumes more than four hours, spread over as many days, and three quarters of the investigations are suspended within two days for lack of leads. In the remainder of cases, the follow-up work by the detectives is a major factor in determining whether suspects will be identified and arrested" (Eck, 1983, p. xiii).

Research on Case Screening

It is one thing to recognize that not all cases can be solved; it is another to decide which cases should be pursued. For police departments, the decision involves both economics and public image.

The research described above considered case screening as well as the other aspects of the investigative process. Both the RAND and SRI studies analyzed crime reports to discover whether more systematic means could be found to screen cases for follow-up investigation. Their analyses proved important: Both research efforts discovered that it was possible to identify which preliminary investigations contained enough "promising leads" to eventually result in case clearance.

The SRI research identified the following "predictors of case closure" for burglaries: the estimated range of time when the crime

occurred; whether a witness reported the offense, whether there was an on-view report of offense, if usable fingerprints were retrieved, and if a suspect was described or named. His analysis showed that, given the presence or absence of those factors, one could predict with an 80 percent accuracy rate whether the burglary would eventually be solved.

PERF further tested the SRI burglary screening model on a sample of cases from 26 police agencies throughout the United States. The results showed that the SRI model was 85 percent accurate in predicting burglary follow-up investigative results from information gathered by patrol officers during preliminary investigations, and demonstrated that the original conclusions were applicable nationwide (Eck, 1979). Another study in four Minnesota jurisdictions tested the model for burglaries and robberies and provided further support for the notion that objective screening devices can be used to identify the cases that are likely to eventually be solved (Johnson and Healy, 1978).

These studies gave rise to the notion of "solvability factors," i.e.,

- All other things being equal, the decision to pursue an investigation should be based on the likelihood of the case being solved.
- Certain criteria can be applied to information about a case that will predict with reasonable accuracy how likely that case is to be solved.

The Influence of Research on Case Screening

The NIJ incorporated the solvability-factor idea into the Managing Criminal Investigations field test which ran from 1977 to 1980 and found that case screening performs well in a variety of settings, avoids wasted effort, and helps managers by setting up realistic expectations and a rational basis for comparing expected and actual results. These research results, as well as presentations at conferences and word of mouth, helped quickly disseminate the solvability-factor concept.

In 1985, the NIJ sponsored a major policing conference, where it was reported that most large U.S. police departments have now formalized the case-screening function by using objective-based solvability-factor scoring devices.¹ The decision about whether or not to pursue a follow-up investigation is now commonly guided by applying fixed

¹Conference on Policing: A State of the Art, Phoenix, Arizona, Summer 1985.

criteria to the information contained in preliminary crime reports. As Joseph McNamera, Chief of Police in San Jose, California, stated:

It used to be rather a bold, radical idea to have policing decisions—particularly those as important as whether or not to follow up a case—determined by some objective scoring device. But police administrators have become better managers, and they now recognize that they have scarce resources that must be allocated to where they will do the most good. Research has identified “solvability” factors which pinpoint for us those cases that have a high probability of being solved if we work them. A smart policing official can use those devices as a decisionmaking tool. And many police chiefs in large urban areas now use those forms.

SPECIALIZED OFFENDER/OFFENSE OPERATIONS

Research on policing has looked not only at the policing operation itself (e.g., patrol, investigation), but also at the offenders and victims with whom the police must deal. As crime has become more varied and complicated, there has been a need for the police to better understand the unique aspects of particular crimes and particular offenders. As examples of this type of research, the cases of spouse abuse and career criminals are considered below.

Research on Police Response to Spousal Assault

Police have traditionally found spousal assault calls among the most problematical that they have to handle. According to Patrick Murphy, former Commissioner of the New York Police Department:

The common police tradition has been to do little. Physical violence within the home was thought to be exempt from the same laws which keep acquaintances or strangers from assaulting one another on the street.

In most cases, the police tried to restore some semblance of order and then left. According to Anthony Bouza, the Chief of Police of Minneapolis, “In most instances, this course of action amounted to benign neglect.”

In the mid-1970s, feminists began focusing attention on the issue of spouse abuse and began insisting that spouse abusers be treated like other violent criminals. Subsequently, police departments began to view spousal assault situations differently and to reconsider how the offenders should be treated. Their perceptions were sharpened by research on this issue.

The first systematic research on domestic violence was a 1977 study of family-related homicides in Kansas City and Detroit. In 1976, Police Foundation researchers discovered that in 85 percent of the family-related homicide cases, the police had been called to the address of the crime at least once during the prior two years. In 50 percent of the cases, they had been called to the address at least five times. These findings suggested that spousal assault tends to be a repeated offense, which can escalate to the point of murder (Wilt et al., 1977).

This finding prompted an NIJ-supported experiment to discover whether police could discourage repeated assaults by treating the offenders differently. Richard Berk, of the University of California, and Lawrence Sherman, of the Police Foundation, working cooperatively with police officials, designed an experiment which randomly assigned various strategies to calls involving spouse assault. The objective was to determine which, if any, type of police response—counseling the offender, separating the two parties, or formal arrest—reduced future incidence of domestic violence.

It was found that arresting assailants resulted in the lowest rate of repeated incidents over the following six months. In the 314 cases studied, 10 percent of the offenders who were formally arrested were involved in subsequent disputes, whereas 19 percent of those who received counseling and 24 percent of those who were sent away from home repeated the offense. Sherman and Berk (1984) concluded: "The arrest treatment is clearly an improvement over sending the suspect away, which produced two and a half times as many repeat incidents as arrest . . . regardless of the race, employment status, educational level, criminal history of the suspect, or how long the suspect was in jail when arrested, arrest still had the strongest violence reduction effect."²

These studies established that spousal assault does justify special treatment by the police:

- In about 85 percent of family-related homicide cases, reports of domestic trouble had brought police to the address at least once in the preceding two years.
- Arresting and holding spousal assault suspects in jail overnight evidently reduces future incidence of the crime more effectively than either counseling or sending the suspect away.

The research results suggest that police should pay special attention to the violence-prone family or setting. The first incidence of spousal

²The NIJ is currently replicating the experiment in Denver, Colorado, where it is testing alternatives to the arrest policy.

assault is a strong signal that should not be ignored—especially since homicide is often the last in a series of assaults. Arresting the suspect appears to be the most effective means of intervening to break the pattern.

The Influence of Research on Treatment of Spousal Assault

A number of forces probably conspired to make the research on spousal abuse especially newsworthy, including the feminist movement and increased media attention to domestic violence. In any case, policy and legislative changes regarding treatment of spouse abusers have been implemented in many states and local jurisdictions. It seems reasonable, and practitioner interviews confirm, that research either prompted those changes or gave support to their proponents. According to Anthony Bouza:

Our spouse assault experiment led to the adoption of an arrest policy in such situations. The revised policy did not make arrest mandatory, but it did require officers to file a written report explaining why they failed to make an arrest when it was legally possible to do so. This policy increased arrests for assaults by over 200% for the first months of the program, leveling off at a very high rate. I believe arrests work best because they serve as the lever to compel civilized behavior by batterers.

New York, Houston, Dallas, Denver, and Phoenix have also changed their policies (Sherman and Hamilton, 1984). In New York City, for example, when the research results were published, Police Commissioner Benjamin Ward announced that his officers would no longer act as "mediators and social workers" but would arrest assailants for misdemeanor assault if the victim would press charges. They would also strictly abide by a department policy to arrest assailants in more serious cases, even if the victim did not cooperate. When Phoenix Police Chief Reuben Ortega learned of the Police Foundation findings, he immediately issued a policy directive ordering his police officers to step up their enforcement efforts. He stated: "Our policy is that if an officer can substantiate any criminal charge that arises from a family fight, then he should make an arrest."

Ten states have enacted laws making spouse abuse a separate criminal offense. Over half the states have dismantled legislation that prevented police from making an arrest if they did not witness the crime. Sixteen states now permit warrantless arrests, and five impose a duty to arrest when there is probable cause. In 1986, California enacted a policy which requires all police agencies to adopt the arrest policy.

In 1984, President Reagan established the Attorney General's Task Force on Family Violence, chaired by Chief William Hart. After reviewing the results of the Minneapolis Domestic Violence experiment (and holding hearings around the country), the Task Force recommended that:

To provide the most effective response, operational procedures should require the officer to presume that arrest, consistent with state law, is the appropriate response in cases of family violence (*Attorney General's Task Force on Family Violence*, 1984, p. 20).

A survey conducted in 1986 found that an increasing proportion of the nation's police departments are using arrest as the preferred method of dealing with spouse abusers. In larger cities, the use of arrests rather than mediation as the preferred policy for dealing with minor domestic assault increased from 10 percent in 1984 (Sherman, 1986) to 31 percent in 1985.

Police Targeting of Career Criminals

Police have long suspected, and research has confirmed, that a small proportion of criminals commits a disproportionate number of serious crimes. Also, these offenders appear to have managed to "beat the system" by avoiding arrest and stringent prosecution. In the mid-1970s, prosecutors began to develop "career criminal" units.³ It soon became obvious that these prosecution units were highly dependent on police support. For example, the prosecutor's office cannot become involved in a case until it is notified of an arrest. And once a case has been accepted by the prosecution unit, it is likely to require more thorough and more rapid preparation for trial. Thus, police departments became interested in developing their own special units to concentrate on career criminal offenders.

Some career criminal policing units assigned liaison officers to expedite the collection and processing of evidence and to assist prosecutors in witness coordination. In others, police used lists of suspected offenders to target their arrest efforts. Sometimes this involved nothing more than maintaining a career criminal file containing personal characteristics, previous crime patterns, and fingerprints of the community's most serious suspects. In some instances, patrol officers were provided with mug books containing pictures of these suspects for use in witness questioning or for field stops. Special surveillance efforts were used against some individuals on the list who were deemed particularly dangerous.

³Career criminal prosecution programs are discussed in Sec. III.

One of the most highly developed programs of this type is the Repeat Offender Project (ROP), begun in 1982 at the Metropolitan Police Department of Washington, D.C. The special ROP unit, consisting of about sixty officers, uses a variety of investigative undercover tactics to catch career criminals. To arrest persons for whom warrants had not been issued, they had to develop evidence about specific crimes in which their targets had participated. This involved several activities, including cultivating informants, investigating tips from citizens, placing targets under surveillance, tracing stolen property found in a target's possession to the original owner, and using "buy-and-bust" techniques.

Results of the ROP were closely monitored for two years by NIJ-supported researchers. Susan Martin and Lawrence Sherman, of the Police Foundation, found that:

- The work of the Repeat Offender Project substantially increased the likelihood of arrest of the persons it targeted.
- Those arrested by ROP officers had longer and more serious arrest histories than a comparison sample.
- Persons arrested by the ROP unit were more likely to be prosecuted and convicted on felony charges and more likely to be incarcerated than comparison arrestees (Martin and Sherman, 1986).

According to Police Foundation President Hubert Williams:

The results portray the ROP approach as an important new crime control tool. Specifically, the results strongly indicate that ROP units can increase the apprehension, conviction, and incarceration of repeat offenders. Thus, ROP units can play a significant role in helping to rid the nation's streets and neighborhoods of these offenders.

Because of intense interest surrounding the ROP project, preliminary results were shared with the policing community beginning in 1983. Police Foundation researchers made frequent presentations of preliminary results and wrote a number of descriptive articles for professional publications; the ROP was featured on the television show, *60 Minutes*. The publicity and the encouraging results attracted the attention of police officials nationwide, and replications are now being planned.

A survey conducted in 1985 by William Gay, of Abt Associates, discovered that 33 police departments had established special career criminal units (Gay and Bowers, 1985). Such programs now exist in several states, including Missouri, New York, California, Maryland, and New Mexico, as well as in Washington, D.C.

III. THE INFLUENCE OF RESEARCH ON PROSECUTION

The judicial process is sometimes compared to a funnel: At the top, a great number of people are arrested, but at the bottom, very few of them are ever convicted. For some, prosecutors refuse to file charges; for others, charges are ultimately dropped or the prosecution fails to produce convincing evidence of guilt. Nationally, about 50 percent of all felony arrests fail to result in a conviction (Boland and Brady, 1985).

Jurisdictions across the country face this "case attrition" problem, and policymakers have suggested that it contributes as much or more than any other single factor to serious crime in the community. Many offenders who slip through the system quickly return to crime and are rearrested, only to slip through again. This pattern creates a dismaying picture of "revolving-door" justice that undermines public confidence in the system, makes criminals more confident of escaping punishment, and jeopardizes public safety—especially when high-rate serious offenders are involved.

Although jurisdictions are strongly motivated to improve the prosecution process, until the mid 1970s they had little systematic information about what was happening between arrest and incarceration. Since then, the NIJ has supported extensive research on prosecution issues. These studies have benefited prosecution most by (1) establishing the magnitude and sources of case attrition and (2) supporting special prosecution efforts to identify and convict career criminals, i.e., the offenders most likely to return to serious crime, if released.

THE CASE-ATTRITION PROBLEM

Until the 1970s, case attrition was a commonly acknowledged but little understood problem. Subsequent research has documented the dimensions of case attrition and has also identified two major causes: problems with victims and witnesses, and lack of coordination between the police and prosecutors. Both of these causes contribute to lack of sufficient evidence and undermine prosecution efforts in other ways as well.

Research on the Dimensions of Case Attrition

The NIJ began funding empirical studies of case attrition in the mid-1970s. One of the earliest studies was conducted by Peter Greenwood at RAND in 1976. Greenwood analyzed felony disposition data for Los Angeles County (Greenwood et al., 1976). At about the same time, Brian Forst and researchers at the Institute for Law and Social Research (INSLAW) were using data from the PROMIS (Prosecutor's Management Information System) computer system¹ to examine case attrition in Washington, D.C. (Forst, Lucianovic, and Cox, 1977), and the Vera Institute of Justice was conducting a thorough study of the phenomenon in New York City (Vera, 1977).

The INSLAW study analyzed 15,000 adult arrests and found that what the police officer does has a great deal to do with whether an arrest results in a conviction: When the arresting officer is able to recover tangible evidence, a conviction is more likely. Also, if the police locate two or more cooperative witnesses, the probability of conviction is significantly enhanced. And if the arrest is made soon after the offense—especially in cases of robbery, larceny, or burglary—tangible evidence is more often recovered and conviction is, again, more probable.

The INSLAW study noted that robbery arrests with two or more witnesses were twice as likely to be formally charged as cases lacking two witnesses. The researchers recommended police training that emphasized not just "preserving the scene," but "crime scene management that would include initiating an immediate canvass for witnesses and for evidence." They also strongly recommended a system that would provide regular feedback to officers about case outcomes.

The Vera study is perhaps the most comprehensive research to date on case attrition, in that it was designed not only to describe the deterioration of cases between arrest and final disposition, but also to explore some underlying patterns that may help to explain how and why that deterioration takes place (Vera, 1977; Zeisel, 1981).

A follow-on NIJ study by Floyd Feeney and Adrienne Weir identified factors related to case attrition and recommended strategies that might decrease attrition (Feeney, Dill, and Weir, 1983). Consistent with the INSLAW and McDonald findings, they too recommended greater feedback to police officers, including statistics on case attrition and specialized training in collecting evidence in specific types of crimes. They also recommended assigning police to short periods of observation in the prosecutor's office and shifting some police investi-

¹The PROMIS system and its uses are described at length in Sec. VI.

gator resources from low-priority work on unsolved crimes to building cases against suspects already arrested.

Certain common patterns emerged from this body of research:

- Less than half of all felony crimes are cleared by arrest, and two thirds of felony arrests are either not prosecuted or reduced to misdemeanors through plea bargaining.
- Much felony case attrition results from lack of victim cooperation or insufficient evidence to make a felony charge hold.

The Vera study found that only 12 percent of the cases that begin as felony prosecutions lead to felony convictions. It was clear from all the research that the police very often fail to give prosecutors enough evidence to warrant filing a charge or to make a charge stick in court. However, the Vera study concluded that much attrition was due to the fact that the victim and the offender had some kind of prior acquaintance that tended to undermine or make prosecution undesirable:

In half of all the felony arrests for crimes against the person, the victim had a prior relationship with the defendant. Prior relationships were frequent in cases of homicide and assault, where they were expected, as well as in cases of robbery, where they were not. Even in property crimes, prior relationships figure in over a third of the cases. This unanticipated level of prior relationships proved significant to the outcome of cases (Vera, 1977, p. xiv).

Research on the Role of Victims and Witnesses in Case Attrition

The findings of studies of case attrition intensified interest in the way that victims and witnesses affect case attrition and the reasons for their behavior.

Several researchers, in particular those at INSLAW and the University of California at Davis, delved deeper into the issue of victim non-cooperation, confirmed the Vera results, and refined the concept of victim/witness problems, including police and prosecution perceptions that witnesses were "uncooperative."

Cannavale and Falcon (1977) found that the major difference between "noncooperative" and "cooperative" witnesses was that the former were more likely to have failed to receive their notices to appear in court or to be confused about the court process. Interviews with witnesses who had been recorded as "noncooperative" by prosecutors showed that one out of four could never be reached again because their names, addresses, or telephone numbers were incorrectly recorded.

"Noncooperatives" also told researchers that imprecise directions about where to appear and the lack of information booths in the courthouse precluded them from appearing when scheduled.

This led INSLAW researchers to conclude that police attention to verifying that victims and witnesses provide accurate information and that backup contact persons are provided would be time well spent. Furthermore, they discovered that the police play a critical role in a victim's adjustment. A helpful police officer has a marked positive effect on victim attitudes, in both personal adjustment and willingness to become involved in the formal criminal justice system.

Research on Police-Prosecutor Cooperation

From the prosecution studies summarized above, a consensus began to emerge that the police need to see themselves as partners in the total outcome of the case—that their work does not end with the filing of the case, and that they should concentrate on collecting evidence that will support an eventual conviction. Traditionally, police investigators have focused on clearing cases and were largely unconcerned about the problems of effectively prosecuting a case. To make an arrest, police need only enough evidence to establish *probable cause*. To file charges, prosecutors need *proof beyond a reasonable doubt*. Most police departments considered successful conviction of defendants was the province of the prosecutors and the courts, and not a matter over which the police had much control. Consequently, there was little cooperation or coordination between police and prosecutors in the handling of offenders.

To analyze this problem, the RAND criminal investigation study (described in Sec. II) compared two jurisdictions whose investigation reports differed significantly in quality of information. The researchers used a checklist of 39 evidentiary questions that prosecutors deemed pertinent to a robbery prosecution. Petersilia (1976) then applied this checklist to two police departments to determine how much of the "desired" information was provided to the prosecutor. The results showed empirically that prosecutors receive only about 50 percent of the information they believe is necessary to convert a robbery arrest into a robbery conviction. And this rate applies to investigations conducted by a police department whose follow-on investigations were reputed to be among the best in Los Angeles County. The study also found that the dismissal rate, the heaviness of plea bargaining, and the

type of sentence imposed all related to the thoroughness of the police investigation.

To more fully understand the police-prosecutor relationship, particularly the reasons for the apparent communication gaps, the NIJ subsequently sponsored a major study by William McDonald, of Georgetown University. McDonald sought to describe relations between police and prosecutors in large urban jurisdictions. To do this, he interviewed 205 police officers and 85 prosecutors in 16 U.S. jurisdictions (McDonald et al., 1981).

McDonald confirmed the earlier RAND finding that police often do not supply prosecutors with the amount and kinds of information they need to file formal charges. But interviews with police officers revealed that this was due partly to inadequacies in police training, incentives, and the nature of the interorganizational communication system used. McDonald placed equal "blame" on the prosecutors, who contribute to the problems by failing to inform police about the exact information needed for strong cases and about the disposition of cases brought by the police.

McDonald suggested that police training programs should include opportunities to learn directly from local prosecutors, while prosecutors and police should share directly their special knowledge of each case and its disposition. He also noted that police would provide more complete information if their incentives for doing so were increased, and that this might happen if police officers' performance were tied to their cases' final disposition (e.g., whether a conviction resulted) rather than to arrests.

A third study related to these issues (Forst, Lucianovic, and Cox, 1977) found that conviction was more likely when police recovered tangible evidence, brought cooperative witnesses to the prosecutor, and made an arrest soon after the crime. The study also showed that some police officers have considerably greater ability than others to make arrests that lead to convictions: 15 percent of the 2,418 officers studied made half of the arrests that led to convictions.

The NIJ funded a follow-up study of these "top cops," which found that the high-performing officers did not differ from other officers in personal or demographic characteristics (Forst et al., 1982). Rather, they tended to focus greater attention on locating witnesses than other officers, and they used a dual questioning approach that combined a direct, factual line of questioning with a psychological, indirect approach (lower-performing officers relied more heavily on only the factual approach). This research further reinforced the critical role that police play in the ultimate disposition of a case.

These studies underscored the need to strengthen communication and coordination between police and prosecutors, to specify more clearly the evidentiary requirements for obtaining convictions, and to inform investigating units about prosecution outcomes:

- Even in jurisdictions with highly rated follow-on investigations, prosecutors received only about half the information they believed necessary to secure a conviction for robbery.
- The dismissal rate, the heaviness of plea bargaining, and the type of sentence imposed all related to the thoroughness of the police investigation.
- In most jurisdictions, prosecutors failed to make police aware of their information needs and to inform them about case dispositions.
- A high proportion of arrests that result in conviction are made by a small proportion of police officers (the "top cops").

