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RAND RESEARCH ON CRIMINAL CAREERS: PROGRESS TO DATE

Peter W. Greenwood

A Rand Note
prepared for the
U.S. DEPARTMENT OF JUSTICE

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PREFACE

During the past four years Rand has been engaged in a number of studies, under the sponsorship of the National Institute of Law Enforcement and Criminal Justice, which focus on habitual offenders and the unique problems or issues they may pose for criminal justice policymakers. This research has taken the form of offender surveys, analyses of official records, interviews with system officials, and modeling of offender and system behavior. Our completed analyses provide an empirically based description of serious criminals, their crimes, and their interactions with the criminal justice system.

Over the next two years, this line of research will continue to be pursued at Rand. Since career criminals and incapacitation are prominent and controversial topics of criminal justice debate, this Note has been prepared to inform LEAA officials, practitioners, and interested researchers about our preliminary findings and current work.

The author is Director of Rand's Criminal Justice Research Program, and this Note summarizes recent work of the program staff which includes Jan Chaiken, Paul Honig, Charles Hubay, Joan Petersilia, and Mark Peterson.

SUMMARY

During the past four years, Rand has conducted a number of studies concerned with criminal careers--how they begin, how much crime individual offenders commit, and motivations for crime and the attitudes of offenders toward the criminal justice system. The research is designed to provide basic research knowledge on criminal behavior and to assist policymakers in determining the effects of alternative law enforcement and sentencing policies. This Note describes both completed and ongoing studies and presents major findings to date.

RAND'S CRIMINAL CAREER RESEARCH

The principal completed projects in Rand's criminal career research program include:

- A study of criminal careers involving interviews with 49 prison inmates, who had each served at least one term prior to their current conviction and who were currently serving sentences for robbery.

- A survey of 624 California prison inmates concerning their activities during the three-year period prior to their current confinement.

- An analysis of felony arrest dispositions in four Southern California counties.

- An analysis of the incapacitation effects that would result from various mandatory sentencing schemes.

Current research includes a second inmate survey of both prison and jail inmates from three states; a study of changes in prosecution and sentencing outcomes under California's Determinate Sentencing Act; a study of prison inmate treatment needs and participation rates in treatment programs; development of Bayes estimators for individual crime parameters; and a study of how juvenile records are used in adult criminal proceedings.

CRIME PATTERNS

One central concern of the research described here is the development of reliable estimates of individual crime rates—an area largely untouched by prior research. Our estimates are based on self-reported crime and have been adjusted for biases that are produced by selecting respondents who are in prison. Comparisons between our estimates and those based on arrest histories show a fair degree of consistency. General patterns of criminal activity are as follows:

1. Few offenders specialize; most engage in several different crime types.

2. There is great variation among prison inmates, both in the combinations of crimes they commit and in their crime rates.

3. The distribution of individual offense rates is highly skewed to the low side, with most offenders committing crime at considerably less than the average rate. The average rate for any group is largely determined by a few individuals who commit crimes at a very high rate.

4. Individual crime rates show a moderate decline with age and substantial increase with prior record. Those with prior felony convictions have much higher rates than those who do not. Within the group with prior felony conviction, those with prior prison records do not commit more crimes than those without.

5. Juvenile criminality is strongly related to individual crime rates. The earlier the entry into crime and the more serious its level, the higher the rate of adult crime.

ARRESTS AND INCAPACITATION

Our analysis of arrest disposition records disclosed a strong relationship between prior record and case outcomes. Although defendants with heavier records were no more likely to be convicted, they were much more likely to be incarcerated.

To investigate incapacitation effects--i.e., the amount of crime prevented by the incarceration of offenders--we used two analytic techniques, one involving a mathematical model that calculates the effect of different sentencing policies on the typical offender and one using arrest histories to simulate the effects of alternative sentences at earlier convictions. Both models indicate that a substantial increase in prison population would be required to bring about a significant reduction in crime--at least a 3 percent incarceration increase for a 1 percent reduction in crime.

SOCIAL/PSYCHOLOGICAL CORRELATES

The inmate survey responses provided an opportunity to explore the relationships between a number of social and psychological characteristics and level of criminal activity. In general, high-rate offenders were more likely than other offenders to express hedonistic reasons for crime, as opposed to economic duress, and to profess attitudes that value criminality and that minimize the risk of being caught. They were more likely to see themselves as criminals, view themselves as successful in crime, and expect more benefits from crime.

With regard to other social factors, both residential and employment stability were inversely related to crime rates, while marital stability was not. Drug users also reported higher rates of crime, a relationship that was particularly strong for property crimes.

CAREER CRIMINAL PROGRAMS

During the past five years, more than 50 prosecutors have established special programs to concentrate on career criminals in their jurisdiction. These programs usually involve careful case preparation, vertical representation, and a policy of no plea bargaining. During the past year, Rand conducted a national survey covering the entire spectrum of criminal justice agencies to determine how the agencies could coordinate their activities with career criminal prosecution programs.

For the police, there could be three distinct efforts: (1) provide more direct assistance to the prosecutor; (2) concentrate investigation resources on suspected career criminals; (3) upgrade the quality of their general crime analysis and investigation efforts.

For correctional institutions, our survey did not disclose that career criminals represented any unique problems, or that they are differentially treated now.

In parole, we found a number of states experimenting with various forms of parole which emphasize surveillance rather than treatment. Career criminals were likely to be candidates for these programs.

ACKNOWLEDGMENTS

CONTENTS

I. INTRODUCTION

The potential value of examining individual criminal behavior from a career perspective, as opposed to a series of unrelated or irregular events, has long been recognized in criminological research. Yet relatively recent research findings by Marvin Wolfgang and his colleagues, and a shift in attitudes concerning the proper role of criminal justice agencies in dealing with crime, have given a new impetus to this line of research.

Briefly, Wolfgang's now classic Cohort Study,[*] using criminal justice and other official record sources for all males born in Philadelphia in 1945, established that a small percentage of the cohort (6 percent) were responsible for half of all crimes and two-thirds of all violent crimes for which members of the cohort were arrested, up to their 18th birthday. Later research by Wolfgang (1977) on this same cohort[†] established that these same "chronic offenders" accounted for a similarly disproportionate share of adult arrests and that their crimes, on the average, were more serious than those of other offenders.

Following the work of the President's Crime Commission in the mid-1960s, the focus of criminal justice research and program development efforts was in the area of prevention and rehabilitation. The emphasis was on diagnosing the offender's underlying problems that had caused his criminal behavior and on designing individualized treatment programs that would be responsive to his needs.

During the past decade, these programs have failed to live up to the promises of their proponents. Evaluations[**] have not found any

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[*] Marvin Wolfgang, Robert Figlio, and Thorsten Sellin, *Delinquency in a Birth Cohort,* University of Chicago Press, Chicago, 1972.

[†] Marvin Wolfgang, "From Boy to Man--From Delinquency to Crime." Paper prepared for National Symposium on the Serious Juvenile Offender, Department of Sociology, University of Pennsylvania, 1977.

[**] Many of the evaluations have severe methodological flaws which may contribute to the lack of positive findings.

treatments that consistently result in significant reductions in re-
cidivism. This negative evidence concerning the benefit of treat-
ment programs, along with an increasing concern for the victims of
crime, has shifted criminal justice philosophy away from a focus on
rehabilitation to a more pragmatic concern with deterrence and in-
capacitation as means of protecting society.

Given this reorientation in policy objectives, criminal career
research has assumed a central role in determining who society needs
to be protected from, and how that protection can best be achieved.
The primary objectives of criminal career research involve determin-
ing how the frequency and seriousness of an individual's criminal
activity changes over time and predicting which subsets of offenders
represent the greatest potential threat to public safety, based on
their prior criminal history. Other objectives involve determining how
different types of offenders are treated by the system; predicting the
impacts on crime and institutional populations of alternative sentencing
policies; and identifying unique psychological or behavioral character-
istics of offender subgroups that might suggest productive rehabilita-
tion methods.

During the past four years, Rand has conducted a number of studies
under LEAA* sponsorship, involving these criminal career issues. One
of the unique aspects of the Rand work has been its use of offender
self-reports, obtained through interviews and self-administered sur-
veys, as a measure of criminal activity. The Rand work completed to
date provides, for the first time, estimates of individual offense
rates for different types of offenders, categorized by age, prior
record, and a number of other social and psychological variables. It
also provides estimates of an individual's probability of arrest, con-
viction, and incarceration associated with participation in different
types of crime.

This research has identified offender characteristics that distin-
guish among offenders who report differing offense rates or commitments

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to criminal behavior. The research provides estimates of the relationship between sentencing policy and crime rates using several different models to estimate incapacitation effects.

In summary, this work has pushed into new frontiers, both substantively and methodologically, in using self-reported data to provide estimates of criminal behavior. The estimates in turn provide a new foundation for the evaluation of crime control policies.

A number of current projects have been designed to improve on the reliability of our earlier work and pursue particular research or policy issues which the earlier work suggests are important. The purpose of this Note is to briefly summarize the findings from research completed to date and indicate the directions of our current work.

