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Criminal Violence and Incapacitation: Wishes and Realities

Final Report to the National Institute of Justice

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Both strategies rest heavily on general assumptions examined in the research reported here:

Criminal activity is "patterned" with respect to types of behaviors.

This means that offender criminal activity is not random but exhibits some degree of consistency. An incapacitation strategy may be based on the assumption, for example, that confining a persistent assaultive offender for a specified time will result in a decrease in assaultive crimes committed.

The seriousness of offending changes in meaningful ways throughout the career.

It generally is thought that offenders who commit crimes of a more serious or violent nature are more problematic than those who commit less serious or non-violent offenses. From an incapacitative perspective, it would be desirable if the seriousness of offending, over time, were to progress from less to more serious offenses as criminal careers advance. If this were so, then the early identification and incapacitation of career criminals not only would decrease crimes committed but would inhibit the commission of increasingly serious crimes.

The rate of offending changes in meaningful ways throughout the career.

Ideally (again, from the standpoint of incapacitation), the rate of offending by those criminally active would tend to increase throughout the career. Were this true, incapacitation would have also the effect of inhibiting increasing numbers of offenses.

Thus, both collective and selective incapacitative strategies rely fundamentally on assumptions about the predictability of criminal behavior. Examinations of these assumptions, and tests of hypotheses that may be derived from them, have been impeded seriously by a lack of adequately reliable, comprehensive data on substantial samples of offenders followed for long periods of time. The study samples used in the research reported here have allowed careful tests of such

hypotheses.

Methods and Results

We studied more than 6,000 men who were incarcerated in California prisons in the early 1960's, a sample representative of all men who were then in prison in California. With the help of the California Bureaus of Criminal Statistics and Criminal Identification, follow-up data were collected for each man in 1988 (a 26 year follow-up period).

The whole sample was divided randomly in half, in order to provide study and validation samples. The data extracted from the records included charges filed, arrests known, dispositions noted, measures of the nature and seriousness of offenses recorded, and other items. Sample attrition and potential biases are discussed in detail in the report. Of 3,108 men in the study sample, the records of 79 percent were classified as "usable" for the present study; of 3,202 persons in the validation sample, 76 percent were "usable." Our examination of issues of bias led to the conclusion that there appears to be little serious bias associated with the sample attrition.

The men in this sample have been active in being arrested, reconvicted, and reconfined. They have been arrested well over 30,000 times since their release from the incarceration that was the occasion for our initial data collection. They were in and out of prison and jail; one man was incarcerated 28 times during the follow-up study period.

We classified crimes, and their seriousness, according to a dimensional approach developed in our earlier research. That research had shown that six dimensions underlie people's judgments of the seriousness of criminal acts, as follows:

Nuisance Offenses are offenses such as prostitution, gambling, use and possession of marijuana, adultery, disorderly conduct, homosexual acts, exposures, and probation and parole rules violations. In general, people view crimes on this dimension as relatively non-serious.

Person Offenses are those that involve physical assault, personal harm, and interpersonal confrontation. This is the dimension of main interest in the present study.

Property Offenses include theft, property damage or loss, and property crimes in general.

Social Order Offenses (crimes against the social order) are either crimes committed by an agent or agency in power or social crimes or both. (Examples are the pollution of a water supply, marketing contaminated products, and false advertising.)

Serious Drug Offenses include the manufacture or sale of heroin, hallucinogens, barbiturates, and amphetamines.

Fraud Offenses include crimes of deception, including forgery, bad checks, perjury, and other frauds.

Arrests (and charges and convictions) were classified according to these dimensions of offense.

Of the more than 30,000 arrests recorded, well over half were classified as Nuisance Offenses — typically parole and probation rules violations, drunken driving, possession and use of drugs, disorderly conduct, and gambling. Property Offense arrests also were common (more than 8,000 arrests). These included, typically, burglaries, robberies, larcenies, and auto thefts. Arrests for Person Offenses were proportionately infrequent but unfortunately common: there were more than 2,000, including homicides, rapes, and assaults. There were more than 1,500 arrests for frauds. Those for Serious Drug Offenses (755) were relatively rare.

Although nuisance offenses predominate the criminal behaviors with which this group has been charged, they also were charged with committing a large number of serious crimes: they were charged with committing almost 10,000 serious offenses since release from their 1962 - 1963 imprisonment. These included 184 homicides, 2,084 assaults, 1193 robberies, 126 kidnappings, 2,756 burglaries, 144 rapes, 2,800 thefts, and 655 auto thefts.

When just the first charge post-release was considered, 56 percent were convicted, 23 percent were acquitted (or charges were dismissed), and two percent were subject to some other action. (In 19 percent of charges the dispositions were unknown.)

It was found also that:

* The typical sanction was a prison or jail term.

> Nearly 60 percent of those convicted on their first post-release charge were reincarcerated. Seven percent were placed on probation. A little more than a fourth were subject to some other sanction. This general pattern of sanctioning was true regardless of the arrest episode number; that is, the same dispositional pattern was found with repeated arrests.

* Although almost a third of these men never were reincarcerated, about two thirds did spend additional time in jail or prison. Nearly one man in five was reincarcerated at least six times.

* Offenders who failed did so quickly.

> More than 30 percent of these men were reincarcerated within three years of release. Others were free for 10, 15, or more than 20 years before experiencing another incarceration. Considering just those men who failed from one time period to the next, the length of time free in the community decreased with the number of times incarcerated; and so did the length of incarceration. Although this analysis does not take possible incapacitation effects into account, it is suggestive that the highest rate offenders commit relatively non-serious offenses.

* These offenders had an average of .37 arrests per year, were in the community an average of 21 years, and were arrested, on the average, six times. For offenders who were arrested at least once after release, the yearly rate of arrests was .45; and among those with at least one period of incarceration post-release it was .52.

We studied the utility of some information available in 1962 – 1963 — when these men were in prison and selected for study — for prediction of a variety of behavioral outcomes after their release. The results of these prediction efforts compare favorably with those of similar studies, and validity measures observed were comparable to or greater than those generally found.

For example, one model was aimed at the prediction of the number of arrests to desistance —

> Significant predictors include the number of prior periods of incarceration, age at imprisonment (in 1962 – 1963), history of opiate use, a rating of the seriousness of behavior of the commitment offense, an arrest-free period of five years or more prior to the period of incarceration served in 1962 – 1963, the number of prior periods of prison incarceration, the type of commitment to the 1962 – 1963 incarceration, and the number of aliases used by the offender. The model accounted for 16 percent of the variability in number of arrests.

> Similar models are described in the report for prediction of these outcomes:

> Number of arrests for nuisance offenses;

> Number of arrests for person offenses;

> Number of arrests for property offenses;

> Number of arrests for frauds;

> Seriousness Score of Most Serious Charge, First Post-Release Episode;

> Rates of Offending (lambda) for various samples   (1)

Not surprisingly, we cannot predict violent offending (offending against persons) well.

> Significant predictors are age (inversely), prior incarcerations, a commitment offense against persons, prior prison incarcerations (negative), a commitment offense against property and involving burglary or checks. But the model is weak, accounting for only six percent of the variance in arrests for person offenses. Similarly, and perhaps most important from a public safety perspective, we cannot predict the seriousness of the first offense post-release at all. The model developed accounted for less than one percent of the variability in these scores.

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(1)   These rates are not lambda in the sense used by J. Cohen (cited in the text). She adjusts Mu (the rate of arrest) by an estimated likelihood of arrest given the commission of a crime. We do not have those estimators. Hence, our lambda is

Attempts to predict lambda (the rate of arrests) were only modestly successful.

When all offenders in the sample were considered, statistically significant predictors were found to include the number of prior periods of incarceration, age (inversely — older offenders have lower lambdas) history of opiate use, number of aliases, and a commitment offense of the nuisance variety. The model accounted for 12 percent of the variability in lambda. When desistors were excluded, prediction was less successful (accounting for less than 10 percent of the variance). A similar result obtained when the sample was restricted to those offenders reincarcerated at least once. (Models of a logarithmic transformation of lambda resulted in very modest increases in predictive utility and did not change the substantive nature of the models.)

Since it would be hoped, from an incapacitation perspective, that persistent and/or serious offenders could be identified early in their careers, we next restricted attention to those who had not been imprisoned previously. Results differed little from those based on the sample as a whole.

Validity of the Prediction Methods

While the power of the prediction models developed exceeds that commonly found in similar studies, it still may be best described as "modest."

> The associations of prediction scores and outcomes in the study sample were compared with validity coefficients found in the validation sample. This showed, in general: (1) evidence for the validity of the equations; (2) some "shrinkage" (as expected); and (3) some models are rather more robust than others. The model for prediction of lambda — the rate of arrests — was among the least robust.

Validity of The Base Expectancy Scale

A scale developed in 1961 (just earlier than the sample selection used in this study) which has been used extensively in California was

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Cohen's Mu.

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examined to determine its validity in predicting the various outcome measures used in the present study. The scale was found to be remarkably robust with respect to several important outcome criteria even after this lengthy period of time.

The criterion most similar to that used in the original scale development was "any incarceration." The point biserial correlation coefficient of .32 is the same as that found earlier in an eight year follow-up study of a new sample. Similar correlations were found for the relation of scores to the number of arrests to desistance, the number of property arrests, and the logarithmic transformation of arrest rates (lambda). No model developed on the study sample performed substantially better on validation than did the original Base Expectancy scale developed in the 1960's.

Is Criminal Activity Patterned?

Available research does not provide strong evidence for the specialization assumption on which incapacitation strategies tend to rely strongly.

If offenders tend to specialize in certain types of crimes, or similar ones, then it is more reasonable to expect that their confinement will prevent those kinds of crimes. Although some evidence of specialization commonly is found, the weight of evidence is strongly supportive of versatility or generality of offending. In order to investigate this issue, we examined transition matrices that permitted the calculation of several measures of specialization. Also, we examined transition probabilities in relation to the "base rates" for desistance from crime (as measured by arrests).

Using our offense typology, we found somewhat stronger support for the specialization hypothesis than that typically found. But the analyses showed clearly and dramatically that the most likely transition from one charge to the next — given any type of charge — is to a nuisance offense. The next most likely transition is to a charge of the same type (e.g., property to property). The extremely high base rate probability associated with nuisance offending, however, simply

overwhelms the specialization effect.

The same general result obtained when transitions considered included only charges subsequent to release (ignoring the offense of commitment to prison). When the analyses were repeated for "chronic" offenders, defined as those who experienced at least three periods of incarceration, the substantive conclusions were in general the same.

From the perspective of incapacitation strategies, one would hope that specialization would increase over time. We found a very modest linear increasing trend for nuisance to nuisance and for property to property offense transitions, but not for others. For all practical purposes, specialization does not change with an increased number of transitions. Notably, there was no apparent trend for person to person offense transitions.

We examined the question of "offense mixing," as another way of investigating the question of specialization.

A specialist in property crimes, for example, would commit those and only those kinds of crimes. Similarly, a person who offended only against persons could be considered to specialize in crimes against the person.

When offenders were grouped in terms of the mix of offenses they committed subsequent to release from incarceration, almost 28 percent were found to be complete specialists — i.e., they were subsequently charged with only one type of offense.

Concerning these "Specialists" —

* Two offense mixes were quite common: nuisance and property offending and nuisance, person, and property offending. Other mixes occurred rarely (e.g., person and fraud). Among such "specialists," the bulk (69 percent) specialized in nuisance offending. Seventeen percent specialized in property offenses, nine percent in offenses against persons, and about five percent in frauds.

* Of all offenses committed by "specialists," the vast majority (82 percent) were nuisance offenses.

* "Specialists" had the lowest rates of offending, "generalists" the highest.

Does the seriousness of offending change in meaningful ways as the "criminal career" progresses? The answer is "No."

> We found the average seriousness score to be invariant over offense episodes.

Does the rate of offending change in meaningful ways as the "criminal career" progresses? The answer is "Yes, but not in a way that advantages incapacitation strategies."

> The rate of offending declines dramatically as offenders age. The rate for youthful offenders (25 and younger) is about three times that for older offenders (50 and older).

Incapacitation Strategies: Wishes

Three related features of the state of nature desirable from the perspective of incapacitation strategies involve prediction, offense specialization, and characteristics of arrests and of their rates over time.

The predictions desired are for arrests or convictions of specific types, which could be made with more validity if offenders tended to specialize in the types of crimes committed. Or, the nature of "crime switching" must be reasonably predictable. It would be helpful if expected transitions were to a more serious crime type. Arrest or conviction rates also must be reasonably predictable, and it would be desirable that these tend to be constant or increasing. Further, it would be helpful to incapacitation strategies if the persons classed as specialists had higher arrest rates than those classified as generalists.

A straightforward incapacitation strategy could be formulated if: (a) both the termination of offending and the rate of committing crimes could be predicted with confidence; (b) the rate of doing crime were constant or increasing; and (c) there were a high degree of specialization in crime types committed (or if the tendency to specialize were to increase over time). Thus, for implementation of a selective incapacitation strategy, it would be helpful if we could identify future high rate offenders who specialize in serious crimes (with both specialization and rates of crime commission constant or increasing over time).

A more complex strategy could be formulated if the termination from criminal activity and the rate of committing new offenses could

be predicted reasonably well, if the distribution of the rate of new crimes over time were known with some precision, and if (absent a high degree of specialization) probable crime switching could be defined with a reasonable degree of confidence.

Incapacitation Strategies: Realities

These results of our study are particularly relevant to incapacitation concepts:

1. The prediction models developed provide very typical, modest estimations of a variety of outcomes relevant to incapacitation strategies. Tested on a second sample, most models held up well. But the validity of the prediction methods must be described as modest at best.

2. Specialization in offending was observed; but the degree of specialization (although higher than that found in other studies) was (like predictive validity) quite modest.

3. A high degree of versatility was observed, which overwhelmed specialization.

4. The most probable next arrest (if one occurs) invariably is for an offense of the nuisance variety (regardless of the offense episode examined).

5. The specialization that was found did not increase much with successive transitions. There was no increasing trend for person offenses.

6. Arrest rates were found to be inversely related to specialization: "Specialists" had lower rates than did "generalists."

7. Arrest rates decreased precipitously with age.

8. A strong argument against the feasibility of collective incapacitation strategies based on the offense of conviction is given simply by the matrices that show the transition from that offense classification to the next.

> For example, locking up "assaulters" to prevent assaults may be expected to, first, prevent future nuisance offenses; second, to confine a substantial number of persons who will commit no future offenses; and only third, to prevent assaults. The expected next offense (if any) for any of the classifications of offenses studied is a nuisance

offense. Thus, small reductions in the targeted crime(s) would have to be considered in the context of large expenditures that principally would (a) unnecessarily confine "false positives" (persons mistakenly predicted to fail) and (b) prevent nuisance offenses.

9. Data presented in relation to the prediction requirements of a selective incapacitation strategy provide little support for that orientation.

> Rates of arrest or of conviction can be predicted — but not well. Rates of arrest for person offenses — a most likely target for selective incapacitation strategies — can be predicted, but even less well.

10. Rates of arrest are inversely related to specialization, so the small specialist group is less apt to be arrested at a high rate.

11. Specialization increases very little with age, and not at all for the crime groups most likely to be targeted in a selective incapacitation strategy.

12. Arrest rates for active adult offenders decline with age.

Conclusions

Advocates of selective incapacitation as a strategy for more efficient or effective use of criminal justice resources will have many serious obstacles to overcome even if ethical arguments surrounding such strategies are set aside. The state of nature of offense behavior and criminal justice response is not conducive to the development of such strategies.

Ethical issues cannot, of course, be ignored; and some central ones are considered briefly in the report. Related issues of the accuracy of prediction are discussed, and it is concluded that proposals for dramatic change in sentencing and incarceration policies based on

individual level prediction are at best premature.

Prediction with the validities so far demonstrated cannot justify the policy changes proposed under the banner of selective incapacitation. Prediction tools with the validities demonstrated can, however, be used appropriately for other purposes.

The nature of predictive selection problems is discussed in the report in relation to the consequences of the use of cutting scores, as required in applications or policy formulations.

Absent perfect prediction, different kinds of errors are inevitable. Some must be abhorred from the ethics of deserved punishment, others from the ethics of utility. Which kinds of errors are more important is a question that may never be settled in moral philosophy or public policy. Moreover, the two kinds of errors may not be equal in either human or monetary costs.

We propose a policy of "selective deinstitutionalization."

Applied to persons already incarcerated, or to be incarcerated, under any existing incarceration policy, prediction measures could identify those presenting the least risks. The ethical consequences of errors made under policies of selective incapacitation and of selective deinstitutionalization differ markedly. Under the latter (unlike the former), offenders will not be punished more harshly than they would have been had the prediction measures not been used. The proposal is consistent with the ethical view of permissive retributivism and relies on no presumption of need for radical change in sentencing policies in general. It does require that risk, and an incapacitative purpose, should be a primary consideration in decisions aimed at population reduction.

The consequences of the proposed strategy of selective deinstitutionalization are more benign than are those arising from the selective incapacitation concept. Predictive accuracy, while sufficient for the former, is insufficient for the latter.

The selective deinstitutionalization concept is believed to meliorate the ethical concerns discussed and to hold promise for reducing prison crowding without endangering the public.