These findings prompted a number of policy recommendations. It is clear that police need to pay more attention to locating and dealing with witnesses and to be more interested in follow-up investigations (e.g., evidence collection and processing, witness cooperation). They need to be familiar with the type of information the prosecutor requires to produce a conviction. More adequate training, stronger incentives, and better communication between police and prosecution offices will contribute to this goal.

The research conclusions also imply that postarrest investigation activities should be coordinated more directly with the prosecutor, possibly by assigning investigators to the prosecutor's office or by allowing the prosecutor to exert more guidance over police policies and practices. Researchers also suggested that as early in the process as possible, the police officer with the most knowledge about the case should communicate directly with the prosecutor in charge of making the critical decisions.

The Influence of Research on Case Attrition

The research on case attrition has raised serious questions about the validity of many widely held opinions about how the court systems operate and has prompted new criminal justice initiatives. The earliest work led to interest in using computer systems (like PROMIS) to track case disposition, and to formal policy standards for filing charges (e.g., delineating what evidence was required for filing a felony versus a misdemeanor).

California Attorney General John Van de Kamp commented on the importance of the PROMIS system and case attrition research for changes he made earlier as Los Angeles County's District Attorney:

When I became D.A. in Los Angeles, I began to look for rational approaches to allocating resources, but I didn't have all of the information I needed to make good decisions. At that time, there existed no database to inform me about the office's overall performance. Then researchers at INSLAW installed the PROMIS system and began publishing research reports. Their first report hit the newspapers with headlines, like "half of all felony arrests are dropped." That got my attention because news reporters began asking hard questions. I quickly learned I had to understand those statistics if I was going to be responsive.

As I became familiar with PROMIS, I realized it could provide me with basic information I needed, for example, why cases fall out after being accepted by the D.A. for filing.

About the same time, RAND was using the L.A. office for a study of felony prosecutions. The RAND study showed there was a great deal of variation in filing practices in our branch offices. That bothered me, and I began to work with several members of the local Bar Association to devise written filing policy guidelines. And while this was something I had considered before the RAND results, the publication of that report provided added impetus. And as it turned out, about five years after that, a policy manual was printed and distributed to all our branch heads, which is still in use today.

So, yes, I believe research was an important ingredient to my policies when I was D.A., and continues to be now that I am Attorney General. Research is an "intuition expander." I think it adds a little bit of structure, if you will, to my own sense of intuition.

Case-attrition studies also prompted the NIJ to establish special funding for victim-witness programs in selected district attorneys' offices and courts across the country. These programs attempt to improve communications between witnesses and the criminal justice system.

Since these research results have been published and disseminated, changes in police-prosecutor relations have occurred in many jurisdictions. Many police departments now use "prosecutor checklists" that name the items the prosecutor desires prior to the formal filing of charges (e.g., type of weapon used, injuries sustained). Police investigators use these checklists to ensure that they have submitted to prosecutors only those cases for which they have sufficient evidence to support formal charges.

To further encourage fruitful cooperation, many jurisdictions have institutionalized liaisons between police and prosecutors by, for example, assigning police to the prosecutor's office on a rotating basis and vice versa. Many jurisdictions have also instituted methods to make police aware of the evidentiary requirements for effective prosecutions: training sessions and meetings, videotapes, on-call prosecutors, legal advisers in police departments, etc.

Finally, many prosecutors' offices are taking care to let patrol and detective officers know the final disposition of cases. An NIJ-funded experiment in Snohomish County, Washington, Baltimore County, Maryland, and New York State has prosecutors filling out final "case disposition" forms which indicate the exact reasons for cases not resulting in convictions. The forms are subsequently sent back to the detectives and patrol officers who worked on the cases. This is expected to help officers understand why some of their cases lead to convictions and others do not.

DEALING WITH CAREER CRIMINALS

Selective prosecution of career criminals is such a common practice today that it is easy to forget how radically research changed the concept of career criminals, of the threat they pose to society, and of the way they should be treated.

Research on Career Criminals

Less than a decade ago, "career criminal" was a relatively unknown term. When it was used, it referred to an offender who derived his income from crime. Research has shown that very few criminals ever make a good living at crime. However, there is a class of offenders for whom crime is very much a career (if not a vocation). The "portrait" of the career criminal has emerged, like a police artist's composite drawing, from successive studies and has been, in a sense, verified by prisoner self-reports obtained in research. That portrait richly justifies selective prosecution efforts to ensure the conviction of these offenders.

Police have long claimed that a small proportion of offenders commit a large percentage of all crimes, affecting crime rates and public safety inordinately. In the early 1970s, several studies found evidence that this might be true, and other studies began investigating the nature of "career criminals" and criminal careers.

A 1972 study of the delinquency records of all males born in 1945 who lived in Philadelphia between ages ten and eighteen (more than

10,000 boys) found that more than one-third had at least one recorded contact with the police by the time they were eighteen, and half of them had more than one such contact (Wolfgang et al., 1972). Most important perhaps, from a policy standpoint, was the discovery that 6 percent of this birth cohort had committed five or more crimes before the age of eighteen. And these "chronics" accounted for over half of all the recorded delinquencies of the entire group.

Wolfgang et al. also found that about half of those with one police contact had no more. However, a juvenile with three police contacts had a greater than 70 percent chance of having a fourth. This study was the first to empirically document the existence of "career criminals" and the inordinate contribution they make to the overall crime problem.

While the Wolfgang studies focused upon juvenile patterns of criminality, other studies used official criminal justice records to study adult patterns of offending. Studies of offenders in Columbus, Ohio (Miller, Dinitz, and Conrad, 1982), and of recidivism in Washington, D.C. (Williams, 1979), attempted to identify characteristics associated with high probabilities of reoffending.

In 1975, the NIJ identified career criminals as a topic deserving sustained research attention. The RAND Habitual Offender Program was designed to provide new insights into career criminals' characteristics, to discover how the system treats them, and to assess the potential effects of alternative sentencing on their subsequent behavior. One of the RAND goals was to estimate the number of crimes a person commits relative to the number of times he is arrested. To make that estimate, the researchers had to ask offenders directly about their criminal behavior.

In the five years of this research, RAND conducted three inmate surveys: The first consisted of interviews of 49 men in a California prison who had been convicted of armed robbery (Petersilia et al., 1978). The second used a written questionnaire to survey a sample of 624 inmates chosen to represent the male population of California prisons (Peterson et al., 1981). The third used data from both official records and self-reports of 2,400 inmates in prisons and jails in Texas, California, and Michigan (Greenwood and Abrahamse, 1982; Chaiken and Chaiken, 1982).

The research on career criminals overwhelmingly supported the claim that a small proportion of offenders account for a disproportionate amount of crime. But a key policy issue remained: What is the feasibility of predicting criminal careers, and hence, reducing crime through incapacitation (usually incarceration) of career criminals? In 1983, the NIJ asked the National Academy of Science's Panel on

Research on Criminal Careers "to evaluate the feasibility of predicting the future course of criminal careers, to assess the effects of prediction instruments in reducing crime through incapacitation (usually incarceration), and to review the contribution of research on criminal careers to the development of fundamental knowledge about crime and criminals" (Blumstein et al., 1986, p. x).

The Panel's report reviewed the research and reported a number of major conclusions:

- Official records give no hint of how many crimes some criminals actually commit, nor do they reveal much about the social and economic traits that characterize career criminals.
- Career criminals do not embody the traditional stereotype of older offenders with long, serious records and utilitarian attitudes toward crime. Rather, they are typically young (18 to 24), drug-using, unmarried, and sporadically employed. They began committing serious crimes well before they were 16 and are criminally motivated by excitement, hedonism, and/or the need to support a drug habit.
- Lack of a prior adult record should not exclude young criminals from consideration for selective prosecution. Because of their youth, many of the most serious (and most violent) career criminals do not have adult felony records.

Despite the consistent picture of career criminals this research produced, identifying them for special prosecution remains problematical. Criminal records do not often provide accurate information on some of the most salient traits of career criminals, e.g., juvenile record, illicit drug use, and employment history. Offenders cannot be expected to volunteer such information about themselves—especially if it means that they will be prosecuted more vigorously. Because of the inaccuracies in current methods of criminal prediction, the Panel on Research on Criminal Careers wrote that "the role of prediction must be rigorously constrained and, in particular, [must] not result in punishments or restraints that are unjust in terms of the offense committed" (Blumstein et al., 1986, p. x).

Given the importance of juvenile records in identifying career criminals, the NIJ asked RAND researchers to survey large prosecutors' offices to evaluate their access to the juvenile records of adult felons they prosecuted. Greenwood, Petersilia, and Zimring (1980) found that in a national survey, 60 percent of prosecutors responded that juvenile police records were "rarely or never" available at the time of filing, while a majority (74 percent) reported that adult records are "always or

usually" available. Boland and Wilson (1978) hypothesized that because of the lack of information about juvenile activity, the adult criminal justice system makes no distinction between the first adult arrest of a chronic juvenile offender and the arrest of a true first offender. As a result, chronic juveniles may be treated leniently, permitting them to continue committing crime in the community. The researchers suggested that juvenile records be made more accurate and that the information they contain be shared with the adult criminal courts when an individual continues to commit serious crimes.

Selective Prosecution of Career Criminals

Several early studies of recidivism established that habitual offenders often managed to "beat the system," getting relatively lenient treatment from district attorneys in exchange for guilty pleas or from judges who were optimistic about rehabilitation. For example, sentencing patterns in Los Angeles County showed that only 50 percent of defendants who had served a prior prison term received prison sentences for a subsequent robbery conviction, and only 15 percent received them for a subsequent burglary conviction (Greenwood et al., 1976).

Even when deterrence and "just deserts" replaced rehabilitation as a sentencing objective, many habitual offenders continued to beat the system for the reasons discussed above (their relative youth and the opacity of official records). In large urban areas, especially, prosecution procedures themselves have often been responsible for letting career criminals slip through the net.

Because of their heavy case flows, most big-city prosecution offices were organized to handle cases on an assembly-line model. Individual deputies specialized in particular aspects of the court process: screening and filing cases, handling preliminary hearings and arraignments, prosecuting at trials. Each one stayed in his own department while the cases flowed by him. The deputy who actually appeared in court often knew little more about the case than what appeared in the court documents or notes from deputies who had handled the earlier steps. This procedure often resulted in case dismissal because the prosecuting attorney was surprised by testimony in hearings or trials, a witness did not appear in court, or there was some other administrative foul-up.

This confluence of circumstances prompted prosecutors around the country to consider special prosecution efforts to eliminate the "revolving door" for criminal repeaters. These efforts constituted a sort of grass-roots experimental movement that ultimately led to a major federal (LEAA) initiative for Career Criminal Prosecution (CCP)

programs. In this case, the field (i.e., practitioners) led research, rather than vice versa. Researchers were most helpful in evaluating the CCP programs and providing what empirical guidelines they could use to identify career criminals for special prosecution efforts.

Charles Work, the person who spearheaded this movement, became interested in applying research and modern management procedures to prosecution while serving as U.S. Attorney in Washington, D.C. He set up a major-violator unit and began experimenting with a variety of scoring systems to identify the most serious cases. When he became Assistant Administrator at LEAA, Work was instrumental in pushing for dissemination, implementation, and evaluation of the CCP concept in experimental programs. Using the Bronx Major Offense Unit as an exemplary model, LEAA helped develop CCP programs in over 50 jurisdictions nationwide. Local and state monies funded additional programs, so that by 1980, CCPs had been established in more than 100 prosecutors' offices.

The MITRE Corporation received funding from NIJ to conduct an evaluation of the CCP program that involved intensive analyses of program processes in four jurisdictions: Orleans Parish, Louisiana, San Diego, California; Franklin County, Ohio; and Kalamazoo County, Michigan (Chelimsky and Dahmann, 1981). This evaluation described the development of the program concept and also focused on changes in case outcomes: conviction rates, incarceration rates, average sentence lengths, and average time to disposition.

The length of prison term received by career criminals was shown to have increased, but the probability of incarceration (following conviction) did not change in any of the four sites, partly because in three out of the four sites, career criminals had a high (90 percent) rate of incarceration prior to the establishment of the special CCP unit.

Most of the CCP units operate out of local prosecutorial offices. However, California initiated a statewide CCP program, designed and funded by the California Office of Criminal Justice Planning. The NIJ also funded an evaluation by Abt Associates (DeJong, 1980). The California CCP resembled that implemented nationwide in that it included vertical prosecution, limited plea bargaining, and close coordination with law-enforcement agencies.

The major result of Work's experiment and those that followed was the operational concept of the CCP. Although projects varied somewhat from site to site, the basic program model included the following elements:

- A special unit of experienced deputies devoted exclusively to prosecuting career criminal cases.

- Some case-selection criteria based on prior record, current offense, and other subjective factors (e.g., weapons, presence of drugs).
- Early involvement by the prosecutor in potential CCP cases to ensure an adequate police investigation.
- Vertical representation, in which a single deputy was assigned to handle each case at the time of filing, retaining responsibility for all subsequent actions through to sentencing.
- A concentrated effort to see that CCP defendants received long prison terms, generally precluding plea bargaining.

Although the MITRE evaluation did not find that CCP programs made a difference in incarceration rates, the later evaluation in California indicated that they held promise. The researchers found small, but significant, increases in conviction rates; a large increase in the fraction of defendants convicted of the most serious charges; increases in incarceration and imprisonment rates; and an increase in average sentence length (Springer et al., 1985).

Research has underlined the major problem for selective prosecution and selective incapacitation,² namely, the difficulty of identifying career criminals from their official records. The RAND career criminal studies showed that criminal offenders "peak" (in both frequency and seriousness of offenses) between the ages of 18 and 25. This means that, given California's two-track system of juvenile and adult justice, offenders receive a relatively clean slate at age 18. Thus, for prosecution purposes, offenders who have accumulated lengthy juvenile records appear to be first-offenders when they enter the adult system. By relying solely on adult official records, CCP units fail to identify serious, active youthful offenders. This finding, discussed by Boland and Wilson (1978), encouraged CCP programs to focus on younger offenders and to consider juvenile records in their case-selection efforts.

According to Peter Gilchrist, the District Attorney of Charlotte, North Carolina, the research influence was direct:

The research findings confirmed what my experience had led me to believe for a long time: We must concentrate more of our prosecutorial resources on the younger offenders. I operate a Career Criminal Prosecution Unit, and I use an objective scoring system to identify career criminals. My scoring system is designed to identify persons earlier in their criminal career—they get more points for being younger. Research has shown us that offenders peak in their criminality before age 30. I wanted to make certain my Career Criminal attorneys were not concentrating on older offenders. Also, research

²Selective incapacitation is discussed in Sec. IV.

highlighted several of the other factors I use (for example, alcohol and drug use) to target "high rate" offenders.

In some states (e.g., California and Washington), legislation has been introduced allowing juvenile records to be used in adult criminal court proceedings.

The Influence of Research on Career Criminal Prosecution

Criminal justice researchers, policymakers, and practitioners now have a far more systematic and empirically based concept of criminal behavior than they had a decade ago. Consequently, important changes have been made in both policy and operations, directed at identifying and prosecuting the career criminal. These changes include local, state, and federal level initiatives, for both juvenile and adult chronic offenders. Lowell Jensen, former U.S. Deputy Attorney General, believes that career criminal research has significantly shaped public policy:

Researchers have shown us the extent to which career criminals are responsible for our crime problem. Everyone knew there were highly active offenders preying on society, but until recently, we didn't know much about them. Now we know that a small group of highly active offenders accounts for about 70 percent of street crime—robberies, burglaries, and muggings. And we know that he operates relatively unimpeded, since his probability of arrest is usually below 10 or 20 percent. That information has implications for police and courts. It means when he is arrested, we need to identify and prosecute him in a manner that will assure conviction and a lengthy sentence.

Researchers really helped us quantify the "career criminal," if you will. Understanding the career criminal led to the development of hundreds of Major Violator Units. Targeted prosecution efforts of that type have been one of the major developments over the past decade, and research has played an integral role.

The implications of juvenile career criminality also led to the development of career criminal juvenile units. Five cities established serious habitual offender/drug involved (SHO/DI) projects in a unique experiment aimed at identifying juvenile career criminals. These experiments were carried out in Portsmouth, Virginia, Oxnard and San Jose, California, Jacksonville, Florida, and Colorado Springs, Colorado. The objectives of the experiments were to identify, arrest, and prosecute serious habitual juvenile offenders; improve knowledge about drug abuse and drug-related crime; and establish a close working relationship between law enforcement officials and prosecutors.

Dozens of career criminal bills have been introduced across the nation. In 1984, then U.S. Attorney General William French Smith recommended that the U.S. government "create a federal career criminal apprehension and prosecution program which would include violent juvenile repeat offenders." A bill (SB-52) creating such a program was passed in February 1984.

Several states have also recognized the need to assist local criminal justice agencies in focusing special attention on career criminals. California and New York have sought to coordinate and stimulate local programs by recommending procedural guidelines and by providing grants to cover some program expenses. Maryland has provided small planning grants and has sought to stimulate local initiatives by developing a program model (Gay and Bowers, 1985).

The proliferation of CCP programs is eloquent testimony to the need for and importance of federal support in criminal justice research. As an evaluation of the program concludes:

By 1985, approximately 100 career criminal programs were active in 30 of 50 states. Local career criminal programs received their major impetus from federal funding, which dispersed approximately \$30 million to 128 local jurisdictions between 1975 and 1980. The persistence of career criminal programs after termination of federal funding attests to the local popularity and perceived importance of the program. Indeed, among 87 local programs surveyed in this study, some 15% have been initiated since 1980. Selective prosecution of career criminals continues to attract the interest of local prosecutors after a decade of experience (Springer et al., 1985).

IV. THE INFLUENCE OF RESEARCH ON SENTENCING

Over the last decade, sentencing has undergone greater changes than any other part of the criminal justice system. Until the mid-1970s, rehabilitation was the prevailing purpose of sentencing and corrections. Judges and parole boards had considerable discretion in deciding how long it would take to rehabilitate an offender or whether he had been rehabilitated. Consequently, indeterminate sentencing was the rule of the day, and it reflected an offender's characteristics as much as or more than the seriousness of his crime.

Today, just deserts, deterrence, and incapacitation have replaced rehabilitation as the primary sentencing rationales, and the system has become very concerned with ensuring equitable and consistent treatment of all offenders. Consequently, most jurisdictions have moved to limit judicial discretion through determinate and mandatory sentencing, and/or sentencing guidelines.

Research has addressed some fundamental questions concerning sentencing:

- What can sentencing reasonably be expected to accomplish?
- How consistent are sentencing practices?
- Given sentencing objectives, what are the most effective means of sentence reform?

REASSESSING SENTENCING OBJECTIVES

Research on Sentencing Objectives

Research provided the impetus for the dramatic reversal of the goals and objectives of sentencing policy that occurred between 1975 and 1985 and helped the system identify new objectives.

Reconsidering Rehabilitation as an Objective. Until the 1960s, the primary objective of sentencing in the United States was retribution. The offender was "paying his debt to society," a debt measured by the kind and degree of his crime or crimes. It was generally agreed that the measure of his debt was also the measure of his intention and his criminality.

But these assumptions began to change when reformers adopted a "medical model" of corrections which assumed that offenders were

"sick," that their offenses were a manifestation of the illness, and that the system should attempt to rehabilitate them. These assumptions affected all aspects of sentencing from presentence investigation to the parole board's decisions on release. However, in the mid-1970s, the medical model and its emphasis on rehabilitation came under attack on both empirical and philosophical grounds. Since that time, analysts and criminal justice theorists have debated the issues involved.

In 1966, Walter C. Bailey published a review of 100 treatment-evaluation studies, concluding that the "evidence supporting the efficacy of correctional treatment is slight, inconsistent, and of questionable reliability" (Bailey, 1966).

The Bailey review prefigured a more comprehensive study undertaken in 1975 by D. Lipton, R. Martinson, and J. Wilks which examined all the treatment-evaluation studies published in English between 1945 and 1967 that had an identified outcome measure (e.g., adjustment to prison life, recidivism) and included a control group. The studies dealt with a broad range of issues, including vocational training, parole supervision, work release, psychotherapy, and even plastic surgery. The researchers tallied the results of 231 studies and concluded that:

With few and isolated exceptions, the rehabilitative efforts that have been reported so far have had no appreciable effect on recidivism. . . . These data are the best available and give us very little reason to hope that we have in fact found a sure way of reducing recidivism through rehabilitation (Lipton, Martinson, and Wilks, 1975).

The Martinson report was widely publicized by the media and raised considerable controversy among researchers and criminal justice officials. A number of researchers challenged its findings, among them Ted Palmer, of the California Youth Authority. Palmer objected to the focus of the Martinson study, claiming that it should have considered "which methods work best for which types of offenders and under what conditions or in what types of settings," rather than trying to identify the one treatment that would work for all offenders (Palmer, 1975, p. 150). Palmer claimed that 48 percent of the studies reviewed by Martinson et al. showed positive or partly positive results when approached from the former perspective.