Section II describes each of the major research projects in which we have engaged; Sections III through VII present the major findings. Section III describes patterns of individual behavior--particularly the prevalence and offense rates for different crime types. Section IV covers the offenders' interactions with the criminal justice system. Section V presents estimates of incapacitation effects using two alternate estimation techniques. Section VI summarizes the social and psychological factors we found to be associated with high rate criminality, and Section VII describes some options for dealing more systematically with career criminals. Section VIII describes our current work, and the Appendix reviews methodological issues involved in different types of criminal career research.

II. RAND'S CAREER CRIMINAL RESEARCH PROGRAM

During the past four years Rand has conducted a number of studies designed to provide new insights and data concerning "serious habitual offenders"--adult criminals who continue to engage in serious predatory or violent crimes over extended periods of time. Our original research objectives were to determine the magnitude of the habitual offender population, describe their characteristics, and analyze their inter- actions with the criminal justice system. As we proceeded, the focus of our inquiry has been influenced by a growing public interest in incapacitation as a policy goal and a focus on prosecution and incar- ceration of career criminals as specific means of crime reduction. Clarification or resolution of issues raised by either of these policy initiatives require more reliable information on individual behavior of the type our research has been designed to provide.

In this section we review the four principal studies from which our current findings are drawn--(1) Criminal Careers, (2) Inmate Survey, (3) Arrest Dispositions, and (4) Mandatory Sentencing--and briefly summarize the nature of our current work. A more extensive discussion of our current research and the issues it is designed to address is provided in Section VIII.

CRIMINAL CAREERS

Following our initial review of the literature, the Criminal Career study reported in R-2144-DOJ, *Criminal Careers of Habitual Felons* by Joan Petersilia, Peter W. Greenwood, and Marvin Lavin, August 1977, was our first attempt to systematically interview offend- ers for the purpose of developing a quantifiable portrayal of crim- inal career developments. This study sought to reveal the changes that occur in individual criminal behavior over the course of a career. It examined a sample of 49 incarcerated male felons drawn from the population of a medium-security California prison. Each had been convicted for at least one count of armed robbery and had

served at least one prior prison term at that time. Judged by the frequency, gravity, and length of their involvement with the law enforcement and criminal justice system, the offenders in this sample could be considered serious career criminals by almost any definition. The study was an analysis of two bodies of data pertaining to the sample: (1) their responses to a structured interview involving over 600 open- and close-ended questions; and (2) their official criminal histories. The self-report information was divided into three time periods by the questionnaire: juvenile, young adult, and adult. The topics covered included family relationships, frequency and type of criminal activity, frequency and type of arrests and convictions, legitimate employment, sources of income, motivations, attitudes, methods of planning and executing criminal acts and avoiding arrest, involvement with drugs and alcohol, use of force and violence, and post-release (from incarceration) behavior.

INMATE SURVEY

A later study--to be reported by Mark Peterson and Harriet Braiker with S. Polich, *Doing Crime: A Survey of California Prison Inmates*, The Rand Corporation, R-2200-DOJ (forthcoming)--was based on an anonymous survey of 624 male inmates drawn from five different California correctional facilities, who represented a random sample of all male California prison inmates. The survey instrument covered each offender's criminal activity; arrests, convictions, and incarcerations; juvenile history; employment; motives for committing crime; perceptions of the benefits and risks that accrue from criminal activity; and attitudes toward the criminal justice system. In examining these issues, the survey focused principally on the three-year period prior to conviction on the current commitment offense. Respondents' self-reported crimes were used to explore individual patterns of criminal activity and to estimate the prevalence, offense rates, and arrest rates for major felonies among populations of offenders at large and among inmates entering prisons--parameters which can be used to model the incapacitation effects of incarceration. The survey responses were also used to examine the characteristics of career criminals and to develop models for several types of highly active offenders.

ARREST DISPOSITIONS

Another study, concerning disposition patterns for felony arrestees, examined a unique file of data compiled by California's Bureau of Criminal Statistics (BCS). For a sample of approximately 11,000 adult arrests selected from four Southern California counties, BCS had coded the prior record of all arrestees. Using this file, it was possible to determine how the complete pattern of case dispositions was related to the defendants' prior record. These estimates of alternative disposition rates, controlling on crime type and prior record, were in turn used to estimate the incapacitation effects of alternative sentencing policies on the aggregate crime rate.

THE IMPACT OF MANDATORY SENTENCES

A fourth study--reported in J. Petersilia and P. Greenwood, "Mandatory Prison Sentences: Their Projected Effects on Crime and Prison Populations," *The Journal of Criminal Law and Criminology*, December 1978--was based on a data file which described a sample of 625 defendants convicted between 1968 and 1970 in the District Court of Denver, Colorado. The detailed criminal history information in this file, which had been assembled by local planning officials for other research purposes, allowed us to estimate decreases in crime and increases in the prison population which would have resulted from more severe sentencing practices.

CURRENT RESEARCH

Rand is currently engaged in a number of research projects under NILECJ sponsorship which have been designed to build upon the substantive and methodological findings of our earlier work.

The methodology of the Inmate Survey has been refined and extended to collect both self-reported and official record data from approximately 2400 prison and jail inmates from three diverse states: California, Michigan, and Texas. The question formats have been revised to provide more accurate information about individual crime parameters and to permit extensive validity and reliability checks which were not possible with the earlier survey. All of the data from Inmate Survey II have

been collected and are now in the process of being analyzed. The analysis will benefit from results of a second study which is developing improved statistical techniques for estimating crime parameters.

Another study, which utilizes responses to a separate section in the Inmate Survey II instrument, is concerned with the treatment needs and program participation of offenders in prison. A primary concern of this study is to determine whether career criminals, as defined by their prior record, represent unique treatment needs or whether they are selectively included or excluded from participation in treatment and prison work programs.

A fourth study is concerned with how sentencing patterns vary by age, particularly for older juveniles and young adults, and to what degree juvenile criminal history information is utilized in determining young adult felony disposition. This project involves: (1) a survey of prosecutors, concerning juvenile criminal history quality, access, and use; (2) analyses of existing arrest or court disposition data; and (3) interviews with practitioners.

A fifth study concerns the impact of California's Determinate Sentencing Law (DSL) on serious case dispositions. Samples of approximately 200 robbery cases, prosecuted prior to and after the law took effect, have been selected and coded, providing a unique data base for examining changes in prosecution and court behavior.

III. PATTERNS OF INDIVIDUAL CRIMINAL ACTIVITY

One central concern of Rand's research on habitual offenders is the development of reliable estimates of individual criminal activity and the changes in its pattern over the criminal career. More specifically, we are interested in the types of crime in which offenders engage and the frequency with which they commit them. Despite an enormous literature on the causes of crime and analyses of criminal behavior, this particular aspect of criminal behavior has been largely ignored.

In addition to advancing our understanding of criminal behavior, and those factors which serve to impede or encourage its development, knowledge about individual offense patterns is essential for estimating the overall incapacitation effects, in terms of crime prevented, of alternative sentencing policies and for adjusting those policies to insure that sanctions are being efficiently applied.

In the current literature, the offense rate for an individual, measured in crimes per year while free,[*] has been represented by the symbol λ. In estimating the incapacitation effects, attributable to incarcerating a particular offender for a specified sentence length (S), the number of crimes prevented is the product of the offender's λ and S.

In order to accurately estimate differences in incapacitation effects which may be attributable to variations in sentencing policy, it is necessary to develop offense rate estimates for specific types of offenders among which the court is likely to distinguish for a variety of philosophical and practical reasons. Such characteristics as age, sex, prior record, and criminal sophistication are currently reflected in sentencing decisions. In fact, one objective of current incapacitation research is to demonstrate how sentencing policy might

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[*]The number of crimes the offender would commit during a year if he were not incarcerated.

be modified in order to maximize the incapacitation effects result-
ing from a specified level of incarceration.

Although they are limited by a number of methodological consider-
ations, the offense rate estimates developed by our studies, and re-
ported in this Note, represent a significant first step in determin-
ing how individual offense patterns vary among the more active criminal
population.

ESTIMATING OFFENSE RATES FROM INDIVIDUAL LEVEL DATA

Prior to the research described in this Note, there were no
systematic attempts to estimate offense rates directly from individual
level data. Researchers attempting to estimate the magnitude of in-
capacitation effects used aggregate data on the number of offenses and
arrests, in a particular jurisdiction, to infer average values of λ.
These estimates range from a low of less than one index offense per
year, estimated by Clarke (1974) and Greenberg (1975) to a high of
10 index offenses per year as estimated by Shinnar and Shinnar (1975).[*]

There are two basic approaches to estimating offense rates from
individual data. The technique used by Rand relies on offender self-
reports of the number of crimes committed during a specified "window
period,"[†] to estimate λ for each offender directly. The technique used
by Blumstein and Cohen (1978) relies on individual arrest histories
to compute individual arrest rates, which when divided by the prob-
ability of arrest, result in estimates for λ. In either approach it
is necessary to subtract out the time an offender is incarcerated in
order to arrive at an offense rate while free to commit crime.