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Stakes and Risk in the Prediction

of Criminal Violence

The conventional wisdom with respect to the prediction of violence
is that we can't do it. This is a distortion and oversimplification of
the magnitude of the conventional "nothing works" wisdom with respect to
efforts at the treatment or rehabilitation of criminal offenders.[1] It
is also utter nonsense. The urban dweller who fails to cross the street
after noticing a nasty-looking assemblage of young toughs on the
sidewalk ahead either is very brave or very foolish. The circumspect
street-crosser, on the other hand, wisely has made a prediction that
violence may occur and has taken steps to avoid it. Not only can we
predict violence, virtually all of us do engage in the prediction of
violence. Depending upon our positions in society, the law may even
require us to do so.

Out of the conventional wisdom that we can't predict violence has
arisen the ethical stricture that we may not predict violence. This too
is utter nonsense. Our circumspect urban dweller, being an ethical
person, followed this advice recently and promptly was mugged. On
recovery and reflection, urban dweller found the ethical principle
indefensible, and returned to the prediction of violence.

It is in the consequence of prediction, not the fact of it, that
ethical problems are raised. Predicting violence to himself, Bernard

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[1] Martinson, R. What works? Questions and answers about prison
reform. Public Interest, 1974, 35, 22; Lipton, D., Martinson,
R., and Wilks, J. The Effectiveness of Correctional Treatment: A
Survey of Treatment Evaluation Studies. New York: Praeger, 1975.

Goetz prevented it not by crossing the street, but by shooting several young men on a subway train. Many of us feel that his behavior was extreme, and that his actions are to be condemned. And yet the Supreme Court has ruled that the death penalty may be imposed based on a prediction of future violence.[2]

In our opinion, the responses of Goetz and the Supreme Court to a prediction of violence are indefensibly extreme, because of the high likelihood of error.[3] We also believe that the urban dweller who walks purposefully into the midst of a gang of young toughs is foolish -- even if the act is based on a rational assessment of the low probability of attack. We feel similarly (although perhaps with more sympathy) about the urban dweller who, predicting violence on every corner, literally hides in a barricaded home. All of these responses to the prediction of violence are extreme. The circumspect street-crosser, we feel, has made an appropriate -- and relatively benign -- response to prediction.

We propose a new "conventional wisdom:" 1) We can predict violence; 2) We should predict violence; 3) Since our predictions are highly inaccurate, we should seek ways to make them better; 4) We must acknowledge that mistakes will be made when we predict; 5) The ethical issue should concentrate on the consequences of prediction, but cannot be divorced from the issue of the accuracy with which we can predict.[4]

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[2] Jurek v. Texas, 96 S.Ct. 2950, 1976.

[3] There are other reasons also we find these responses indefensible, but they are unrelated to the principal concerns of this report.

[4] References in support of the first proposition can be found in Gottfredson, D., and Gottfredson, S. Stakes and risk in the prediction of violent criminal behavior. Violence and Victims, 1988, 3(4), 247-262, in Monahan, J. Predicting Violent Behavior: An Assessment of Clinical Techniques. Beverly Hills, Ca.: Sage, 1981, and in Wolfgang, M.E., and Weiner, N.A. (Eds.)

The focus of this report is proposition three: ways to make

predictions, and to make them better. Remaining propositions, although

of great interest to us, will receive rather less attention.

The Prediction of Violence

An excellent volume edited by Wolfgang and Wiener[5] provides recent

reviews of much of what is known concerning criminal violence from

several important perspectives: the biological;[6] the psychological;[7] the

situational;[8] and the longitudinal.[9] Given the ready availability of

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Criminal Violence. Beverly Hills, Ca.: Sage, 1982. Proposition two states an ethical position: for discussion, see Monahan, J. *Predicting Violent Behavior: An Assessment of Clinical Techniques.* Beverly Hills, Ca.: Sage, 1981, Monahan, J. The case for prediction in the modified desert model for criminal sentencing. *International Journal for Law and Psychology*, 1982, 5:103-13, Monahan, J. The prediction of violent behavior: Toward a second generation of theory and policy. *American Journal of Psychiatry*, 1984, 141(1): 10-15, Moore, M. *Purblind justice: normative issues in the use of predictive or discriminating tests in the criminal justice system.* Paper prepared for the National Academy of Sciences' Panel on Criminal Careers. Cambridge, Mass.: Harvard University, School of Government, 1985, Morris, N., and Miller, M. Predictions of dangerousness. In M. Tonry and N. Morris (Eds.), *Crime and Justice: an Annual Review of Research*, Vol. 6. Chicago: University of Chicago Press, 1985, Morris, N., and Miller, M. this volume, Underwood, B.D. Law and the crystal ball: predicting behavior with statistical inference and individualized judgment. *Yale Law Journal*, 1979, 88(6):1408-1448, and Tonry, M. Prediction and classification: legal and ethical issues. In Gottfredson, D., and Tonry, M. (Eds.), *Prediction and Classification.* Chicago: University of Chicago Press, 1987.

5 Wolfgang, M.E., and Weiner, N.A. (Eds.) *Criminal Violence.* Beverly Hills, Ca.: Sage, 1982.

6 Mednick, S.A., Pollock, V., Volavka, J., and Gabrielli, W.F. *Biology and violence.* In M. Wolfgang and N. Weiner (Eds.), *Criminal Violence.* Beverly Hills, Ca.: Sage, 1982.

7 Megargee, E. I. Psychological determinants and correlates of criminal violence. In M. Wolfgang and N. Weiner (Eds.), *Criminal Violence.* Beverley Hills, Ca.: Sage, 1982.

8 Monahan, J., and Klassen, D. Situational approaches to understanding and predicting individual violent behavior. Pp.

these summaries, detailed attention will not be paid to the known

correlates of violent behavior in this review.

Limited information also is available from studies conducted for

or by the United States Secret Service. Characteristics of persons

hospitalized as a result of screening by security agents at the White

House have been described several times, and are well summarized by

Megargee.[10] Similarly, characteristics of those those who have actually

threatened a President have been summarized.[11] Finally, some attempts

292-319 in M.E. Wolfgang and N.A. Weiner, eds., Criminal Violence.
Beverly Hills, Ca.: Sage, 1982.

9   Farrington, D.P. Longitudinal analyses of criminal violence. Pp.
171-200 in M.E. Wolfgang and N.A. Weiner, eds., Criminal Violence.
Beverly Hills, Ca.: Sage, 1982.

10   See, for examples, Hoffman, J.L. Psychotic visitors to government
offices in the national capital. American Journal of Psychiatry,
1943, 99: 571-575; Keller, G.F., Peele, R., and Sorrentino, E.
The White House cases. Proceedings of the 18th Annual Medical
Society of St. Elizabeths Hospital, 1965 (cited in Megargee, in
press); Sebastiani, J.A., and Foy, J.L. Psychotic visitors to
the White House. American Journal of Psychiatry, 1965, 122: 679-
686; Shore, D., and Filson, C. Violent crime arrests of former
White House cases. Paper presented at the Annual Meeting of the
American Psychiatric Association, Dallas, Texas, 1985 (cited in
Megargee, in press); Shore, D., Filson, C., Davis, T., Olivos,
G., DeLisi, L., and Wyatt, R. White House cases: psychiatric
patients and the Secret Service. American Journal of Psychiatry,
1985, 142: 308-312; Megargee, E.I. A psychometric study of
presidential threateners. Criminal Justice and Behavior, in
press.

11   Rothstein, D.A. Presidential assassination syndrome. Archives
of General Psychiatry, 1964, 11, 245-254; Rothstein, D.A.
Presidential assassination syndrome II: Application to Lee Harvey
Oswald. Archives of General Psychiatry, 1966, 15: 260-266;
Rothstein, D.A. Presidential assassination syndrome: A
psychiatric study of the threat, the deed, and the message. Pp.
161-222 in W. Crotty (Ed.), Assassination and the Political Order.
New York: Harper, 1971; Weinstein, E.A., and Lyerly, O.G.
Symbolic aspects of presidential assassination. Psychiatry,
1969, 32: 1-11; Logan, W.S., Reuterfors, D.L., Bohn, M.J., and
Clark, C.L. A description and classification of presidential
threateners. Behavioral Sciences and the Law, 1984, 2: 151-167;
Megargee, E.I. A psychometric study of presidential threateners.

have been made at the provision of "profiles" of Presidential

assassins,[12] but these must be viewed with considerable suspicion given

the very small numbers of persons available for study.[13]

Monahan has reviewed most efforts to predict violent and

aggressive behavior, and has focused attention on the need to address

the roles of longitudinal and situational factors if we are to improve

upon these particularly difficult behavioral predictions.[14,15] Despite

their theoretical promise, situational studies of violence generally are

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Criminal Justice and Behavior, in press. The latter paper
provides psychometric profiles of threateners in comparison with
those of comparably confined mental health inmates.

[12] Greening, T.C. The psychological study of assassins. In W.J.
Crotty (Ed.), _Assassination and the Political Order_. New York:
Harper, 1971.

[13] Clarke, J.W. _American Assassins: the Darker Side of Politics_.
Princeton, N.J.: Princeton University Press, 1982. Megargee, E.I.
A psychometric study of presidential threateners. _Criminal
Justice and Behavior_, in press.

[14] Monahan, J. _Predicting Violent Behavior: An Assessment of
Clinical Techniques_. Beverly Hills, Ca.: Sage, 1981. For an
exception to this exhaustive review, see Rofman, E.S., Askinazi,
C., and Fant, E. The prediction of dangerous behavior in
emergency civil commitment. _American Journal of Psychiatry_, 1980,
137: 1061-1064.

[15] For similar calls, see Shah, S.A. Dangerousness: A paradigm for
exploring some issues in law and psychology. _American
Psychologist_, 1978, 33: 224-238; National Research Council, _New
Directions in the Rehabilitation of Criminal Offenders_.
Washington, D.C.: National Academy Press, 1981; Monahan, J. The
prediction of violent behavior: Toward a second generation of
theory and policy. _American Journal of Psychiatry_, 1984, 141(1):
10-15.; Gottfredson, S.D., and Gottfredson, D.M. The accuracy of
prediction models. In A. Blumstein, et al., (Eds.), _Criminal
Careers and "Career Criminals": Volume II_. Washington, D.C.,
National Academy Press, 1986; Webster, C.D., Ben-Aron, M.H., and
Hucker, S.J. (Eds.) _Dangerousness: Probability and Prediction,
Psychiatry and Public Policy_. New York: Cambridge University
Press, 1985.

limited either to the provision of simple univariate descriptive summary statistics,[16] bivariate,[17] or disappointing multivariate analyses.[18]

Unfortunately, review of the literature concerning the prediction of dangerousness and the propensity for violence shows that there is little evidence supporting our ability to make these predictions well. The prediction of violence is exceptionally difficult,[19] and no one seems to have done well at it. Nonetheless, such predictions are made routinely, and despite the discouraging evidence a variety of justice system and mental health system functionaries are required to make them (see, most recently, the Bail Reform Act of 1984).[20] Accordingly, a search for ways to make these judgments more effectively and efficiently remains necessary.

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16   Wolfgang, M.E. Patterns in Criminal Homocide. Philadelphia: University of Philadelphia Press, 1958; Toch, H. Violent Men. Chicago: Aldine, 1969; Curtis, L.A. Criminal Violence. Lexington, Mass.: D.C. Heath, 1974.

17   Steadman, H.J. A situational approach to violence. International Journal of Law and Psychiatry, 1982, 5: 171-186.

18   Steadman, H.J., and Ribner, S.A. Life stress and violence among ex-mental patients. Social Science and Medicine, 1982, 16: 1641-1647.

19   Wenk, E.A., Robison, J., and Smith, G. Can violence be predicted? Crime and Delinquency, 1972, 18: 393-402; Monahan, J. Predicting Violent Behavior: An Assessment of Clinical Techniques. Beverly Hills, Ca.: Sage, 1981; Rofman, E.S., Askinazi, C., and Fant, E. The prediction of dangerous behavior in emergency civil commitment. American Journal of Psychiatry, 1980, 137: 1061-1064; Webster, C.D., Ben-Aron, M.H., and Hucker, S.J. (Eds.) Dangerousness: Probability and Prediction, Psychiatry and Public Policy. New York: Cambridge University Press, 1985.

20   18 USC 3141-56, 36 CrL 3017.

Clinical Prediction Strategies

A great deal has been written about how clinical predictions ought to be made. However, little is known about the process in practice. Several authorities have deliniated typologies of factors to be considered in clinical approaches to the prediction problem (c.f. Megargee, 1976; Monahan, 1981; Hall, 1987), urging systematic attention to environmental, situational, personological, and other important factors (e.g., the base rate).[21] Others have developed typologies of clinical strategies themselves, such as Gough's Levels I - III,[22] or Gabor's systematic/unsystematic typological continuum.[23]

Just how clinical predictions of violence (or of just about anything else, for that matter) actually are made is not known, since decision-makers generally are not able to articulate decision criteria well. In an important study concerned with an assessment of the external validity of a large body of justice system research, Konecni and Ebbesen provide solid empirical evidence of this, confirming our anecdotal experiences, and those of several colleagues.[24] In the area of bail decisions, the relevant comparison was between a simulation

[21] Megargee, E.I. The prediction of dangerous behavior. Criminal Justice and Behavior, 1976, 3:3-21; Monahan, J. Predicting Violent Behavior: An Assessment of Clinical Techniques. Beverly Hills, Ca.: Sage, 1981; Hall, H.V. Violence Prediction: Guidelines for the Forensic Practitioner. Springfield, Ill.: Charles C. Thomas, 1987.

[22] Gough, H.G. Clinical versus statistical prediction in psychology. Pp. 526-584 in L. Postman, ed., Psychology in the Making. New York: Knopf, 1962.

[23] Gabor, T. The Prediction of Criminal Behaviour. Toronto: Univ. of Toronto Press, 1986.

[24] Konecni, V.J., and Ebbesen, E.B. External validity of research in legal psychology. Law and Human Behavior, 1979, 3: 39-70.

study, in which real judges served as subjects, and a naturalistic

observational study of real bail-setting. To make a long story short:

> ...the results from the simulation and the naturalistic
> study are very different from each other no matter how one
> looks at them. ... The way that the San Diego judges set
> bail in the courtroom is a far cry from what they appear to
> believe they do, or, at least, what they would like the
> researchers to believe they do (as judged by their responses
> in the simulation). Instead of focusing on local ties and
> following the Vera Foundation recommendations to which they
> pay lip service, in the courtroom the judges rely mostly on
> the district attorney's recommendation and, via this
> recommendation, on the severity of the crime. ... the
> results of the simulation are useless and misleading.

In the area of sentencing, a considerably more ambitious set of

"research setting/methods" studies were conducted, including analyses of

decision-making based on: (a) interviews with actual judges; (b)

questionnaire responses (by judges); (c) rating-scale responses (by

judges, defense attorneys, and students); (d) experimental simulation

(with judges, probation officers, and students as subjects); (e)

observation of actual sentencing hearings; and (f) descriptive decision

study.

The study based on interviews was conducted with the following

rationale: it was felt that advantages of the method "are a

considerable amount of flexibility and an unmatched opportunity to tap

the rich phenomenology of the sentencing process, provided that the

interview is unstructured enough and conducted well." Findings, in

essence, were that:

> sentencing decisions are exceedingly complex, that they are
> reached after a lengthy consideration and the full
> application of judicial training and wisdom, and--although
> there did not seem to be a consensus among the judges--that
> numerous factors were important in sentencing and all taken
> into account, including the nature of the crime, the prior
> record of the defendant, his or her future behavior as a

function of the type and length of sentence, the justification for the crime, the content of the probation officer's report, the content of the letters to the judge by the defendant and other people, sympathy, considerations regarding the defendant's family, chances of rehabilitation, and the public cost of imprisonment. In short, [the conclusions are] that (a) numerous factors affect, and are integrated into, the sentencing decision, (b) the decisions are highly complex, and (c) every case is different.

Without going into detail, we simply report that results of all other investigative methods belied the summary quoted above. Indeed, in the study Konecni and Ebbesen felt to have been "best" (i.e., to have had the greatest external validity with respect to decisions actually made), only four variables were found predictive of sentences given: the seriousness of the crime, the defendant's prior record, defendant's pre-trial status, and the probation officer recommendation. Less systematically, this same phenomenon has been observed by most of us who have attempted decision study with "real world" decision-makers as research subjects.

In a terse but absolutely correct summary, Hammond has advised that:

o   Human judgments are highly fallible;

o   Fallibility of judgment increases with the degree of "intuitiveness" required by the task;

o   Predictions of behavior based on human judgment particularly are fallible; and

o   Expert judgments regarding the prediction of behavior may be no better than those of anyone else.[25]

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25   Hammond, K. On assessment. Pp. 175-176 in J. Takeuchi, et al. (Eds.), Behavioral Science and the Secret   Service: Toward the Prevention of Assassination.   Washington, D.C.: National Academy Press, 1981.

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In virtually every decision-making situation for which the issue has been studied, it has been found that statistically developed prediction devices outperform human judgments.[26] This is one of the best-established facts in the decision-making literature, and to find otherwise in justice system settings would be surprising (at best) and suspicious or very likely wrong (at worst).