In view of the heated controversy and the potential significance of the findings for sentencing policy, the NIJ, through the National Academy of Sciences, created a Panel of Research on Rehabilitative Techniques, whose tasks included an independent analysis of the Martinson data. The panel concluded that "Lipton, Martinson, and Wilks were reasonably accurate and fair in their appraisal of the

rehabilitation literature" (Sechrest et al., 1979, p. 5). They found nothing in other studies, including Palmer's, that effectively challenged that work.

It could be argued that the research on rehabilitation relied too heavily on previous evaluations (some of questionable rigor) to have unseated rehabilitation as a sentencing objective. But in reality, many people, both in and outside the criminal justice system, had never accepted the assumptions behind rehabilitation, and practical experience seemed to be proving them right. Year after year, and across jurisdictions, a majority of felons, many of whom had participated in treatment programs, continued to recidivate (about two-thirds of those treated became repeat offenders).

Whatever the reasons, the Martinson study is often credited with giving rehabilitation the *coup de grace*, and most research has supported the general conclusions that:

- The ability to identify particular offenders who are more amenable to rehabilitation than others remains limited.
- No one rehabilitative program has proved generally effective in treating the criminal population or reducing recidivism.
- A sentencing system based on offenders' potential for rehabilitation allows a great deal of judiciary discretion and hence often leads to inconsistent, and possibly discriminatory, sentencing practices.

These conclusions suggested that sentencing should be directed toward other, perhaps more realistic and fairer, objectives:

As the scientific basis for the possibility of rehabilitation was shown to be wanting, the philosophical rationale for making it the chief goal of sentencing began collapsing. By the latter part of the 1970s, there appeared a revival of interest in the deterrent, incapacitative, and retributive functions of the criminal justice system (Wilson, 1985, p. 164).

Developing the Rationale for Other Sentencing Objectives.

Interest in identifying realistic sentencing objectives was stimulated by several leading scholars. Norval Morris, Andrew von Hirsch, James Q. Wilson, and Ernst van den Haag, among others, began to develop and advocate alternative proposals. Von Hirsch argued that all persons committing the same crimes "deserve" to be sentenced to conditions that are similar in both type and duration, and that individual traits such as rehabilitation or potential for recidivism are irrelevant to the sentencing decision. His proposed sentencing scheme became popularly known as "just deserts."

Morris contended that all defendants should receive punishments proportionate to their conviction crimes, rehabilitation programs should be voluntary, parole release should be severely limited, and offenders should be told their approximate release date upon entry to prison.

Sure and consistent treatment is also an issue in making *deterrence* a sentencing objective. Deterrence theory assumes that potential offenders are somewhat rational in weighing the consequences of engaging in crime: If the expected penalties are increased (and sentencing is consistent), fewer offenders should be willing to risk them. The evidence concerning general deterrence—the effect of aggregate sanctions on all potential offenders—should be observable. As penalties change or vary across jurisdictions, the effects on the aggregate crime rate should be evident.

General deterrence has received considerable research attention. Most researchers in this area have compared jurisdictions having diverse sentencing practices (e.g., in terms of the percent of convicted persons incarcerated), then analyzed their policies to determine whether there is an empirical relationship between sanction severity and the observed crime rate (after other sources of variation in crime rate have been statistically controlled). Most studies have found that the higher the probability of being imprisoned, the lower the crime rate.

In 1973, Issac Ehrlich conducted the first detailed statistical analysis of the effects of criminal sanctions on crime. Ehrlich calculated how the probability of imprisonment and length of sentence affected the known rates of seven major crimes in 1940, 1950, and 1960, controlling for such factors as family income and states' racial mix. He found that the higher the probability of imprisonment for convicted offenders, the lower the crime rate. He did not find, however, a consistent relationship between the severity of punishment (e.g., length of prison term) and crime rates. Hence, his conclusion (which is still widely accepted) was that *certainty* of punishment is a greater deterrent to crime than *severity* (Ehrlich, 1973).

Finally, the NIJ asked the National Research Council (NRC), an arm of the National Academy of Sciences, to undertake a comprehensive analysis of the issues surrounding deterrence. The NRC review concluded that deterrence research has yet to provide good estimates of the magnitude of deterrent effects (see Blumstein et al., 1978).

The policy issue concerning "just deserts" is basically philosophical: Should the crime dictate the punishment—aside from all considerations of individual characteristics or effects? For deterrence, the question of *effects* is fundamental. The challenge for research has been to

establish whether severe and consistent punishment does keep people from committing crime. The research results remain ambiguous:

- Comparisons of jurisdictions that vary in severity of sanctions imposed have shown that crime rates are generally lower when and where conviction and incarceration rates are higher (the effect for longer sentences is not as strong).
- It is not clear whether more severe sanctions reduce crime through deterrence or whether the observed relationships are due to other factors, including such spurious ones as errors in measuring the actual crime rate.

Research has not been able to find consistent or convincing evidence that either rehabilitation or deterrence is a tenable sentencing objective. Further, although two offenders' crimes look identical, the career criminal research discussed in Sec. III shows that offenders may differ considerably in criminal seriousness and their effect on public safety. Is it "just" to assume that both are equally bad and to impose the sentence "deserved" by the more serious offender on the less serious? Aside from strict questions of fairness, just deserts alone does not permit the system to get the maximum benefit from the available prison space. In short, rehabilitation, deterrence, and just deserts have all been found wanting as *utilitarian* bases for sentencing.

The Feasibility of Incapacitation as a Sentencing Objective.

While they differ in means, both rehabilitation and deterrence have the same final goal—to safeguard society by reducing crime rates. Looking at the evident failure of both, James Q. Wilson proposed a more direct means of reaching that goal:

Now suppose we abandon entirely the rehabilitation theory of sentencing and corrections—not the effort to rehabilitate, just the theory that the purpose of the enterprise is to rehabilitate. . . . Instead, we could view the correctional system as having a very different function—to isolate and to punish. It is a measure of our confusion that such a statement will strike many enlightened readers today as cruel, even barbaric. It is not. It is merely a recognition that society at minimum must be able to protect itself from dangerous offenders. . . . It is also a frank admission that society really does not know how to do much else (Wilson, 1985).

Wilson had a major influence on both academic and policy thinking about sentencing objectives, especially about incapacitation. He reasoned that until (or unless) there is a vast improvement in our state of knowledge about how to rehabilitate, the only means we have to control violent crime in the near term is through the incapacitating

effects of incarceration: While offenders are incarcerated, they cannot continue to commit crimes against the general public.

Incapacitation quickly gained acceptance as a sentencing objective. However, it also soon became apparent that incapacitation could have a higher price tag than many states could readily afford. So many offenders could be classified as "dangerous"—or at least as warranting prison sentences—that states had to increase their prison space tremendously (and at prohibitive cost) or find some means of identifying the offenders whose incarceration would reduce crime rates the most.

Given the available resources, incapacitation is not a feasible basis for policy unless it can be demonstrated that:

- A small fraction of offenders commit a high proportion of the total crimes.
- These offenders can be distinguished from others who commit crimes at low rates.
- Procedures can be implemented to convict and sentence the high-rate offenders more stringently than less serious offenders.

Federally funded research has focused on all three issues.

The amount of crime prevented by incapacitation obviously depends heavily on the amount of crime that can be attributed to a single offender. If the overall crime rate is the result of many offenders committing a few crimes per year, the effects of incapacitation will be small—unless the system can enlarge its prison capacity by several orders of magnitude. But if high crime rates result from a few offenders committing many crimes per year, the effects of selective incapacitation are potentially large.

A number of researchers have studied offender behavior and have developed models for estimating the incapacitation effects of prison. Perhaps the largest effort was RAND's NIJ-sponsored career criminal studies, described in Sec. III. Using self-reported data from the RAND Inmate Survey, an earlier study of prison inmates, the researchers estimated offense and arrest rates for major felonies among inmates entering prisons. They also identified characteristics that are typical of high-rate offenders.

Peter Greenwood, of RAND, used this information to create a model for calculating the potential effects on both crime rates and prison populations of "selective incapacitation"—that is, identifying high-rate offenders and giving them longer sentences than low-rate offenders (Greenwood, 1982). He also developed a simple scale for categorizing potentially high-rate offenders. This "selective incapacitation" scale

identified the following variables as being positively correlated with high-rate offenders:

- Incarceration for more than half of the two-year period preceding the most recent arrest.
- A prior conviction for the crime being predicted.
- Juvenile conviction prior to age 16.
- Commitment to a state or federal juvenile facility.
- Heroin or barbiturate use in the two-year period preceding the current arrest.
- Heroin or barbiturate use as a juvenile.
- Employment for less than half of the two-year period preceding the current arrest.

Assigning a value of 1 to each variable, Greenwood classified offenders with scores of 0 or 1 as low-rate offenders, those with scores of 2 or 3 as medium-rate, and those with scores of 4 or more as high-rate. Applying the model to estimate the effect on crime and corrections resources of sentencing predicted high-rate offenders to longer terms, he found that for robbers, selective incapacitation could achieve a 15 percent reduction in the robbery rate with only 95 percent of the current incarcerated robber population level. For burglars, the best selective policy required a 7 percent increase in prison population to achieve a 15 percent crime reduction.

The development of selective incapacitation models immediately raised some important legal, policy, and operational questions. One obvious ethical argument against selective incapacitation is that two offenders convicted of the same crime might receive very different sentences, which would seem to be a violation of just deserts. Further, even if pragmatic and other considerations made that inconsistency acceptable, could the system actually distinguish between potentially high- and low-rate offenders?

The philosophical and legal considerations of the first question cannot be addressed by empirical research and analysis. But the second question can be resolved empirically, and the NIJ and the Bureau of Justice Statistics (BJS) funded follow-on research projects at RAND and the NRC to evaluate the accuracy of the five commonly used prediction scales.¹

Stephen Klein and Michael Caggiano, of RAND, followed up approximately 600 prison inmates who had participated in the RAND

¹The federal Salient Factor Score (SFS), Greenwood's selective-incapacitation scale, California's base expectancy score, the Iowa risk-assessment instrument, and the Texas Pablo scale.

Inmate Survey and had been released to the community (Klein and Caggiano, 1986). They discovered that about 53 percent of the Michigan inmates and 60 percent of the Texas inmates were arrested at least once within 36 months of their release from prison, compared with 76 percent in California. There were similar differences in conviction and incarceration rates.

In assessing whether the five prediction scales were successful at predicting recidivism, the authors concluded:

Any given model's predictions of whether an inmate would be arrested, convicted, or incarcerated after release were usually only 5 to 10 percent more accurate than what would be obtained by chance (Klein and Caggiano, 1986, p. ix).

These findings were quite consistent with the report of the NRC Panel on Research on Criminal Careers (Blumstein et al., 1986), which reanalyzed the data used to construct the various prediction devices. The objective of the NRC study was to determine the false-positive/false-negative rates associated with the commonly used offender risk scales.² The panel found that while such devices can improve risk prediction to a level above chance, they are by no means totally accurate. Generally, for every three correct predictions, one will be incorrect. Nevertheless, the panel recommended giving greater weight to juvenile court records, evidence of serious drug use, and records of prior criminal activity in criminal justice decisions such as pretrial release, plea bargaining, sentencing, and parole.

Career criminal research has identified characteristics that distinguish high-rate offenders, has shown that official arrest rates reflect only a minor proportion of actual crime rates, and has proven that individual criminal records often give little indication of how seriously criminal an offender is. Research has also established that prosecutors cannot accurately identify career criminals by using only official criminal records. The same holds true for selective sentencing. Studies of selective incapacitation have generally agreed that:

- Selective incapacitation models suggest that by identifying and differentially sentencing high- and low-rate offenders, the system could realize a 10 to 20 percent reduction in crime rates without concomitant increases in prison population.
- It is possible to develop scales that identify and categorize offenders as high-, medium-, and low-rate on the basis of their criminal and self-reported records.

²Blumstein et al. evaluated the SFS, the Iowa risk-assessment scale, the INSLAW scale, and the RAND inmate scale.

- Offenders categorized as high-rate are generally more likely to have started crime at an early age, to be involved with drugs, to have had only sporadic employment, and to have lengthy juvenile and adult records.
- The "identification" scales are not highly accurate in predicting high-rate offenders, if high-rate offending is measured by official arrest records. Although the predictions are better than chance, the misclassification rate is about 25 percent.

For some scholars and policymakers, the concept of selective incapacitation is legally and/or ethically questionable, regardless of predictive accuracy. For others, improvements in accuracy would make selective incapacitation acceptable, if not ideal. For still others, any system that predicts better than chance should be taken into account for the sake of public safety. In spite of opposition, the concept of selective incapacitation continues to invite interest and debate in the light of serious crime rates and prison overcrowding.

The Influence of Research on Sentencing Objectives

The research on sentencing objectives has been more successful in establishing what does not work than what does. Nevertheless, it has been salutary in making the judicial system examine its assumptions about sentencing and evaluate alternative objectives on the basis of facts rather than "common knowledge."

The Martinson study, with its conclusion that "nothing works," is commonly credited with closing the book on rehabilitation as a reasonable sentencing goal. Martinson became a vocal spokesman for sentencing reform and advocated removing the criminal justice system from the treatment business, abolishing the indeterminate sentence and abolishing parole boards. His conclusions were evidently widely accepted—perhaps because of timing: Rising crime rates were beginning to put spatial and financial pressures on corrections. Under the circumstances, questionably effective programs were given very low priority in corrections budgets. The Martinson study was used to justify decisions not to invest in treatment programs.

The discrediting of rehabilitation forced researchers and criminal justice policymakers to reconsider the objectives of sentencing and corrections. As it became clear that the system could not assure rehabilitation, reliance on deterrence and incapacitation became more prevalent.

Brian Taugher, of the California Attorney General's Office, spoke of the influence of research on California's debate over determinate sentencing:

As policymakers, we had to question why we were basing an entire sentencing and corrections system around the concept of rehabilitation, especially when the research showed that the criminal justice system continually failed to rehabilitate. During the hearings, we relied heavily on research concerning disparities in sentencing, as well as the relationship between prison treatment and recidivism. Once we had examined the evidence, the empirical base for indeterminate sentencing began to whither away . . . thus opening up the possibility for the passage of California's Determinate Sentencing Law.

The scales developed to predict offense rates have potential applications in criminal justice decisions about selective prosecution, sentencing (in/out, length), and parole release. To our knowledge, no jurisdiction has actually implemented the Greenwood or INSLAW scales, but policymakers report that they weigh factors such as juvenile record and drug use more heavily since these factors have been shown to be predictive of high-rate offending and recidivism.

Stephen Goldsmith, the District Attorney in Indianapolis, Indiana, stated:

I use the career criminal and selective incapacitation information frequently in my job as prosecutor in a large metropolitan office. The research has identified various correlates of recidivism, and I use that information when selecting offenders for either our juvenile or adult career criminal program. For example, I now look at whether the offender was committed to a boys' school, and the age at which criminal activity began. Obviously, I take other factors into account too (e.g., the strength of the evidence), but all other factors being equal, I am likely to target on offenders that empirical research has shown to be probable recidivists. Some worry about the inaccuracies in prediction. To me, using valid correlates of recidivism probably produces fewer inequities and raises fewer ethical considerations than if I based such decisions on my personal opinion.

To date, the most important and pervasive effect of this research has been the acceleration of the demand for and movement toward sentencing reform.

SENTENCING REFORM

Research on Sentencing Reform

While the philosophical debate over sentencing objectives continues, other research has addressed related questions that are more practical and tractable: How consistent and equitable is sentencing? How can sentencing be reformed to ensure consistency and fairness?

Sentencing Consistency. During the period in which rehabilitation was the dominant sentencing objective, indeterminate sentencing was a reasonable practice. Because offenders vary considerably in their predisposition and need for rehabilitation, it was entirely logical to let the judge's informed sense determine the kind and length of sentence imposed, and the parole board's assessment of an offender's progress determine how long he should serve.

When just deserts and deterrence reentered the picture, researchers argued and legislators began to see that the judicial discretion allowed by indeterminate sentencing had serious potential drawbacks: It could clearly lead to inconsistencies and inequities that undercut the principle of equal justice.

Evidence of significantly different sentencing patterns among judges, among offenders, and among geographical regions has been documented by many researchers. Studies have shown that offenders who have similar conviction crimes and criminal records often receive very dissimilar sentences (see Kleck, 1985). In some instances, the differences seem to reflect differences in the philosophical orientations of the judges or the locale; in others, the differences seem to be related to nonlegal defendant characteristics, such as race or socioeconomic status. A study of the "judge effect" conducted by Brian Forst found that offense and offender variables accounted for 45 percent of the total variation in prison sentences, but 21 percent evidently resulted from the exercise of judicial discretion to set aside the typically appropriate sanction. A follow-on INSLAW study corroborated these findings, and by interviewing judges, discovered that discretionary deviation reflected judges' views about sentencing goals (e.g., rehabilitation, deterrence) (Forst and Wellford, 1981).

This research suggested that judicial discretion can affect sentencing decisions in ways that are not strictly relevant to legal considerations:

- Offenders who had similar conviction crimes and criminal records often received quite dissimilar sentences; there was a great deal of inconsistency not only among and within jurisdictions, but even in individual judges' sentencing.
- Although offense and offender characteristics accounted for much of the total variation in sentencing, judicial discretion was evidently responsible for a significant proportion of the rest.
- Some of this inconsistency reflected the different sentencing objectives of different judges.

These conclusions indicated the need for sentencing reform to make sentencing more consistent and equitable. However, how that reform could be most effectively accomplished remained to be seen. David Fogel, former Commissioner of Corrections in Minnesota, was among the strongest proponents of limiting judicial discretion, primarily through abandoning indeterminate sentencing. Having reviewed the early research on sentencing disparities, he proposed a "flat time" system of sentencing and developed a sentencing scheme that allowed limited judicial discretion and that divided crimes into categories based on degree of seriousness (Fogel, 1975). His efforts prefigured a major thrust of sentencing reform—judicial discretion was out, and the development and use of guidelines was in.

Guideline-Based Justice. As states moved toward sentencing reform, it became apparent that abolishing indeterminate sentencing and establishing determinate sentences still left considerable room for judicial discretion, unless the conviction crime itself was the only criterion. Even then, crimes that are statutorily the "same" often differ in seriousness when circumstances, weapon use, etc., are considered. Consequently, judicial discretion still necessarily comes into play. To minimize sentencing disparity as much as possible, many states have instituted sentencing guidelines.

Research has played a vital role in moving the system toward guideline-based justice. The NIJ and the National Institute of Corrections (NIC) have encouraged researchers to study sentencing behavior, to identify the factors used in sentencing, and to develop formal guidelines or instruments to be used as sentencing aids.

Although the instruments developed have differences, most are based somewhat on parole guidelines that were developed in a 1978 DOJ-sponsored study (discussed in Sec. V) conducted by Donald Gottfredson, Leslie Wilkins, and Peter Hoffman. Gottfredson and Wilkins subsequently studied the feasibility of applying parole guidelines to sentencing.

Unlike parole guidelines, sentencing guidelines have to address not only the length of incarceration but also the prison-or-probation decision. Gottfredson and Wilkins began by analyzing past sentencing practices to identify those factors most strongly associated with variations in sentencing. They then computed the median time served for combinations of offense type and offender scores (based on facts of the crime and prior criminal record). Through an iterative process, researchers and judges worked out formal sentencing guidelines for several test sites.

Minnesota was one of the first states to adopt formal sentencing guidelines. Most guidelines use a matrix system, one dimension of

which registers criminal history, and the other, seriousness of the conviction crime. Each cell of the matrix indicates the range of months or years of incarceration considered appropriate for offenders with the particular combination of offense and offender score.

Researchers found that the new sentencing procedures resulted in a 73 percent increase in imprisonment of offenders who commit very serious crimes. In addition, there was a 72 percent reduction in imprisonment of offenders convicted of less serious crimes. Under the guidelines, more personal offenders and fewer property offenders were recommended for imprisonment. Furthermore, disparity in sentencing was decreased under the sentencing guidelines, and sentences become more uniform in terms of who goes to prison and how long imprisoned offenders serve. Sentences were more proportional in that offenders convicted of more serious offenses received more severe sanctions. The overall rate of trials did not increase, and the processing time between conviction and sentencing changed little with the implementation of the guidelines. Finally, prison populations remained within state correctional capacity (Knapp, 1982).

Several states followed Minnesota in implementing statewide sentencing guidelines. John Kramer, of Pennsylvania State University, monitored the effects in Pennsylvania and reported results similar to those in Minnesota. He analyzed 20,000 sentences meted out by state judges the year after the guidelines were implemented and found that persons convicted of serious crimes were especially affected by the recommendations—many more of them were sentenced to prison than was the case before the guidelines went into effect (Kramer and Lubitz, 1985). Kramer also discovered that the guidelines produced more uniform sentences statewide and that the effects of sociodemographic characteristics on sentencing decreased.