The self-report method is obviously limited by problems of re-
sponse bias, memory recall, and deliberate efforts to mislead. On the
other hand, it has the advantage of including a richer description of
offense behavior than that provided in arrest histories, and includes

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[*] Using 1972 and 1974 aggregate data for Washington, D.C., Greene
(1977) estimates λ to lie between 1.4 and 2.8 index offenses per year.

[†] Three years prior their current incarceration in the Inmate Survey.

information on crimes for which the offender was never apprehended.
The principal advantage in using official records over offender sur-
veys is its lower cost per individual and the fact that it does not
rely on offender cooperation or memory. Fortunately, as will be
shown later in this Note, these two independent methods generate
estimates of λ which are reasonably close.[*]

Because the Rand self-report data were obtained from a random
sample of male prison inmates, the offense rate estimates produced
from the data are not directly applicable to offenders on the street,
or even an incoming prison cohort. The prison sample overrepresents
offenders serving long terms and high rate offenders who are likely
to be arrested and incarcerated simply because of the frequency of
their criminal activity. To deal with this problem, statistical models
were developed, which correct for these biases by using aggregate
information on average time served, and probability of arrest and
incarceration, to weight inmate samples appropriately. These models
allow the estimation of offense rates for offenders on the street and
incoming prison cohorts, which are the relevant populations for exam-
ining incapacitation effects.

PREVALENCE OF OFFENSE TYPES

In analyzing individual offense rates, the first finding that must
be recognized is that most offenders engage in a number of
crime types, rather than specializing in any one. In the Inmate
Survey, half of the respondents reported committing four or more of
the eleven major crime types listed[†] during the three-year window
period.[**] Less than 10 percent of the sample could be classified
as specialists, a category defined as representing an above average

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[*] See the Appendix for a more detailed comparison of these and
other research methods.

[†] Attempted Murder, Rape, Aggravated Assault (beating), ADW (shot
or cut), ADW (threat), Armed Robbery, Burglary, Forgery, Car Theft,
Cons, Drug Sales.

[**] Blumstein and Cohen (1978) report similar findings from their
analysis of arrest histories.

commission rate for a single crime type and low rate involvement in
no more than two other types of crime. Furthermore, the relative
frequency of different crime types for any offender appears to shift
over time. Of the 49 criminal career respondents, more than half
changed their principal (most frequent) crime type between successive
career periods.

The heterogeneity observed in offense patterns suggests that
it is usually misleading to describe an offender by a single offense
label (i.e., robber). Furthermore, in describing the criminal activity
of individaul offenders, it becomes necessary either to construct
composit scales which summarize activity across crimes (requiring
the assignment of relative weights to different crime types) or to
report prevalence and offense rates for each crime type separately.

THE GENERAL PATTERN OF OFFENSE RATES

Our first estimate of individual offense rates was provided by
the 49 respondents in the Criminal Career study who reported an
average of 200 crimes each over a typical career length of about
20 years. Since these offenders were incarcerated for about half
their career, the resulting estimate of their average λ was about
20 crimes per year. Assuming that these twice imprisoned robbers
represent the most active class of offenders, we would expect a more
typical sample of offenders to have a lower average rate.

Table 1 provides a summary picture of the offense rates for a
typical cohort of incoming California prisoners,[*] which was derived from
the Inmate Survey. The first column contains the distribution of offenders
by commitment offense. These figures do not total 100 because some offense
categories have been excluded from the table. The second column contains the
percentage of offenders who were active for each of the listed crime types.

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[*]For analyzing incapacitation effects, the offense rates of an
incoming cohort are more relevant than a random sample of prison in-
mates. The characteristics of an incoming cohort were estimated
from the data for the inmate sample by using an appropriate weighting
scheme, based on differences in sentence length.

Table 1

ESTIMATED COMMITMENT OFFENSE, PREVALENCE, AND OFFENSE RATES FOR A COHORT OF INCOMING PRISONERS

Offense Type	Percent of Prisoners Committed for This Crime	Percent of Prisoners Active in This Crime	Average Annual Commission Rate For Actives
Homicide	9	9	.27
Rape	3	8	1.35
Robbery	34	37	4.61
Assault	7	59	4.47
Drug sales	10	48	155.0
Burglary	13	58	15.29
Auto theft	4	32	5.25
Forgery	4	40	5.56
Cons	–	63	9.45

These figures exceed 100 since most offenders were active in more than one crime. The last column contains the average yearly offense rate for the active offenders in each crime type.

Another significant finding of Rand's research is that the distribution of individual offense rates for any one crime is highly skewed, with most offenders reporting fairly low rates. For example, in the Inmate Survey the mean annual rate of armed robberies for those respondents who were active in that crime was 3.4 crimes per year. The median rate was only 1.5. The average rate for all armed robbers below the median was 0.7 crimes per year, while the rate for those above the median was 9.3. This means that the magnitude of average offense rates, estimated for any particular group, is extremely sensitive to the rates of a few highly active offenders who constitute the extreme right-hand tail of the entire distribution.

Another way of displaying offense rates for California prison entrants (and thus the potential for forestalling crime commissions through the use of incarceration) is found in Table 2. Here we

Table 2

ESTIMATED MEAN ANNUAL OFFENSE COMMISSION RATES FOR CALIFORNIA PRISON ENTRANTS
CLASSIFIED BY TYPE OF COMMITMENT OFFENSES

Commitment Offense Type	Mean Annual Offense Commission Rates[a] for										
	Homicide	Rape	Armed Robbery	Assault	Crimes of Violence	Burglary	Auto Theft	For-gery	Cons	Total Property Crimes	Drug Sales
Homicide & robbery	0.3	0.07	7.1	4.0	11.5	9.9	3.2	12.6	6.5	32.2	59
Homicide alone	0.3	0.27	0.2	6.5	7.3	1.7	0.3	0.2	3.7	5.9	77
Rape	-	1.23	4.8	2.0	8.0	4.6	0.9	0.2	2.3	8.9	3
Robbery & burglary	-	0.41	1.8	2.4	4.6	14.6	10.7	2.5	8.3	36.1	26
Robbery alone	-	0.04	4.9	3.1	8.0	7.2	0.7	1.0	6.0	14.9	34
Assault	-	-	0.7	2.9	3.6	2.5	0.2	1.2	4.0	8.1	167
Burglary	-	0.04	0.6	2.0	2.6	35.9	0.7	1.7	7.9	46.2	40
Drug sales	-	0.04	0.4	1.0	1.4	3.1	0.4	1.0	4.6	9.1	176
Theft	-	0.14	1.3	2.5	3.9	11.5	7.0	2.7	11.3	32.5	17
Fraud	-	-	0.1	0.6	0.7	0.3	-	8.0	6.9	15.2	21
All commitment offense types	0.03	0.08	1.9	2.6	4.6	8.1	1.6	2.2	5.8	17.7	74

[a]These estimated rates are obtained by dividing the number of commissions of the specified offense type in the
commitment offense class (including those not active in the specified type) by the total street time of entrants
in the commitment offense class. The rates are additive within the commitment offense class.

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classify the prison entrants by the convicted offense types on which their commitment is based and show the mean offense commission rates in each class for four types of crimes of violence, four types of property crimes, and drug sales. As these figures demonstrate, an offender's current conviction charge provides some information on his offense rate across the full spectrum of crime types.

One final comparison of interest involves the estimates for individual crime rates produced by the two different approaches described earlier—self-reports versus arrest histories. Table 3 contains the relevant estimates for offenders on the street. These estimates are remarkably similar given the magnitude of the potential biases with which each approach must deal. Their convergence offers some assurance that both estimates are producing estimates that are reasonably accurate.

Table 3

ALTERNATIVE ESTIMATES OF INDIVIDUAL CRIME RATES DERIVED FROM
RAND SELF-REPORTS AND WASHINGTON, D.C. ARREST HISTORIES[a]

Crime Type	Individual Crime Rate While Free	
	Self-reports	Arrest Histories
Robbery [b]	1.97	3.41
Burglary	7.23	5.73
Aggravated assault[c]	2.38	1.72
Auto theft	3.48	2.98

[a] Blumstein and Cohen (1978).

[b] The Rand data include only armed robberies while the arrest history is based on all robberies.

[c] The definitions of aggravated assault are not directly comparable between the two studies.

The picture that begins to emerge from these offense rate esti-
mates is not one of a large number of dedicated criminals consistently
pursuing a pattern of serious crime. Rather, the majority of incar-
cerated offenders appear to commit serious crimes at relatively low
rates and in an unspecialized fashion. Less than a third commit
crimes at a sufficient rate that their imprisonment will lead to any
significant reduction in crime.