Meehl originally established the "rules" for making comparisons of clinical and statistical predictions, and these really were minimal.[27] One rule is that both the clinical predictions and those of the statistical model were to be made on the basis of the same information (for obviously, the statistical model would be disadvantaged if information is not to be made available to it). In fact, this "rule" may not have been necessary, since even when it is disregarded, the models almost always are more valid. Even "bootstrapping" studies, in which a statistical model of clinical assessments is constructed, show

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[26] Meehl, P.E. Clinical versus Statistical Prediction. Minneapolis, Minn.: University of Minnesota Press, 1954; Meehl, P.E. Seer over sign: the first good example. Journal of Experimental Research in Personality, 1965, 1:27-32; Gough, H.G. Clinical versus statistical prediction in psychology. Pp. 526-584 in L. Postman, ed., Psychology in the Making. New York: Knopf, 1962; Goldberg, L.R. Diagnosticians vs. diagnostic signs: The diagnosis of psychosis vs. neurosis from the MMPI. Psychological Monographs, 1965, 79(9):whole; Goldberg, L.R. Seer over sign: The first "good" example? Journal of Experimental Research in Personality, 1968, 3:168-171; Goldberg, L.R. Man versus model of man: A rationale, plus some evidence for a method of improving on clinical inference. Psychological Bulletin, 1970, 73:422-432; Sawyer, J. Measurement and prediction, clinical and statistical. Psychological Bulletin, 1966, 66:178-200; Dawes, R.M. The robust beauty of improper linear models in decision making. American Psychologist, 1979, 34(7):571-582; Dawes, R.M., and Corrigan, B. Linear models in decision making. Psychological Bulletin, 1974, 81(2):95-106.

[27] Meehl, P.E. Clinical versus Statistical Prediction. Minneapolis, Minn.: University of Minnesota Press, 1954.

that the models developed--even though these are of the decision-makers'

judgements--outperform the original judgments often by substantial

amounts.

The limited information available concerning justice system

settings would not, we think, disappoint those on the "statistical" side

of this continuing (but unproductive) argument. Notable are the studies

by Glaser, in which an actuarially-derived device was shown superior to

prognostic judgments made by sociologists and psychiatrists relative to

a parole violation criterion,[28] and those of Gottfredson,[29] in which a

statistical combination of items proved substantially more accurate than

judgments made by parole board members. Recently, Holland and

colleagues found that a statistical composite consistently outperformed

mental health professionals and correctional case workers in the

prediction of recidivism.[30] Carroll and colleagues found parole board

members' judgments of risk to be virtually uncorrelated with offender

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[28]   Glaser, D. The efficacy of alternative approaches to parole
        prediction. American Sociological Review, 1955, 20:283-287;
        Glaser, D. Prediction tables as accounting devices for judges and
        parole boards. Crime and Delinquency, 1962, 8(3):239-258.

[29]   Gottfredson, D.M. Comparing and combining subjective and
        objective parole predictors. Research Newsletter #3, Vacaville,
        Ca.: California Medical Facility, Sept.-Dec., 1961; Gottfredson,
        D.M., and Beverly, R.F. Development and operational use of
        prediction methods in correctional work. Proceedings of the
        Social Statistics Section. Washington, D.C.: American Statistical
        Association, 1962.

[30]   Holland, T.R., Holt, N., Levi, M., and Beckett, G.E. Comparison
        and combination of clinical and statistical   predictions of
        recidivism among adult offenders. Journal of Applied Psychology,
        1983, 68(2):203-211. However, after a correction for range
        restriction was applied, the human judges did better than the
        instrument in identifying indices of violent recidivism.

behavioral outcomes, and that a simple statistical model, although not powerful, outperformed the decision-makers.[31]

The relative superiority of statistical to intuitive methods of predictions is due to many factors. For example, human decision-makers often do not use information reliably,[32] they often do not attend to base rates,[33] they may inappropriately weight items of information that are predictive, or they may assign weight to items that in fact are not predictive,[34] and they may be overly-influenced by causal attributions[35] or spurious correlations.[36]

Given the overwhelming evidence for the superiority of statistical over clinical predictions, one might wonder why the clinical strategies

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[31] Carroll, J.S., Wiener, R.L., Coates, D., Galegher, J., and Alibrio, J.J. Evaluation, diagnosis, and prediction in parole decision making. Law and Society Review, 1982, 17(1):199-228.

[32] Ennis, B.J., and Litwack, T.R. Psychiatry and the presumption of expertise: flipping coins in the courtroom. California Law Review, 1974, 62: 693.

[33] Meehl, P.E., and Rosen, A. Antecedent probability and the efficiency of psychometric signs, patterns, or cutting scores. Psychological Bulletin, 1955, 52(3):194-216. This has been demonstrated explicitly in justice system settings. See Carroll, J.S. Judgments of recidivism risk: conflicts between clinical strategies and base-rate information. Law and Human Behavior, 1977, 1(2):191-198.

[34] Gottfredson, S.D., and Gottfredson, D.M. The accuracy of prediction models. In A. Blumstein, et al., (Eds.), Criminal Careers and "Career Criminals": Volume II. Washington, D.C., National Academy Press, 1986.

[35] Carroll, J. Causal attributions in expert parole decisions. Journal of Personality and Social Psychology, 1978, 36: 1501-1511.

[36] Monahan, J. Predicting Violent Behavior: An Assessment of Clinical Techniques. Beverly Hills, Ca.: Sage, 1981.

remain overwhelmingly predominate. At least eight possibilities have been suggested:[37]

o   decisions made in legal settings are and should be "individualized;"

o   statistically-based predictions explicitly acknowledge (and attempt to assess) the extent of errors to be made, leading decisionmakers to feel more responsible for them;

o   important case-specific (individualized) information will be overlooked by the statistical prediction;

o   decisionmakers may not wish to have explicitly known some of the factors on which a prediction is based (such as race or sex);

o   decisionmakers may not wish to have explicitly known some of the factors on which a decision -- not necessarily a predictive one -- is based (e.g., fear of public opinion);

o   fear of competition with a statistical equation;

o   in some situations, time does not permit the application of statistical predictions; and

o   in some situations, no statistical data exist.

The majority of these clearly are negative, in that "they refer to weaknesses in the legal system or in human decisionmakers that lead them to prefer one method over the other".[38] It is true that case-specific information can and should at times overwhelm statistical predictions. On the other hand, there is substantial evidence that clinical predictions are not sufficiently cautious in this regard.

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[37]   Carroll, J. Causal attributions in expert parole decisions. Journal of Personality and Social Psychology, 1978, 36: 1501-1511; Kastermeier, R., and Eglit, H. Parole release decision-making: Rehabilitation, expertise, and the demise of mythology. American University Law Review, 1973, 22:477; Monahan, J. Predicting Violent Behavior: An Assessment of Clinical Techniques. Beverly Hills, Ca.: Sage, 1981.

[38]   Monahan, J. Predicting Violent Behavior: An Assessment of Clinical Techniques. Beverly Hills, Ca.: Sage, 1981, at 191.

There may be other advantages to intuitive judgments as well. For example, human decision-makers can make use of information which cannot be made available to a statistical device (at least readily). Demeanor during an interview may be one such example. Other factors in favor of intuitive judgments also have been reviewed.[39]

If statistical predictions generally are better than clinical ones, just how good are predictions of violence based on statistical devices? There are two answers to this question. The first is that based on available information, they are not very accurate at all, and the best are only marginally better than the base rate. The second -- and more important -- answer is that we don't really know. The practical application of prediction tools in criminal justice system settings invariably requires that one attempt to construct, validate, and assess the accuracy of devices under circumstances that already have required some selection. Accordingly, true base rates cannot be known, nor can predictive accuracy be assessed relative to them. We tend not to experiment when "dangerousness" or "violence" are at issue.

Consider the examples raised in the introduction to this report. We can never know if "street-crosser's" prediction was correct; or Bernard Goetz's; or the urban hideaway's; or those allowed by the Supreme Court: In all of these cases, intervention (in terms of a response to a prediction made) prevents us from knowing if the predictions were correct. Something could be learned from the

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[39]   Cronbach, L.J., and Gleser, G.C. Psychological Tests and Personnel Decisions. Urbana, Illinois: University of Illinois Press, 1957, Dawes, R.M. Case by case versus rule-generated procedures for the allocation of scarce resources. Pp. 83-94 in M. Kaplan and S. Schwartz, eds., Human Judgment and Decision Processes in Applied Settings. New York: Academic Press, 1975.

experiences of the foolish "go-ahead," and this is especially true if
many randomly selected "go-aheads" engaged in a large number of
encounters after recording a prediction (and the reasons for it) about
the probability of confrontation for each. However, the experiment
would be difficult scientifically (imagine trying to recruit subjects)
and ethically.

Evaluating the success of our efforts to predict violence requires
that comparisons be made. When once asked how his wife was, humorist
James Thurber is reported to have answered "Compared to what?". We
believe that the needed comparisons may be made in three ways: with
respect to an ideal standard, with respect to the base rate, and with
respect to alternative methods.

The ideal is perfect prediction. Here, we clearly have a long way
to go, and very probably we never will achieve the goal. With respect
to base rates (to the extent that we can know them) we still do not do
well (although we do improve on base rate predictions for some important
purposes). But in the area of violence prediction -- like in many other
areas -- we are considering decisions that routinely are made not on the
basis of the base rate, but on the judgments of people. And very often,
these people simply are not trained to make such decisions. Research
demonstrates forcefully that this results in more errors than would
occur if the predictions were based simply on the base rate. To
evaluate how well we are dealing with this difficult prediction problem,
we must consider not only the base rate, and how to improve upon it, but
current practice and its improvement.

Predictions of Dangerousness and Incapacitation Strategies

During the 1980's correctional populations in the United States

experienced phenomenal growth.[40] Concomitant with the population

explosion has been an explosion in costs: corrections now is among the

largest of state expenditures.[41] Not surprisingly, the decade also saw

renewed debate over the proper purposes of correctional treatment.[42]

Recent Panels of the National Academy of Sciences have reported

evidence for the efficacy of rehabilitation and deterrence to be

disappointing.[43] As a result, the incapacitation of criminal offenders

has tended to dominate criminal justice policy options of the 1980's and

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[40] California's state prison population increased over 200% during that period (Webb, G. "Corrections program called 'utter failure.'" San Jose Mercury News, May 9, 1991, pg. 1-C.

[41] In California, prison and jail construction needs alone were estimated at almost $12 billion for the period 1978 - 1990 (Tuma, D. "The American Way of Punishment -- In Search of a New Path. California Bureau of Criminal Statistics (mimeo). Sacramento, CA: Bureau of Criminal Statistics, Nov., 1990 (Table 1)). Operating costs also are staggering: California would spend some $8.2 billion annually (in FY 1989/90 dollars) to operate the adult and juvenile correctional programs reported to be necessary (Tuma, op cit., pp. 4 - 5).

[42] Gottfredson, S.D., and Taylor, R.B. The Correctional Crisis: Prison Populations and Public Policy. Washington, D.C.: National Institute of Justice, 1983; Gottfredson, S.D., and Taylor, R.B. Public policy and prison populations: measuring opinions about reform. Judicature, 1984, 68(4-5), 190-201.

[43] Blumstein, A., J. Cohen, and D. Nagin, eds. Deterrence and Incapacitation: Estimating the Effects of Criminal Sanctions on Crime Rates. Washington, D.C.: National Academy of Sciences, 1978. Sechrest, L., S. White, and E. Brown, eds. The Rehabilitation of Criminal Offenders: Problems and Prospects. Washington, D.C.: National Academy of Sciences, 1979.

90's -- and the concept of the "criminal career" has set the agenda for much of the nation's research efforts.[44]

The Career Criminal Paradigm: Several concepts are key to the "criminal career" research paradigm. The term *participation* reflects the distinction between those who engage in crime and those who do not. *Frequency* of offending is the rate of criminal activity of those who are active. Participation or "prevalence," and frequency ("incidence") give very different measures of criminal activity. The former is a measure of those who are criminally active, and the latter reflects numbers of crimes done by active offenders (usually expressed as a rate per year). The *seriousness* of criminal acts is seen to be important, as is the *career length*, or the length of time that an offender is criminally active.

These components of the criminal career paradigm suggest different crime control policy options. It is thought that participation may best be affected through prevention or very early intervention. Frequency, seriousness, and career length are thought best to be affected through attempts at *career modification*. Conceptually, criminal careers may be modified through deterrence, rehabilitation or treatment, or through incapacitation. The latter has been touted as holding most promise (at least in the public press).[45]

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[44] Blumstein, A., et al., eds. Criminal Careers and "Career Criminals." Washington, D.C.: National Academy of Sciences, 1986.

[45] "To Catch a Career Criminal," Newsweek, November 15, 1982, 77; "Cutting Crime Tied to Jailing of the Busiest Criminals," The New York Times, October 6, 1982; "Key to Criminals' Future: Their Past," U.S. News and World Report, October, 1982; "Making Punishment Fit Future Crimes," The New York Times, November 14, 1982, p. E-9.

long history in criminology. The concept is central to the career criminal paradigm in general, and to the evaluation of incapacitation strategies in particular.

In general, it is held that offenders who commit crimes of a serious or violent nature are more problematic than those who commit non-serious or non-violent offenses. From an incapacitation standpoint, it would be desirable if the seriousness of offending was non-stationary. Indeed, the "common wisdom" is that offenders progress from less to more serious offenses as their careers advance. If this is so, then the early identification and incapacitation of career criminals not only would decrease crimes committed, but would inhibit the commission of increasingly serious crimes.

> o The rate of offending changes in meaningful ways throughout the career.

Ideally, the rate of offending by those criminally active also would be non-stationary, and would increase (no doubt to some limit) throughout the career. Were this true, incapacitation also would have the beneficent effect of inhibiting increasing numbers of offenses.

In short, both collective and selective incapacitation strategies rely fundamentally on assumptions about the *predictability* of criminal behavior. Tests of these assumptions have been impeded seriously by a lack of adequately reliable, comprehensive data on substantial samples of offenders followed for long periods of time. The study samples used in the present research have allowed careful tests of each of these fundamental assumptions.

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48 Rossi, P., Waite, E., Base, C., and Berk, R. The seriousness of crime: normative structure and individual differences. American Sociological Review, 1974, 39, 224-237, at 224.

Study Samples

Our research concerns over 6,000 men who were incarcerated in California prisons in the early 1960's.[49] The group was chosen to reflect a random sample of all men in California's prisons at that time. Their most frequent conviction offenses were burglary (18%) and armed robbery (12%). Five percent were sentenced for homicide or manslaughter, nine percent for other violent offenses, and sixteen percent for various narcotics offenses. Fifteen percent were sentenced for forgery or fraudulent checks, and a quarter of the men had been convicted of various other offenses.

A substantial portion (43%) had a history of assault, and nearly a fourth had a record of use of a pistol or gun. One in ten had used knives as weapons. A fourth had used opiate drugs (typically heroin), and 56% had been in prison before.

General categories of data collected about these men in 1962 - 1963 include life history information,[50] official institutional record information (for a random subsample of 1,299 persons),[51] inmate

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49 These data were collected for research supported by Public Health Service Grant CM 823 from the National Institute of Mental Health. See Gottfredson, D.M., and Ballard, K.B., Jr., Prison and Parole Decisions: A Strategy for Study. Final report to the National Institute of Mental Health, 1965.

50 Offense, prior criminal record, offense seriousness (various rating scales), type of admission, birthdate, sentence, date of admission, marital status, educational history, work history, grades claimed and measured, intelligence classification, drug use history, Base Expectancy (parole prediction) score, and other items.

51 Custody classification, work assignment, vocational training, education, disciplinary infractions, counseling, therapy, visits and correspondence, and other items.

questionnaire responses (from 3,652 men),[52] and psychological test data (from 3,975 persons).[53] Only a limited amount of the life history information was available for use in the present research.

Follow-up data were collected for each of these men in 1988 (providing a 26 year follow-up period) with the help of the California Bureaus of Criminal Statistics and Criminal Identification (the state repository for arrest (and applicant) records).[54] In 1973 an automated information system was initiated for the gradual automation of all files. A user's guide describes this system and the data it contains.[55] The Bureau of Criminal Statistics (BCS) provided us with computerized

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[52] These include extensive self reports on program participation, attitudes, perceptions, and complaints.

[53] The file includes the California Psychological Inventory and a variety of scales derived from it, parts of the Minnesota Multiphasic Personality Inventory, scales measuring self esteem, inmate cohesion, self conception, anomie, attitude toward authority, interpersonal maturity, various "faking" scales, and other measures.

[54] In order for the California Bureaus of Criminal Statistics and Criminal Identification to succeed in finding current records on men in this sample, the staff needed as much identifying information as possible. As a result, it was necessary first to code additional data from microfilm records in the California Department of Corrections, which usually provided the full name and a date and place of birth and often provided also a CII number. A small portion of the microfilmed records (of five by eight cards with handwritten entries) in the Department of Corrections was missing, but this resulted in the loss of only a few records. Another portion of the sample was men for whom no record was found by the Bureau of Criminal Statistics (some unknown portion of this group may be due to error in the CII system, but most most probably is due to a periodic purging of records). Due to a California court order, all references to arrests with alleged offenses involving marijuana were to be removed from the records before they were provided to us, so this exception to the arrest records available for our study should be noted.

[55] Bureau of Criminal Identification, Department of Justice, State of California, Criminal History User's Guide. Sacramento, California: California Department of Justice, March, 1987.

records for those men in our sample whose files had been entered into this system, and the Bureau of Criminal Identification (BCI) staff manually prepared records for the rest.

The sample of men for whom records were requested was divided randomly in half, in order to provide a study sample and a potential validation sample. There were 3,108 persons in the first (or study) sample, and 3,202 in the second (validation) sample.