It became clear at the outset that guidelines could not simply be imposed on local jurisdictions, but that they had to be implemented with a great deal of care. The NIJ funded a major research project at the National Center for State Courts to observe the manner in which local criminal justice agencies responded to guideline implementation, with the hope of recommending ideal implementation strategies.

The researchers, led by William Rich, observed how sentencing guidelines were implemented in Denver, Chicago, Newark, and Phoenix. They found that sentencing guidelines had a rather negligible effect in those cities (Rich et al., 1982). Neither the judges, the prosecutors, nor the defense attorneys seemed to pay much attention to them, according to the evaluators. Because the judges did not follow the guidelines and because of the attorneys' great concern for charge and sentence bargaining, the sentencing guidelines were largely

ignored. It became painfully clear from this evaluation that successful implementation of sentencing guidelines requires a great deal of support and training of local key actors.

Research on guideline-based justice has shown that:

- Researchers can produce effective guidelines—that is, guidelines that promote consistency—which can be implemented without dislocations in the system, and reduce discretion without compromising judicial integrity.
- The sentences generated by the guidelines fall within a range and are considered as recommendations allowing some judicial discretion, where circumstances warrant it.
- Researchers have highlighted the implementation difficulties, and pinpointed the pivotal points where resistance might negate the impact of guidelines.

The Influence of Research on Sentencing Reform

Research on sentencing reform has had widespread effects. The evidence of inconsistency in sentencing focused legislative attention on the effects of different sentencing objectives, of indeterminate sentencing, and of judicial discretion. Subsequently, between 1975 and 1985, at least 25 states enacted determinate sentencing statutes, 10 states abolished their parole boards, and 35 states established mandatory minimum sentences for specified crimes. In almost every state, judges experimented with guidelines to structure their own sentencing decisions (Bureau of Justice Statistics, 1983, p. 71).

Significantly, the U.S. Congress convened the U.S. Sentencing Commission in 1985 to create guidelines for sentencing that would be used uniformly in federal courts across the country. Published guidelines show that the Commission drew heavily upon the research discussed above, particularly that of the Minnesota Sentencing Commission. The U.S. Sentencing Commission's draft guidelines also include a sentencing grid for use by judges to determine type and length of sentences. Each type of offense has a point value, as does the offender's criminal history, and the combined sum of these point values is plotted on the graph to determine the offender's recommended sentence.

Since Gottfredson and Wilkins published their study, more than 50 jurisdictions have undertaken projects to develop empirically derived sentencing guidelines and have actively solicited the help of researchers. Concurrent with these developments, the NIJ made sentencing a priority for research funding. When states have decided to implement a particular sentencing strategy, the NIJ has funded evaluations to

determine the impact of the strategy and to disseminate policy-relevant evaluation results.

In considering the effect of research on both sentencing objectives and reform, a National Academy of Sciences Panel on Sentencing concluded:

Research on sentencing has contributed to the discussion of sentencing in several ways: it challenged prevailing doctrines and assumptions; documented emerging beliefs and thereby gave them added impetus; specified the nature and extent of bias in the system; strengthened the case for change; provided a technology for individual decision making; legitimated alternative rationales for punishment; encouraged the search for alternative policies while providing ammunition for a critique of these options; and provided a conceptual language for policy discourse (Blumstein et al., 1983, p. 66).

V. THE INFLUENCE OF RESEARCH ON CORRECTIONS

In the mid-1970s, two trends converged to push corrections into a state of crisis and to the forefront of policy concern. First, the massive post-World War II "baby boom" generation reached their crime-prone adolescent years in the 1960s. Their incarceration rates peaked in the 1970s,¹ creating a great surge in the prison population. Second, rising crime rates frightened and angered the public. It appeared that rehabilitation was not working, and research tended to corroborate this. Indeterminate sentencing was under increasing attack from criminal justice officials and scholars, and parole release decisions were criticized as disparate and arbitrary (as discussed in Sec. IV). The public's mood, reflected in polls and surveys, became more frightened, confused, and punitive.

Skeptical that punishments other than prison could keep their communities safe, elected officials increasingly supported longer prison terms, mandatory prison sentences for selected offenders, and sharp reductions in parole release.² Unfortunately, the debate surrounding such changes rarely addressed their impact on prison populations. And that impact turned out to be enormous.

According to the Bureau of Justice Statistics (BJS), the number of inmates has risen more than 150 percent since 1974—from 200,000 to over 500,000. Because prison construction has not (and realistically could not) keep pace with this growth, the nation's crowded prisons became a front-page public policy issue. By 1987, the courts had declared the entire prison systems of eight states and the District of Columbia unconstitutional. These institutions had become so crowded that sentencing a prisoner to them automatically violated constitutional guarantees of protection from cruel and unusual punishment. In another 26 states, at least one prison was under court order. In fact, in only eight states has prison crowding not been the subject of major civil rights litigation.

¹Criminals are most active between the ages of 18 and 25; the average age at first incarceration is 28.

²A 1982 BJS report stated that 37 states had enacted some form of mandatory sentencing during the immediately preceding years—including mandatory prison terms for repeat offenders, for illegal drug sale or possession, and for crimes committed with firearms. Each year, literally thousands of bills are introduced in the nation's state legislatures to increase prison terms for specific crimes.

Prison crowding has been the most dramatic result of changes in sentencing policies and demographic trends. However, parole and probation agencies have also been affected negatively. The first National Assessment of Criminal Justice Needs, commissioned by the NIJ and conducted by Abt Associates, has confirmed this (Gettinger, 1984). According to this assessment, prison crowding and its effects are the primary concern of policymakers throughout the system, not just corrections officials. Judges and prosecutors are concerned because lack of available prison space narrows sentencing options. Sheriffs are housing about 25,000 prison inmates in local jails because of crowding, thus limiting bed space for pretrial detainees. Police fear that too many dangerous offenders are being returned to the streets through probation sentences or early release from prison. And probation and parole officers see their case loads becoming unmanageable.

Under these circumstances, research has been largely, and pragmatically, focused on helping policymakers and practitioners manage incarceration, parole, and probation operations with the limited resources available to them. In the past ten years, corrections research has focused on:

- Prison crowding: establishing the nature and extent of the crowding problem, assessing the effects of overcrowding on prisoners, and developing prisoner classification systems to assess the need for prison space more cost-effectively.
- Jail populations and bail release: assessing the nature of the jail population and developing guidelines for pretrial release.
- Parole procedures and effects: studying the relationship between length of time served and recidivism, identifying predictors of recidivism, developing parole guidelines, and analyzing parole outcomes.
- Probation as a felony sentencing option: developing classification systems and analyzing probation outcomes.

RESPONDING TO PRISON CROWDING

After inmates began initiating lawsuits charging that prison conditions violated prohibitions against "cruel and unusual punishment," states began to be forced by the courts to do something about prison crowding. It seems unlikely that the states can easily build their way out of this crisis, since demographic trends virtually ensure that the prison population will keep growing far into the 1990s. Given that the initial cost of new maximum-security facilities is \$65,000 to \$95,000 per bed, simply catching up would be prohibitively expensive and would

not solve the problem in the near term.³ Although the prison population increased by 100 percent between 1975 and 1985, the states built housing for only 30 percent of the new prisoners (Camp and Camp, 1986). Further, the states cannot spend much more public resources on prison construction without curtailing other vital public services. A 1985 survey by the National Conference of State Legislatures found that corrections is the fastest-growing element of state spending in the United States. Between 1979 and 1983, state spending for corrections soared by 45 percent (after inflation), almost three times faster than total state spending grew.

Research on Prison Crowding

Given the enormity and complexity of the problem, the federal government has been funding research on the extent and effects of prison crowding, hoping to find ways of alleviating the problem without massive infusions of public funds.

Assessing the Extent of the Problem. When prison populations began their meteoric increase, it took a while for the implications of the situation to sink in. Initially, states that lacked extra prison space simply let the prisons become crowded or resorted to makeshift facilities. States that had prison space to spare apparently assumed that they would, somehow, avoid crowding and did little. Before the system and the nation took serious notice, crowding had reached crisis proportions.

Faced with this crisis, Congress asked the NIJ to commission a study documenting the nature and extent of prison crowding. In response, Abt Associates undertook the most extensive study of U.S. correctional institutions ever made (Mullen et al., 1980).

Abt researchers surveyed the conditions in jails and prisons, projected future prison populations, and assessed the effect that various reforms (e.g., determinate and mandatory sentencing) would have on imprisonment rates. They also analyzed historical data on incarceration rates and attempted to relate the pattern of increase or decrease to crime rates, demographics, prison capacity, and unemployment rates, among other factors.

One of their most controversial findings was that prisons are "capacity-driven"—that is, the greater the capacity of the prison

³These cost figures are based on current prison construction costs. Florida has recently dramatically lowered costs for building new prison space by using innovative design and construction techniques. For example, a maximum security unit was added to an existing corrections facility by using concrete modular cells, at a cost of about \$16,000 per cell (DeWitt, 1986).

system, the greater the rate at which people are sent to it. Abt found that, on average, within five years of being opened, new prisons had 30 percent more inmates than they were designed to handle.

Because of the importance of this finding, the NIJ asked the NRC Panel on Sentencing Research to take a closer look at the Abt results. The panel found them seriously in error, stating that the Abt study "provides no valid support for the capacity-driven model" (Blumstein et al., 1983). The errors it discovered included computational mistakes, implausible assumptions, and failure to look at the very different experiences of different states.

Regardless of whether or not increased capacity *causes* increased prison commitments, we have been unable to build our way out of the prison crowding crisis to date. The BJS reported that state prisons throughout the United States had been filled to roughly 110 percent of capacity since 1978. By 1983, state prisons were still at 110 percent of capacity, even though more than 120,000 prison beds had been added in the intervening five years.

Despite the controversy, some conclusions of the Abt study seem to be generally accepted:

- Prison populations have more than doubled in the past decade, due in part to changes in the demographic composition of the U.S. population.
- Mandatory sentencing provisions have definitely contributed to the increase.
- About two-thirds of the inmates are held in units providing less than the 60 square feet of living space per inmate required by the Commission on Accreditation for Corrections; and about one-third of inmates are housed in dormitories containing more than 50 prisoners.
- States tend to overuse maximum-security facilities. (Approximately 30 to 40 percent of inmates are housed in such facilities although experts agree that only 10 to 15 percent really require maximum-security imprisonment.)

The Abt researchers also concluded that the nationwide trend toward mandatory and determinate sentences would significantly increase the nation's prison population, compounding the overcrowding problems. Concerned about the effects this might have on prisoners' physical and mental health and behavior, they recommended that state legislatures adopt standards defining the minimum living space and conditions to be provided each prisoner.

How Overcrowding Affects Prisoners. Prison crowding clearly constitutes a financial and legal issue for the system, but what of its effect on prisoners? Although no one would argue that convicted felons should find prison time a pleasant experience, neither would any reasonable person argue that prison should brutalize them. If our prison systems cannot realistically be expected to rehabilitate, they should, at least, not make prisoners more criminal. Experience suggests that crowding increases stress as it reduces privacy, creating problems that range from decrements in mental or physical health to disruptive behavior. Such behavior can erupt into general violence that results not only in costly repairs and medical expenses, but often in loss of human lives.

With support from the NIJ and the Federal Bureau of Prisons, Paul Paulus and his colleagues at the University of Texas began a comprehensive research program on the effects of crowding on inmate behavior. Their research program examined the effects of both "spatial density"—the physical area per prisoner—and "social density"—the number of prisoners sharing a confinement unit. The researchers tested inmate moods, blood pressure, tolerance to crowding, feelings of control over the environment, and attitudes toward the housing unit. Their results led them to recommend changes in architectural design that would lessen the negative effects of close confinement (McCain et al., 1980; Paulus et al., 1986).

Paulus et al. concluded that:

- The space and conditions of corrections facilities are correlated with suicide rates, inmate violence, etc.
- There is a strong correlation between increased spatial density and negative responses. However, social density is even more strongly correlated with such responses.

The researchers discovered that privacy is more important to inmates than physical space. Once the space per prisoner exceeds 50 square feet, the number of people sharing a given unit (e.g., a cell or a dormitory) and the arrangement of that unit (e.g., single bunks or dormitory cubicles) has more influence on illness, death, suicide, and disciplinary infraction rates than space per person does.

The researchers inferred that the prison environment's endemic potential for violence probably explains this phenomenon. When prisoners must share the same quarters, some will victimize others. Without stringent classification and expensive close supervision, prisoners face the risk, and too often the reality, of assault, rape, and other forms of brutality. To overcome the adverse effects of social density,

Paulus et al. suggested that an ideal prison should contain less than 1,000 inmates, and preferably less than 500, housed in single cells or partitioned dormitories.

More Effective Allocation of Prison Facilities. Given the evidence that states were unnecessarily using maximum-security facilities for lower-risk prisoners, policymakers began to ask whether more appropriate classification of prisoners, based on behavioral risk, could reduce the projected requirements for prison construction. Interest in classification systems was also spurred by the courts' insistence that inmates must be assigned to facilities which provide the security appropriate to their degree of risk. Humane considerations also entered in: Isolating the worst behavior risks might make prisons safer for less serious offenders.

Historically, most classification decisions have been based on the subjective judgment of correctional professionals. Inmates were usually assigned a custody level (minimum, medium, maximum) based on recommendations developed by a correctional counselor at the reception center. Even though agencies sometimes specified criteria to be considered by the classification staff, the relative importance of each factor was usually left to the subjective judgment of the counselor and/or committee. Furthermore, the specified criteria generally had little or no known relationship to actual prison behavior.

Such systems have now been challenged as unconstitutional, arbitrary, and inconsistent, and researchers in several states have helped the Federal Bureau of Prisons and some 30 states to develop objective systems of inmate classification.

In 1979, researchers at the California Department of Corrections (CDC) undertook a study of the existing system of classification to identify potential classification factors, to test the validity of those factors for predicting inmate misbehavior, and to develop an objective classification system based on valid predictors. The researchers believed that the system, once in place, would prove useful for planning new correctional facilities (since the security needs of the inmates would be more accurately identified, and hence the "right" type of prison could be built).

Similar classification efforts were also undertaken in several other states (e.g., Nevada, Michigan, New York, Illinois, Florida) and at the federal level. In nearly all of the states, the structured classification systems have been developed through research efforts designed to identify valid indicators of prison adjustment. This approach produces actuarial tables based on the ability of a combination of factors to "predict" future events.

In general, the research has found that under the traditional system:

- Few uniform guidelines are used, each counselor has a great deal of flexibility in judging the inmate's placement needs, and personal opinion and experience play a major role in each determination.
- Placement is rendered even more inconsistent because institutions often ignore the reception center's recommendation for placement and program involvement; in the final analysis, available bed space becomes the overriding consideration.
- Security assignments based on clinical judgment result in inconsistent assignments, primarily housing inmates in higher-security facilities than necessary.

It is generally agreed that a formal classification system will provide consistent placement, can be implemented in a manner that is acceptable to both staff and inmates, and provides for well-documented decisions that are more easily defended if questioned.

The Influence of Research on Prison Overcrowding

The studies that examined effects on prisoners have also affected operations. Research done at the University of Texas has been used by the American Correctional Association (ACA) to design updated procedures for accreditation. The ACA is currently reviewing the appropriateness of its 60-foot space standard in light of the recent research findings. Under an NIJ-sponsored project, it is considering devising more flexible standards which rely less on total space allocated per prisoner (i.e., spatial density) and more on factors related to social density. This research is also frequently used by the courts to determine whether or not prison facilities are constitutional.

The research on prison classification systems has undoubtedly saved money by establishing that the states do not need as many maximum-security facilities as they had assumed were needed. These facilities cost three times more to build and twice as much to operate as other facilities do. Moreover, the classification systems appear to have decreased prisoner dissatisfaction by making the assignment system more equitable. And this, in turn, has lessened the possibility of both lawsuits and riots. The likelihood of riots has also presumably been diminished because the classification systems increase the safety of prisons by identifying high-risk inmates and placing them in high-security facilities.

Daniel J. McCarthy, Director of the California Department of Corrections, reports that in the five years since the model was implemented in California,

The classification system developed by researchers has become a cornerstone for decision-making throughout California's entire correctional process, playing a major role in planning the CDC's future construction program, as well as an important part in developing the Department's annual budget. The Governor and the Legislature have used the Department's classification process to plan for new prison construction (California Department of Corrections, 1986).

Other states report similar effects. The Nevada state legislature commissioned James Austin, of the National Council on Crime and Delinquency, to study the state's current and future correction needs. He found that Nevada had sufficient space for high-security inmates, despite the current overcrowding in high-security prisons (Austin, 1986). The state needed to reclassify its prison population to reduce reliance on maximum-security confinement and to demonstrate the appropriateness of housing more inmates in other facilities. Other states have followed suit.

RELEASING PRETRIAL DETAINEES FROM JAIL

When someone is arrested for a crime, the primary interest of the court is that the arrestee appear at the appointed time to face charges. Judges have traditionally required the person to post a bail bond, normally ranging from \$1,000 to \$25,000, which is forfeited if the accused fails to appear.

But many defendants are practically indigent and cannot afford bail. As prison and jail crowding worsened, researchers began to study the jail populations, with a particular interest in developing guidelines that judges could use to weed out the dangerous from the nondangerous, and to identify those likely to appear for trial if released on their own recognizance (i.e., a promise that they will appear for trial as opposed to a financial bond).

Research on Bail Guidelines

Early research conducted by the Vera Institute of Justice in New York City attempted to determine what proportion of the jail population was being detained simply because of inability to post the required bail, and whether or not there was a relationship between the amount

of bail, the ability to post it, and appearance at trial. This early research documented the fact that much (expensive) jail space was being occupied by persons who were not necessarily dangerous, but simply indigent. And although the court had statutory power to release defendants on recognizance, in the 1960s that option was being used in less than 1 percent of cases. Vera further noted that a prerelease policy based solely on an "ability to pay" was overtly discriminating against the poor. It also made clear, however, that unselective prerelease policies put the community at risk, since a significant proportion of persons released prior to trial did continue to commit crimes in the community.

These early findings led Vera researchers to undertake a three-year study of prerelease policies and the characteristics associated with remaining crime-free and showing up to face charges. This experiment came to be known as the Manhattan Bail Project. The researchers found that a defendant with roots in the community was not likely to flee, irrespective of his ability to pay a bondsman (Freed and Wald, 1964).

The researchers devised a point system in which weights were assigned to information concerning the defendant's residential stability, employment, family contacts, and prior criminal record. The number of points a defendant achieved placed him in a particular "flight-risk" category; the category assigned was then used to recommend release on own recognizance (ROR) for certain defendants. Vera subsequently discovered that when an objective scoring system is used to decide ROR candidates, the rate of appearance is frequently higher than that for defendants released by posting bail. The ROR defendants' "skip rate" was 1.6 percent, less than half the rate for defendants who posted bail. The results speak for themselves: A bail bond is often a less effective guarantee for the court than verified information about prior record and community ties.

The Vera research, and many projects which have since replicated its findings, suggested that there is an objective method by which it is possible to identify defendants who have a high probability of showing up for trial.⁴ This finding, along with the subsequent testing and refinement of the method, has widespread implications for jail costs, since space can be used for those who are most likely to flee or to recidivate. It also leads to a fairer and more equitable punishment response, since defendants are not penalized primarily on their ability to pay.

⁴For a complete review of this research, see Goldkamp and Gottfredson (1985).

The Influence of Research on Bail Guidelines

The Manhattan Bail Project is a striking example of the influence of research on criminal justice policy. On the basis of the Vera findings, the Mayor of New York City ordered the Probation Department to institutionalize the ROR procedures citywide. Press reports inspired replication projects in several cities, and the DOJ and Vera co-sponsored a National Conference on Bail and Criminal Justice, attended by over 400 law-enforcement officials.

By October 1965, sixty projects were under way in cities and counties around the country; and the 25,000 ROR defendants still had a lower "skip rate" than the defendants who had been released on bail. The following year, President Johnson signed the Bail Reform Act of 1966, which required that information about defendants' prior records and community ties be provided at federal arraignments and directed judges to ROR or to fashion suitable, nonmonetary conditions of release in appropriate cases.

Since that time, literally hundreds of courts across the United States have instituted formal prerelease guidelines modeled after the original Vera research. As a result, over 85 percent of defendants today are released prior to trial, and about 70 percent of those released are freed nonfinancially.

As Gottfredson and Gottfredson (1980) noted:

In few areas of criminal justice has a reform effort had such widespread and rapid impact as did the Vera program of increasing pretrial release by providing verified information about a defendant's "community ties." It has been estimated that "release criteria" identified by the Vera project have now reached over 200 cities.

In addition, the ROR experiments paved the way for a wider variety of release formats, including street citations, third-party custody, bail deposited with the court, and weekly call-ins.

As more and more defendants were released prior to trial, public concern mounted that offenders might be using pretrial release as a license to commit additional crimes. The NIJ commissioned a study by Martin Sorin, of Sorin Research Institute, to determine whether such concerns were justified. After studying four U.S. jurisdictions, he determined that, on average, one of every six released defendants is arrested for an offense committed during the period of pretrial release. These new offenses, as a group, are slightly more serious than the initial charges in these defendants' cases and result in a rate of conviction equal to that in the pending cases (Sorin, 1983).