This pattern is evident in both the Criminal Career and Inmate
Survey samples. In the Criminal Career study we distinguished two
different groups which we labeled *Intermittents* and *Intensives*. The
intensive offenders were the "heavies" who tended to see themselves
as professional criminals. Their criminal activity was sustained
over long periods of time and was directed toward some specific purpose,
be it high-living, support of a drug habit, or repayment of debts.
The *intensives* were more conscious of avoiding arrest and in fact
were more successful in avoiding sanctions at all levels for any one
crime. Their average crime rate exceeded that of the *intermittents*
by a factor of ten. The more frequently encountered *intermittent*
offenders did not view themselves as serious criminals. Their crim-
inal activity had an irregular and opportunistic character, and their
monetary gain was often quite low. Their responses suggest that they
were frequently oblivious to the risk of their criminal acts and
consequently they experienced a much higher likelihood of arrest.

This offense rate distribution, which holds for all offense
types, could be very important for policy purposes if it were possible
to distinguish the more active offenders. Prosecution and sentencing
policies would be more effective in reducing crime to the extent that
efforts could be focused on this high rate group. Rehabilitation
efforts can be said to be effective if they are successful in trans-
forming offenders from the high rate to the low rate categories, even
if the overall rate of recidivism is not reduced.

VARIATIONS IN OFFENSE RATE BY PRIOR RECORD AND AGE

Analysis of the Inmate Survey responses indicates that individual offense rates are significantly associated with the offenders' prior record and age. The most active offenders tend to be younger and have records of prior felony convictions. Further, they tend to begin serious crime at an earlier age and to engage in serious juvenile crime at higher rates than less active offenders.

The Inmate Survey indicates that the most active offenders tend to have extensive prior criminal records, as measured by their number of prior felony and misdemeanor convictions. However, despite their tendency to have lengthier records, the most active offenders have not been sentenced more severely in the past. In the Criminal Career study we found that the most active offenders were less likely to be incarcerated, given a conviction, than those offenders who were less active. Survey respondents with prior felony convictions reported substantially higher offense rates than those without any prior conviction. There was no difference between those with prior felony conviction who had not been to prison and those who had.

Two indices of juvenile crime which the Inmate Survey found to be strongly and monotonically associated with adult offense rates were starting age and intensity. The younger the age at which an offender begins committing crime, and the more serious and extensive his juvenile crime, the more likely that the offender was extensively engaged in crime as an adult.

The Inmate Survey found that younger offenders report more crime, although age was only moderately associated with criminal activity. This association was explained by the fact that older offenders tended to report engaging in fewer different types of crime. For the crime types they continued to commit, older offenders reported as many commissions per year as younger ones.

Differences in crime rates between younger and older offenders can be explained by other characteristics studied in the survey. Younger offenders were more likely to have extensive juvenile records,

to use drugs, and to have criminal self-identities—each one of these characteristics being associated with higher levels of criminal activity.*

These variations in offense rate with age and prior record give some indication of what policies should be followed in order to maximize incapacitation effects for a given incarceration level. They suggest that concentrating attention only on older offenders who have accumulated substantial records may be counterproductive. Rather, more attention should be devoted to offenders who have accumulated a serious record, including juvenile offenses, during the first few years of their adult career. More definitive conclusions on this aspect of prosecution and sentencing policy must await more detailed research on this particular phenomenon.

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*Furthermore, Blumstein and Cohen (1978) find a cohort effect on offense rates in which later cohorts experience higher arrest rates. This might indicate that more recent cohorts are more active in crime, a trend which would result in higher offense rate for younger offenders in a cross sectional analysis such as ours.

IV. DETECTION AND DISPOSITION BY THE CRIMINAL JUSTICE SYSTEM

The ability of criminal justice agencies to identify, apprehend, and appropriately sanction offenders is certainly a critical measure of their overall performance. The quality of this performance will influence the number of people who engage in crime (through deterrence), the number of active offenders who are at risk in the community (through incapacitation), and the confidence of the community in the quality of their public institutions.

The probabilities of arrest, conviction, and incarceration are also critical parameters in determining the pattern of a criminal career. If the chances of detection and incarceration vary systematically over the career--for instance, increasing substantially with age--then the system may not be applying its selective sanctioning powers in the most effective manner. If some skillful offenders are able to engage in crime at high activity levels, with much lower than average chances of detection, then incapacitation effects will be lower than those predicted by estimates using only average figures.

The estimation of conviction and incarceration probabilities is straightforward once an appropriate data base is assembled from official court records.[*] The principal problem is the cost of constructing a data file which contains a sufficient number of descriptive variables so that different types of offenders and cases can be appropriately distinguished.

Estimates for the average probability of arrest, for all offenders engaging in a particular type of crime, can also be generated from official data sources. Reported crime totals must be adjusted upward for underreporting to the police, as disclosed by victim surveys. They must also be adjusted upward to account for the frequency with which several offenders participate in any one crime.[†] However, these official

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[*]Only a limited number of jurisdictions maintain such data files so that they must usually be constructed from case records for research purposes. The California Offender Based Transaction System (OBTS) is a notable exception.

[†]See Blumstein and Cohen (1973) for a discussion of these adjustments.

records will not disclose variations in the probability of arrest among different types of offenders without some independent measure of the offense rates for these different groups.

Self-reports of offenses and arrests, of the type obtained in the Rand Inmate Survey and Criminal Career studies, do provide a means of assessing the probability of arrest for individuals and groups directly.

PROBABILITY OF ARREST

Estimates of the probability that participation in any one crime will result in arrest, derived from the Rand Inmate Survey, are contained in Table 4. These figures pertain to the population of all active California adult offenders.

Using aggregate data for Washington, D.C., Blumstein and Cohen (1978) estimated the probability of arrest to be .07 for robbery, .11 for assault, and .05 for burglary—estimates for assault and burglary that are reasonably consistent with our own. The difference in the robbery figures may be explained by the fact that the Inmate Survey included only armed robberies while the Washington data includes robbery of any type.

Our attempts to find systematic variation among different types of offenders, in their probability of arrest, met with only limited success. Contrary to our expectations, there was no evidence to suggest

Table 4

ESTIMATED PROBABILITIES OF
ARREST FOR ACTIVE
OFFENDERS

Crime	Probability of Arrest
Rape	.10
Armed robbery	.21
Assault	.10
Burglary	.07
Forgery	.06
Drug sales	.002

that probability of arrest declined with age and experience. If anything it increased slightly for offenders over 30. There was also no consistent association between adult prior record and probability of arrest. The most significant differences were associated with juvenile criminality and race. Those who reported serious criminal activity as juveniles appear to have substantially lower probabilities of arrest than those who did not.

Another basis for differences in arrest probability was suggested by our Criminal Career Study—namely, the sophistication and skill with which offenders plan their crimes. Most offenders reported a fairly low level of planning and preparation prior to their crimes. Only a few attempted to disguise their appearance or plan escape routes for after the crime. Not surprisingly, those offenders who engaged in more planning, or at least were conscious of avoiding apprehension, were much less likely to be arrested for any one crime. The amount of planning did not increase with age. Respondents who exhibited some degree of planning did so as juveniles, rather than developing this capability through experience or contacts with fellow inmates.

CONVICTION AND INCARCERATION

Once arrested, a defendant's prior record has traditionally been used as a basis for selective prosecution and sentencing. Official record data collected in the Criminal Career Study disclosed that both conviction and incarceration rates increased substantially over the offender's career. While 50 percent of all early adult convictions resulted in some incarceration, this number increased to 71 percent for convictions in their later adult periods.

Analysis of adult felony arrest disposition patterns in California reveals the underlying basis for this increasing likelihood of incarceration with career progression. The California OBTS data distinguished arrestees by four categories of prior record: "none"—an absence of any adult arrest; "minor"—at least one arrest but no sentence in excess of 90 days or two years probation; "major"—at least one conviction resulting

in a term in excess of 90 days or two years probation; and "prison"—
at least one commitment to state prison.

The likelihood of conviction, about 40 percent of all arrests in
the sample, did not appear to vary systematically with prior record.
However, we did observe that cases against defendants with less serious
records tended to drop out earlier in the prosecution process.

Once convicted, the likelihood of receiving a prison sentence in-
creased substantially with the seriousness of the defendant's prior
record.[*] For robbery defendants who were convicted, the likelihood of
prison commitment increased from 16 percent for those with minor records
to 72 percent for those with prior prison records. For convicted bur-
glary defendants, the likelihood of prison commitment increased from
essentially zero for defendants with minor records to 23 percent for
those with prior prison commitments.

The end result of this pattern of increasing sentence severity with
prior record can be observed in "percentage time at risk" statistics for
career offenders. The respondents in the Criminal Career Study were
"at risk," or free from incarceration, approximately 61 percent of the
time during their early adult career periods—a period covering roughly
six years. Time at risk for their later adult periods declined to an
average of 32 percent.

In summary, the picture portrayed by both aggregate statistics and
individual case histories is consistent. The majority of career crim-
inals face a pattern of arrests and incarcerations reflecting a substan-
tial increase in severity over time, resulting in greatly diminished
time periods at risk.

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[*]Dungworth (1978) reports similar findings from analyses of Washing-
ton, D.C. PROMIS data. For instance, the average rate of prison commit-
ment, given conviction, varied from 26 percent for offenders with no
prior record to over 60 percent for defendants with at least one prior
conviction and more than three prior arrests.