The limitations of arrest records for the purposes of the study are well known.[56] Since, however, the focus of this research was on classification and prediction related to the arrests and convictions subsequently for new serious offenses, these limitations appeared to be acceptable; and in any case it is on the basis of official records that practical implementations of the research may be expected to be designed.[57]

Coding forms, associated instructions, and definitions for coding the follow up data from arrest records were based upon procedures developed for an earlier study.[58] These procedures attend to charges

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[56]   Gottfredson, D.M. and Gottfredson, M.R., "Data for Criminal
        Justice Evaluation: Some Resources and Pitfalls," in M.W. Klein
        and K.S. Teilman, (Eds.), Handbook of Criminal Justice Evaluation.
        Beverly Hills, California: Sage Publications, 1980, 97 - 118.

[57]   Further, as will be discussed in a later section, the arrest
        records provided far more information concerning dispositions for
        offenses alleged than is common.

[58]   Gottfredson, S.D., and Taylor, R.B., Community Context and
        Criminal Offenders, in A. Reiss and M. Tonry (eds.), Crime and
        Justice: An Annual Review of Research. Chicago: Univ. of Chicago
        Press, 1989; see also Gottfredson, S.D., and Taylor, R.B.,
        "Person-Environment Interactions in the Prediction of Recidivism,"
        in R. Sampson and J. Byrne (eds.), Environmental Criminology. New
        York: Springer/Verlag, 1986.

filed, arrests known, and dispositions noted as well as to issues of the
nature and seriousness of the offenses recorded.

Attrition and Potential Bias

Given the age of the samples, some attrition naturally occurred as
the arrest records were retrieved. Some of the "rap sheets" returned
were unusable (e.g., pages were missing, or the person identified
clearly was incorrect). A few men never were released from the period
of incarceration being served in 1962-63. Record requests for several
men were returned noting that the man had died (and in most cases, the
date and cause of death), but no record was provided. Finally, a large
number of requests were returned with the notation that the file had
been "purged" from the system. A summary of this attrition for each
sample is given in Figure 1:

Figure 1
Sample Attrition
(N = 6,310)

Construction Sample N = 3,108
Validation   Sample N = 3,202
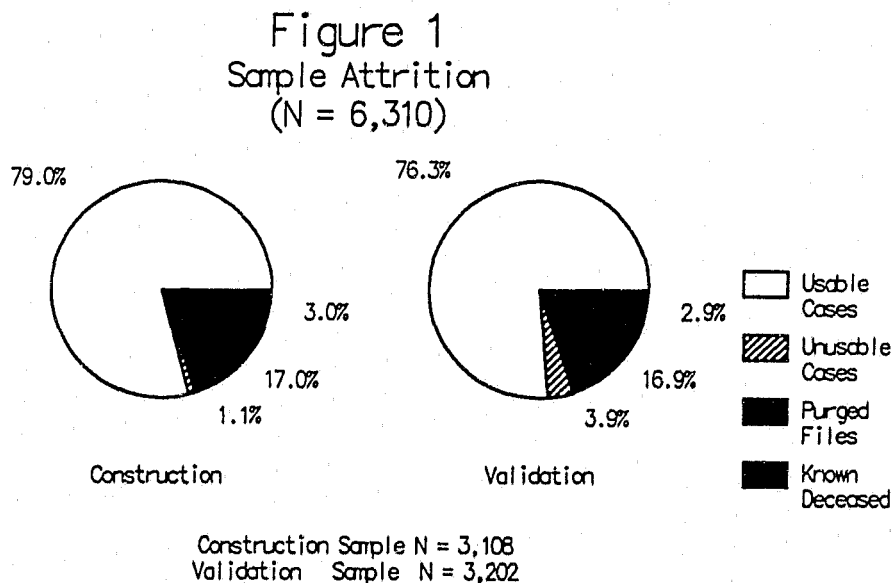
<u>Purging</u>;[59]   Purging refers to the non-retention of records
otherwise maintained by the California Department of Justice on persons
arrested in the state or fingerprinted for licensing and employment
purposes.   In 1974, when the file was reduced markedly (from about five
to three million records), the Department established retention
schedules for these records and developed criteria for purging them.   In
1987, the purge criteria were changed to extend the retention periods
for some types of criminal records.[60]

The change in purging criteria did not affect the retention rules
for the subjects in this sample.   All cases were of course convicted
felons;[61] and both before and after the 1987 change such records were to
be retained until age 70.   At age 70, the record could be purged only if
there was no activity in the last ten years.

The criteria establish minimum retention periods, and records may
be kept longer.   The application of the purging criteria apparently has
varied over the years and, it was reported, has been dependent somewhat
on budget availablilities for the purging operation.   The basic rule
"all entries must meet purge criteria before the record can be
destroyed" applies invariably.   That rule is important to the
application of some of the exceptions (relating to certain juvenile

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[59]   Douglas A. Smith and Gary Maggy of the California Bureau of
Criminal Identification helped us better understand the arrest
record system, including the purging process.

[60]   The procedures now used are described in Department of Justice,
<u>Criminal Record Purge and Sealing Handbook</u>, Sacramento: State of
California, Department of Justice, 1989.

[61]   For this purpose, felonies are defined as crimes that are
punishable by death or imprisonment in the state prison system,
regardless of the sentence imposed and whether or not the court
deems the offense to be a misdemeanor.

offenders required to register, records of certain marijuana charges,

and records of deceased persons).[62]

Examples of other exceptions are:

1) Records of subjects convicted of offenses which re-
quire registration under Penal Code Section 290 will be re-
tained until the individual is 100 years old, or for 10
years from the date of release from supervision, whichever
is longer.

2) Records of subjects for which a handgun purchase
has been denied will be retained until the individual is 100
years old.

3) Records of subjects sentenced to prison on felony
convictions, then paroled for life, will be maintained until
the subject has reached age 80. At age 80, the Department
will contact the California Department of Corrections
regarding the subject's status. Retention will revert to
modified life when the subject has been discharged from
parole.[63]

Certain marijuana and marijuana related entries should have been

removed from all records provided to us. California Health and Safety

Code Section 11361.5 requires destruction of these entries within two

years of the date of conviction or the date of arrest if there was no

conviction. And, pursuant to Health and Safety Code Section 11361.5

(b), certain of these entries are removed upon application by the

subject of the record. Moreover, the Department is under court order to

remove these entries from any record prior to dissemination. These

include possession of marijuana, possession of paraphenalia for using

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[62] The latter may be purged one year and one month after the death,
unless the record is of a homicide victim, which may be purged ten
years and one month after the death.

[63] "Modified life" means until age 70. The examples are quoted from
the Handbook, page 4.

marijuana, visiting or being in a place where marijuana is used, and being under the influence of marijuana.[64]

A substantial decrease in the entry of records for drunk driving arrests occurred about 1979. With the passage of Proposition 13, resources were reduced and the Department decreased entry of these records.[65]

Potential Purging Bias; Any bias in the data used for this study, so far as long term careers is concerned, probably is toward removal of cases with more favorable outcomes (in California) or deaths. The subjects whose records were destroyed would have been those who had reached age 70 with no known arrests in the prior ten years, or else known deaths.

The potential bias is reduced by the policy that the purge rules establish minimal criteria. Thus, records need not be purged -- and may not be -- when resources are scarce for this purpose. Thus, it is likely that some records in the sample met the purge criteria but actually were retained.

The bias in under-reporting of out-of-state arrests, discussed subsequently, is in the opposite direction to the probable bias due to the purging operation.

Potential Bias in the Reporting of Dispositions over Time There may be a bias in the reporting of dispositions associated with

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[64] This process appears to have been incomplete, as a substantial number of marijuana-related charges are noted on the rap sheets returned to us.

[65] An effort to enter cases in a large accumulated backlog was terminated (partly because of an arguable duplication of effort with the record keeping of the Department of Motor Vehicles).

improvement of the process over time. (This, of course, can be examined by looking at trends in the proportions of arrests to dispositions shown.)[66]

Potential Bias Associated with Deaths Deaths are recorded if and only if a fingerprint card is made or the subject was in prison at the time of death. If the death is a coroner's case, and the person is unknown to the coroner, fingerprinting may occur; but if the subject is known to the coroner, then it is unlikely. Deaths in prison are reported. Otherwise, deaths will not be known from these records. This could tend to inflate the value of time free (exposed to risk) and therefore inflate a decline in arrest rates with age.

Potential Bias Associated with Out-of-State Offenses Out-of-state records are thought to be far from complete. Over time, the Department has stopped entering these as a result of workload requirements. Thus, there may be some bias associated with time (more out-of-state entries being made earlier). Although the out-of-state entries shown are probably valid, they cannot be regarded as comprehensive. The probable bias in known events due to under-reporting of out-of-state arrests appears to be opposed to the potential bias from purging. Purging would tend to eliminate subjects with relatively good records; lack of

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[66] Several possible influences on changes in disposition reporting were mentioned by the Bureau of Criminal Identification staff. The Department has a program aimed at improving the recording of dispositions. Also, it is believed that the advent of county computerized systems, beginning in the early 1970s, may have helped increase the reporting of dispositions. And, at about the same time, programs supported by the Law Enforcement Assistance Administration may have helped improve the system.

complete out-of-state records would exclude crimes done but not recorded in California.

Examinations of Potential Bias; The first concern, of course, is whether any actual bias resulted from the exclusion of the "purged" cases. Using the study sample, We compared characteristics of those men whose files were purged with the remainder; results are given in Tables 1 and 2.

Table 1
Comparison of "Purged" and Retained Cases

Testing:	Retained	Purged
Incomplete	15.7%	18.3%
Complete	52.5	50.9
Not Tested	18.2	18.5
Refused	13.7	12.2

$(X^2_{(3)} = 2.875;$ n.s.$)$

Race:		
White	54.0%	53.9%
Other	46.0	46.1

$(X^2_{(1)} = 0.001;$ n.s.$)$

Type of Admission:		
Parole Violator	25.1%	27.6%
New Commitment	74.9	72.4

$(X^2_{(1)} = 1.322;$ n.s.$)$

Instant Offense Involved
 Illegal Economic Gain:

	Retained	Purged
Yes	65.0%	60.5%
No	35.0	39.5

$(X^2_{(1)} = 3.423;$ n.s.$)$

Arrest-Free Period of
 Five or More Years:

	Retained	Purged
No	78.0%	71.8%
Yes	22.0	28.2

$(X^2_{(1)} = 8.603;$ p < .01$)$

History of Opiate Use:

	Retained	Purged
Yes	25.1%	33.8%
No	74.9	66.2

$(X^2_{(1)} = 15.546;$ p < .001$)$

Table 1 (contd.)
Comparison of "Purged" and Retained Cases

Family Criminal Record: Retained Purged

	Retained	Purged
Yes	43.7%	40.7%
No	56.3	59.3

$(X^2_{(1)} = 1.422;$ n.s.$)$

Committment Offense of
Checks or Burglary:

	Retained	Purged
Yes	34.4%	32.8%
No	65.6	67.2

$(X^2_{(1)} = 0.470;$ n.s.$)$

Table 2

Comparison of "Purged" and Retained Cases

Variable	N	Mean	S.D.
Measured Intelligence:[67]			
Retained	1,570	3.95	1.05
Purged	334	3.89	1.14

$(t_{(1,902)} = 0.349;$ n.s.$)$

	N	Mean	S.D.
Year of Commitment:			
Retained	1,592	60.00	3.08
Purged	347	59.54	4.48

$(t_{(1,937)} = 2.307;$ p $= .02)$

	N	Mean	S.D.
Tested Grade Level:			
Retained	2,405	3.34	3.16
Purged	474	3.31	3.12

$(t_{(2,877)} = 0.168;$ n.s.$)$

	N	Mean	S.D.
Seriousness Score of Commitment Offense:[68]			
Retained	2,378	64.18	24.33
Purged	455	60.34	23.90

$(t_{(2,831)} = 3.093;$ p $= .002)$

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[67] Seven point scale; four equals Normal (90 - 109).
[68] Thirty-four point scale; scores range from 0 - 103.

Table 2 (contd.)

Comparison of "Purged" and Retained Cases

Variable	N	Mean	S.D.
Number of Prior Incarcerations:[69]			
Retained	2,506	2.52	1.46
Purged	479	2.88	1.38
$(t_{(2,983)} = 4.978; p < .001)$			
Number of Prior Prison Incarcerations:[70]			
Retained	2,506	1.07	1.26
Purged	479	1.40	1.41
$(t_{(2,983)} = 5.139; p < .001)$			
Base Expectancy Raw Score:			
Retained	2,500	510.99	179.12
Purged	479	525.26	201.94
$(t_{(2,977)} = 1.564; n.s.)$			

No statistically significant differences were observed with respect to race, type of admission, completion of testing, whether the instant offense involved illegal economic gain, family criminal record, whether the instant offense involved checks or burglary, measured intelligence, tested grade level, or the Base Expectancy Score calculated in 1962-3. Differences observed were as follows: offenders whose files were "purged" were more likely to have had an arrest-free period of five or more years, more likely to have had a history of opiate use, been incarcerated earlier for the instant commitment offense, have a more serious commitment offense, and had experienced more prior incarcerations (including prison incarcerations). As detailed in Tables 1 and 2, the differences observed, while

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[69] Four equals four or more.
[70] Four equals four or more.

statistically significant, are not large. There appears to be little

serious bias associated with sample attrition.

The Class of 1962

The class of 1962 has been active: they have been arrested well

over 30,000 times since their release from that period of incarceration,

and have been charged with several times that many offenses (since a man

may be charged with more than one offense per arrest episode).

This group of men has cycled in and out of prison and jail: the

busiest offender was incarcerated 28 times during the follow-up period.

What kinds of crimes have these men committed? A major

development in the measurement of crime has been the effort to improve

upon behavioral representations through assessment of the seriousness of

criminal acts.

Measurement of the seriousness of crimes dates from Thurstone,[71]

and replications suggest that these judgments remain remarkably stable

over time.[72] Others, using similar methods, have developed more

comprehensive schemes.[73]

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[71] Thurstone, L.L., "The Method of Paired Comparisons for Social Values, Journal of Abnormal and Social Psychology, 1927, 21, 384 - 400.

[72] Coombs, C.H., "Thurstone's Measurement of Social Values Revisited, Forty Years Later," Journal of Personality and Social Psychology, 1967, 6, 91-92; Krus, D.J., Sherman, J.L., and Krus, P., "Changing Values over the Last Half-century: The Story of Thurstone's Crime Scales," Psychological Reports, 1977, 40, 207-211.

[73] Sellin, T., and Wolfgang, M., The Measurement of Delinquency, New York: Wiley, 1964; Rossi, P., Waite, E., Bose, C., and Berk, R., "The Seriousness of Crime: Normative Structure and Individual Differences," American Sociological Review, 1974, 39, 224 - 237; Gottfredson, S.D., Warner, B.D., and Taylor, R.B. "Conflict and Consensus in Justice System Decisions," in N. Walker and M. Hough, (Eds.), Sentencing and the Public. Cambridge Series in Criminology. London: Gower, 1988.

Several years ago, we took a multidimensional approach to the scaling of offense seriousness. Through principal components analyses of judgments of the seriousness of hundreds of discrete criminal acts, it appeared that six dimensions underlie people's judgments of such acts.

The first dimension can be interpreted in a number of ways. Many of the offenses which load heavily on this component are "nuisance" crimes: prostitution, gambling, use and possession of marijuana, adultery, disorderly conduct, homosexual acts, exposures, etc.. It is clear from the standardized item means that in general, people view crimes that loaded on this dimension as relatively non-serious.

The second component involves physical assault, personal harm, and interpersonal confrontation. This, of course, is the dimension of primary interest to the present study. The third component equally clearly represents theft, property damage or loss, and property crimes in general.

The fourth dimension seems to represent crimes against the social order. In general, these are either crimes that are committed by an agent or agency in power (an employer, a real estate agent, a police officer, a manufacturer, a producer, a doctor, a public official), or social crimes (e.g., racism, the pollution of a water supply, the marketing of contaminated products, price-fixing, false advertising), or both.

Offenses loading on the fifth dimension (with two exceptions) all involved serious drug offenses: the sale or manufacture of heroin, hallucinogens, or barbiturates and amphetamines. Offenses loading on

32

the sixth (and final) dimension by-and-large involved fraud or deception.[74]

One power of this dimensional approach to the scaling of offense seriousness is that it allows a ready assessment both of the seriousness and of the nature of criminal offenses, thus allowing for a study of transitions in criminal careers both across seriousness dimensions and within the overall concept of seriousness. Schemes for coding criminal histories using this novel approach were developed in earlier projects,[75] and the method has been found useful for the prediction of criminal recidivism. Since this typology was developed to represent a better cognitive reality of the ways people think about crime, we hope that it also will better represent behavioral reality. In any event, it is useful in summarizing patterns of criminal activity.

Figure 2 describes -- in accordance with this typology -- over 30,000 crimes that these men have committed since release from the 1962 period of incarceration.

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[74] While the structure is clean and clear-cut, it quickly would lose its conceptual utility if in fact the dimensions merely represented "ranges" along a single underlying dimension. That is, it clearly would be of little interest simply to know (for example) that people generally judge nuisance-type offenses as less serious than assaultive, confrontational offenses, and that factor-analytic techniques can demonstrate this fact. In order for a dimensional structure to be theoretically and conceptually heuristic, we would like the distinction among factors or dimensions not to be simply one of relative magnitude. In fact, however, these dimensions substantially overlap one another along the "first-order dimension" of overall judged seriousness.