Sorin recently stated on the NIJ's *Crime File* television series:

Some 30 percent of those defendants who are rearrested while on pretrial release are rearrested more than once. In jurisdictions that emphasize appearance for trial as the only legitimate basis for setting release conditions, rearrested defendants are often (as many as two-thirds) rereleased with no change being made in their existing, usually nonfinancial, conditions of release. In fact, in such jurisdictions judges are usually not aware that defendants seeking release are already released in a pending case or are out on probation or parole. One estimate is that pretrial offenses account for about one-fifth of all crimes resulting in arrests in the United States (*Crime File*, 1986).

This research evidence has been used by 30 states to amend their rules of criminal procedure to authorize judges to consider both the likelihood of appearance *and* the danger posed by the defendant to himself or to the community. Congress passed its own Bail Reform Act in 1984, which provides explicit guidelines for judges for identifying "dangerous" defendants.

PAROLE ISSUES

Of all the corrections practices in the present system, parole is the most vulnerable. Its vulnerability results largely from the discrediting of rehabilitation as the primary objective of sentencing. With the failure of the rehabilitation model and the move toward sentencing reform, many states adopted determinate or mandatory minimum sentences. Several abolished parole boards outright.

Research on Parole Issues

Where parole release dates were not absolutely fixed, the crucial research questions became, How should parole-release decisions be made, and what factors should be taken into account in granting or denying release? For the sake of public safety, offenders who are likely to return to serious crime should be kept in prison as long as is legally and ethically possible. But is there any systematic and objective means of identifying them when they come up for parole? Research has found that parole boards are not very successful at predicting who is likely to recidivate and who is not, particularly if they rely solely on their "clinical judgment." In many cases, parole boards' discretion has led to arbitrary and inequitable treatment of offenders.

Research has addressed all of these issues, with the objective of making parole decisions more objective, consistent, and effective, in

terms of reducing street crime. Guidelines have also been developed for parole release and for assessing parole outcomes.

The Relationship Between Time Served and Recidivism. In the past, many people assumed that the longer the prison term, the less the likelihood of recidivism. Lengthy sentences were considered to have deterrent, as well as therapeutic, effects. However, other people believed that lengthy terms could make offenders more criminal, rather than less. To improve parole and sentencing decisions, it was vital to understand which assumption was supported by empirical evidence—if, indeed, there is any correlation between length of time served and recidivism.

Studies conducted in California in the 1960s found that the recidivism of offenders serving longer sentences was either worse or about the same as that of offenders serving shorter sentences. Mueller (1966) found no consistent relationship between prison time served and parole outcomes for biennial release cohorts in which the average time served had varied. Jaman (1968) and Jaman and Dickover (1969) matched offenders on variables such as age, ethnic group, and expected parole outcome and found that offenders serving longer terms either did worse, or about the same as those serving shorter terms.

In a comprehensive nationwide sample involving over 100,000 offenders, Gottfredson et al. (1973) examined the parole outcomes of offenders controlling for offense category, age, and prior record. Although some differences in parole outcome appeared to be related to time served, the differences were relatively small. The researchers cautiously concluded that "it is clear that with infrequent exception those offenders who serve the longest terms in prison tend to do less favorably on parole than those who serve the shortest terms before first release." However, the study did find that for narcotics offenders, longer terms were associated with improved parole performance.

James Beck and Peter Hoffman, of the U.S. Parole Commission, also explored the relationship between time served and offender recidivism. Matching offenders on crime and criminal record, then controlling for length of time served, they examined recidivism rates for one- and two-year follow-up periods. Although the results were somewhat inconsistent, the percent of offenders (within a risk group) with a favorable outcome decreased as the length of time served increased. The authors concluded that "there appears to be slight, if any, association between time served and release outcome when selected background characteristics are controlled" (Beck and Hoffman, 1976).

More recently, Joan Petersilia and Susan Turner, of The RAND Corporation, studied the relationship between length of term served and recidivism for a cohort of California prison inmates. They found

no relationship between length of term served and recidivism for offenders convicted of property and violent offenses. However, for drug offenders, longer terms were associated with decreased recidivism. The authors hypothesized that longer terms might break the drug dealer's "connections" or the drug addict's dependency (Petersilia and Turner, 1986).

In summary:

- The overall evidence suggests that time served is not consistently related to post-release behavior and bears little relationship to recidivism. The only empirical evidence to the contrary pertains to drug offenders, where longer terms may decrease recidivism.
- In studies that found any relationship, it was more often that longer terms are associated with increases, rather than decreases, in recidivism.

By dispelling the notion that increasing or decreasing the length of time served had a significant bearing on recidivism, the research suggested the need for more refined correlates of recidivism in the release decision.

Predicting Recidivism. Accurate prediction of recidivism would vastly improve sentencing and parole decisions. It would also have important applications in police, prosecution, and community supervision. Indeed, developing actuarial models to improve the prediction of criminal recidivism has become one of the highest priorities of the NIJ. Research has identified some of the offender and offense characteristics *correlated* with recidivism; however, it has proven much more difficult to use those characteristics to make accurate *predictions* of recidivism.

Most of the recidivism research has attempted to identify variables associated with reoffending to enable decisionmakers to anticipate future criminal activity by offenders about whom they must make processing decisions. For instance, a sentencing judge may wish to be able to predict the probability of new arrests if an offender is placed on probation, or a parole board member may wish to predict whether new arrests will occur if an offender is released from prison. Recidivism research usually tracks groups of offenders who have been handled in some particular manner (e.g., sentenced to prison, probation). These offender cohorts are then classified according to their personal and criminal backgrounds, and those background characteristics are statistically related to their probability of recidivism (variously defined).⁵

⁵Recidivism research has also addressed issues of time to failure, offense escalation, and criminal career termination.

Several factors have consistently been found to be associated with recidivism. The most important are number of prior convictions; whether prior commitments had been served; age at current offense; whether the offender had a recent commitment-free period; whether the offender was on "restricted status" (e.g., probation, parole, escape) at the time of the current offense; offense type; and history of drug and alcohol abuse. As researchers began to identify common correlates of recidivism, they explored the degree to which those predictors improved prediction accuracy above that obtained by chance alone. No prediction system is perfect, and two types of classification errors are inevitable. False positives occur when a model predicts that an offender will recidivate, when in fact he does not. False negatives occur when a model predicts that an offender will not recidivate, when in fact he does. The result of false-positive errors may be recommendations for "unnecessary" incarceration or other more intensive treatment, whereas false-negative errors can result in decreased community safety.

Again, the research findings have been rather consistent: While it is possible to identify factors *associated* with recidivism, predictions based on those factors are not sufficiently accurate to permit them to be used with confidence.

The NIJ asked the NRC Panel on Research on Criminal Careers to review the research and answer the question, What is our current capacity to accurately predict the future rate or type of criminal conduct for any given offender? The panel concluded that our ability to predict the future behavior of an offender is "modest" at best (Blumstein et al., 1986).

After reviewing the most commonly used prediction instruments, the authors concluded that such devices (which "score" the offender's prior behavior and personal attributes as a method of predicting his future behavior) generally prove more accurate than personal judgment. How much more accurate, however, depends heavily on the nature of the particular case, since the more rare the offense, the more difficult it is to accurately predict.

The panel also concluded that the best predictors of future criminal behavior appear to be measures of prior criminal behavior, in particular, the offender's age at first offense. One of the panel's most significant findings was that current decision practices could be improved if more weight were given to juvenile records and to serious drug use. The panel argued that full adult and juvenile arrest records provide valuable information about career criminals, and therefore, adult justice system agencies should gain access to the juvenile record at the time of a person's first serious criminal involvement as an adult.

The research has shown that:

- Certain factors seem to be consistently related to recidivism, across time and across criminal populations: prior juvenile and adult criminal record, incarceration history, living arrangements, type of crime, drug and alcohol history, and employment performance.
- However, even when complete information is available on these factors, the ability to accurately predict offender recidivism is far from assured. Statistical models can improve the accuracy of criminal predictions to about 70 percent (about a 20 percent improvement over chance).

Because accurate prediction has not been possible, some researchers have argued that criminal justice decisions should not be based on anticipated future offending. From this perspective, any use of predictive information is seen as objectionable. Others argue that in view of the possible consequences for public safety, it is vital to use anything that will improve recidivism prediction to any degree.

Practitioners have been significantly influenced by information on recidivism prediction. Michael Bradbury, District Attorney for Ventura, California, recently wrote:

The statistical results provide formulas that predict recidivism. . . . If a prosecutor's resource allocation plan is at least partly predicated on the objective of reducing street crimes, these formulas provide some guidance in selecting offenders for special handling at the points of screening, case preparation, trial and sentencing. If a prosecutor is considering establishing a specialized prosecution section . . . reviewing these studies is a must. The formulas can be employed to more accurately establish offender selection guidelines (Bradbury, 1987).

In fact, as noted in Sec. III, career criminal units have been established in over 100 prosecutors' offices nationwide, and nearly all of them incorporate the statistical models developed by researchers to identify recidivists (Blumstein et al., 1986).

Developing Parole Guidelines. Just as sentence reform was intended to reduce judicial discretion and thus make sentencing more consistent and equitable, parole guidelines were intended to achieve the same improvements in parole decisions. As pointed out in Sec. IV, parole guidelines actually provided the model for the sentencing guidelines that researchers developed in cooperation with judges and legislators.

The federal government's role in the development of empirically based prediction devices cannot be underestimated. In 1972, the DOJ

funded a three-year effort to develop a classification system that would be acceptable to parole boards. The research, conducted by Donald Gottfredson, Leslie Wilkins, and Peter Hoffman, in cooperation with the U.S. Parole Commission, represented a significant departure from previous research on parole classification. The instrument they developed took into account three factors: seriousness of the current crime, likelihood of recidivism, and prison behavior. Parole boards judged the first two items the most important, so the researchers developed separate scales for offense severity and parole prognosis, conceptualizing them as vertical and horizontal axes of a two-dimensional decision matrix. The horizontal, or parole-prognosis, scale was called a Salient Factor Score (SFS). The vertical scale measured offense severity.

The parole prognosis score was combined with the offense-severity score to derive the recommended range of time to be served. For example, the guidelines recommended that an offender whose offense is of "low moderate" seriousness, such as fraud or drug possession, and who has a "good" parole prognosis, as measured by the SFS, should normally serve from 12 to 16 months in prison before release on parole; an offender with the same class of offenses but a "poor" parole prognosis should normally serve from 20 to 25 months.

The guidelines were tried on a pilot basis in 1972 and 1973. After some refinements, they were put into full effect in 1974 for each of the 20,000 cases that the U.S. Parole Commission hears annually. Since that time, the federal guidelines have been refined; however, they still include the three major elements in parole decisionmaking: the seriousness of the current offense, parole prognosis, and prison behavior. The first two factors are most relevant in setting the tentative release date, and institutional behavior may be used to modify the selected term.

The SFS itself, along with the research methodology used in its development, has profoundly affected parole release decisionmaking nationwide.

The Influence of Research on Parole

Assessing the effects of research on the various parole issues above ultimately boils down to assessing the effects of the parole guidelines: Studies of length of sentence, predictors of recidivism, and predictive accuracy all fed into development of the guidelines.

It is evident that the guidelines profoundly affected parole decision-making at the Federal Parole Commission. According to Benjamin Baer, Chairman, U.S. Parole Commission:

The research on the factors associated with parole "success" profoundly affected the parole at the Federal level. We stick very close to the time-served ranges recommended by the Salient Factor Scoring system. Now that formal parole guidelines are fully implemented, we found that about 85% of our release decisions are being made within the recommended guideline ranges.

The federal system also attracted the attention of parole authorities in other states. According to Donald Gottfredson, "It was an idea that caught on very quickly." The federal parole guidelines have been called "one of the most significant reforms in . . . Anglo-American law" (*Corrections Magazine*, 1978). With the support of the federal government, several states began studying the SFS system, tailoring it to their local needs and offender populations. Within a few years, several states adopted the system. Oregon was the first state to adopt parole guidelines (in 1975); it was soon followed by Minnesota (in 1977), Washington, Florida, Colorado, New York, and Hawaii. Guidelines modeled after the SFS are now used in 14 states, the District of Columbia, and the federal system.

As policymakers further acknowledged the "failure" of rehabilitation, the move toward more structured and objective decisionmaking gained strength. Today, in nearly every state that has not abolished parole boards outright, their discretion has been significantly curbed by use of guidelines.

ATTEMPTS TO MAKE PROBATION A SAFER SENTENCING ALTERNATIVE

Rising crime rates and prison crowding have also caused serious problems for probation. Although some judges claim that availability of prison space does not influence their sentencing practices, a growing number of convicted felons are being sentenced to probation, even though their crimes make them legally liable for prison sentences. This raises questions for public safety.

Probation can no longer be reserved for first or minor offenders, who present little threat to public safety and require minimal supervision. In fact, with the staggering rise in probation caseloads, many of these people are no longer even placed on probation. Some observers fear that this leniency could encourage minor offenders to become more serious criminals.

Research on Probation

Considerations of public safety have led many jurisdictions to experiment with classification systems for probationers, analogous to the classification system developed for prisoners.

Probation Classification Systems. In the mid-1970s, probation departments began considering classification instruments for assigning probationers to different levels of supervision. They needed appropriate and systematic ways of allocating their limited staff resources and coping with a population that included an increasing percentage of more serious offenders.

Early experiments with guidelines considered primarily risk of recidivism. However, because probation has traditionally been rehabilitation-oriented, most probation officers were uncomfortable with guidelines based on recidivism predictors alone. Consequently, researchers helped to develop classification systems that included assessments of an offender's need for supervision and assistance, based on indicators such as emotional stability, financial management, family relationships, and health.

One of the most highly regarded offender classification and caseload management systems was developed by researchers working with the Wisconsin Department of Corrections and assisted by the National Institute of Corrections (NIC), starting in 1975. Under this system, a risk/needs assessment instrument is completed on each probationer at regular intervals. The risk scale was derived from empirical data that research showed to be good predictors of recidivism. The researchers coded background information on cohorts of released probationers and then determined which of the coded background factors predicted recidivism. In the same manner, they collected "need" information, and determined which needs could be appropriately addressed by probation staffs.

The background variables found to help predict recidivism include prior arrest record, employment patterns, age at first conviction, and the nature of the offense for which the probationer was convicted. The needs assessment focuses on indicators such as emotional stability, financial management, family relationships and health. The numerical scores resulting from the risk/needs assessment are used to classify clients by required level of supervision (i.e., intensive, medium, or minimum). These levels impose corresponding restrictions on liberty, as well as requirements for contact between offenders and probation officers. Cases are reassessed at regular intervals, and the level of supervision may be increased or reduced.

The probation classification research has found that:

- Decisions about level of supervision are often made in haphazard fashion if left to clinical judgment.
- Decisions based on a structured actuarial-based instrument appear to be more appropriate and consistent.
- Using an objective instrument, scarce resources can be allocated more efficiently. Persons with higher predicted recidivism rates can be identified and supervised in maximum-supervision caseloads.

Probation Outcomes. In addition to developing classification systems, probation research has also focused on outcomes to establish the recidivism rates of probationers, identify the factors that increase or decrease the risk of recidivism, and make supervision more effective.

Probation has been the least studied element of corrections. Most probation research in the past has concentrated on how caseload size is related to recidivism. Consequently, policymakers have had little understanding of the issues involved or of probation operations. They have been particularly unaware of the effects of budget cuts and increasing caseloads on probation supervision.

Concerned about the changes in probation, the NIJ asked RAND to undertake a systematic examination of probation and its effectiveness as a sentence for convicted felons. As the Abt study did for prisons, the RAND study helped establish the nature and extent of the problems generated by felony probation. Petersilia and Turner (1985) used data on the more than 16,000 offenders convicted of felonies in California during 1980, and recidivism data on those who received probation in Los Angeles and Alameda counties.

Research has found that:

- For the regions studied, adult felony probationers present a serious threat to public safety. In the 40 months following their probation sentence, 65 percent of the probationers were rearrested, 51 percent were reconvicted, and 34 percent were incarcerated. Moreover, 75 percent of the official charges filed against this group were for burglary, robbery, and other violent crimes.
- Probation agencies cannot be blamed for this failure rate. They are far too overburdened to give such serious offenders the kind of supervision that might preclude recidivism. Further, traditional probation was neither conceived nor structured to handle offenders of this type.

- With the information they now have available (and/or can legally use), the courts will not be able to improve recidivism sufficiently to predict accurately which felony probationers will recidivate. Consequently, probation will continue to receive many offenders who have a high risk of recidivism and who will jeopardize public safety.

This situation is self-perpetuating and must be addressed at its base. The criminal justice system has never developed a spectrum of corrections to match the spectrum of criminality and criminals. Judges can choose only prison, jail, or probation for convicted offenders. As the prisons and jails have become overcrowded, probation has had to absorb the spillover of felons. The RAND researchers maintained that emergency treatment for any link in the present corrections system will not solve the problem. Rather, an alternative, intermediate sanction is needed for offenders who are prone to return to crime under the relative freedom of traditional probation. The study recommended considering intensive surveillance programs that include close monitoring and supervision, real constraints on movement and action, requirement of employment, mechanisms to punish infractions immediately, and community service.

Several states began experimenting with intensive probation programs in the mid-1980s, and the NIJ sponsored evaluations of these efforts in Georgia, New Jersey, and Massachusetts. While the New Jersey and Massachusetts evaluations are not yet completed, the Georgia findings have generated much enthusiasm for the intensive-probation concept.

The Georgia study concluded that intensive probation is a successful option that "satisfies public demand for a tough response to crime while avoiding the cost of prison construction." The evaluation showed that offenders placed in the intensive-probation program had lower recidivism rates than comparison groups of offenders released from prison and supervised on regular probation, and the majority who did commit new crimes committed less serious crimes (Erwin and Bennett, 1987).

The Influence of Research on Probation

Like prison classification systems, probation classification systems "caught on" immediately. They were seen not only as a way to allocate

scarce probation resources more efficiently, but as a way make the system fairer and the community safer. Interest in the Wisconsin system was so extensive that the NIC distributed the manuals and supporting documentation nationwide, held several conferences, and provided technical assistance to probation and parole agencies. The Wisconsin system came to be known as the NIC Model Probation Client Classification and Case Management System.

As Clear and Gallagher (1985) observed: "Ten years ago, a minority of probation agencies had formal classification systems; today the vast majority have some form of paper-driven offender classification." Most probation agencies use classification instruments for placing offenders under intensive, medium, or minimum supervision. Almost all of these instruments are modeled after the Wisconsin system. Components of that system have been implemented in at least 100 jurisdictions throughout the United States—agencies as diverse as New York City Probation, the Texas Adult Probation Commission, and the Wyoming Department of Probation and Parole.

Malcolm MacDonald, President of the American Probation and Parole Association, noted the importance of classification instruments for community corrections agencies:

The classification instruments that researchers developed over the past decade have really revolutionized parole and probation in the United States. In most large agencies, decisions concerning the level and type of supervision a client requires are now made using such instruments. This development has made communities safer, in that clients with the highest risk of recidivism are placed in maximum supervision caseloads and watched more closely. It has also helped probation and parole administrators allocate their budgets in a more reasoned fashion.

Probation officials, particularly in California where the RAND study was conducted, used the findings to argue for programs of intensified probation. For example, Los Angeles County Chief Probation Officer Barry Nidorf was called before the County Board of Supervisors to respond to the RAND findings. He said it gave him the opportunity to talk realistically about probation's difficulties and to highlight the need for more resources to survey more serious offenders. The RAND report also served as the basis for the Board allocating \$800,000 for an intensive-probation demonstration project.

In a more global sense, the RAND study provided additional impetus for moving the focus of probation away from rehabilitation and toward surveillance. Probation was headed in this direction

anyway (as a result of the continued evidence of the failure of rehabilitation), but the RAND study, according to Nidorf, provided:

an environment for discussion . . . it allowed us to give up guessing, gave us figures to quote, legitimated a picture that we thought was there to begin with. For example, we have said all along that we are dealing with a different population now than years ago, but I really didn't *know* that, I just suspected it. When the RAND report came out, I was more justified in going to the Board of Supervisors [to] ask them not to cut our resources. How helpful was the RAND report? . . . I still haven't gotten all of the extra money I requested, but I have no difficulty now getting their attention, and the report was tremendously helpful in this respect.

In California, the RAND report was relied upon heavily to introduce legislation calling for a statewide intensive-probation demonstration project. In addition, the U.S. Bureau of Justice Assistance (BJA) used the RAND and Georgia study findings to demonstrate a need for more effective probation supervision. In 1987, five jurisdictions (three of them in California) received funding from the BJA to implement a model intensive-probation supervision program.

The positive results of Georgia's Intensive Probation Supervision Program received a great deal of national attention and have helped pave the way for intensive-probation programs nationwide. By January 1987, forty states had instituted such programs.