V.   ESTIMATING INCAPACITATION EFFECTS

One frequently expressed reason for concentrating law enforcement and prosecution resources on career criminals is the assertion that by removing these offenders from the community for longer periods of time, a substantial number of crimes will be prevented. The reduction in crime that can be attributed to the temporary segregation of offenders from the larger society has been denoted in the literature as the *incapacitation effect* of incarceration.

Career criminal programs can result in some level of crime reduction through incapacitation effects in two distinct ways. First, even though career criminals may represent no greater potential risk of future crimes than other offenders, special programs that increase the average sentence length for career criminals, and hence the total prison population, will result in some incapacitation effects which can be calculated on the basis of average offender behavior. Second, to the extent that career criminals represent a greater than average risk of future crime, concentration of prosecution efforts on career criminals can result in an increase in the average incapacitation effect for any given incarceration level.

Because our understanding of differences in offender behavior and our ability to model the impact of selective sentencing policies is not sufficiently advanced, we cannot clearly distinguish these two effects at the present time. The analyses described in this section were undertaken to provide some approximate estimates of the relationship between various sentencing policies, incapacitation effects, and prison population.

Two analytic techniques have been developed for estimating the potential incapacitation effects that can result from changes in sentencing policy. One uses a mathematical model to estimate the reduction in time at risk for an average offender that results from changes in such system parameters as the probability of arrest, conviction rate, or average sentence length. Potential reductions in crime are then determined by using an estimate of the average rate

at which offenders would have committed crime while they were unincar-
cerated.

In the second approach the analyst uses career histories for an
arrest or conviction cohort to look back in time and to hypothetically
resentence offenders for earlier convictions. This approach allows
one to determine the percentage of those crimes attributable to cohort
members that would have been prevented if harsher sentencing policies
had been in effect at the time of the earlier conviction, and by in-
ference, the percentage by which total crime might be reduced.

THE MODELING APPROACH

The modeling approach was used to estimate potential changes in
the rate of robbery and burglary in California under different sen-
tencing policies. This method of analysis was made feasible by the
availability of empirical data on recent sentencing policy and in-
dividual offense rates that were generated by our interviews.

We used a model developed by Avi-Itzhah and Shinnar (1973) and
Shinnar and Shinnar (1975) with the form:

$$A/P = \frac{1}{1 + \lambda \, (qJS)}$$

where

1. Offenders commit crimes at the specified (Poisson)
   rate λ when not incarcerated.[*]

2. Offenders are subject to arrest and conviction with
   the specified probability q; and to incarceration
   given a conviction with the specified probability J.

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[*]The term "Poisson" implies that intervals between criminal acts
have independent and identical exponential distributions with param-
eters λ that are not affected by age or experience.

3. Actual time served given an incarceration is exponentially distributed with mean S.

4. Length of individual criminal careers is exponentially distributed with mean T.

5. $P = \lambda T$ represents the number of crimes an average offender would commit if he were never incarcerated.

6. A represents the number of crimes an average offender would commit in a jurisdiction whose criminal justice system characteristics are described by the policy parameters q, J, and S.

Using this model we generated estimates of the effective crime rate (A/P) that would result from a number of different sentencing policies. A description of these policies and the resulting estimates are contained in Table 5.

The direct costs to the state, and the political feasibility of any specific sentencing option, can be measured by its impact on the incarcerated population size. Option 4, which specifies a three year commitment for all convicted defendants, if applied exclusively to burglary, would result in a 500 percent increase in the number of offenders incarcerated for this crime and a 50 percent decrease in the burglary rate. A similar policy for robbery (three year sentence for everyone convicted) would result in a 20 percent reduction in robberies and a 70 percent increase in the number of robbery defendants incarcerated. A 50 percent reduction in robberies would require at least a 200 percent increase in the incarcerated robber population and average terms exceeding five years.

THE SIMULATION APPROACH

The legislative method for increasing sentence severity frequently involves adopting mandatory-minimum sentences for defendants with specified characteristics who are convicted of a selected list of crimes. For instance, a mandatory-minimum sentence may be specified for any defendant convicted of a crime involving a firearm, or any defendant who has been convicted of a felony during the preceding ten years.

Table 5

EFFECTIVE CRIME RATE FOR ALTERNATIVE SENTENCING POLICIES
EXPRESSED AS A PERCENTAGE OF THE RATE EXPERIENCED
UNDER CALIFORNIA SENTENCING POLICY IN 1973

Policy Option	Robbery[a]	Burglary[b]
1. One year of prison for every convicted defendant	122	84
2. One year of jail for every convicted juvenile or adult with no prior convictions; three years of prison for convicted adults with one or more priors	93	68
3. Same as 2 except five years of prison for every convicted adult with one or more priors	75	57
4. Three years of prison for every convicted defendant	80	52
5. Five years of prison for every convicted defendant	58	38
6. Same as current policy but with probability of conviction raised to 0.80 [c]	69	87

NOTE: The effective crime rate is shown as a percentage of the current rate under existing policy. The sentencing policies apply to only those defendants convicted of the specified offense (robbery or burglary).

[a] Assumes $\lambda = 5$ and $q = .076$ (except for option 6 where $q = .16$)

[b] Assumes $\lambda = 10$ and $q = .044$ (except for option 6 where $q = .08$)

[c] The current probability of conviction given an arrest was .38 for robbery and .44 for burglary.

The effects of any mandatory-minimum policy will be mitigated to the extent that prosecutors fail to charge or judges fail to find those specific elements of prior record or current criminal activity that will invoke the mandatory sentence. Indeed, the possibilities for selective charging and plea bargaining are one of the principal deficiencies that are normally cited to argue against such policies.

A special data file which was prepared in Denver, Colorado allowed us to examine the potential incapacitation effects of various mandatory-minimum sentencing policies. The data file contained detailed prior record information for a cohort of 625 convicted defendants. The basic approach of this analysis involved looking back at each defendant's prior convictions and determining whether or not he would have been incarcerated at the time of his current offense if a specific mandatory-minimum sentence had been imposed.

An analysis of various mandatory-minimum sentence lengths and target groups revealed results which are quite consistent with our California analysis in that very large increases in prison populations are required in order to achieve significant reductions in crime. A one year mandatory-minimum for any felony conviction would result in a 50 percent increase in the prison population and a 15 percent reduction in crime. Three year minimum sentences would increase the prison population by 225 percent and reduce crime by approximately 35 percent.

One means of comparing different mandatory-minimum policies is their relative efficiency in terms of the amount of crime reduction achieved by a given increase in prison population size. Those policies that result in greater crime reduction can be said to be more efficient. Our analysis revealed that mandatory-minimum policies that focus on defendants with prior conviction are less efficient than policies that do not.

This finding does not imply that defendants with prior records pose less risk of future crime than those without prior records. Rather it suggests that defendants *with* prior records who receive sentences less than the mandatory-minimum present less risk of future crime on the average than do defendants *without* prior records who receive less than

the mandatory-minimum. Since under existing policy, defendants
with prior records are much more likely to be incarcerated than
those without records, this finding suggests that judges are some-
what successful in discriminating among these defendants according
to risks in determining those that need not be incarcerated.

VI. SOCIAL/PSYCHOLOGICAL CORRELATES OF CRIME

Although prior record, age, sex, and offense type are the principal characteristics used by the system in making dispositional decisions, there may be a number of other useful ways in which offenders can be classified. Our surveys and interviews with offenders provide information in a number of areas which may be relevant to the future design of treatment or prevention programs or the assignment of offenders to them.

MOTIVATION FOR CRIME

Inmate Survey respondents were asked to rate the relative importance of a number of potential reasons for committing crime. A factor analysis of these responses yielded three orthogonal factors into which these responses could be grouped.

The motivational factor respondents rated most important included problems of unemployment, debts, and the need for routine income. This factor was labeled *economic duress*. The next most important factor generally reflected hedonistic reasons for crime such as excitement and kicks, money for high-living, money for drugs or alcohol, or good opportunity. This factor was labeled *high times*. The least important factor, labeled *temper*, involved motives of temper or passion.

An understanding of the relationship between these sets of motivations and criminality can be useful in several ways. An offender's motivations for crime are clearly related to the problem of finding an appropriate rehabilitation strategy. Post-release job programs or income maintenance programs specifically designed to relieve economic distress may be effective in reducing the criminality of offenders who are primarily motivated by this consideration. However, offenders who are strongly motivated by a desire for high times are unlikely to be affected by such programs unless their hedonistic values are modified.

On the other hand, policies designed to deal with hedonistic offenders, such as those which seek to increase the deterrent or incapacitation effects of sentencing, may be unnecessarily harsh when applied to offenders who commit crimes primarily because of their economically distressed situation. At a more subjective level, an offender's motives affect how the rest of society perceives and reacts to his crimes. Offenders who commit crimes because of oppressive economic or social conditions may be viewed more sympathetically than those who commit crimes in order to satisfy a desire for drugs or to support hedonistic lifestyles.