[75] Gottfredson, S.D., and Taylor, R.B.,"Person-environment Interactions in the Prediction of Recidivism," In J. Byrne and R. Sampson, (Eds.), The Social Ecology of Crime, New York: Springer Verlag, 1986; Gottfredson, S.D., and Taylor, R.B., Community Context and Criminal Offenders, in T. Hope and M. Shaw (Eds.), Communities and Crime Prevention. London: Her Majesty's Stationary Office, 1988.

Well over half of all offenses charged are of the nuisance

variety: such offenses include parole and probation rules violations,

drunken driving, possession or use of drugs, disorderly conduct, and

gambling (as examples).

Property crimes also are common (most typically, burglaries,

robberies and attempts, larcenies and attempts, and auto thefts).[76]

Offenses against the person are proportionally infrequent, but

unfortunately common: these include homicides, rapes, and assaults.

Frauds include forgery and bad check offenses as well as a variety of

others. Serious drug offenses, such as the sale or manufacture of large

quantities of illegal substances, were rare for this group.

While nuisance offenses predominate the criminal behaviors with

which this group has been charged, they also were charged with

committing a large number of serious crimes. Figure 3 summarizes almost

10,000 serious offenses committed by these men since their release from

the 1962 - 63 imprisonment.

The Study Sample: Study sample characteristics (outcome and

background) do not differ from those of the full sample.[77] Considering

just the first arrest post-release (for those experiencing at least one

arrest), over half were for a nuisance offense (Figure 4), over one-

quarter were for property offenses, and about seven percent were for

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[76]   We recognize that robbery is considered an offense against persons
       in most offense typologies. The typology described here, however,
       was empirically derived from the seriousness assessments of very
       large samples of persons, and has been demonstrated to have
       utility for diverse groups of decision-makers (e.g., police
       officers, judges, etc.).

[77]   Significance tests supporting this statement are found in a later
       section.

offenses against persons. This pattern remains the same irrespective of

offense episode considered (Figure 5).

Figure 2
Arrest Offenses Post-Release
N = 4,897 Men/30,464 Arrests

16575 Nuisance

755 Serious Drug

2841 Person

1564 Fraud

8294 Property

435 Other

(Most Serious Charge Per Arrest Episode)
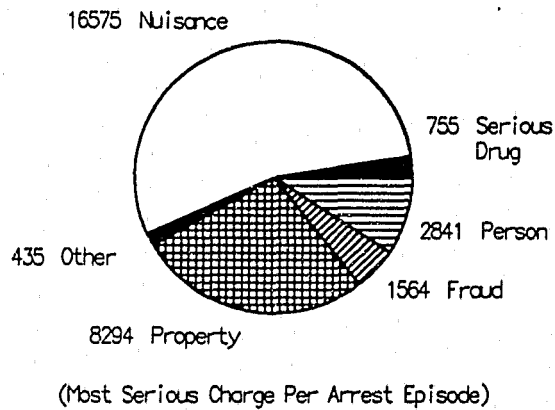
Figure 3
Serious Post-Release Offending
N = 4,897 Men/9,942 Offenses

2756 Burglaries

126 Kid-nappings

144 Rapes

1193 Robberies

184 Homicides

2800 Thefts

2084 Assaults

655 Auto Thefts
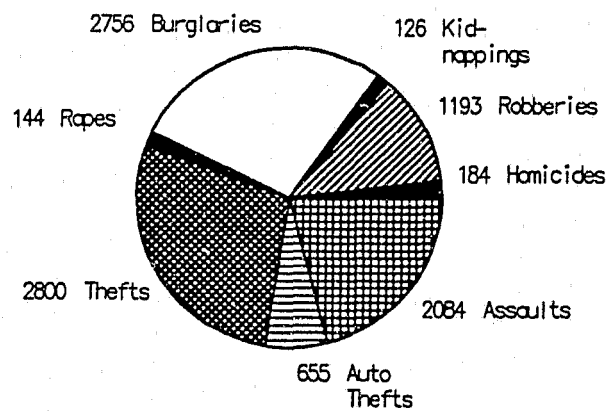
Figure 4

Offenses of First Post-Release Charge
By Dimension (First Arrest Episode)

56.2% Nuisance
Offenses

0.9% Serious
Drug

7.1% Person

2.3% Other

5.9% Frauds

27.5% Property
Offenses

N = 2,019
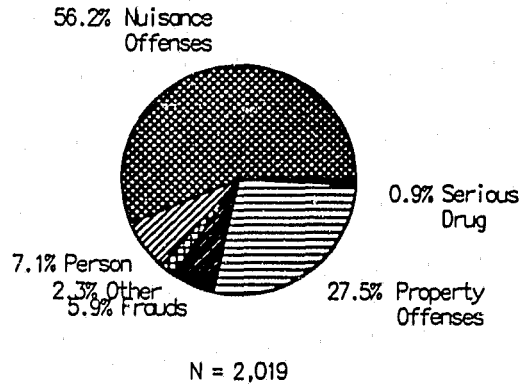
Figure 5
Percent of Post-Release Arrest Offenses
By Dimension of Offense
(First Five Charges Post-Release)

Percent of Offenses

75

50

25

0

Nuisance   Person   Property   Fraud   Serious Drug   Other

Dimension of Arrest
Offenses

Charge 5
(N = 1402)

Charge 4
(N = 1532)

Charge 3
(N = 1700)

Charge 2
(N = 1848)
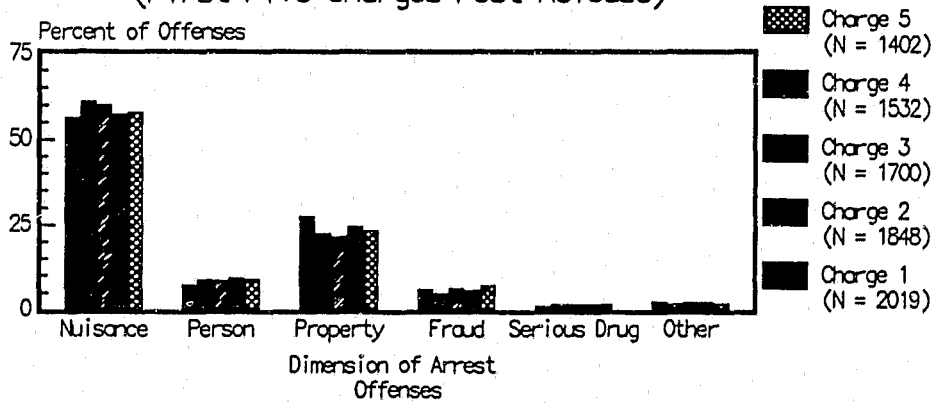
Charge 1
(N = 2019)

Figures 4A - 4D summarize the most serious offenses charged in
each category. Assaults predominate person-category offenses (Figure
4A), although homicides, kidnaps and rapes are represented. Burglaries,
thefts, and robberies predominate the property category (Figure 4B),
forgery and check offenses make up the bulk of the fraud category
offenses (Figure 4C), and rules violations, drunken driving, petty drug
offenses, and disorderly conducts constitute the bulk of nuisance
arrests (Figure 4D).

Figure 4A
Most Serious Offenses Charged
(First Arrest Episode): Person Dimension
(N = 183)

Offense Charged	Percent of Offenses
Murder/Manslaughter	6
Arson	
Aggravated Assault	32.8
Simple Assault	39.3
Kidnapping	7.7
Rape	8.7
Resisting Arrest	4.9
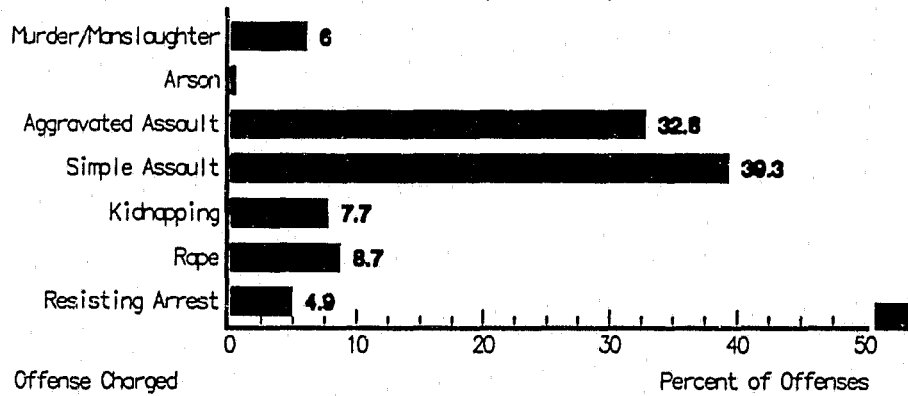
Figure 4B
Most Serious Offenses Charged
(First Arrest Episode): Property Dimen.
(N = 550)

Offense Charged   Percent of Offenses
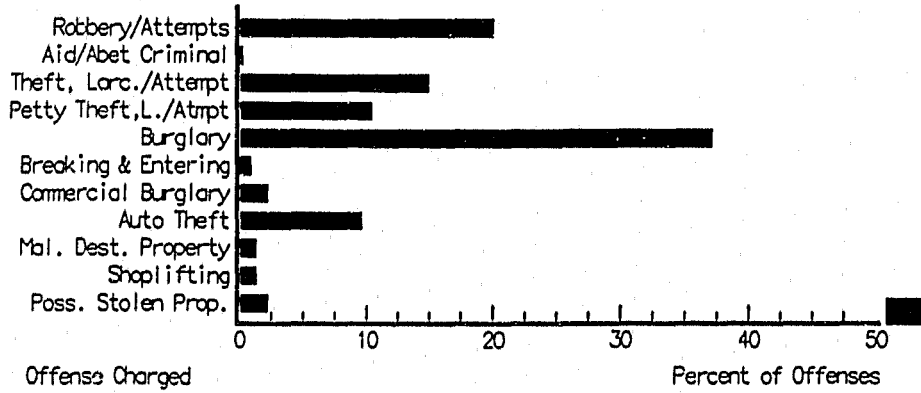
Figure 4C
Most Serious Offenses Charged
(First Arrest Episode): Fraud Dimension
(N = 119)

Offense Charged   Percent of Offenses

38
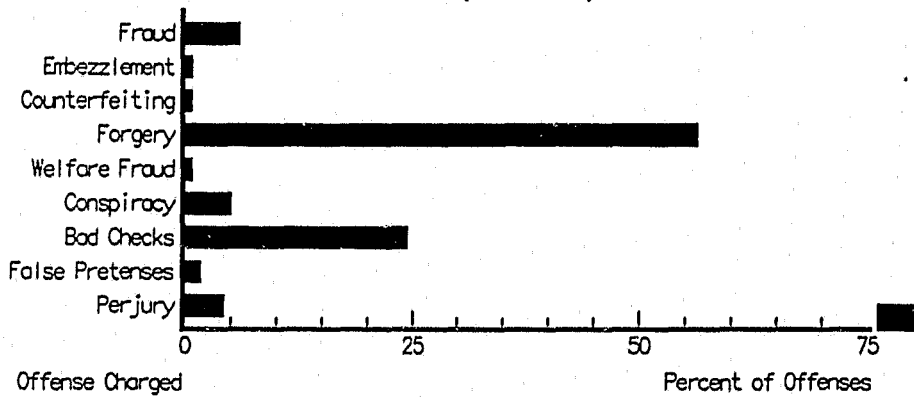
Figure 4D
Most Serious Offenses Charged
(First Arrest Episode): Nuisance Dimen.
(N = 1094)

Drunken Driving
Possess/Use Drugs
Sex Perversion
Illegal Posses. Wpn.
Unlowful Assembly
Cont. Delinq. Minor
Escape
Prob./Parole Viol.
FTA/Contempt Court
Statutory Rape
Prostitution
Gambling
Disorderly Conduct
Rogue and Vagabond
Other

0   25   50

Offense Charged   Percent of Offenses
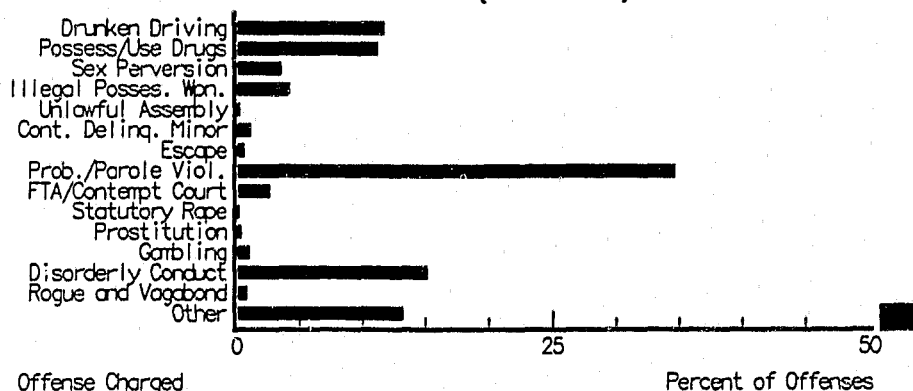
The System Response

The records provided by the California Bureau of Criminal

Statistics were unusually rich and complete; and they provided far more

information concerning the dispositions of offenses charged than com-

monly is the case.

Considering just the first charge post-release, 56.4% of the men

were convicted for the offense, 22.7% were acquitted or had the charge

dismissed, 2.1% were subject to some other action (such as being turned

over to another jurisdiction), and in only 18.7% of the cases was the

disposition unknown.

The typical sanction applied was a prison or jail term: 58.7% of

those men convicted on their first post-release charge were

reincarcerated (Figure 6). Seven percent were sentenced to a term of

probation, and 26.2% were subject to some other sanction.[78] For only

eight percent of the cases was a sentence not identifiable given that

conviction was noted. This general pattern of sanctioning is true

irrespective of arrest episode (Figure 7).

Figure 6

Sentence for First Post-Release
Conviction (N = 1,180)

40.9% Prison
Term

7.0% Probation

26.2% Other

17.8% Jail Term

8.0% Unknown
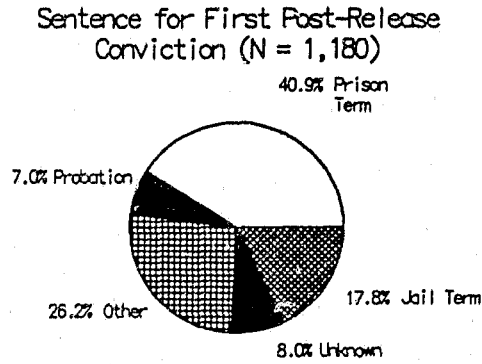
Figure 7
Sentence Imposed
First Five Convictions
Post 1962 – 1963 Release

Percent of Sample

Fifth
N=776

Fourth
N=841

Third
N=973

Second
N=1,143

First
N=1,180

Prison   Jail   Probation   Other/Unknown

Sentence Imposed

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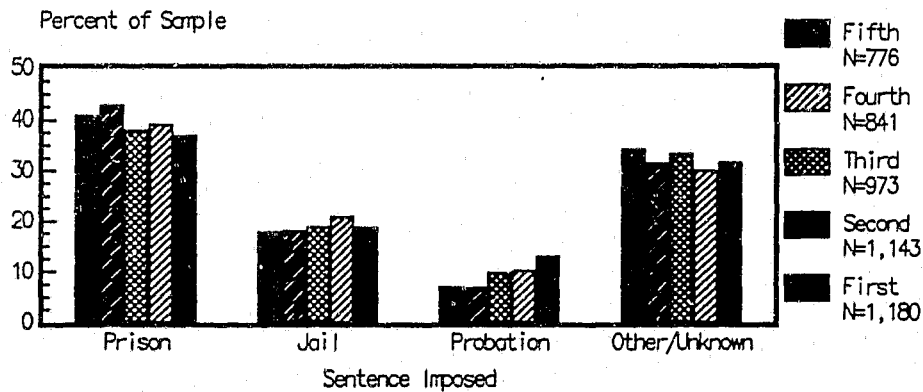
78 These included (most typically) a suspended sentence, the
    imposition of fines or restitution orders, etc., but also could
    include the revocation of parole, or an order such as "jail or
    fine." Accordingly, the number actually incarcerated may exceed
    the figures cited here. If a term to prison or jail resulted for
    whatever reason, that is recorded elsewhere in the data file.

Although almost one-third of these men never were reincarcerated
(31.3%), two-thirds did spend additional time under sentences in prison
or jail. Nearly one man in five was reincarcerated at least six times.
(The average (median) number of re-incarcerations is 1.68.)

Time In/Time Out: Offenders who failed tended to do so quickly:
over 30% of these men were re-incarcerated within one year of release,
and over half were re-incarcerated within three years of release.
Others, of course, were free for 10, 15, or over 20 years before
experiencing another period of incarceration. Figure 8 summarizes time
free until the first incarceration post-release from the 1962-63
imprisonment, and the total number of years that these men spent in the
free community following that release.