VI. THE INFLUENCE OF PRODUCT-ORIENTED RESEARCH

The research described thus far addresses the larger conceptual, policy, and management issues that rising crime rates and financial limitations have generated for the criminal justice system. The system has benefited significantly from that research, most of which was done with federal support. In addition to those efforts, federally supported research has also capitalized on existing and emerging technologies to develop products for handling specific operational problems.

The products-oriented research is so extensive that it was not possible to address all aspects of it in this report. The examples are limited to technical research that has addressed especially serious problems and/or research that relates to some of the issues raised in previous sections.

PRODUCTS FOR POLICING APPLICATIONS

Lightweight Body Armor

From 1968 to 1973, the number of police officers killed in the line of duty increased approximately 10 percent per year, from a low of 60 in 1968 to over 120 in 1973. This increase, along with assassination attempts on key public figures such as George Wallace, emphasized the need for protection against handguns. A garment or armor system was needed that would be lightweight and inconspicuous when worn as part of the officer's uniform or the business attire of public officials.

Police departments have always been concerned with protecting their officers as much as possible, developing safety systems, testing new safety products, and exploring buddy systems. Because the majority of deaths result from gunshot wounds, departments have been especially interested in bullet-resistant body armor. In 1971, the only police protectors available were military flak jackets made of nylon and metal, or padded jackets made solely of nylon. Few policeman would use the former because they objected to the heavy weight, and the latter were seldom used because of their clumsy bulk.

The National Institute of Law Enforcement and Criminal Justice (NILECJ) became aware in 1971 of a product that DuPont had developed for use in police car tires. According to the developer, "NILECJ recognized that if the material had properties to stop

fragmentation, then it might have the properties to stop bullets as well, and suggested to us that some police officers could be saved from serious injury or death. It was their concept to put it into lightweight, bullet resistant jackets for police officers." NILECJ subsequently took a prominent role in developing and testing the material, called kevlar, which is now used in police vests.

Kevlar has twice the strength and half the weight of nylon. With NILECJ funding, the Aerospace Corporation conducted a field test that demonstrated kevlar's ability to stop bullets. In 1975, fifteen U.S. cities were selected to participate in a one-year field-test of the kevlar vest.

Each of the fifteen cities received a number of garments to be distributed to participating officers, who were requested to wear them, to complete a pretest and posttest questionnaire, and to report monthly on their impressions of the garment and on the amount of time they were worn. Approximately 4,200 vests were distributed.

During the course of the program, three law-enforcement officers received ballistic impacts on the vest, and none of them had any indication of internal damage. The Aerospace evaluation also found that being issued or wearing protective garments produced no significant change in the officers' attitudes or performance of their duties. The so-called "superman syndrome" did not develop.

The lightweight-body-armor program was widely regarded as a success, and police departments nationwide began purchasing the vests in 1976. During that year, kevlar vests prevented injury in eighteen potentially fatal assaults.

The kevlar vest has been widely adopted nationwide. DuPont estimates that almost half of the nation's 650,000 police officers now have access to the vest.¹ All members of the New York City police force have vests; officers in Memphis, Tennessee, Oakland, California, and Hampton, Virginia, are required to wear vests while on the street. And the District of Columbia has run a television advertising campaign requesting donations so that it can outfit its officers with vests.

One DuPont official said, with understandable pride, "There are a lot of police officers walking around today who might be dead if not for the kevlar vest." And statistics bear out his claim. In 1975, the year before the vest was introduced, 129 officers were killed. In 1976, 111 officers died. The FBI recently released figures showing that 72 law-enforcement officers were slain in the line of duty in 1984—the

¹The average cost of a vest is \$175, and vests last about five years. Most departments do not buy a vest for each officer. Rather, they keep them in the station and make them available to officers when they come on duty.

lowest figure in more than a decade. That figure would have been 143 but for the 32 documented saves resulting from use of the vest. By 1980, Time, Inc., estimated that the vests had saved the lives of more than 500 policemen, and by 1985, according to a DuPont estimate, the total had reached 700. A DuPont spokesman explained that this figure is conservative because "no one really keeps track . . . there may be as many as, or more than, 2,000 serious injuries, perhaps potentially fatal, that were avoided as a result of wearing the vest."

The kevlar body armor can also be credited with considerable financial benefits for the system. The NIJ concluded that a conservative estimate of total savings at all levels of government, from a modest NIJ investment (in kevlar), is \$200 million. This figure represents a savings of \$35 million in federal expenditures under the Public Safety Officers Benefit program, \$70 million in state and local training and replacing experienced officers, and possibly twice that amount in payouts for pensions and workman's compensation.

Patrol-Car Allocation Models

In most police departments, patrol operations consume more than half of the annual budget. The patrol function is central to the department's mission and is the most highly visible representation of its presence and effect in the community. One would expect department administrators to be quite concerned with fine-tuning their patrol deployment, especially in view of current fiscal limitations. However, very few departments regularly review and revise their patrol planning. Typically, they seem to wait until an issue arises that requires analysis of that planning.

A recent NIJ report on patrol deployment suggested that this is an unfortunate tendency, because reviewing and revising patrol plans can make very real improvements in both the cost-effectiveness patrol operations and the quality of service provided (Levine and McEwen, 1985). That possibility has been greatly enhanced by the computer-assisted patrol deployment models researchers have developed and refined over the past fifteen years. The models can enable departments to evaluate their current deployment patterns and also to assess the relative effectiveness of alternative deployment plans.

The traditional pattern of patrol planning has been to staff three daily shifts with the same number of officers, to have enough patrol units available to respond immediately to all service calls, and to have units patrol randomly when not on calls. There has been little emphasis on scheduling to reflect differences in service demands at different times of day, and even less on analysis of patrol operations.

However, resource constraints, if nothing else, have made some departments question this traditional pattern as they consider where it would hurt the least to tighten the budget belt.

It did not require computer models to figure out that with equal staffing, officers on some shifts had more calls than they could answer, while those on other shifts had time on their hands. Research suggests that not all calls require immediate response and that having enough units available to provide such response was not cost-effective. Nevertheless, getting the data and making the analysis necessary to establish the optimum deployment plan often require calculations that only computers can perform, or that would cost more than they are worth to do manually.

The computer models allow police planners to identify the most efficient allocation patterns for meeting specific performance standards. The models can also perform complex probability calculations, which are required by both the random nature of demands for service and the various factors (such as travel time) that interact and affect patrol performance. Further, they can resolve the multiple issues involved in planning patrol deployment, e.g., the number of units to field, the optimal configuration of beats, and the most appropriate schedule—in light of performance standards and available resources.

Researchers have been developing computer-assisted models for fire, ambulance, and police services since the late 1960s, but only in the past ten years have those models been sufficiently refined to be useful in operations. The first patrol-car allocation program was proposed and documented in 1964 for the St. Louis Police Department. Subsequently, four models have been developed that have significantly affected operations: PCAM (Patrol Car Allocation Model), Hypercube, PATROL/PLAN, and BEAT/PLAN. The first two were designed for use on large computers, while the second two were developed for use on microcomputers.

The original version of PCAM was developed by Jan Chaiken and Peter Dormont at the New York City-RAND Institute in 1975 after a careful review of various previously used patrol-car allocation programs. It has since been revised by Chaiken and Warren Walker at RAND. PCAM is designed to help police departments determine the number of patrol cars to put on duty in each of their geographical commands, according to needs that vary by the season of the year, day of the week, and hour of the day. The PCAM program tells a department how to meet those needs, given its manpower resources, its performance standards for patrol-car response to service calls, its starting hours for patrol tours, and its dispatching policies. The program has a unique capability to recommend allocations of patrol cars to tours

when one tour of each day is an "overlay," providing more units during busy hours. PATROL/PLAN is a smaller, less-powerful version of PCAM designed for use on microcomputers.

PCAM cannot be used to analyze possible changes in dispatching practices or the locations of cars within commands, nor is it suitable for designing patrol beats. The Hypercube queuing model, developed by Richard Larson, of Public Systems Evaluation, Inc., can help in that task. Hypercube allows police departments to design and evaluate fixed sites for their units and/or response areas for the units. Using a geographically detailed database, it estimates performance measures for a given beat design that the user provides. BEAT/PLAN is its micro-computer counterpart.

All of these models are in the public domain, and most can be ordered for little more than the cost of copying the programs and mailing them. Users are free to adapt and change them as necessary to reflect local contexts and computing capabilities.

Despite their effectiveness as planning tools, computer models have not been widely adopted. As the above-mentioned NIJ report says: "Most police departments do not critique or adjust their patrol plans on a regular basis, although the necessary technology and expertise have been available for the past ten years." It is interesting to speculate on why this is so, especially in light of the roles that marketing and brokers play.

The PCAM and Hypercube models were developed with support from the U.S. Department of Housing and Urban Development (HUD). To ensure that these models actually met the needs of local decision-makers, HUD required that they be field-tested and that they be documented in forms and language that would allow local agencies to use them with minimal assistance from the models' designers. HUD provided a small amount of support to maintain the models, but not to give users direct, on-site assistance. Finally, reports on the models were mentioned in HUD's newsletter, and the NIJ published a description of the models and the benefits of using them.

Despite these efforts, the models have been adopted by only a small percentage of the departments across the country whose patrol operations are large enough to benefit from systematic review of their planning and deployment strategies.

Departments may have not responded because they have not experienced problems with deployment and cannot see the potential improvements that use of the models could produce. Researchers have defined the problem and have been interested in developing computer models, but the existence of the models has not created a demand. Also, collecting the necessary local data to operate the models is complicated

and cumbersome. Patrol allocation models have also been resisted because of union rules and even laws that constrain a chief's authority to alter the number of officers on a given shift and by neighborhood pressures for visible patrol. Finally, some departments may simply not be aware of the models' existence or benefits. Ironically, this ignorance may stem from the fact that these models are in the public domain, and no one would profit from promoting them. The Chaiken study found that most of those who had used the models found out about them through their documentation—not by word of mouth from satisfied users. The critical role that dissemination plays in project adoption is discussed in Sec. VII.

Between 1975 and 1984, PCAM was used by more than 40 police departments and was incorporated in the NIJ program called Managing Patrol Operations.

TECHNICAL RESEARCH FOR PROSECUTION AND THE COURTS

The Prosecutor's Management Information System (PROMIS)

As discussed in Sec. III, most modern prosecutors' offices are faced with the problem of prosecuting thousands of cases in an assembly-line fashion. Prosecutors in single offices might be handling different cases on the same defendant, or might have information from previous cases that would be relevant to current prosecution efforts. But without some means to coordinate information across units or individual prosecutors, that information is often lost, and the prosecution is put at a disadvantage. As the size of prosecutors' offices grew, an obvious need developed for a system that would store relevant caseload information and that could be assembled in a way that enabled outcome statistics (e.g., percent convicted, percent incarcerated) to be easily retrieved.

In 1969, Thomas Flannery, the U.S. Attorney in Washington, D.C., perceived an urgent need for new techniques to handle his voluminous caseload. With a grant from the Law Enforcement Assistance Administration (LEAA), a special team of lawyers, management analysts, statisticians, and computer scientists worked to develop new case management tools. This effort led INSLAW to develop an innovative, computerized information system for the prosecutor, which it called PROMIS.²

²This information is drawn from Hamilton and Work (1973).

Several types of information are contained in PROMIS:

- Summary information related to the defendant (prior record, age, race, etc.).
- Information about the alleged crime and the defendant's arrest (date and time of crime, number of persons involved, arresting officers).
- A history of the criminal charges growing out of the incident—both the original charges brought by the police and the charges filed in court against the defendant, together with the prosecutor's reasons for any change in the charges.
- The dates, outcomes, and explanations of court events connected with the case, from arraignment to sentencing, and the names of the parties involved, including defense and prosecution attorneys and the judge.

The centerpiece of PROMIS is the automated designation of priorities for pending cases on the basis of an evaluation of the gravity of the crime and the criminal history of the defendant. In the District of Columbia, the calendar is set and controlled by the court. PROMIS produces an advance list of the cases scheduled by the court for each calendar date and ranks them according to their priority crime and defendant ratings. A special team of attorneys monitors the cases that have high priority numbers.

Another key feature of PROMIS is the ability to track the workload of the criminal court system. By assigning the police department's complaint number to the criminal incident in PROMIS, it is possible to follow the full history of the court actions arising from the crime even though those actions may involve multiple defendants, multiple cases, and multiple trials and dispositions. The fingerprint number that the police department assigns to the defendant after his arrest is also incorporated into PROMIS. Because the same number is used by the department for subsequent arrests of the same individual, it is possible to accumulate criminal history files on offenders.

This information provides a basis for communication among the constituent agencies of the criminal justice system. "Reason data" are among the most important data elements. At the point when the case drops out of the prosecution process—which may be at the filing, conviction, or sentencing stage—the prosecutor fills in his reasons for taking the action. For example, if the prosecutor declines to bring formal charges, he may indicate that his action was called for because of insufficient evidence or an uncooperative witness. Such information enables

police departments to assess the adequacy of the information they gave the prosecutor, and it also contributes to an overall understanding of the reasons why arrests often do not lead to convictions. Research based on PROMIS data has been critical to an understanding of the central role victims play in criminal case processing.

INSLAW not only developed PROMIS, it marketed it and provided technical assistance to prosecutors who wanted to implement the system. According to Brian Forst, formerly of INSLAW, 30 offices have now installed PROMIS, and another 30 have similar systems.

PROMIS has been used to support research on such issues as case attrition, recidivism prediction, witness cooperation, and reasons for nonfiling. Information from PROMIS was used in the District of Columbia to improve witness cooperation, lack of which had been determined to be the largest single reason for dismissal of criminal cases.

Joseph DiGenova, the U.S. Attorney in Washington, D.C., commented on the implications of the PROMIS system for managing his operations:

PROMIS, originally developed in this office, continues to serve as an important management tool. Our office uses PROMIS to coordinate efforts among the various attorneys and to assign cases. Importantly, it helps us identify defendants who are being prosecuted by our office in more than one case. Before PROMIS, it was possible that a single defendant was being prosecuted by more than one attorney, and because of the size of our office, the two cases were not connected. Now, PROMIS information helps us to quickly identify those cases, and the proceedings against a single defendant can sometimes be joined. This saves a lot of resources. Also, I personally use PROMIS information to track the effect of policy changes in the office. For instance, I have tried a number of experiments designed to increase witness cooperation and case filings. Using the PROMIS data, I can see whether such policies produced the desired effects. PROMIS information continues to be critical to several of my operations.

Jury System Management

Few notices are as dismaying to those who receive them as the call to jury duty. People who have served dread the days of waiting in court hallways, not being selected for duty after waiting many days, and enduring long terms of jury service. And those who have never served have heard enough jury stories to make them dread the experience almost as much. Consequently, in many jurisdictions, juries routinely consist primarily of retired people, housewives, and the

unemployed. This has disturbing implications for the ideal of "trial by a jury of one's peers."

It has long been clear that the jury management system needed overhauling to make it more efficient, less costly, and less time-consuming to those who serve. By 1978, a number of counties had applied for LEAA funds to support efforts to improve their jury management. But the major catalyst for such improvement efforts grew out of the jury service experiences of a researcher.

William Papst served as a juror and was very disappointed by the process. He wrote to the American Statistical Association (ASA), asking if anyone had ever applied statistical models to the problem of jury management. The ASA had funds for "good idea" research and provided Papst's company, Bird Engineering, with funding to develop this idea, along with several other engineers in the firm. They produced a system for the District of Columbia Court which worked so well that the *Washington Post* reported it was saving the court \$300,000 a year.

Recognizing the potential of the model, Bird Engineering applied for NIJ funds to support further research in this area. The engineers worked with several courts to identify the issues and operational problems that needed consideration. They developed "seven rules of good jury management," which were published by the NIJ and were subsequently used by many courts. These rules and the system Bird developed have become the cornerstone of the "one-day/one-trial" method of jury management.

In 1977, LEAA funded a pilot project to evaluate the one-day/one-trial system. Wayne County, Michigan (which includes Detroit), was chosen for the project. The county's motives for participating were to increase case-flow efficiency, to reduce costs, to increase citizen participation, to diversify the cross section of jurors, and to improve juror performance and attitudes.

As one-day/one-trial implies, jurors are eligible for service for only one day. If they are not selected by the end of that day, they have fulfilled their obligation for a year. If they are selected, they serve only for the duration of that trial. In addition to this system, the project also tested several other innovations:

- Computerizing the jury selection process, using jury pool drawings and mailings.
- Eliminating the jury qualification interview and mailing personal history questionnaires to jurors.
- Initiating standby juror pools, having the summoned juror pool call in the evening before their scheduled date to find out whether they are to serve.

- Giving jury orientation in a slide presentation which addresses the fundamental issues, thus eliminating the need to have a judge address jurors at this point.
- Recycling jurors, returning those who were questioned during *voir dire* to the jury assembly area where they may be reassigned to another jury panel that day.

The Wayne County project demonstrated the effectiveness of this kind of jury management system. The number of citizens serving as jurors increased tenfold. Of those summoned, 75 percent actually served, compared with 45 percent under the old system. In response to questionnaires, jurors stated that the new system eliminated the long and unproductive waiting periods that were the most odious feature of the old system. Since standby jurors were not paid unless they were called in, the courts saved money. In Detroit alone, the court saved \$329,000 per year.

Beginning in 1975, NIJ conducted research, field tests, and training in juror utilization and management. The goal of these efforts was to reduce the number of jurors summoned, the time required to qualify them for jury service, and the length of time they needed to serve. Savings to the test sites averaged 25 percent of their previous jury costs, or about \$50,000 per site. While the federal leadership provided the impetus, expansion of the concept has since accelerated without any continuing input of federal dollars. As a result, 20 percent of the nation's population now live in places where the most comprehensive form of the one-day/one-trial system has been implemented. Although cumulative cost data have not been tracked for communities that adopted the techniques independently and without federal assistance, reports from selected jurisdictions indicate that the annual percentage savings in the first year of system implementation are in the same range as the savings at the test sites. New York state saved \$1 million in 1984. Similarly, according to a recent study by the Administrative Office of the U.S. District Courts, about one-half million dollars per year in juror costs are now being saved at the federal level.

Since this project, "there has been a clear trend across the country . . . to reduce jurors' terms of service" (*State Court Journal*, Vol. 9, 1985). This trend has been accelerated by the brokering and marketing efforts of the NIJ and the Center for Jury Studies, which was formed by the engineers who developed the system. (This organization has recently merged with the National Center for State Courts.)

NIJ research, conducted in over 20 jurisdictions, has shown that systematic jury management can save courts about 20 percent of their jury-operations costs. The NIJ is currently funding a national demonstration program in improved jury management in 18 jurisdictions.

Preliminary results indicate that by reducing the size of the jury pool, staggering the starting times for jury trials, and other simple steps, courts across the country could save \$50 million annually.

The Center for Jury Studies, a nonprofit corporation established to provide systematic and continuing studies of jury-system technology, must be credited with encouraging jurisdictions to improve their jury management systems. The Center gives state and local courts technical assistance and keeps them up to date on jury-system information. It has also helped counties in Florida, Kansas, New Jersey, New York, North Carolina, Pennsylvania, Virginia, and Wisconsin conduct feasibility studies.

Computer-Aided Transcription Systems

Transcription of court proceedings has historically been a cumbersome, time-consuming, and expensive process. For centuries, shorthand reporters used pens and pads to record testimony verbatim. The invention of the stenotype machine made that part of the task considerably easier, but it did not overcome the problem of transcribing notes into English. Before the introduction of tape recorders, reporters had to transcribe the notes themselves. Even with tape recorders, they had to dictate the transcripts for someone else to type. Under these conditions, every hour of court testimony required two to three hours to transcribe, holding up trials and reviews.

In the mid-1970s, the Federal Judicial Center gave the first demonstration of how computer technology might be used in the courtroom. With LEAA funding, they helped initiate a pilot project in the Philadelphia Court of Common Pleas to modify a stenotype machine so that it would record phonetic symbols on a magnetic cassette tape or internal memory unit at the same time it was recording them on the standard paper tape. With such a device, the court reporter can read testimony back on request or "save" it for direct computer transcription. That transcription is done by feeding the stenographic record into a computer that is programmed to match the symbols with English words contained in its memory. To catch any symbols that the computer cannot match, the reporter or a reader/operator displays the full English text on a monitor and makes the necessary translations. With a simple command to the computer, the operator can then generate a printed transcript on the system's separate printer.

This system, called CAT (Computer-Aided Transcription), has tremendous advantages over the old method. The National Reporters Association estimates that a court reporter who becomes expert on the CAT system can edit and print out about 60 pages of transcription per

hour. Even a superior typist can produce no more than 10 to 12 pages of transcription. The CAT technology was made available to court reporters on a voluntary basis, and as their familiarity with the system grew, so did its use. Despite the savings CAT offers in time, effort, and money, it has not been adopted by court reporters everywhere because it is expensive and in some locations it is difficult to obtain.