In the Inmate Survey, 47 percent of respondents reported that economic distress was an important motivation for their crime; 35 percent reported that high times was important, and 14 percent reported that temper was important. A substantial minority rated both economic distress and high times as important. An analysis of the relationship between motivations for crime and criminal activity revealed the following results:

- Respondents who rated high times as important were active in more types of crime and committed crimes at a higher rate than those who rated high times as unimportant.

- Respondents who reported that temper was an important motivation committed significantly more violent crimes, but fewer property crimes, than did respondents who rated temper unimportant.

- Respondents who identified themselves as "boosters," "burglars," "robbers," or "players" were all more likely than other respondents to report that high times was an important motivation.

In summary, offenders' self-reported motivations for crime appear to have a strong and consistent relationship with the types and amount of crime they commit. Hedonistic desires rather than economic distress appear to be the motivation that best explains high levels of criminal activity. However, most offenders report committing crimes because of their distressed economic situation, not for hedonistic motives.

THE EXPECTED UTILITY OF CRIME

Any attempt to explain an offender's propensity toward crime should consider not only the motivations discussed in the previous section, but also the offender's perception of the benefits and risks associated with crime. Deterrence theory and other rational models of criminal behavior posit that the balancing of these perceptions plays an important role in an offender's decision to engage in particular types of crime.

To pursue this line of inquiry, respondents to the Inmate Survey were asked to rate the value or desirability of each one of seventeen outcomes, representing a sample of important payoffs or costs that might result from either a criminal or straight life. This list included such items as: Having a lot of money; being my own man; excitement and kicks; having a family, or being arrested. The respondents also indicated their perception of the probability that each outcome would result from their doing crime or going straight. The overall pattern of responses to these items indicated that offenders on the average perceive that desirable monetary outcomes are more likely to result from crime while desirable nonmonetary outcomes are more likely to result from a straight life.

Based on their evaluation of all 17 potential outcomes, 37 percent of respondents reported a greater utility from doing crime than from going straight. These offenders also reported committing more different types of crime and higher offense rates than those who saw a higher utility in going straight. This finding suggests that criminal behavior may be consistent with utility theory and other models of rational economic behavior.

A more detailed analysis of the responses to these utility items suggest that the full utilitarian model, which includes the costs and benefits from both straight and criminal pursuits, is unnecessarily complex for explaining differences in offense rates. A satisfactory explanation can be obtained by looking solely at the respondents' perceptions of the probability that crime will result in good outcome. Those who perceive a high probability of good outcomes from crime report higher offense rates. Differences in the perception of negative aspects of doing crime have no

significant additional effect. This finding raises questions about the possible deterrent effects of increasing sanctions since individual offense rates appear unrelated to perceptions of risk.

ATTITUDES TOWARD CRIME

As another measure of the respondents' attitudes about crime and criminal justice, the Inmate Survey presented a series of 27 statements for which the respondents were asked to indicate the degree to which they agreed or disagreed with that statement. From their responses to these statements several rather clear patterns of attitudes emerged.

First, most respondents did not reject the importance and value of laws. They overwhelmingly agreed that laws are necessary for public safety. However, despite their abstract appreciation of the law, most respondents had much more negative attitudes toward the courts. They felt that the courts did an inadequate job in protecting defendants' rights and in determining what crime a defendant actually committed.

A factor analysis of the responses to the attitude items identified a set of *professional criminal attitudes* which picture offenders as people who enjoy crime; who are good at it; who beat the system; and who will continue in crime after they are released. Twenty-four percent of the respondents agreed with more than half of the items on this scale. Agreement was greatest for respondents who also reported that they planned their crimes; that they were successful at crime; and that a substantial proportion of their income came from crime. Those who agreed with this scale were more likely to be high rate offenders.

In summary, some variation in levels of criminal activity between offenders can be explained by the degree to which they accept professional criminal attitudes and related beliefs that they will be successful in crime. Although most offenders agree that continuously active offenders will eventually be caught, they explicitly reject any statement suggesting that they would be deterred by higher penalties. Individual offense rates show no relationship to different perceptions of the costs and risks of crime. Perhaps the professional

attitudes that characterize more active criminals, also insulate them
from deterrence effects. Although they agree that other offenders
are likely to be caught, their belief that they are more skilled
than others may allow them to substantially discount the risks they
face.

SOCIAL STABILITY AND DRUG USE

Although the motivational and attitudinal factors provide a use-
ful means for distinguishing different types of offenders, their most
immediate relevance is to basic research aimed at identifying appro-
priate intervention strategies or explaining individual criminal
behavior. For policy applications these psychological variables are
difficult if not impossible to measure, and they are virtually immune
to any direct efforts at imposing change.

On the other hand, social correlates of criminal activity such
as employment, residential or family stability, and drug use are
normally measurable and frequently considered in sentencing decisions.

To measure levels of social stability from the Inmate
Survey, a composite scale comprised of the following four constituent
elements was developed: number of different jobs, percent of time
employed, number of different residences, and marital status. Posi-
tive indications of stability were: one or two jobs, employed at least
half of the time, residence in one or two places, and being married.
Not surprisingly, social stability increased with age. The least
stable group averaged 24 years of age. The most stable group averaged
29.

We found a statistically significant relationship between social
stability and criminality in almost every possible test of this relation-
ship. The most significant relationship was that between social stab-
ility and property crime rates. Unstable respondents committed crime
at higher rates, were the most hedonistic, and held the most consistent-
ly criminal attitudes of all respondents.

With regard to the four component indices of stability, employ-
ment and residential stability were individually associated with
lower crime rates while marital stability was not. Only 14 percent

of the sample were married during the three year period preceding their incarceration, although 56 percent had been married at some time.

Sixty percent of the sample were employed at least half-time during the three years prior to their incarceration. Only 13 percent reported no employment at all. Those offenders employed less than half-time tended to commit monetary crimes at higher rates while they did not differ in the rate of their violent crimes. Similar findings regarding employment emerged from the career study. The better employed offenders were less active in crime, and employment stability improved with age.

Two-thirds of the sample had only one or two places of residence during their last year on the street. The transient respondents, those with more than two residences or none at all, were more likely to commit every crime on our list and to commit each at higher rates than were residentially stable respondents.

Forty-two percent of the inmate sample reported using heavy drugs during the three years prior to their current term. The great majority of this group were heroin users with the reported median cost of their habit being $85 per day. Drug users were active in more different types of crime and committed crimes at higher rates. They tended to be socially unstable and to have had more extensive juvenile records.

VII. CAREER CRIMINAL PROGRAMS

During the past five years, more than 50 special career criminal
prosecution units (CCPs) have been established by local prosecutors,
under LEAA sponsorship, to concentrate on the specific types of .repeat
offenders the prosecutors believe represent the most pressing crime prob-
lems in their jurisdiction. During the past year, Rand examined
a range of potential activities which may be appropriate or desirable
for other agencies to undertake in conjunction with these special
prosecution programs. The research was based on interviews with a
national sample of criminal justice officials, review of program
documents, and selective site visits.

The typical career criminal prosecution program involves:

1. Locally developed screening criteria for selecting
    career criminal defendants

2. Vertical representation*

3. Stringent charging

4. Restrictions on plea bargaining

5. Readiness for trial in all cases

6. Priority in court scheduling

In describing the response of other parts of the criminal justice
system to their CCPs, most prosecutors report that there has been
improvement in the degree of coordination between their activities
and the police. In some instances, this involves the assignment of
police officers to work for the prosecutor, or prosecutors being
on call to assist the police investigating complex cases. Other
parts of the system have not yet responded to the career criminal
concept.

Our review of police programs identified three potential areas
in which the police can support career criminal programs. First,
they can provide more direct assistance to the prosecutor, as many
are already apparently doing. Second, they can concentrate some of
their investigation and apprehension resources against suspected

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*Each case is handled by a single prosecutor rather than passed
along to different prosecutors.

career criminals. Third, they can upgrade the quality of their general crime analysis and investigation activities leading to more successful cases being presented to the court.

On the other hand, our interviews with correctional officials suggest that career criminals are not identified or distinguished by current classification procedures, and they are not the focus of any particular treatment approach. At most, prior criminal history will affect an inmate's initial custody rating. But this rating will quickly give way to a rating based on institutional behavior. Correctional administrators did not know whether career criminals would have any unique treatment programs, and most felt that career criminals were not discouraged or forced to participate in treatment programs at rates that differed from the general population of offenders.

In the area of parole, a number of states are experimenting with projects that shift the focus of parole agent activities from service delivery to surveillance and monitoring of high risk parolees. Career criminals would be heavily represented in programs of this type. Furthermore, prosecutors and police would like to be notified of hearings at which a career criminal's release date is to be considered, and to be informed when he is returned to the community.

In sum, other than proseuctors, career criminal prosecution programs have had their principal effect on the police, where there are a number of options for coordinating activities. Even though special correctional programs do not appear to be required at this time, there is still some room for improvement in coordinated decisionmaking and in information sharing with other agencies.