Figure 8
Years in Community and To First Term
Post-Release From 1962-63 Incarceration

Figure 9

Median Lengths of Imprisonment and Time Free By Number of Times Incarcerated
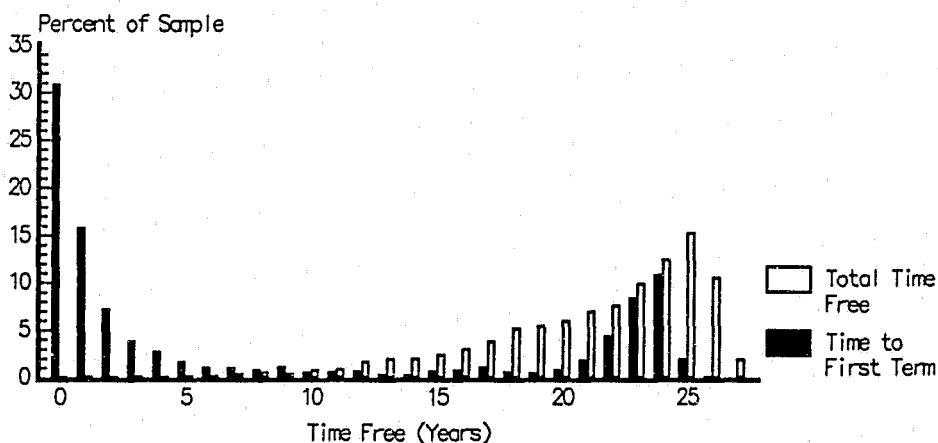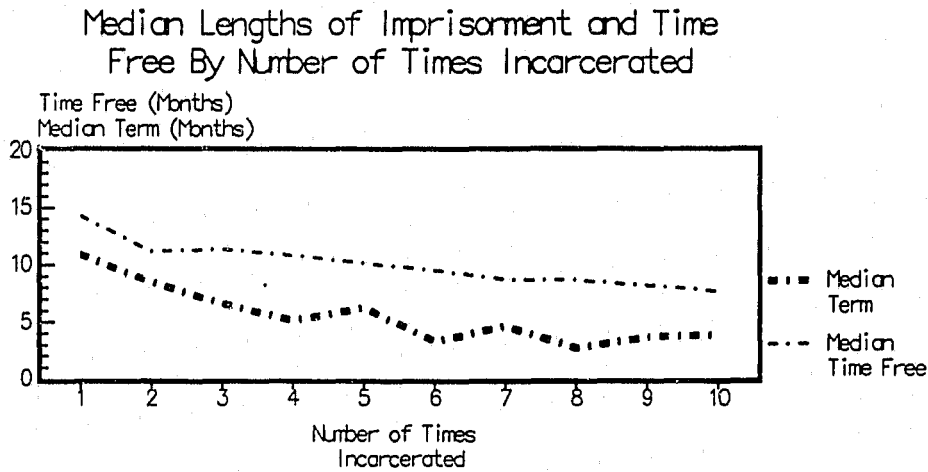
Considering just those men who fail from $time_n$ to $time_{n+1}$, the length of time free in the community decreases monotonically with n (Figure 9). Similarly, considering just those men incarcerated from $time_n$ to $time_{n+1}$, the length of incarceration decreases with n. Although this figure does not control for possible incapacitation effects, it is suggestive that the highest rate offenders commit relatively non-serious offenses.

Rates of Offending Table 3 summarizes arrest rates, time free in the community post-release from the 1962-63 incarceration, and arrests for these men during the 26 year follow-up period (all cell entries are means). If all offenders in the sample are considered "active," they experienced an average of .368 arrests per year, were in the community an average of 20.7 years, and were arrested an average of just over six times. Considering just those offenders who experienced at least one arrest during the follow-up period, the yearly rate of offending

(lambda)[79] increases to .447, the men were free just over 20 years in the community, and experienced an average of almost 7.5 arrests.

Table 3

Summary of Aggregate Individual
Arrest Frequencies and Other Outcome Criteria
by Type of "Active Offender"

Type of "Active Offender"

	All Considered Active (N = 2,443)	At Least One Arrest (N = 2,019)	At Least One Conviction (N = 1,678)
Outcome Criterion			
Arrest Rate	.368	.447	.515
Years Free	20.653	20.065	19.318
Arrests	6.131	7.455	8.466

Restricting the sample just to men who experienced at least one period of incarceration post-release, the offense rate increases to .515, an average of just over 19 years were spent in the free community, and almost 8.5 arrests were experienced (on average).

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[79]   The figures discussed are not lambda in the sense used by Cohen (Cohen, J. "Research on Criminal Careers: Individual Frequency Rates and Offense Seriousness." Appendix B in A. Blumstein et al., eds., Criminal Careers and "Career Criminals." Washington, D.C.: National Academy of Sciences, 1986, pgs. 292-449.), who adjusts Mu (the rate of arrest) by an estimated likelihood of arrest given the commission of a crime. We do not have those estimators. Hence, our lambda is Cohen's Mu.

Incapacitation and Crime Control

As noted in an earier section, incapacitation strategies are of two types: collective and selective. Under a collective incapacitation strategy, the same or very similar sanction would be applied to all persons convicted of common offenses, with the goal of decreasing the commitment of those offenses (by those persons) in the free community. Selective incapacitation strategies involve sanctioning based on predictions of future offending by individuals.

We reported that whether collective or selective in nature, incapacitation strategies rest heavily on the following general assumptions:

o   Criminal activity is "patterned" with respect to types of
     behaviors.

o   The seriousness of offending changes in meaningful ways
     throughout the career.

o   The rate of offending changes in meaningful ways throughout
     the career.

In short, both incapacitation strategies rest on assumptions about the predictability of criminal behavior.

The Question of Prediction   Table 4 summarizes the variables examined for predictive utility relative to the variety of behavioral outcomes available for study. In addition to lambda (reported in Table 3), outcome criteria also are reported in Table 4.

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Table 4

Descriptive Statistics
Variables Included in Regression Analyses

Name	Description	N	Mean	S.D.
Type	Type of Admission, Instant Offense (0 - Parole Violator, 1 - Original Commitment)	2,432	.75	.43
Age	Age at Current Commitment	2,432	29.79	8.37
Serious	Offense Seriousness Scale (0 - Walkaway, 103 - Criminal Circumstances Resulting in Death)	2,432	63.54	23.84
Gain	Commitment Offense Involved Illegal Economic Gain (0 - Yes, 1 - No)	2,432	.35	.48
Priors	Prior Periods of Incarceration (0 - 0, 4 - 4 or More)	2,432	2.51	1.46
PriorsP	Prior Periods of Prison Incarceration (0 - 0, 4 - 4 or More	2,432	1.05	1.25
Free	Arrest Free Period of Five or More Years (Between First Arrest and Arrest Resulting in Instant Commitment (0 - No, 1 - Yes)	2,432	.22	.41
Drugs	History of Opiate Use (0 - Yes, 1 - No)	2,432	.75	.43
Family	Family Criminal Record (0 - Yes, 1 - No)	2,432	.56	.50
Checks	Commitment Offense Burglary or Checks (0 - Yes, 1 - No)	2,432	.65	.48
Alias	Number of Aliases (0 - None, 9 - Nine or More)	2,432	.49	.81
InstN	Commitment Offense, Nuisance (0 - No, 1 - Yes)	2,455	.21	.41
InstP	Commitment Offense, Person (0 - No, 1 - Yes)	2,455	.12	.32
InstPr	Commitment Offense, Property (0 - No, 1 - Yes)	2,455	.48	.50

Table 4 (Contd.)

Descriptive Statistics
Variables Included in Regression Analyses

Name	Description	N	Mean	S.D.
Ser1	Seriousness Score, Most Serious Charge, First Arrest Episode (1 - Murder First)	2,021	34.46	16.67
Desist	Number of Arrests To Desistance	2,455	6.13	6.04
NuisT	Number of Arrests For Nuisance Offenses (To Desistance or to 20th Arrest Episode; Nuisance Offense Most Serious Charge/ Arrest Episode)	2,455	3.30	3.88
PersT	Number of Arrests For Person Offenses (To Desistance or to 20th Arrest Episode; Person Offense Most Serious Charge/ Arrest Episode)	2,455	.58	1.07
PropT	Number of Arrests For Property Offenses (To Desistance or to 20th Arrest Episode; Property Offense Most Serious Charge/ Arrest Episode)	2,455	1.72	2.60
FraudT	Number of Arrests For Fraud Offenses (To Desistance or to 20th Arrest Episode; Fraud Offense Most Serious Charge/ Arrest Episode)	2,455	.31	.81
Cdesist	Number of Charges to Desistance (Or to 20th Charge)	2,455	8.11	7.21
CnuisT	Number of Nuisance Charges to Desistance (Or to 20th Charge)	2,455	4.56	4.72
CpersT	Number of Person Charges to Desistance (Or to 20th Charge)	2,455	.69	1.33
CpropT	Number of Property Charges to Desistance (Or to 20th Charge)	2,455	2.10	2.95
CfraudT	Number of Fraud Charges to Desistance (Or to 20th Charge)	2,455	.46	1.32
CdrugsT	Number of Serious Drug Charges to Desistance (Or to 20th Charge)	2,455	.14	.59

Table 4 (Contd.)

Descriptive Statistics
Variables Included in Regression Analyses

Name	Description	N	Mean	S.D.
Arrest	Any Subsequent Arrest (0 - No, 1 - Yes)	2,455	.82	.38
Incar	Any Subsequent Incarceration (0 - No, 1 - Yes)	2,455	.69	.46
Tarestl	Time to First Arrest (Days)	2,455	723.08	1179.46
Tincl	Time to First Reincarceration (Days)	2,455	854.38	1223.70
Cserl	Seriousness Score of First Charge Post-Release (1 - Murder First)	2,021	35.33	16.23

Results of prediction modeling efforts compare favorably with those of similar studies, and effect magnitudes are comparable to or greater than those generally observed.[80]

For example, Table 5 summarizes efforts to predict the number of arrests to desistance. Significant predictors include the number of prior periods of incarceration experienced, age (at imprisonment in 1962-63), history of opiate use, a rating of the seriousness of behavior of the commitment offense,[81] an arrest-free period of five years or more prior the the period of incarceration served in 1962-63, the number of prior periods of *prison* incarceration experienced, the type of

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[80] For a review of many such studies, see Gottfredson, S., and D. Gottfredson, "Accuracy of Prediction Methods," in A. Blumstein et al., eds., Research in Criminal Careers and "Career Criminals." Vol. 2, Washington, D.C.: National Academy of Sciences, 1986.

[81] This was a rating scale developed by D. Gottfredson in an unpublished study conducted at the time of the initial data collection. Ratings are of behaviors rather than of legal offense categories. Details are available from the author.

committment to the 1962-63 incarceration, and the number of aliases used by the offender. All independent variables discussed are statistically significant, as is the entire model, which accounts for 16% of the variance in the number of arrests experienced.

Table 5

Regression of Number of Arrests to Desistance
on Selected Predictors
(Minimum N = 1,998)

Predictor	B	Beta	t
Priors	1.115	.270	11.02***
Age	-0.104	-.144	- 6.39***
Drugs	-2.155	-.154	- 7.94***
Serious	-0.015	-.058	- 2.92**
Free	-0.899	-.062	- 3.18**
PriorsP	-0.413	-.085	- 2.37**
Type	-0.706	-.050	- 2.31*
Alias	0.343	.046	2.31*
Constant	9.976		15.51***

$R^2 = .159$; $F_{(8,2423)} = 57.14$, $p < .001$.

Notes: *** $p < .001$.
          ** $p < .01$.
          * $p < .05$.

Table 6 summarizes a model intended to predict the number of arrests for nuisance offenses. Age appears not to be predictive of nuisance offending. Significant predictors include prior periods of incarceration, history of opiate use, an arrest free period of five or more years, prior periods of incarceration in prison (negative, interestingly), the seriousness rating of the instant offense (also negative), and whether the instant offense involved illegal economic gain. The model and each independent variable discussed is

statistically significant, and accounts for about 10% of the variance in nuisance offending.

Table 6

Regression of Number of Arrests for Nuisance Offenses on Selected Predictors
(Minimum N = 1,998)

Predictor	B	Beta	t
Priors	0.592	.223	8.85***
Drugs	-1.215	-.135	- 6.55***
Free	-0.819	-.087	- 4.33**
PriorsP	-0.271	-.087	- 3.59**
Serious	-0.010	-.059	- 2.87**
Gain	0.355	.044	2.16*
Constant	3.677		11.10***

R^2 = .096; $F_{(6,2425)}$ = 43.09, $p < .001$.

Notes: *** $p < .001$.
         ** $p < .01$.
          * $p < .05$.

One third of the men whose records were available for study were charged with at least one offense against the person after release from prison on the term served in 1962-1963. Considering just those rearrested at least once during the follow up period, this figure increases to 40%.

Not surprisingly, we cannot predict violent offending (offending against persons) well. The regression of the number of arrests for offenses against persons on selected predictors is shown in Table 7. Age (inversely), prior incarcerations, a committment offense against persons, prior prison incarcerations (negative), a commitment offense against property and involving burglary or checks are statistically

significant predictors. But the model, also significant, is weak, accounting for only six percent of the variance in arrests for person offenses.

Table 7
Regression of Number of Arrests for Person Offenses
on Selected Predictors
(Minimum N = 1,998)

Predictor	B	Beta	t
Age	-0.022	-.174	- 7.85***
Priors	0.134	.184	7.45***
InstP	0.253	.076	3.35***
PriorsP	-0.066	-.077	- 2.91**
InstPr	0.114	.053	2.47**
Checks	0.113	.050	2.46*
Constant	0.812		7.99***

$R^2 = .061$; $F_{(6,2425)} = 26.44$, $p < .001$.

Notes: *** $p < .001$.
         ** $p < .01$.
          * $p < .05$.

Despite the modesty of the correlation of scores on this scale to person offense arrests (.25), the relation warrants further consideration for at least two reasons. First is the importance, for incapacitation strategies, of the problem of prediction of serious harms. Second, it is well known that predictors with only weak validity coefficients may nevertheless be useful in some applications, depending particularly on the selection ratio (the ratio of those to be selected to all those available for selection).[82]

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[82] Cronbach, L., and Gleser, G. C., Psychological Tests and Personnel Decisions. Urbana: University of Illinois Press, 1957.

Property offense arrests are considerably more predictable (Table 8). Prior incarcerations, age, history of opiate use, commitment offense against property, type of admission (probation or parole violator or not), number of aliases, and commitment offense of the nuisance variety all are significantly associated with later property offense arrests. The model is statistically significant, and accounts for 13% of the variability in property offense arrests (R = .36).

Table 8
Regression of Number of Arrests for Property Offenses
on Selected Predictors
(Minimum N = 1,998)

Predictor	B	Beta	t
Priors	0.349	.196	9.24***
Age	-0.056	-.180	- 8.89***
Drugs	-0.887	-.147	- 7.28***
InstPr	0.708	.136	6.08***
Type	-0.301	-.050	- 2.28*
Alias	0.144	.044	2.21*
InstN	0.290	.046	2.05*
Constant	2.927		11.35***

R^2 = .131; $F_{(7,2424)}$ = 52.12, $p < .001$.

Notes: *** $p < .001$. ** $p < .01$. * $p < .05$.

The number of arrests for frauds (Table 9) is only slightly more predictable (R = .26) than offending against persons. Significant predictors include a commitment offense of the property type, the seriousness of the commitment offense, and whether the commitment offense involved illegal economic gain. All effects are in the expected

direction, and the overall model is statistically significant, while

accounting for about 7% of the variance.

Table 9
Regression of Number of Arrests for Fraud Offenses
on Selected Predictors
(Minimum N = 1,998)

Predictor	B	Beta	t
Serious	-0.005	-.136	- 6.25***
Checks	-0.124	-.073	- 3.12**
Gain	-0.142	-.083	- 3.18**
InstPr	-0.235	-.145	- 5.05***
InstN	-0.225	-.114	- 3.94***
InstP	-0.201	.080	- 2.88**
Constant	0.916		17.36***

$R^2 = .065$; $F_{(6,2425)} = 29.21$, $p < .001$.

Notes: *** $p < .001.$; ** $p < .01$; * $p < .05$.

Perhaps most important from a public safety perspective, we cannot

predict the seriousness of the first offense committed post-release at

all (Table 10). Although the seriousness score of the committment

offense and family criminal record are statistically significant

predictors and the model is statistically significant, less than one

percent of the variance in seriousness of subsequent offense is

accounted for (R = .08).

Table 10
Regression of Seriousness Score of Most Serious
Charge, First Post-Release Arrest Episode,
on Selected Predictors
(Minimum N = 1,998)

Predictor	B	Beta	t
Serious	-0.045	-.065	- 2.90**
Family	-1.699	-.051	- 2.27*
Constant	38.285		33.67***

$R^2 = .007$; $F_{(2,1999)} = 6.81$, $p < .001$.

Notes: *** $p < .001$; ** $p < .01$; * $p < .05$.

Can we predict the rate of offending? Table 11 summarizes efforts

to predict lambda for all offenders in the sample. Significant

predictors include the number of prior periods of incarceration, age

(with a negative effect -- older offenders have lower lambdas),[83]

history of opiate use, number of aliases, and a committment offense of

the nuisance variety.

Table 11

Regression of Lambda (All Offenders)
on Selected Predictors
(Minimum N = 2,432)

Predictor	B	Beta	t
Priors	0.790	.229	11.13***
Age	-0.012	-.206	-10.23***
Drugs	-0.151	-.129	- 6.37***
Alias	0.032	.050	2.49**
InstN	0.054	.044	2.20*
Constant	0.626		14.99***

R^2 = .116; $F_{(5,2416)}$ = 63.62, $p < .001$.

Notes: *** $p < .001$.
          ** $p < .01$.
          * $p < .05$.