CAT systems have become commercially available in the last 5 to 7 years, but without NIJ support, it is unlikely that many of them would be in use. The NIJ provided funding for the National Center for State Courts (NCSC) to help courts implement CAT programs and to present demonstrations of the system. The NCSC prepared a guidebook that described the workings of the CAT system and identified vendors from whom the components are commercially available. The guidebook also contains evaluation guidelines and criteria, cost estimates of various systems, and examples that compare system costs.

The NIJ also gave the Philadelphia Court of Common Pleas funding to implement and evaluate a CAT system. Assisted by NCSC researchers, the Court obtained the equipment and rented it to the court reporters. The NCSC researchers then evaluated the economic and procedural effects of this technology on the courts and found the technology to be both viable and economical.

The success of the Philadelphia project prompted statewide adoption of CAT systems in Pennsylvania. Other dissemination efforts have increased demand for and use of the systems. In Portland, for example, about half the 100 court reporters have shifted to computer transcription. One reporter there expressed the enthusiasm many reporters evidently feel about the system: Because the "pressure is always on" to get transcripts out as fast as possible, . . . CAT is the best thing that has happened to court reporting since the stenotype machine." Nationally, several thousand court reporters now use CAT as their primary system, and the demand has encouraged commercial development. About six companies are presently marketing CAT systems.

In a recent interview, the director of the Philadelphia project testified to the essential role the NIJ played in brokering CAT systems:

The Philadelphia Court was interested, but . . . the technology was relatively new, and without a substantial amount to invest initially, Philadelphia could not have implemented the project. . . . We provided the manpower, but we could not have conducted an experimental project on CAT without the federal dollars.

The value of the Philadelphia demonstration is underscored by the fact that when the federal dollars ran out, the project still continued. In fact, it was expanded to the civil courts as well.

OTHER TECHNICAL RESEARCH

Architectural Design for Crime Prevention

Over the years, public housing has repeatedly proven unsafe for its inhabitants and liable to the ravages of vandalism. In the early 1970s, burglary and street robberies in housing projects began to increase, and housing authorities sought to learn more about the unique characteristics of crime in housing projects and to discover more effective crime-prevention techniques. This concern led HUD, the LEAA, and the NIJ to fund a series of studies to explore the relationship between the physical design of living environments and citizen fear of and vulnerability to crime.

Oscar Newman, an architect and city planner, received the first grant from the LEAA in 1970. Newman studied how various features of housing developments affected their vulnerability to crime and what could be done architecturally to make them less vulnerable. His original findings were heavily based on in-depth analysis of the 150,000 public housing units in New York City, but in subsequent work he made a comparative examination of problems experienced by government-supported low-, moderate-, and middle-income housing projects across the nation. His research revealed that social factors (e.g., presence of broken families and welfare families, proportion of teenagers and elderly people) were more important determinants of susceptibility to crime than physical factors. However, the social factors could be either aggravated or mitigated by the housing design: "Large, low-income projects composed of high-rise buildings and filled with problem families spell virtual self-destruction. The same families placed in walk-up or small projects can cope more readily. Therefore, while the social variable is the key factor in predicting crime, the architectural variable is the one that can either prevent it from maturing or aggravate it into an unmanageable malaise" (Newman, 1972).

Newman's analysis suggested an empirical relationship between the design of public-housing projects and their crime rate. Housing developments with large numbers of teenagers, low-income households, or single-parent welfare families have the highest levels of instability, fear, and crime. Large, open buildings are most dangerous for their inhabitants, and the existence of security services has little effect on safety.

Newman found that in New York City, tenants of high-rise public housing (three stories and over) experienced over twice the felony rate and six times the mugging rate of those living in walk-ups. Also, the elderly are victimized by three times more crime than the average public-housing tenant—five times more if they live in high rises

containing broken families. In contrast, in a high-rise devoted entirely to the elderly, the crime rate can be almost zero.

From this research, Newman developed an environment characterized by physical design characteristics that maximize residents' control of behavior—especially criminal behavior. Newman's work represented a conceptual breakthrough: It established for the first time the link between the design of the space people occupy and crime. However, it was also highly practical and immediately stimulated further analyses of living areas as well as changes in their design. Architects, urban planners, social scientists, and criminal justice practitioners began looking to architectural design as a means of stemming the growing problem of urban crime.

Using this concept and beginning with the design features Newman had identified as either conducive to or preventive of crime, HUD began to develop, test, and refine a set of instruments to assess the vulnerability of housing environments. HUD developed manuals of methods that could be used to assess security needs and resident social relations. These manuals described how elements such as trees, fences, and lighting can affect security. HUD also held conferences with architects, city planners, and public housing residents to discuss security problems.

In reviewing this body of work, Charles Murray wrote:

[Newman's] *Defensible Space* was published in 1972. By 1974, major demonstration projects were under way in public housing projects. The Law Enforcement Assistance Administration (LEAA) funded a multimillion-dollar "Crime Prevention through Environmental Design" undertaking to extend the defensible space theory to environments other than public housing projects (a commercial strip, a residential area, a school, and a transportation system). Street-lighting projects proliferated. By 1975, plans were proceeding for an application of defensible space concepts to an entire neighborhood in Hartford, Connecticut. Defensible space was in vogue (Murray, 1983, p. 109).

With support from the NIJ, Newman refined his research and wrote guidelines for using various elements of physical planning and architectural designs, including the grouping of dwelling units and pedestrian paths and the positioning of small elements such as windows, stairwells, doors, and elevators. These guidelines appeared in various publications, including a joint NIJ/HUD publication, *Design Guidelines for Creating Defensible Space*, which was intended to help architects, urban planners, and city managers enhance security in housing projects. The guidelines specified ways to change the physical and social

environment, for example, by increasing access control and surveillance.

In 1974-76, the NIJ funded a commercial demonstration in Portland, Oregon, and a residential demonstration in Hartford, Connecticut, to test the guidelines' effect. In Portland, James Kushmuk and Sherrill Whittemore, of the Portland Office of Justice Planning, found that the environmental design concepts worked: After the suggested design changes were made, there was a statistically significant drop in commercial burglaries and street crime in a previously dilapidated mixed residential-commercial area (Kushmuk and Whittemore, 1981). The burglary rate in the area dropped from 13.5 per month in 1975 to 6 per month in 1977, and it remained at that level through 1979 (when the evaluation ended).

In the Hartford project, researchers at the Hartford Institute found that changes in the neighborhood's physical environment did produce changes in resident behavior and attitudes which made it more difficult for crimes to occur unobserved and to go unreported (Fowler et al., 1979). A substantial reduction in residential burglary and fear was observed in the experimental area, and street robbery appeared to have been affected as well.³

Finally, the NIJ provided funds to publish a review of all the research on environmental design and crime, *The Link Between Crime and the Built Environment*, by Herbert Rubinstein et al. (1980).

HUD has used Newman's guidelines to instruct officials throughout the country who are responsible for housing developments and the review of their designs. The guidelines have been used by local governments not only in planning and zoning, but also in identifying and targeting threatened neighborhoods for special attention before their decline becomes irreversible. With support from The Ford Foundation, Newman turned the guidelines into building-code regulations that included security provisions. There are now five model building codes nationwide that municipalities and state governments use or adapt for their own codes. Before this research effort, building codes had no provisions for security.

Newman's work and a film he produced entitled, "No Place to Rest His Head," are used to train architects, city planners, builders, police, state and municipal housing agencies, and citizen crime-prevention councils. His guidelines affect most major housing projects being built

³However, some question whether the physical environment really accounted for the changes in crime. Those skeptical of such a relationship point out that physical and social contexts are interrelated and that the data do not permit a clear distinction between overall social context and the crime-reducing effects of specific design features. For a complete discussion, see Murray (1983).

or redesigned across the country and are even being used in England and Japan.

Testing for Drug Use

According to an NIJ review on drugs and crime, one of the most consistent findings in the research literature on drug abuse is a strong statistical association between crime and drugs. Studies covering 20 years have shown that between 15 and 40 percent of prisoners used illegal drugs before being arrested, and more recent studies show a close connection between the rates of serious property crime and the rate of drug use (Groppe, 1985).

Institute-sponsored research has shown that high-rate offenders who commit hundreds of robberies and burglaries each year are often high-cost users of heroin and other drugs. The crime rates of heroin-abusing offenders have been shown to increase four to six times as fast as the same offenders' rates during periods when they are not addicted (Ball et al., 1983). And, contrary to previous beliefs, research in New York City indicates that drug abusers are at least as violent as, and perhaps more violent than, their non-drug-using counterparts. Heroin abusers are just as likely to commit crimes such as homicide and sexual assault, and they are even more likely to commit robbery and weapons offenses (Johnson et al., 1985).

In short, drug use is a key indicator of probable criminal activity, and the NIJ has made research on the relationship of drugs to crime a priority. The NIJ supports studies across the spectrum of relations of drugs to crime, including attempts to quantify how much crime is attributable to drugs, what the costs of drug abuse are, and how patterns of drug abuse influence the onset and development of criminal careers. Most recently, they have attempted to assist court personnel in developing reliable methods for assessing whether or not an offender is drug-involved.⁴

NIJ Director James K. Stewart recently observed: "Drug information is vitally important to the courts in making critical decisions about release pending trial and sentencing. However, until recently, judges and other court officials had only limited knowledge of a defendant's prior or current drug use."

The NIJ has made considerable effort to fill this vacuum. Not only has it conducted basic research on the correlation between drug use and crime, but it has sponsored field testing of technologies (e.g., urinalysis testing) for more accurate detection of drug use.

⁴For a review, see Graham (1987).

In March 1984, under NIJ sponsorship, the D.C. Pretrial Services Agency began gathering drug-use data at the time of arrest. The intent of the experiment was to provide judges in the D.C. Superior Court with information about an offender's drug habits to assist in deciding what conditions should be imposed on those released pending trial. Drug-using defendants can be ordered to undergo treatment or to report for periodic drug testing. The testing uses the EMIT system, an automated urinalysis device for which the manufacturers claim remarkable accuracy in detecting drug use.

The researchers tested all the arrestees in the Washington, D.C., area during a period in 1984 and found that approximately half of them tested positively for the use of serious, illegal drugs, such as PCP and opiates. This research also revealed that released drug abusers were more than twice as likely as nonusers to be arrested again before trial. Also, drug abusers were much more likely to fail to appear when scheduled for court appearances; however, they had lower rates of failure to return eventually for trial (Toberg and Kirby, 1984). As a result of the research, the city has made drug testing of arrestees a standard part of its pretrial release programs.

Toberg and Kirby conducted a similar experiment in New York City, and the results were quite consistent: More than half the men and women arrested for serious crimes were shown through tests to have been using one or more illegal drugs, excluding marijuana.

The research results have been widely publicized and used by the DOJ to convince both legislators and the public that drug abuse is not a victimless crime. Attorney General Edwin Meese reported the NIJ drug-testing results in several of his speeches and used them to help support a major federal initiative on drug use and drug-related crime.

Perhaps most important, since the research suggested that drug users are rearrested before trial more often than nonusers, a number of experimental efforts are being designed by the NIJ and others to discourage drug use by pretrial defendants. In Washington, D.C., defendants who test positive for drugs at arrest are being assigned to drug counseling programs in an effort to decrease criminality and increase public safety.

VII. ASSESSING THE BENEFITS OF RESEARCH AND INCREASING THE RETURN ON RESEARCH INVESTMENT

Federal investment in criminal justice research is barely two decades old, yet it has significantly affected and benefited policy and practice:

- The research has addressed the major issues and problems in policing, prosecution, sentencing, and corrections.
- It has provided policymakers and managers with empirically based conclusions and recommendations for change.
- Policy and practice have subsequently changed in ways that parallel those conclusions and recommendations. There can be no doubt that federally supported research has contributed to major policy shifts.

Research has helped shape the way police are deployed in our nation's cities and how they handle calls for service from the public. Research has assisted police administrators in understanding the benefits of proactive and reactive policies. Research has highlighted the importance of citizens in reporting crime and providing evidence needed to arrest and convict offenders.

Research has also identified the existence of career criminals—the small number of chronic recidivists who account for a large amount of serious crime—and has provided information about the patterns of their criminality. Research has demonstrated in spouse-abuse cases that police arrests can reduce future violence.

Research also has demonstrated the effectiveness of career criminal programs in prosecutors' offices and repeat offender projects in police departments. It has improved the ability to classify offenders and to predict which of them are most likely to recidivate. Prediction models and the classification systems on which they are based are now routinely used in bail, prosecution, sentencing, and parole decisionmaking.

Research has provided policymakers with solid information concerning the relationship between drug abuse and crime. It is now known that criminals who abuse drugs commit crimes at least twice as frequently as do other offenders—and up to six times as frequently during periods of heavy drug use. Research has shown that about half of all arrestees in some cities have evidence of the use of one or more drugs

in their system. And crimes committed by serious drug-using offenders are just as likely to be violent crimes as property offenses.

Research has also confirmed the lack of empirical data to support rehabilitation on a large scale and has generated information to permit an examination of the deterrent and incapacitative effects of sanctions. It has demonstrated that felons placed on unsupervised probation pose a serious threat to public safety. But research has also shown that when such persons are supervised on smaller caseloads with more stringent controls, recidivism rates can be reduced.

NIJ research has also revealed that there is a relationship between the physical environment and crime rates, and that buildings and neighborhoods can be designed which help to reduce crime and citizen fear. In addition, the development of lightweight, flexible bulletproof vests has been credited with saving the lives of approximately 700 police officers.

These projects are testimony to the real influence research and the knowledge it produces can have on public policy. These and other important findings have dramatically shifted the way we as a society look at crime, criminal offenders, and the ability of criminal justice agencies to counter the threat they pose. But what of the larger benefits? And how could the return on research investment be increased? These questions are addressed in this final section.

ASSESSING THE LARGER BENEFITS

Improving the System's Effectiveness

Whether research has ultimately improved the system's effectiveness in dealing with crime and criminals remains ambiguous—and probably always will. Criminal activity is created and sustained in the larger societal context, which reflects family structure, economic trends, peer pressures, and cultural influences. Criminal justice agencies are but one part of this larger, complex social structure.

Certainly, the system has become more *efficient* in areas ranging from patrol management to criminal investigation to prisoner classification. But whether it has become more *effective* depends largely on how one defines and measures "effectiveness." Furthermore, at any given time, judgments of effectiveness may also be influenced by the results of demographic trends and fiscal cutbacks, which criminal justice agencies cannot control. If the measure of effectiveness is "lower crime rates," research alone cannot be expected to make the system effective.

Justifying the Commission's Recommendation

Despite these imponderables, the federal investment has unquestionably justified the original recommendation of President Johnson's Crime Commission to establish a national center for criminal justice research. Systematic data and analyses are now available on the nation's crime problems and the state of the criminal justice system. It is unlikely that this body of data and analytical results would be so extensive—or if it would exist at all—without the direction and support of federal agencies.

Moreover, criminal justice research would not have developed as it has without major federal support. Federal interest and support have fostered the growth of criminal justice research as an empirical discipline that has amassed critical databases, developed new methodologies, and used the most advanced and sophisticated analytical techniques.

Creating the Conditions for Research Use

Federal involvement has also fostered a more cooperative and productive relationship between the research and criminal justice communities. This relationship was essential to the implementation of research findings.

Prior to the development of the present relationship, policymakers and practitioners tended to dismiss research as academically oriented and not applicable to the realities of the criminal justice system. Worse, they doubted the researchers' motives. Practitioners felt that research results were generally used only to criticize their operations and justify cutting their budgets. In return, researchers saw policymakers and practitioners as uncooperative, unwilling to be distracted by facts or empirical analyses, and closed to research recommendations.

This mutual distrust and disdain promoted an adversarial relationship which, according to James Q. Wilson, degenerated into *ad hominem* exchanges:

When police officers or prosecutors refer to you as a "sociologist," they are not so much describing your profession as repudiating your views. Many scholars have returned the favor by investing the word "cop" with roughly the same connotation as "storm trooper."

However, Wilson has noted a gradual change in that relationship:

[R]elations between scholars and practitioners in the field of law enforcement are much better today than was once the case. The two

groups no longer view each other in quite such stereotypical terms as "fuzzy-headed" academics versus "heavy-handed" cops. In large measure this has happened because of many collaborative ventures that have, over the past decade or so, brought scholars and law enforcement personnel into close working relationships (Wilson, 1983, p. 4).

In the beginning, these were mostly "forced marriages." Federal agencies recognized policy and operational problems and solicited research proposals for studying them. Often, the researchers needed data that they could get only from practitioners. Sometimes criminal justice agencies had the data, but more often the researchers had to survey the actors or observe the agencies' operations. With federal investment and interest, a new kind of research agenda was undertaken and the old attitudes and responses began to change.

Because federal interests were policy- and problem-oriented, research became less academically oriented, and researchers became more aware of policymakers' and practitioners' concerns and more responsive to their problems. At the same time, criminal justice research was growing increasingly empirical and analytically sophisticated. Exploiting computer advances, researchers could analyze their data in ways that made the findings less ambiguous, more replicable, and more compelling than before.

Policymakers and practitioners became more open and cooperative as they saw results that addressed their problems and constructively challenged policy assumptions and traditional practices. They also began to recognize the importance and benefits of empirical analysis. It gave them a better basis than "received wisdom," ideology, or "gut feeling" for making and justifying their decisions. They also realized how useful the results of empirical analysis could be in supporting budget proposals, fighting budget cuts, and preparing position statements requested by higher authorities.

Federal agencies fostered this growing mutual respect and encouraged cooperation by following through in several ways. When research studies discovered new problems or policy implications, federal agencies supported studies to address them. The agencies fielded experiments and program evaluations. They organized and supported workshops and conferences to bring researchers and practitioners together, and they disseminated research findings widely.

In sum, federal interest in and support of criminal justice research has shaped the criminal justice agenda, stimulated the growth of criminal justice research as an academic field, and helped forge a stronger and more productive link between researchers and the criminal justice system.

IMPROVING THE RETURN ON RESEARCH INVESTMENT: CONSIDERATIONS AND RECOMMENDATIONS

An even greater return on the research investment could be realized by:

- Involving criminal justice policymakers, practitioners, and researchers in creating and maintaining a collaborative framework to focus, disseminate, and utilize research.
- Disseminating and reporting research results more effectively.
- Improving policymakers' and practitioners' ability to apply research findings and recommendations in their contexts.
- Recognizing the limitations on research's ability to affect policy and practice.

These efforts will call upon the energies and commitment of researchers, the criminal justice community, and the federal research agencies.

Creating a Collaborative Framework

Future studies should stand the test of three fundamental questions: Is the research aimed at improving criminal justice performance? Does it reflect the time, money, and personnel constraints imposed on the system? Would changes the research might suggest be supported by those whose cooperation is essential for successful implementation and enactment? Even more important, these questions must be asked and answered in a collaborative framework involving researchers, policymakers, and practitioners equally.

Although attitudes and cooperation between researchers and practitioners have improved considerably, policymakers and practitioners still criticize researchers for being unfamiliar with the context of policy and practice. And researchers still criticize policymakers for asking only narrow, problem-oriented questions. Granted, policy research should focus on the real world where policies are made and put in practice. However, if that research becomes so tightly constrained by practical considerations that it fails to question basic assumptions and to address the larger conceptual issues, it will also betray its larger mission.

A collaborative framework could end this apparent standoff. Within such a framework:

- Researchers would seek advice from the policy community in framing research questions; challenge the assumptions informing those questions; and, where appropriate, reformulate the questions.

- Policymakers would help researchers make analysis more relevant to policy and practice and thus potentially more likely to improve system performance. They could also help create new channels for dialogue between researchers and practitioners.
- Practitioners could help focus the agenda, improve dissemination, and increase the utility of research by making their priorities and needs known to researchers and policymakers.
- All three could work to develop a common core of concerns and reduce any lingering adversarial feelings.

According to a recent NIJ survey, the time is ripe for putting such a framework in place. The NIJ asked practitioners about their concerns with the research process and found that in their substantive research priorities, the practitioners and researchers were close: Both agreed that research should focus on violent crime, the career criminal, neighborhood and community social control, more effective methods of policing and sentencing, incapacitation, and punishment (NIJ, 1983). However, beyond this point, they parted company.

Researchers were interested in knowing more about problems, primarily through new experiments, demonstrations, and longitudinal studies. Practitioners wanted more research dollars devoted to synthesizing what is known and how it could be used to improve their crime control efforts. They also wanted the research community to participate actively in helping put research results into practice; they believed that researchers should take responsibility for the training needed to implement recommended programs or practices. In contrast, researchers placed such efforts very low on their list of priorities.

Most of all, practitioners wanted to be more involved in shaping the research agenda. They complained that they were too often left out or given a minor role in setting research priorities. In their opinion, when researchers and agency heads alone set those priorities, the relevance of research to operational needs and problems is often not adequately considered. In addition to identifying relevant topics for research, the practitioners felt they had a role to play in reviewing research proposals, in providing sites for experiments, and in disseminating research results. As a result, the NIJ has focused its priorities on those identified by the practitioner community and has placed practitioners on the review committees for nearly every research proposal.