VIII. CURRENT RESEARCH

Rand's current projects in the criminal career area are pursuing
a mix of basic and policy research questions ranging from the develop-
ment of Bayes estimators for individual crime rates to analyzing the
impact of alternative sentencing policies. In this final section we
will provide a description of these projects, the issues that moti-
vate them, and some preliminary results.

INMATE SURVEY II

The first Inmate Survey was an initial attempt to obtain system-
atic estimates of individual offense rates, and their social and psy-
chological correlates, using offender self-reports. The survey was
anonymous to reduce problems of nonresponse and privacy protection.
It involved a random sample of prison inmates from a single state.

The second Survey represents a considerable methodological advance.
A larger sample (approximately 2400) of respondents was drawn from
prison and jail inmates in three diverse states: California, Michigan,
and Texas. The sample in each state was restricted to inmates committed
from specified metropolitan areas to provide a preselected mix of demo-
graphic characteristics, and to permit comparisons between prison and
jail inmates committed from the same courts. The prison samples were
also weighted to correct for sentence length bias so that the resulting
samples are representative of incoming inmates, a more appropriate sam-
ple for investigating sentencing issues.

The second survey was not anonymous. Extensive pretesting estab-
lished that lack of anonymity would not significantly affect response
rates. Therefore, the maintenance of respondent identifiers permitted
the collection of extensive official record items to supplement the sur-
vey and validate some of the items.[*] These identifiers will also permit
subsequent follow-up studies.

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[*]Procedures were developed to avoid the appearance of personal iden-
tifiers on survey instruments and to assure that computer-readable data
files do not contain personal identifiers. The link files that relate
respondents' names to data records are maintained in hard copy in a sepa-
rate secure location.

The second Survey incorporates a number of other features that should increase the accuracy of responses and provide opportunities to measure their reliability. The questions that establish the characteristics of the "window period" prior to the respondent's current conviction were extensively modified and tested to assist the respondents in defining the period properly and in recalling their activities during this period. The crime rate questions were modified so that high rate offenders could state their level of activity without estimating the total number of offenses they committed during the entire window period. The reliability of the survey questions will be assessed by using a number of redundant items, included in the instrument, and by means of retests which were administered to 252 prisoners one week after they completed their initial questionnaire.

For the 1500 prison inmates, we obtained detailed prior record data from Department of Corrections tapes in the three states and through our own coding of rap sheets. This information will be used to verify the validity of the "window" period, arrests during that period, and other self-reports of prior record.

The response rate for the survey was 65.4 percent for all inmates initially scheduled. An additional 215 instruments were completed by a replacement sample, drawn to reflect as carefully as possible the characteristics of nonrespondents. The total number of completed questionnaires is approximately 2400, and the characteristics of prison respondents appear very close to those of the initial sample.

During the next 18 months, these data will be extensively analyzed to determine:

o   The reliability and validity of the survey responses.

o   The magnitude and distribution of individual offense rates and probabilities of arrest.

o   Correlates of high rate and/or serious and persistent criminality.

o   The predicted incapacitation effects of alternative sentencing policies.

o   Differences in career patterns which are attributable to demographic and socioeconomic variables or local criminal justice policy.

CORRECTIONAL TREATMENT

In addition to their self-reported criminal activity and social/psy-chological characteristics, the Inmate Survey II respondents in prison were asked to complete an extensive series of questions concerning their treatment needs and participation in rehabilitation or other institu-tional programs. Additionally, a number of items were coded from their institutional files. This information has been analyzed to determine the distribution of inmate treatment needs and the characteristics and motivation of inmates who actually participate in different types of treatment programs. It has also been analyzed to determine which types of inmates are more likely to commit various forms of institutional in-fractions and which types are more likely to hold prison work assign-ments, or are likely to be idle. The report on this research should be available by December 1979.

BAYES ESTIMATES

In this project, mathematical and statistical work is being under-taken to develop more accurate estimates of individual crime parameters (commission rates and arrest probabilities). Improved techniques are also being devised to relate data about the characteristics of offenders to their crime parameters. The results of the project are intended to be applicable to various data sources concerning individual offenders and, in particular, will be used in analyzing the data from Offender Survey II.

This methodological project addresses the problem concerning the difference between the distribution of crime commission rates as reported by respondents to a survey, and the distribution in the general population of offenders. There are many statistical reasons for the differences, in addition to incorrect answers and errors of recollection by respondents. Bayes techniques are used to take into account the entire observed dis-tribution and thereby correct the estimate for each individual. The cor-rected individual estimates are more appropriate than traditional estimates for regression and other types of analyses.

JUVENILE RECORDS

A number of criminal career studies have consistently shown that an offender's juvenile record is among the best predictors of his adult criminality. This suggests that juvenile records could play a significant role in distinguishing among offenders for selective prosecution of sentencing policies.

Rand is currently conducting research to learn how juvenile records are now being used by prosecutors and judges in adult criminal cases. This research includes: (1) a review of the legal issues involved; (2) a survey of the largest prosecutors' offices in each state concerning the availability, use, and quality of juvenile records in their jurisdiction; (3) analyses of court disposition data to determine the effects on sentence severity for both juveniles and adults.

Our initial hypothesis when we began this project was that if the prosecutors lacked access to juvenile records, significantly more lenient sentences for young defendants would result. We believed that the prosecutor would be negotiating pleas without being able to tell which defendants had significant juvenile records.

That assumption no longer appears true. The prosecutor's survey apparently shows that in most states the police do provide the prosecution with juvenile record data for serious cases. It is only in those few states where the jurisdiction of the juvenile court terminates at age 16 (rather than 18) that the juvenile record is effectively shielded from later criminal proceedings. Our analysis of disposition data also discloses that the youngest adult defendants do not necessarily get the most lenient sentences. In Franklin County (Columbus), Ohio, and New York City, young adults do get more lenient sentences during their first two years in the system. After that, they do not. However, in Washington, D.C., and in Los Angeles, young adults 18 to 20 are no less likely to be incarcerated than defendants of any other age group.

This study will be completed in the spring of 1980, at which time we expect to suggest specific hypotheses to be tested in a more rigorous fashion than is possible under our current grant.

Appendix

METHODOLOGICAL ISSUES IN CRIMINAL CAREER RESEARCH

INTRODUCTION

The distinguishing characteristic of criminal career research, as
opposed to other forms of criminological investigations, is its concern
with systematic changes in behavior over time or as a result of cumula-
tive system contacts. The focus of such research is not on why criminal
behavior begins, or why individuals engage in sporadic criminal acts.
By concentrating on individuals who continue to engage in serious forms
of criminal behavior over sustained periods of time, it emphasizes the
systematic patterns of criminal behavior over time and the sequential
relationships between each crime and the individual's interaction with
criminal justice agencies.

In designing criminal career research, the investigator faces a
number of methodological options which involve tradeoffs between the
strength of any inferences that can be drawn from the research, its
cost, and the time it will take to complete. The three basic choices
that distinguish different approaches to criminal career research in
the current literature are: (1) the sources from which data on indi-
viduals' criminal behavior will be obtained; (2) the research design
for determining age or maturation effects; and (3) the population from
which the subjects to be studied will be drawn. In this appendix we
discuss the options in each of these three areas and their relative
merits for particular criminal career issues.

SOURCES OF DATA

There are basically three sources of data for estimating or de-
scribing individual patterns of criminality over time: (1) official
records; (2) self-reported information obtained from questionnaires or
interviews; and (3) fieldwork involving observations or loosely struc-
tured interviews.

Official records include Rap sheets, arrest reports, and court records. Depending on their organization and the amount of effort devoted to searching them out and encoding the desired information, they can provide extensive information on those crimes for which the subjects of the study have been arrested. For many jurisdictions, a Rap sheet (criminal history) will be available for every subject who has been arrested, listing each arrest charge, the date of the arrest, and possibly the disposition. The coverage of these Rap sheets will depend on who maintains them. Rap sheets maintained by the local police usually cover only local arrests. Rap sheets maintained by a state bureau of criminal identification will include all arrests in the state, while FBI Rap sheets provide national coverage for some state and highly mobile offenders. A principal limitation of state or FBI Rap sheets is that they rely on local law enforcement agencies to voluntarily report their arrests; which results in varying levels of compliance, particularly when a police agency does not believe an arrestee has an out-of-state record, or where the case is dropped without prosecution.

The information on specific offenses reported in Rap sheets can be supplemented with data from police department offense reports, arrest records, or the records of court proceedings. These sources will provide more detailed description of the actual offense--the victim, the amount of force, physical injuries, weapon use, and the defendant's role in the crime. Court records should disclose the eventual disposition of the offender, and pre-sentencing reports or diagnostic reports of probation or other correctional agencies may provide information on other aspects of the offender such as his schooling, employment history, current living arrangements, etc.

Once the researchers go beyond individual Rap sheets, which may contain all the information desired in computer readable form or easily encodable formats, they are faced with the substantial costs of obtaining access to agency files, linking data across files, and working out coding schemes for narrative reports.*

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*Since Rap sheets frequently do not contain release dates, one further difficulty with official records is that it is often difficult to determine during what period an offender was incarcerated. Since "time at risk" is a critical factor in determining crime rates, this problem can represent a severe limitation for most official data systems.