The model accounts for 12% of the variation in lambda and is

statistically significant (R = .34).

When desistors are excluded, prediction is not quite so successful

(Table 12). The model is almost identical to that just described. It

is statistically significant, but accounts for less than ten percent of

the variation in lambda.

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[83]   As we will show later, lambda decreases monotonically with age.

Table 12
Regression of Lambda (Arrested Offenders)
on Selected Predictors
(Minimum N = 2,012)

Predictor	B	Beta	t
Priors	0.064	.180	7.83***
Age	-0.012	-.188	- 8.32***
Drugs	-0.138	-.114	- 5.03***
Alias	0.040	.062	2.73**
InstN	0.075	.059	2.63**
Constant	0.702		14.56***

R^2 = .088; $F_{(5,1987)}$ = 38.30, p < .001.

Notes: *** p < .001.
         ** p < .01.

Finally, if we restrict attention just to those offenders who experienced at least one period of incarceration during the follow-up period, our ability to predict lambda erodes further (Table 13). The same variables are predictive, but the model, although statistically significant, accounts for less than eight percent of the variance in lambda (R = .28).

Table 13

Regression of Lambda (Incarcerated Offenders)
on Selected Predictors
(Minimum N = 1,678)

Predictor	B	Beta	t
Drugs	-0.135	-.106	- 4.25***
Age	-0.011	-.181	- 7.26***
Priors	0.054	.145	5.69***
Alias	0.050	.073	2.93**
InstN	0.094	.070	2.86**
Constant	0.788		14.22***

R^2 = .074; $F_{(5,1655)}$ = 26.56, p < .001.

Notes: *** p < .001.
         ** p < .01.
          * p < .05.

Because the distribution of lambda is positively skewed, we also examined models of its logarithmic transformation. In all cases, this resulted in very modest increases in predictive utility; and in no case did it change the substantive nature of the model.

<u>Prediction for "Early Career" Offenders</u>: It would be hoped, from an incapacitation perspective, that persistent and/or serious offenders could be identified early in their careers -- thereby increasing the effectiveness of the sanctioning policy. To see if predictions differed from those of the general sample of offenders, we restricted attention to those who had not experienced a prior period of prison incarceration (that is, to those for whom the 1962 - 1963 imprisonment was the first such experience).

Prediction models are little different for these 1,118 men and for the sample as a whole. The models account for approximately the same proportion of variation in the outcomes of interest, and similar items of information are similarly predictive (see Tables 14 - 16 for examples).

Table 14
Regression of Lambda
on Selected Predictors
("Early Career Offenders;" Minimum N = 1,116)

<u>Predictor</u>	<u>B</u>	<u>Beta</u>	<u>t</u>
Priors	0.089	.227	7.82***
Age	-0.013	-.195	- 6.73***
Drugs	-0.161	-.041	- 3.96***
Alias	0.092	.107	3.75***
InstN	0.092	.069	2.39*
Constant	0.788		14.22***

R^2 = .146; $F_{(5,1111)}$ = 37.86, p < .001.

Notes: *** p < .001.;   ** p < .01.;   * p < .05.

Table 15

Regression of Arrests to Desistance
on Selected Predictors
("Early Career Offenders;" Minimum N = 1,116)

Predictor	B	Beta	t
Priors	1.168	.283	9.90***
Age	-0.137	-.197	- 7.24***
Drugs	-1.973	-.132	- 4.80***
Alias	0.849	.093	3.38***
Serious	-0.016	-.061	- 2.19*
Constant	9.668		11.42***

$R^2 = .201$; $F_{(5,1112)} = 56.01$, $p < .001$.

Notes: *** $p < .001$.; ** $p < .01$.; * $p < .05$.

Table 16

Regression of Number of Arrests for Person Offenses
on Selected Predictors
("Early Career Offenders;" Minimum N = 1,116)

Predictor	B	Beta	t
Age	-0.023	-.181	- 6.19***
Priors	0.123	.166	5.64***
Checks	0.158	.067	2.27*

$R^2 = .066$; $F_{(3,1114)} = 26.10$, $p < .001$.

Notes: *** $p < .001$.; ** $p < .01$.; * $p < .05$.

Validation of Prediction Models

As we have discussed in detail elsewhere,[84] there is a danger of overestimating the extent to which relations found in one sample can be

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[84] Gottfredson, S.D. Prediction: An Overview of Selected Methodological Issues. In D. Gottfredson and M. Tonry (eds.), Crime and Justice: An Annual Review of Research. Volume 9: Prediction and Classification. Chicago: University of Chicago Press, 1987; Gottfredson, S.D., and Gottfredson, D.M. Accuracy of prediction models. In A. Blumstein et al. (eds.), Criminal Careers and "Career Criminals". Washington, D.C.: National

used to explain relations in another (similar) sample. Within the original sample alone, there is no adequate way to distinguish how much of the observed relation is due to characteristics and underlying associations that will be shared by new samples and how much is due to unique characteristics of the first sample. This is because the apparent power of a prediction device developed on a sample of observations derives from two sources: (a) the detection and estimation of underlying relations likely to be observed in any similar sample of subjects, and (b) the peculiar or individual properties of the specific sample on which the model has been created. *Cross-validation* is important in estimating the relative importance of these two sources of predictive power.

Cross-validation is simply an empirical approach to the problem of obtaining an unbiased estimate of the accuracy of prediction (whether this is based on a single item of information or on some combination of items). Typically, this is accomplished by dividing the sample at hand in two, constructing the device on one, and using the other to estimate predictive accuracy. Despite some disadvantages, this is the approach used here.[85]

Prediction Models Developed on the Construction Sample: As described earlier, the sample of over 6,000 men imprisoned in California in 1962 -1963 randomly was divided in half to provide a study and a

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Academy of Sciences, 1986; Gottfredson, S.D., and Gottfredson, D.M. Screening for Risk: A Comparison of Methods. Washington, D.C.: National Institute of Corrections, 1979.

[85] Problems of cross-validation are far from simple, and there is no "best" approach to use. For a complete discussion of the advantages and disadvantages of several approaches, see Gottfredson and Gottfredson, op cit., 1986.

validation sample. Tables 17 and 18 demonstrate that the samples are indeed similar. Of the statistical tests performed, only one (instant offense of the property type) is marginally significant.

<div align="center">

Table 17
Comparison of Construction and Validation Samples
(N's = 2,432 and 2,415)

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Type of Admission:	Construction	Validation
Parole Violator	24.7%	23.7%
New Commitment	75.3	76.3

$(X^2{}_{(1)} = 0.641;$ n.s.)

Instant Offense Involved
Illegal Economic Gain:

	Construction	Validation
Yes	65.4%	64.7%
No	34.6	35.3

$(X^2{}_{(1)} = 0.231;$ n.s.)

Arrest-Free Period of
Five or More Years:

	Construction	Validation
Yes	22.0%	22.2%
No	78.0	77.8

$(X^2{}_{(1)} = 0.027;$ n.s.)

History of Opiate Use:

	Construction	Validation
Yes	24.8%	25.1%
No	75.2	74.9

$(X^2{}_{(1)} = 0.058;$ n.s.)

Family Criminal Record:

	Construction	Validation
Yes	43.9%	45.5%
No	56.1	54.5

$(X^2{}_{(1)} = 1.376;$ n.s.)

Committment Offense of
Checks or Burglary:

	Construction	Validation
Yes	34.6%	37.0%
No	65.4	63.0

$(X^2{}_{(1)} = 2.925;$ n.s.)

Instant Offense Nuisance:

	Construction	Validation
Yes	21.3%	23.2%
No	78.7	76.8

$(X^2{}_{(1)} = 2.378;$ n.s)

Table 17 (contd.)
Comparison of Construction and Validation Samples
(N's = 2,432 and 2,415)

Instant Offense Person:	Construction	Validation
Yes	11.7%	11.1%
No	88.3	88.9

$(X^2_{(1)} = 0.369;$ n.s)

Instant Offense Property:	Construction	Validation
Yes	48.3%	55.0%
No	51.7	45.0

$(X^2_{(1)} = 5.242;$ p < .05)

Table 18
Comparison of Construction and Validation Samples

Variable	N	Mean	S.D.
Seriousness Score of Commitment Offense:[86]			
Construction	2,432	63.54	23.84
Validation	2,415	63.66	23.22

$(t_{(4,845)} = 0.170;$ n.s.)

	N	Mean	S.D.
Number of Prior Incarcerations:[87]			
Construction	2,432	2.51	1.46
Validation	2,415	2.54	1.46

$(t_{(4,845)} = 0.730;$ n.s.)

	N	Mean	S.D.
Number of Prior Prison Incarcerations:[88]			
Construction	2,432	1.05	1.25
Validation	2,415	1.00	1.20

$(t_{(4,845)} = 1.51;$ n.s.)

	N	Mean	S.D.
Base Expectency Raw Score:			
Construction	2,427	51.04	17.84
Validation	2,412	50.19	18.21

$(t_{(4,837)} = 1.64;$ n.s.)

	N	Mean	S.D.
Age at Last Imprisonment:			
Construction	2,432	29.79	8.37
Validation	2,415	29.40	8.29

$(t_{(4,845)} = 1.65;$ n.s.)

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[86] Thirty-four point scale; scores range from 0 - 103.
[87] Four equals four or more.
[88] Four equals four or more.

Table 18 (contd.)
Comparison of Construction and Validation Samples

Variable	N	Mean	S.D.

Number of Aliases:

	N	Mean	S.D.
Construction	2,432	.49	.81
Validation	2,415	.48	.80

$(t_{(4,845)} = 0.44;$ n.s.$)$

Table 19 provides construction estimates and validity coefficients for several prediction models described earlier. Although all show some shrinkage (as is to be expected), some models are rather more robust than others. In particular, it is to be noted that the prediction of lambda -- the rate of offending -- is among the least robust of those examined. Models of "early career" offenders fare little better than those developed on the full sample.

Table 19
Validity of Several Prediction Models

Model Considered	Association in Construction Sample	Validity Coefficient
Arrests to Desistance (Table R-2)	.399	.359
Nuisance Offending (Table R-3)	.310	.295
Person Offending (Table R-4)	.247	.201
Rate of Offending (Table LR-1)	.341	.169
Arrests to Desistance, "Early Career" Offenders (Table R-8)	.449	.343
Person Offending, "Early Career" Offenders (Table R-9)	.256	.178
Rate of Offending, "Early Career" Offenders	.382	.206

The Base Expectancy Scale: Among the more prominant criminal justice prediction applications have been those developed by Gottfredson

(various scales called "base expectancy" measures that have been used

extensively in California, and after which a number of related

prediction methods have been patterned).[89,90] Scores for one of these

scales (as well as the items needed to produce it) were coded for the

6,000 men in the study samples. To differentiate it from related scales

developed at about the same time, the scale was named BE 61 B.[91]

The BE scale considered here was developed from study of case

files on 873 men selected by a procedure designed to approximate random

selection from all men released from prison to California parole

supervision in 1956. A dichotomous outcome criterion was used, defined

as the presence or absence of "major difficulty" within two years after

release. "Major difficulty" meant: awaiting trial or sentence at the

end of two years; absconding, with a felony warrant issued for arrest;

sentenced to jail for 90 days or more; or return to prison (including

return for technical parole violation). The criterion, scored 0

(unfavorable) or 1 (favorable), was regressed on available predictor

candidates in a multiple regression, and items failing to add

89   Gottfredson, D.M., and Bonds, J.A., A Manual for Intake Base Ex-
      pectancy Scoring. Sacramento, California: California Department
      of Corrections, mimeo, 1961.

90   A number of related scales were developed. For examples of these
      for adult men, women, and young offenders, see Gottfredson, D.M.
      and Beverly, R.F., "Development and Operational Use of Prediction
      Methods in Correctional Work." Proceedings of the Social
      Statistics Section. Washington, D.C.: American Statistical
      Association, 1962.

91   Gottfredson, D. M. and Ballard, K. B., Jr., The Validity of Two
      Parole Prediction Scales: An Eight Year Follow Up Study,
      Vacaville, California: Institute for the Study of Crime and
      Delinquency, December, 1965.

appreciably to R^2 (arbitrarily, one percent or more) were dropped and the final regression equation was calculated.

The validity coefficient in a second sample of 937 men paroled the same year and followed for two years after release was .29 (point biserial correlation coefficient). A later study extended the follow-up study of the same sample to eight years. A similar, but slightly different, criterion definition was used. "Major difficulty" meant absconding or prison return (with or without a new felony offense). The validity coefficient (point biserial correlation) was .32.

The associations between the Base Expectancy Scale and a variety of outcome criteria available for the present study are summarized in Table 20. The scale is remarkably robust with respect to several important outcome criteria even after this extended period of time.

Table 20

Correlation of Base Expectancy (BE)
Scores and Various Outcomes

Outcome	Correlation
Any Arrest	-.260
Any Incarceration	-.318
Number of Arrests to Desistance	-.344
Time to First Arrest	.209
Time to First Reincarceration	.125
Number of Nuisance Arrests	-.249
Number of Person Arrests	-.120
Number of Property Arrests	-.306
Number of Fraud Arrests	-.122
Lambda (All Offenders)	-.289
Lambda (Offenders Arrested)	-.248
Lambda (Offenders Incarcerated)	-.217
Ln(Lambda) (All)	-.328
Ln(Lambda) (Arrested)	-.328
Ln(Lambda) (Incarcerated)	-.277

The criterion most similar to that used in the original construction and validation of the scale is "any incarceration." The point biserial correlation coefficient of .32 is the same as that found earlier on the basis of the eight year follow-up study cited. Although the offenders in the prior study were paroled at least five years earlier than men in the present sample were released, and those in the later sample were followed for a much longer time, the relation of scores to outcomes is the same.

Similar correlations were obtained showing the relation of scores to the number of arrests to desistance ($r = -.34$), the number of property arrests ($r = -.31$), and the logarithmic transformation of arrest rates (lambda). The latter coefficients were .33 for both all offenders and all arrested offenders. The relations are markedly lower for scores with number of person arrests and with number of fraud arrests.

Summary: While the power of the prediction models developed exceed those commonly found in similar studies, predictive power still may best -- and most politely -- be called "modest." No model developed on the construction sample performs substantially better on validation than does the original Base Expectancy scale developed in the 1960's (on a very simple criterion).[92]

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[92] Actually, this is not an unexpected finding. Reasons why this may be expected to occur are given in Gottfredson, S.D. Prediction: An Overview of Selected Methodological Issues. In Gottfredson, D. and Tonry, M. (eds.), Crime and Justice: An Annual Review of Research. Volume 9: Prediction and Classification. Chicago: University of Chicago Press, 1987.

Is Criminal Activity Patterned?

We have stressed that both selective and collective incapacitation strategies rely heavily on predictions of future behavior, and this project has attempted to improve upon available predictions. For evaluation, both strategies also depend strongly on the concept of "patterned" criminal activity.[93] By this it is meant that offender criminal activity is not random, but exhibits some degree of consistency. For example, an incapacitation strategy may be based on the assumption that confining a persistent property offender for a specified time will result in a specified decrease in property crimes committed.

Unfortunately, available research evidence does not provide strong support for the specialization assumption.[94] Although some evidence of

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[93]   See, for example, Cohen, J. "Research on Criminal Careers: Individual Frequency Rates and Offense Seriousness." Appendix B in A. Blumstein et al., eds., Criminal Careers and "Career Criminals". Washington, D.C.: National Academy of Sciences, 1986, pgs. 292-449.

[94]   Cohen, J. op cit., Wolfgang, M., R. Figlio, and T. Sellin. Delinquency in a Birth Cohort. Chicago: University of Chicago Press, 1972; Farrington, D. "Longitudinal Research on Crime and Delinquency," in N. Morris and M. Tonry, eds., Crime and Justice: An Annual Review of Research. Chicago, University of Chicago Press, 1979; Farrington, D. "Age and Crime." In M. Tonry and N. Morris, eds., Crime and Justice: An Annual Review of Research. Vol. 7. Chicago: University of Chicago Press; Blumstein, A., J. Cohen, and D. Farrington. "Criminal Career Research: Its Value in Criminology." Criminology, 1988, 26, 1 - 35; Blumstein, A., J. Cohen, and D. Farrington. "Longitudinal and Criminal Career Research: Further Clarifications." Criminology, 1988, 26, 57 - 74; Farrington, D., H. Snyder, and T. Finnegan. "Specialization in Juvenile Court Careers." Criminology, 1988, 26, 461-487; Bursick, R. "The Dynamics of Specialization in Juvenile Offenses." Social Forces, 1980, 58, 851 - 864; Kempf, K. "Specialization and the Criminal Career." Criminology, 1987, 25(2), 399 - 420.

specialization commonly is found, the overwhelming weight of evidence is strongly supportive of versatility or generality of offending.

Although definitions of "specialization" have varied, the concept is very straightforward: specialization is given by the diagonal cells of a transition matrix, where cell entries are the probability of occurrence of offense$_j$ at times t and t+1 (where these are successive). Off-diagonal cells represent versatility or generality in offending.

Table 21 gives an example of such a transition matrix based on the offense that resulted in the 1962-63 period of confinement and the first arrest episode post-release from that confinement. The first entry in each cell of the matrix gives the number of cases observed to fit the particular classification (e.g., 545 persons committed a nuisance offense resulting in the 1962-63 confinement, and also committed a nuisance offense the first time arrested following release from confinement). The second cell entry gives the number of cases expected to fall in the classification by chance alone (given the marginal distributions for the table), and the third entry gives the cell observation as a proportion of the row total.