The latter change goes to the heart of the recommendations made in this report for forging a collaborative framework. Collaboration cannot be left to informal arrangements among researchers, policymakers, and practitioners. All three must cooperate with federal funding agencies

to develop a model for embodying and formalizing this framework. The model should include:

- A recognized forum for involving the policy community and researchers in continuing dialogue over research questions, interim findings, final results, and their implications for policy, practice, and new research.
- Systematic arrangements for including policymakers and practitioners in proposal review and working advisory committees, for briefing them on preliminary results, for eliciting their responses to results, and for helping them use the results in policy and practice.
- Regularly convened conferences that bring members of the research and policy communities together to discuss emerging problems.

Other possibilities might include enhancing the roles of institutions such as the Police Foundation and the Institute for Court Management, which tackle the problems of particular parts of the system. These institutions and various professional organizations might provide the liaison for selecting members to serve on the committees and a forum for dialogue. Finally, many of the recommendations made below concerning dissemination and use of research would depend on and strengthen this collaborative framework.

Toward Disseminating and Reporting Research Effectively

It may seem counterintuitive to discuss research dissemination before research reporting. However, the presentation of reports has little effect if the results fail to reach the people who might benefit from them. The NIJ has taken particular note of this and has undertaken extraordinary dissemination efforts which are receiving praise from the practitioner community. About twenty half-hour *Crime File* videotapes that summarize key research issues and findings have been produced since 1985 on topics including search and seizure, the death penalty, probation, prison crowding, and sentence reform. Each session is moderated by James Q. Wilson, a leading criminal justice expert. The NIJ commissions a study guide to accompany each videotape, providing more background and references for additional information. The videotape series has been aired on nationwide public television, and over 10,000 copies of the tapes have been sold for use in training and public forums.

The NIJ has also devised a dissemination strategy especially targeted toward high-level criminal justice policymakers and practitioners. The *Research In Brief (RIB)* series is published 8 to 10 times per year. In each issue, a researcher presents about a ten-page nontechnical summary of the central issues of his research, his major findings, and their most relevant policy implications. The NIJ then prints the RIB in an attractive format, and distributes from 7,000 to 10,000 copies free to a mailing list of key criminal justice decisionmakers.

To further improve the dissemination of research, the NIJ has recently initiated a new journal, *Prosecutors Perspective*, which provides an informed review of research by experienced district attorneys. The journal is edited by Stephen Goldsmith, Prosecuting Attorney in Indianapolis. Each issue summarizes key research findings and solicits the opinions of prosecutors on the relevance of those findings for the field.

The NIJ recognizes that if the client does not demand otherwise, academics almost always write to an audience of other academics. Even if policymakers can get past the academic prose, they rarely find anything about the policy implications of the research. The NIJ and other federal agencies are asking researchers to think more clearly and forcefully about the potential policy implications of their research.

The interviews conducted for this study indicated that after years of trying to use the results of traditional evaluations, most policymakers have developed an active distaste for the reporting conventions of the social sciences. Many of them noted that poor writing is a convention by default if not intention and that reports sometimes seem designed to impress the writer's scientific colleagues rather than to inform decisionmakers. They dislike being led blow-by-blow through the research process, and they are impatient with reports that either fail to draw conclusions and implications or hedge them with so many caveats that they are useless for policy deliberations. Policymakers also do not appreciate reports that inflate trivial issues or leap to unsubstantiated conclusions.

Funding agencies have begun to make clear nontechnical writing an explicit condition in the research contract. They are evidently fed up with academic prose and aware that poor writing has led some practitioners to have a low opinion of research. Such a condition should be part of every "request-for-proposal" notice. It sends a clear signal not only that the agencies do not want research they have funded to be hidden under a bushel of verbiage, but that they care about the research-to-practice link. Since good researchers are not always good writers, funding agencies might consider setting aside contingency

funding to enable researchers to seek professional assistance in preparing reports.

Researchers often hesitate to draw out policy implications or make recommendations because they fear the specters of "advocacy" and subjectivity. However, credible policy research must include at least a discussion of alternative policies and their possible consequences or a statement that the evidence is not sufficient to support any policy advice. Explanations of the meaning and implications of a study's findings do not constitute advocacy nor do they violate scientific objectivity, as long as the findings and analysis lead logically to the conclusions and implications drawn. Finally, clearly described findings are less likely to be misinterpreted or misused.

Policymakers and practitioners want the policy-relevant material from research distilled and clearly related to their concerns. Researchers and funding agencies must therefore consider the audiences for their products, and they must recognize that the responsibility and opportunities for dissemination do not stop with putting a written document into the mail.

In addition to publishing research reports and monographs, it is necessary to identify the other forums, potential "consumers," and uses of the research, set priorities for addressing them, and tailor research products accordingly.

Ideally, researchers should play the lead role in developing strategies and adapting products for different audiences. However, few researchers have the experience or the skills to write for different audiences. Funding agencies might consider employing specialists to "translate" research results for various audiences and purposes. The resources involved are not trivial, however, so dissemination strategies and costs should be reflected in contract arrangements.

Finally, disseminating results without fostering the greatest possible understanding of their implications and uses does not provide the greatest return on the research investment. Researchers, policymakers, and practitioners should engage in real dialogue over research results and their implications.

Researchers and funding agencies might consider using affiliated organizations that provide information, technical assistance, and other services to their members. Policymakers and practitioners already look to associations such as the following for information:

American Bar Foundation
American Correctional Association
American Probation and Parole Association
Federal Judicial Center

National Association of Chiefs of Police
National Association of State Legislators
The National Association of Criminal Justice Planners
National District Attorney Association
National Judicial College
Institute for Court Management

Agencies that fund criminal justice research should recognize the role these associations can play and help researchers set up working relationships with them.

Criminal justice policymakers and officials need to continue efforts to bring research results to the attention of their personnel. Most academic researchers think of dissemination as publishing in academic journals. However, criminal justice policymakers and practitioners rarely, if ever, read such journals. Most of the practitioners interviewed in this study said that the only journal articles they read were those that focused on particular operational problems they faced and that offered feasible solutions. Moreover, most managers think the "opportunity cost" of reading lengthy articles is too high. Many of the policymakers interviewed said they wanted only one-page summaries of the most salient research findings. U.S. Attorney Joseph DiGenova commented on the relevance of research to policy and the need for succinct reports:

I don't think there is anybody who has responsibilities for public policy who can afford to ignore research. I frequently testify before various committees, and rely heavily on NIJ and BJS reports to come "up to speed" on an issue. I am extremely anxious to use research findings, but sometimes I get frustrated with the packaging.

I confess that if the results aren't summarized succinctly—in about two pages—I will usually route it to another staff. I really like the NIJ *Research in Brief* (RIB) series. They provide me with just enough information so I can discuss the research findings intelligently, but don't bore me with all the methodology. These *Briefs* often "whet my appetite" and I order the full report. Also they are timely . . . it doesn't do me any good to have the research reported three to four years later when all the refinements have taken place . . . by that time, a new trend has started and the information is outdated.

What of media reports of research? They appear to have little effect on line-level practitioners, because they rarely cover operational topics. The research reported in the media consists almost exclusively of criticisms of the system or some part of it, revelations of new problems, proofs that old problems are worse than anyone thought, challenges to

policy assumptions, support for one side of a hot debate, and/or new perspectives on system policy or practice. High-level policymakers and administrators pay attention to such reports, although most of those interviewed said that the media made them aware of research and their need to understand it.

Policymakers need to stay on top of newsworthy issues, to appear knowledgeable, and to talk about better ways of doing things. However, their time is limited, and they are more likely to read abstracts, summaries, or reviews than whole articles, books, or reports. When they find something that appears to be especially significant and informative, they usually have a staff member read the text and brief them.

Unlike most practitioners, many policymakers have a research staff that keeps them aware of relevant studies. However, without a comprehensive and targeted dissemination effort, important research may never come to the attention of these staffs.

Funding agencies have until recently assigned a lower priority to dissemination activities. They tend to believe that if the research is documented in some published form, it will be disseminated, and that if it has any value, it will be recognized and will affect policy and practice. But as Paul Cascarano, Director of NIJ's Office of Communication and Research Utilization, said: "Research, no matter how successful, will have limited impact on policy and practice without intensive efforts to communicate research-based information to those who can use it."

Helping Practitioners Apply Research

To provide maximum benefit to the criminal justice system, research obviously must do more than come to the attention of policymakers and practitioners. Research reports often end by suggesting that states and jurisdictions should attempt to replicate the study in their environments, assess its implications for their particular problems, needs, and resources, and/or consider how successful a new policy or program would be in their political atmospheres. While that kind of recommendation represents admirable scholarly restraint and objectivity, it provides very little help.

Criminal justice agencies may consider research results and implications potentially useful in their jurisdictions, but they need direct and practical help to adapt policies and programs to their particular situations. Many practitioners have noted that research results are not at all self-implementing.

Much as they might like to transcend the day-to-day duties of managing their agencies, busy practitioners simply do not have the time, and in some cases the expertise, to use research results to develop

their own implementation strategies. They believe that researchers and funding agencies should provide more follow-through, more education and training.

The need for on-site help is obvious for some technological advances, e.g., computer programs for patrol car operations. However, federal agencies could reap a greater investment on the research investment by providing follow-up assistance in other areas. In 1976, the NIJ followed up a series of detective studies made by The RAND Corporation with conferences, training programs, technical assistance, and federally funded criminal investigation experiments in jurisdictions around the country. As a result, many of the reforms suggested in the original research have led to real changes in the manner in which the detective function is organized today.

As another example, the impact of the Police Foundation is undoubtedly due in part to the fact that it builds research, dissemination, and advice on implementation into one institutional structure. The Foundation conducted the initial research on preventive patrol and spousal assault discussed in Sec. II, and the NIJ provided follow-on funds for dissemination, policy briefings, and replications.

The National Council on Crime and Delinquency (NCCD) has developed computer models that allow prisons to project future capacity. After the projections are turned over to prison officials, the NCCD staff spends several months assisting in bringing prison construction and planning into line with them.

Another example of the importance of technical assistance to local implementing jurisdictions is that of the Wisconsin risk/needs classification instrument (discussed in Sec. V). The federal government, through the NIC, disseminated written documentation to local correctional administrators, describing the details of the system. They also provided financial support to locales for assembling the background data necessary to implement a similar system and put it in place. As a result of NIC's involvement, more than 100 correctional agencies are now using the risk/need system.

Too little is known about how to proceed from research findings to a change in policy or practice. The required information about practical matters is often outside the scope of the research. The effective introduction of research findings into a given environment may be a science unto itself. Very little is known about the processes of implementing innovation and the relative roles researchers, policymakers, and practitioners play in transforming research results into working operations. If research is to have an impact on local operations, more emphasis must be placed on assisting local jurisdictions in the implementation

process.¹ A follow-through component could be built into research projects to assist in utilization; of course, funding should be established on a contingency basis, since not all research produces usable results.

Recognizing the Limits of Research Influence

It may seem paradoxical, but the return on the federal research investment can be improved, in part, by recognizing the limits of research influence on criminal justice policy and practice. The whole endeavor could be undermined by unrealistic or inappropriate expectations. Expectations should be tempered by the definitive nature of research, by recognition that circumstances often dictate how research is received, and by an awareness of how the policy process works.

Criminal justice practitioners have repeatedly said that if researchers want to have an effect, they must focus on "real problems." Practitioners want more efficient, less expensive, and less complicated ways of solving operational and management problems.

Practitioners also want information sooner:

Practitioners feel that deferring dissemination until an idea has been fully tested is unrealistic and results, at least in the short run, in research that is irrelevant to policymaking. . . . Public pressure and the demands of particular situations require that practitioners act. They preclude waiting for the research results of three to five year studies. Often, by the time research results become available in useable form, the problem or situation under study may have changed or altered through interventions dictated by this need to act. Practitioners feel a need for better information on the potential outcomes of a possible course of action geared more toward the "real time" atmosphere in which they are forced to operate. Confronted with immediate decisions, even preliminary findings can be helpful (NIJ, 1983, p. 12).

While researchers should understand and address these concerns, they must resist the pressure to limit research only to problem-solving and to share "unfinished" research.

Researchers must return repeatedly to questioning the basic assumptions that underlie policies, programs, and operational strategies. The system has many problems that are verging on crisis because operations are based on faulty assumptions or a narrow focus. If no one is

¹The NIC model is a good one for consideration. The NIC's primary mission is to assist corrections practitioners. The majority of NIC funds go directly to local corrections agencies in the form of technical assistance grants. These funds provide the incentive and opportunity for practitioners to become aware of the latest techniques and to consider their local applicability.

thinking about the larger conceptual issues, problem-solving will continue to consist primarily of "fire-fighting."

Researchers must also make an effort to validate their reluctance to share results "prematurely." Practitioners have been known to act on very preliminary and unproven conclusions, with unfortunate results. Researchers must make policymakers and practitioners understand the importance of research design and the implications that can validly be drawn from research. However, they must not let a preference for longitudinal studies and experimental design blind them to the need for and the virtues of issue-oriented, short-term studies and syntheses of what is known.

Expectations about research influence should also reflect the role of timing and other circumstances. Trends and public attitudes may preclude a hearing for potentially significant and useful research. For example, when the public was clamoring for harsher treatment of offenders and determinate sentencing was gaining popularity, the few studies that predicted the incredible rise in prison populations were given short shrift.

On the other hand, some research has an impact without much effort at dissemination and consultation. Certain ideas (e.g., selective incapacitation) seem to take off almost automatically, probably because they meet keenly felt needs or reflect the public mood. Other useful research has little impact because it has not been "sold" effectively. And there is still other research that has little impact, even when it is vigorously promoted, because it requires politically costly changes in behavior. Research does not operate in a vacuum. It can be expected to influence policy only when timing, political agendas, financial resources, and empirical facts converge.

This is not to say that researchers should cynically consider circumstances when they design research studies. As a matter of principle, they should address issues and questions that they consider significant, regardless of circumstances.

However, researchers should temper their expectations with an awareness of the roles that circumstances and timing play, and also of the role that research can play in policy considerations. Various studies have pointed out that it is unrealistic (if not presumptuous) to believe that research can be the sole, or even primary, influence on policy.

Research does not generate substantive norms or platonic ideals that hold in every case. Even if it did, there is no place in a political process for such things. Every policy decision must reflect the exigencies of its context. Research that shapes the way policymakers think about an issue does not require a particular context to be useful.

CONCLUDING REMARKS

A recent Gallup poll found that 80 percent of Americans believe that more public money should be allocated to crime control. Crime was identified as the top-priority issue, surpassing even such important domestic issues as AIDS and drug use (*Newsweek*, November 1986). But Americans are confused about how those additional funds should be expended; many feel that increasingly harsh, punitive measures are necessary, but more than half do not believe that prison sentences discourage crime. On the other hand, the public is disenchanted with parole and probation, but many believe that offenders should be given the opportunity to rehabilitate themselves (*Figgie Report*, 1985).

The public mandate to *do* something about crime, coupled with fiscal pressures to stabilize funding for criminal justice, has resulted in an increasing need to target resources on those programs that hold the most promise. There has never been a greater need for policy research in criminal justice. Less than 1 percent of total criminal justice expenditures is devoted to research—a percentage that has remained constant over the past decade even though crime rates and the number of criminal offenders has increased tenfold. Some important returns have been realized on the nation's research investment, as demonstrated throughout this report, but the need for policy-oriented research will even be greater in the years ahead.

Projections suggest that arrests, convictions, and incarcerations will continue to increase well into the year 2020. A central issue for justice research is that of identifying offender subgroups for whom one type of "treatment" or sanction is more appropriate than another. That translates into early identification of cases for whom arrest is most likely to result in conviction, and identifying offenders for whom different sanctions (e.g., prison, probation) result in either incapacitation or rehabilitative effects. Researchers and practitioners now possess the necessary skills to tackle these tasks, and they have become more comfortable interacting with each other.

As expressed by James Q. Wilson, "Ultimately, our handling of crime and criminals reflects our ideas about its causes and cures. The most important leadership role the federal government can play in our decentralized system of criminal justice is to help develop and sustain the professional, rigorous, and nonpartisan analysis of ideas. Cities and states can be expected to spend money to manage their own agencies and to respond to their own problems, but they cannot reasonably be expected to devote scarce resources to research and experimental projects that may chiefly benefit other cities and states or the nation as a whole." That has been the responsibility of the federal criminal justice system, and its continued presence is both necessary and promising as the nation attempts to deal with its crime problem.

Appendix

PERSONS INTERVIEWED FOR THIS STUDY

NATIONAL INSTITUTE OF JUSTICE

Virginia Baldau, *Office of Communications and Research Utilization*

Lawrence Bennett, *Director, Adjudication and Corrections Division*

Robert Burkhart, *former Director, Office of Research Programs*

Paul Cascarano, *Director, Office of Communications and Research Utilization*

Paul Estaver, *Reference and Dissemination Division*

Mary Graham, *Office of Communications and Research Utilization*

Joel Garner, *Office of Crime Prevention and Criminal Justice Research*

Bernard Gropper, *Center for Crime Control*

Fred Heinzelmann, *Director, Crime Prevention and Enforcement Division*

Joseph T. Kochanski, *Acting Director, Center for Crime Control*

Richard Linster, *Acting Director, Research Office of Crime Prevention*

Cheryl Martorana, *formerly of Office of Crime Prevention and Criminal Justice Research*

Louis A. Mayo, *Training and Testing Division*

Lois Felson Mock, *Office of Crime Prevention*

John Pickett, *Office of the Director*

Lester Shubin, *Training and Testing Division*

James K. Stewart, *Director*

Richard M. Titus, *Office of Crime Prevention*

Edwin W. Zedlewski, *Office of the Director*

OTHER AGENCIES AND INSTITUTIONS

- Benjamin Baer, *Chairman, U.S. Parole Commission*
Wilbur Beckwith, *California Youth Authority, Sacramento, Calif.*
Cornelius Behan, *Police Chief, Baltimore, Md.*
William Bieck, *Police Department, Houston, Texas*
Alfred Blumstein, *Carnegie-Mellon University, Pittsburgh, Pa.*
Anthony Bouza, *Police Chief, Minneapolis, Minn.*
Gerald Buck, *Chief Probation Officer, Contra Costa County, Calif.*
Afton Taylor Burton, *Chief Probation Officer, Shasta County, Calif.*
Betty M. Chemers, *Maryland Department of Public Safety,
Baltimore, Md.*
Susan Cohen, *Executive Director, California Probation Parole and
Correction Association, Sacramento, Calif.*
Joseph E. DiGenova, *U.S. Attorney, Washington, D.C.*
Elaine B. Duxbury, *Director of Research, Department of Youth
Authority, Sacramento, Calif.*
Brian Forst, *Director of Research, The Police Foundation,
Washington, D.C.*
Harold Gates, *E. I. Dupont de Nemours and Company,
Wilmington, Del.*
Peter Gilchrist, *District Attorney, Charlotte, N.C.*
Stephen Goldsmith, *Prosecuting Attorney, Indianapolis, Ind.*
Donald M. Gottfredson, *Rutgers University, Newark, N.J.*
Michael Greenwood, *Federal Judicial Center, Washington, D.C.*
Peter Greenwood, *The RAND Corporation, Santa Monica, Calif.*
Jerry Hill, *Chief Probation Officer, San Bernardino, Calif.*
Peter Hoffman, *U.S. Sentencing Commission*
Lowell Jensen, *Federal Judge, San Francisco, Calif.*
James Keane, *Police Chief, Santa Monica, Calif.*
David Kessler, *Police Department, Houston, Texas*
William Kolender, *Police Chief, San Diego, Calif.*
Kai Martinsen, *Baltimore County Police Department, Towson, Md.*
Malcolm MacDonald, *President, American Probation and Parole
Association, Austin, Texas*

- Joseph McNamera, *Police Chief, San Jose, Calif.*
- Louis Minor, *E. I. DuPont de Nemours and Company, Wilmington, Del.*
- Chip Mount, *Office of Court Administration, New York, N.Y.*
- Thomas Munsterman, *National Center for State Courts, Williamsburg, Va.*
- Oscar Newman, *Institute for Community Design Analysis, Great Neck, N.Y.*
- Barry Nidorf, *Chief Probation Officer, Los Angeles County, Downey, Calif.*
- Tony Pate, *The Police Foundation, Washington, D.C.*
- Lawrence Polanski, *Court Administrator, Superior Court, Washington, D.C.*
- James Rowland, *Director, California Youth Authority, Sacramento, Calif.*
- William Saulsbury, *University of Illinois, Urbana, Ill.*
- Michael A. Schumacher, *Chief Probation Officer, Orange, Calif.*
- Michael Smith, *Director, Vera Institute of Justice, New York, N.Y.*
- Harvey Solomon, *Director, Institute for Court Management, Denver, Colo.*
- Brian Taugher, *Office of the Attorney General, Sacramento, Calif.*
- John Van De Kamp, *Attorney General, State of California, Sacramento, Calif.*
- Andrew Von Hirsch, *Rutgers University, Newark, N.J.*
- Warren Walker, *The RAND Corporation, Santa Monica, Calif.*
- Mark Wiederanders, *California Youth Authority, Sacramento, Calif.*
- James Q. Wilson, *University of California, Los Angeles, Calif.*

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