As an alternative to official records, information concerning both recorded and unrecorded criminal activity can be obtained from research subjects using structured interviews or questionnaires. This method involves describing or listing a number of specific types of crime and asking the subjects to indicate how frequently they engaged in each specific type. The questionnaire may limit the respondents' attention to specific time periods, say during the past year, or they may be much more inclusive—covering the time since the subjects' last release from custody or time period since turning 18.

Depending on their purpose, self-report questionnaires may request specific information about each offense, including arrests and convictions, or they may ask for information at a more aggregate level—such as whether the offender was usually armed and how many times he was arrested.

Self-reported information can be obtained through extensive one-on-one interviews, with the pattern of questions heavily contingent on each respondent's replies or criminal record, or they can be obtained through questionnaires administered to groups.

The third method of data collection, fieldwork involving extended loosely structured interviews or direct observations, involves a much closer working relationship between the researcher and the subject. Although this method is useful in generating hypotheses or obtaining descriptions of particular criminal enterprises,[*] it is not particularly useful for obtaining information which can be generalized to wider offender groups because of the cost involved for each respondent and the problem of respondent bias. Offenders who are willing to participate in this type of extended interactions are unlikely to be representative of the general population of street offenders. We do not discuss this type of research further in this Note because its purpose is usually quite different from the other work described here.

Research on any particular aspect of criminal careers can rely on either official records, self-report, or some combinations of both. Each method has several unique advantages. Research that is totally

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[*]See for instance, Edwin Sutherland, *The Professional Thief*, University of Chicago Press, 1937, or Ianni, F., *Black Mafia*, Simon and Shuster, Inc., New York, 1974.

reliant on official records suffers from the limitation that it includes only a small fraction of each offender's criminal behavior and it is biased by the relative success of the system in detecting different types of crime. For research purposes we would like to know independently: the rate at which individuals engage in different types of crime (λ) and the probability that any one crime will result in an arrest (q). Both λ and q can be expected to vary among offenders, and vary for any one offender over time. An offender's arrest record will disclose only the product of λ and q--his arrest rate over time. Therefore, in any research concerned with measuring the frequency of different crime types or establishing the relationship between λ and q, self-reported data is preferred. In the latter case it is essential.

Another benefit of self-reports over official records is that self-reported data can be much richer in the level of detail with which offenses are described or in the amount of background data which is provided on the offender at the time of his offenses. Official record studies are limited by the data elements and coding formats of the data systems being used and are subject to whatever bias is introduced by changes in coding rules or data emphasis which may occur in the official system over time.

The principal deficiencies associated with self-reports are their reliance on subject cooperation, their reliability, and their cost. In order to obtain self-reports, the researcher must first obtain access to the subjects (which may involve assistance in locating them from parole or probation authorities or permission to interview them from correctional authorities) and then secure their cooperation. Both research ethics and recent legislation concerning human subjects require that the researcher inform his subjects of whatever risks they may incur by answering the questionnaire. Obviously, some subjects will refuse to cooperate, no matter what financial inducement or guarantee of anonymity they are offered. Official record studies require no such subject cooperation except for the fact that the researcher must arrange for access to the data files of interest, through some public official.

Although researchers who use official criminal histories as the data source for their analysis of individual criminality do not bother

to explore the reliability of their data, official records are thought to suffer from fewer reliability problems than self-reports. Self-reported crime studies begin with what may be a biased sample--those who agree to participate. Responses to crime rate questions are contaminated by problems of memory, definition, and deliberate attempts to inflate or deflate prior criminality. These reliability problems are not well understood. Even where the researchers build a number of reliability measures into their instrument, which allow them to detect and discard inconsistent patterns of responses, there is no feasible way for them to measure the reliability of crime rate responses as long as the subject provides consistent responses.

Official criminal histories, on the other hand, are subject to some control by subsequent adjudication processes. Although **arrest** charges may not be totally consistent with offender behavior, it is unlikely that very many arrest histories are seriously inflated by systematic harassment arrests or inflation of charges. Furthermore, each arrest entry is generated by a reasonably independent process, reducing the opportunity for selective bias against any one offender. Such is not the case for self-reports. An individual who desires to misrepresent his true criminality can systematically inflate or deflate his response to reflect a picture, although plausible, that is in error by many orders of magnitude.

The final element of comparison is cost. If official record studies are restricted to computerized criminal history files, or even standardized Rap sheets, it is clear that they will cost far less per subject than will self-reports. This cost difference is even further exacerbated by the data cleaning and reliability checks which are required to treat self-report data responsibly. If individual arrest or court records must be located and coded, the cost of the two approaches are probably much more comparable.

In summary, in comparison to official records, self-reports offer richer data of less reliability at higher cost. They are essential for estimating the relationship between λ and q and for studying offense behavior at a richer level of detailed level than is possible with official records

RESEARCH DESIGN

In determining the effects of age or prior experience on criminal career progression, there are two possible research designs--longitudinal and cross-sectional. The longitudinal design involves repeated measures on the same individuals over time, with comparison made for a single subject at different points in time. The relationship between age and crime rates is established by determining the crime rate for each research subject at different points in time.

A cross-sectional design involves comparing individuals of different age at the same point in time. Data is only required for each individual at this one point.

In theory, longitudinal designs are preferred because of their ability to distinguish true age effects from cohort effects or system bias. If a cross-sectional design reveals that 17 year old criminals commit more crime than 25 year old criminals, we cannot be sure whether the difference is: a true age effect; or is caused by the fact that the cohort of people currently 25 years of age have always been less serious criminals than those aged 17; or is the result of some system bias that overrepresents low crime rate 25 year olds in the sample.

However, longitudinal studies also have their deficiencies. If subject cooperation is required and drop out rates are significant, progressive losses in the sample at each measurement point can result in substantial bias. Further, longitudinal studies which require data covering long periods of time are subject to obsolescence. By the time the research is completed, the sample, at earlier points in time, is no longer representative of current cohorts at a similar age.

Cross-sectional designs are preferred if findings about the relationship between age and some dependent measure are to be generalized to some current population. If a cross-sectional design shows that 18 year olds commit more crime than 30 year olds, we cannot say that crime commission rates decline with age. The current 18 year olds may continue to commit crime at the same rate when they are 30. Nevertheless, the finding that today's 30 year olds commit less crime than 18 year olds would be directly relevant to estimating incapacitation effects and determining sentencing policies.

SAMPLE DESIGN

The third principal issue in criminal career research is the sample design--the population to be studied. There are three basic options: 1) Birth cohorts; 2) Random samples of the general population in some area; 3) Offenders identified at some point in the criminal justice system.

Birth cohorts are obviously of interest for identifying early childhood predictors of future criminality and for establishing probability estimates of future career progression. Their principal deficiency for criminal career research is the extremely large sample size (and associated costs) required if the sample is to contain an adequate number of serious offenders. If six percent of a cohort is expected to establish criminal careers which extend into serious adult crime, the initial cohort must consist of 5000 subjects if 300 career criminals are desired for multivariate analysis.

Another problem with birth cohorts involves the timing of data collection. If data collection begins while the cohort is quite young, the results of the research can proceed no faster than the aging of the cohort. If data collection commences when the cohort has already matured, there will be problems in locating appropriate records to trace their early years.

Studies involving a random sample of the general population suffer from some of the same difficulties as birth cohorts--namely, the small percentage of subjects who will have serious criminal careers. Although cross-sectional studies involving the general population would provide more current data than a cohort study, it is more likely to underestimate the prevalence of criminality due to response bias. The small fraction of serious offenders is likely to be grossly underrepresented in any such study.

The most efficient samples for identifying offenders with specific characteristics involve identifying subjects at some point in the criminal justice process such as arrest, conviction, in prison, or upon release from incarceration. While such samples are inappropriate for predicting the onset of criminal behavior, they are appropriate for many studies of criminal justice policy in that they deal with the only population which

the criminal justice system can directly effect[*]--those offenders who are known to it.

The easiest class of offenders to identify and locate are those in prison. Information on their characteristics and prior behavior is available from official records. They are easily located and usually responsive to interviews.

A convicted sample is also easy to identify and reasonably well described by court records. The difficulty with any group not confined in a limited number of institutions lies in attempting to locate and interview a representative sample of its members. Obviously, a conviction sample is most appropriate for sentencing policy studies.

SELECTING THE APPROPRIATE METHODOLOGY

At this point in the development of criminal career research, there is no *one* preferred or optimal research design. Each one has its deficiencies. Each is particularly well-suited for particular issues. The principal criteria in designing new studies should be that they build on the methodological techniques developed in previous research and offer some clear advance over prior work. Advances in our understanding of criminal career development are most likely to come through a process of triangulation in which increasingly consistent findings derived by different research methods eventually narrow the range of uncertainty about key functional relationships and career characteristics.

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[*]The system may indirectly affect unidentified offenders or potential offenders through deterrence. To date, the existence or magnitude of this effect has not been established.

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