The Adjusted Standardized Residual (abbreviated ASR in the table) is based on deviations from expectancy for each cell of the matrix, and is distributed as a unit normal variable.[95] Thus, it provides a test of the statistical significance of each cell of the matrix. In the table,

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[95]   Haberman, S.J. Analysis of Qualitative Data. Volume 1. New York: Academic Press, 1978. For examples of use for similar purposes, see Bursick, R. J. The dynamics of specialization in juvenile offenses. Social Forces, 1980, 58, 851-864; Cohen, J. Research on Criminal Careers: Individual Frequency Rates and Offense Seriousness. Appendix B in A. Blumstein et. al. (eds.), Criminal Careers and "Career Criminals". Vol. 1. Washington, D.C.: National Academy Press, 1986.

ASRs are given only for the diagonal cells (those representing transition to like offenses).

Finally, a "standard summary measure of specialization vs. generalization" is given (symbolized C_F).[96] This coefficient, given by the ratio

$$\frac{\text{Observed - Expected}}{\text{Row Total - Expected}}$$

would equal zero in the event of complete generalization, and one in the event of perfect specialization.

Using the offense typology discussed in an earlier section, we have found somewhat stronger support for the specialization hypothesis than is typical. As is clear from the table, ASRs for like-offense transitions all are statistically significant, and the "summary measures of specialization" are within bounds commonly observed in related studies.

Although the "summary measure of specialization" (C_F) provides one index of the magnitude (if any) of a specialization effect, we prefer a related way of looking at the question -- one that examines transition probabilities relative to base rate considerations.

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[96]   Farrington, D. Age and Crime. In M. Tonry and N. Morris (eds.), Crime and Justice: An Annual Review of Research. Volume 7. Chicago: University of Chicago Press, 1986.

Table 21
Offense Transition Matrix
Instant and First Charge Post-Release
(Most Serious Charge Dimensions Only)
(N = 4,847)

First Charge Offense Dimension

		None	Nuisance	Person	Property	Fraud	Serious Drug	Other	Totals
I	Nuisance	212	545	77	192	26	18	20	1,090
n		196.1	493.2	80.7	237.5	51.9	11.9	18.7	C_F = .087
s		.194	.500	.071	.176	.024	.017	.018	ASR = 3.6
t									
a									
n	Person	149	262	67	62	6	5	8	559
t		100.6	252.9	41.4	121.8	26.6	6.1	9.6	C_F = .049
		.267	.469	.120	.111	.011	.009	.014	ASR = 4.4
C									
h									
a	Property	362	948	172	659	91	17	37	2,286
r		411.3	1034.3	169.3	498.0	108.9	25.0	39.1	C_F = .090
g		.158	.415	.075	.288	.040	.007	.016	ASR =11.2
e									
	Fraud	93	280	26	103	105	4	12	623
D		112.1	281.9	46.1	135.7	29.7	6.8	10.7	C_F = .127
i		.149	.449	.042	.165	.169	.006	.019	ASR =15.2
m									
e									
n	Serious	46	147	15	32	3	7	3	253
s	Drug	45.5	114.5	18.7	55.1	12.1	2.8	4.3	C_F = .017
i		.182	.581	.059	.126	.012	.028	.012	ASR = 2.6
o									
n									
	Other	10	11	2	8	0	2	3	36
		6.5	16.3	2.7	7.8	1.7	0.4	0.6	C_F = .068
		.278	.306	.056	.222	.000	.056	.083	ASR = 3.1
	Totals	872	2193	359	1056	231	53	83	4,847
		.180	.452	.074	.218	.048	.011	.017	

Note: $X^2_{(30)}$ = 454.81; p < .001

Figure 10
Probability of Desisting Given Commitment Offenses of Various Types
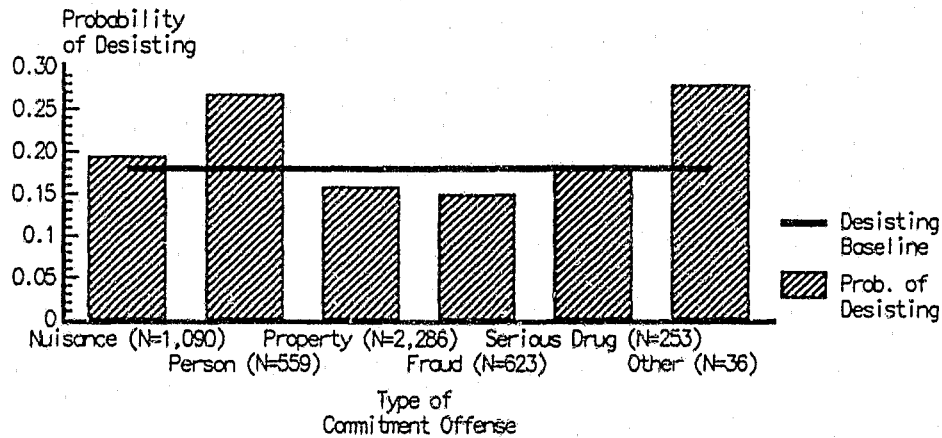

Consider Figure 10 as illustration. Based on Table 21, the figure summarizes the probability of not experiencing _any_ new arrest by type of commitment offense. Nuisance and Serious Drug offenders desist from criminal activity at the average rate for the sample. Those who offended against persons were significantly _more_ likely to desist than the sample as a whole, while those who offended against property or were involved in frauds were significantly _less_ likely to desist from crime.[97]

Figure 11 directly addresses the question of specialization. Also based on Table 21, it summarizes diagonal cell transition probabilities (relative to the base rate probabilities given that a next offense occurs) for the commitment offense and the first charge post-release.

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[97]   Although those who committed "Other" types of offenses would appear from the Figure to desist at a high rate, the difference observed is not statistically significant, due at least in part to the small numbers of persons in that category.

Like-offense transition probabilities each are elevated relative
to base-rate probabilities, and -- although not summarized in this
figure -- off-diagonal transitions (representing versatility) are
depressed relative to base-rates.[98]

Figure 11: Transition Probabilities
Commitment Offense and First Charge
(First Charge Base Rates For Comparison)
Diagonal Cells Only
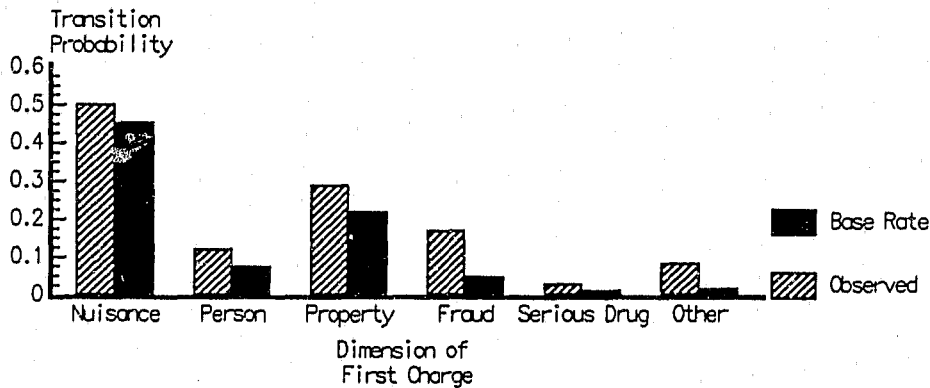
This figure shows one thing very clearly and dramatically: The
most likely transition at time t, given any type of charge at the time
of commitment (t-1), is to a nuisance offense. The next most likely
occurrence is to a charge of the same type (e.g., property to property),
but the extremely high base-rate probability associated with nuisance
offending simply overwhelms the specialization effect.

Analysis of this particular transition may be misleading, because
it compares charges for which the men were convicted and incarcerated

---

[98] All diagonal transitions are statistically significant by the
Adjusted Standardized Residual, and almost all off-diagonal
transitions either support the null hypothesis or are
statistically significant but negative -- suggesting that the
transition is significantly not likely to occur.

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with only the first offense charged post-release. It seems highly

likely that offenses for which the men were incarcerated in 1962-63 may

not be typical of offenses committed or alleged to have been committed;

they probably are more serious. Accordingly, generosity to the

specialization hypothesis requires attention to analysis only of charges

subsequent to release from the period of confinement defining the cohort

for this study.

Figure 12
Probability of Desisting Given
Offenses of Various Types at T − 1
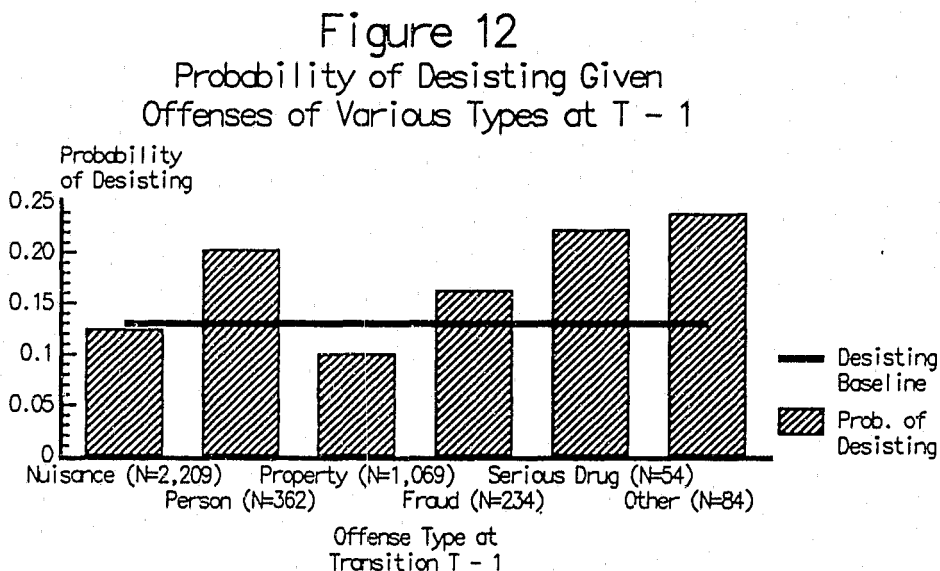
Figures 12 and 13 provide these analyses, and show little in the

way of substantive difference from the conclusions examined above.

Differences noted are: Those committing a fraud at first offense post-

release do not significantly differ from the total with respect to the

probability of desisting from crime, while both serious drug offenders

and "other" offenders are significantly more likely to desist (Figure

12); and probabilities appear higher for serious drug/serious drug

transitions than discussed previously (Figure 13). All other

substantive conclusions remain the same.

Figure 13: Transition Probabilities
First Two Charges Post-Release
(Charge Two Base Rates For Comparison)
Diagonal Cells Only
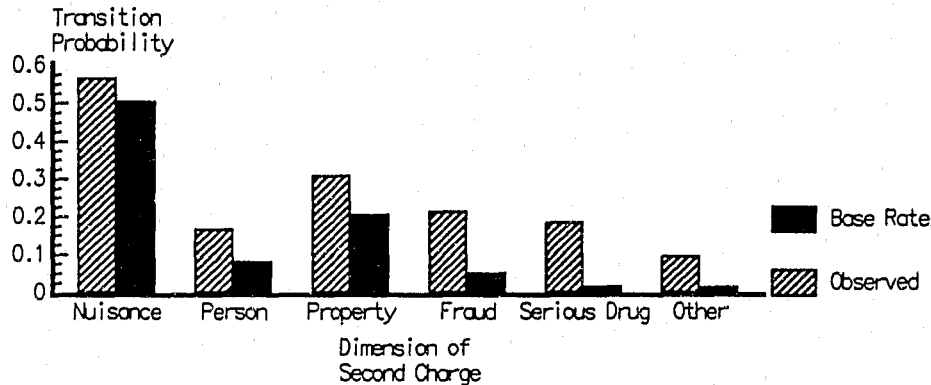
Some have argued that examination of criminal careers properly

should be restricted to "chronic" offenders.[99] Although most would

accept the defining characteristic of this cohort as indicative of

"chronicity," a more restrictive criterion arguably could be urged.

Accordingly, Figures 14 and 15 repeat analyses just described while

restricting the sample to those offenders who have experienced at least

three periods of incarceration.

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[99]   E.g., Klein, M. Offence specialization and versatility among
        juveniles. British Journal of Criminology, 1984, 24, 185-194;
        Kempf, K. Specialization and the criminal career. Criminology,
        1987, 25(2), 399-420.

Figure 14
Chronic
Probability of Desisting Given
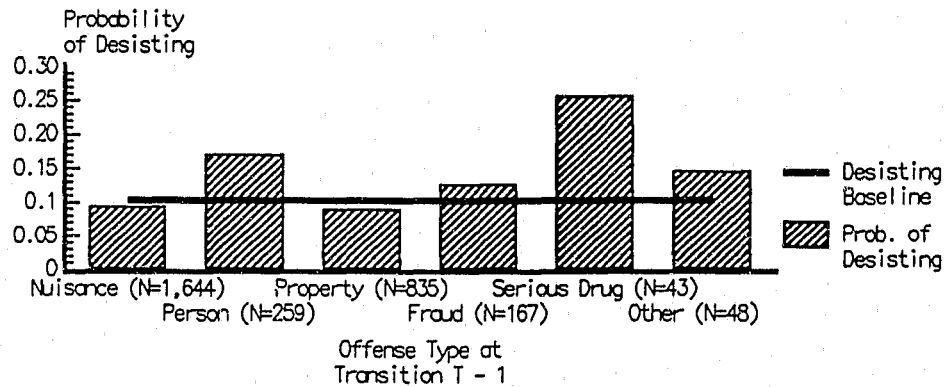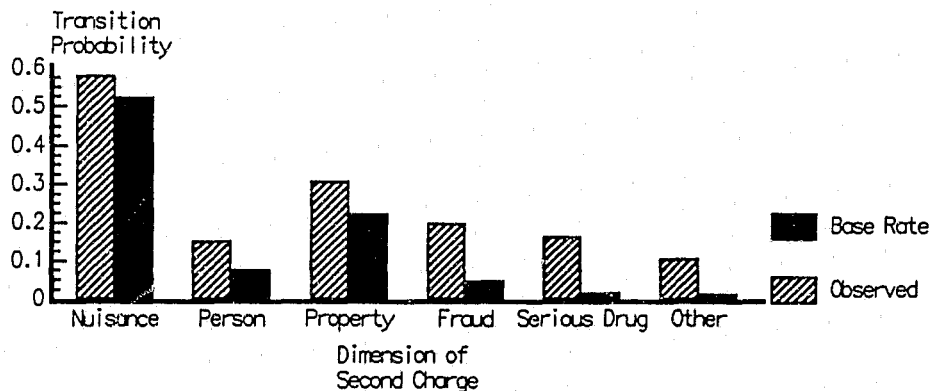### Offenses of Various Types at T − 1

Probability
of Desisting

0.30
0.25
0.20
0.15
0.1
0.05
0

Nuisance (N=1,644)   Property (N=835)   Serious Drug (N=43)
        Person (N=259)   Fraud (N=167)   Other (N=48)

Offense Type at
Transition T − 1

— Desisting
   Baseline

▨ Prob. of
   Desisting

Figure 15: Transition Probabilities
First Two Charges Post-Release
(Charge Two Base Rates For Comparison)
Chronic

Transition
Probability

0.6
0.5
0.4
0.3
0.2
0.1
0

Nuisance   Person   Property   Fraud   Serious Drug   Other

Dimension of
Second Charge

■ Base Rate

▨ Observed

The only substantive difference noted is that all but person and serious drug offenders fitting this definition of "chronic" offending

seem to desist at the rate of the group as a whole. All other

conclusions remain the same.[100]

Does Specialization Change with Transition? From the perspective

of an incapacitation strategy, one would hope that specialization would

increase over time. We have observed a very modest linear increasing

trend for nuisance/nuisance and for property/property transitions, but

not for others (Figures 16 and 17).

Figure 16
Nuisance Transitions:
Coefficient of Specialization
As a Function of Transitions

Coefficient of Specialization

Transition Number
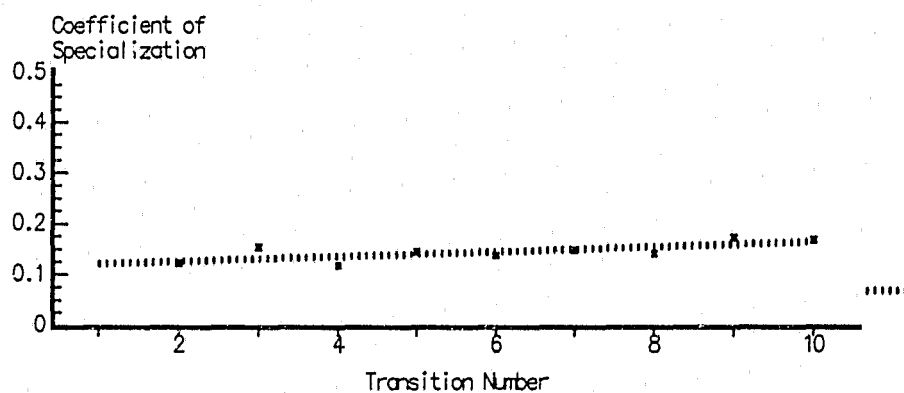
Although the trends are statistically significant, the slopes are

extremely small.[101] For all practical purposes, specialization does not

[100] Identical analyses restricted to the "early career" offenders also show no substantive difference from those reported here. Tables are available from the author.
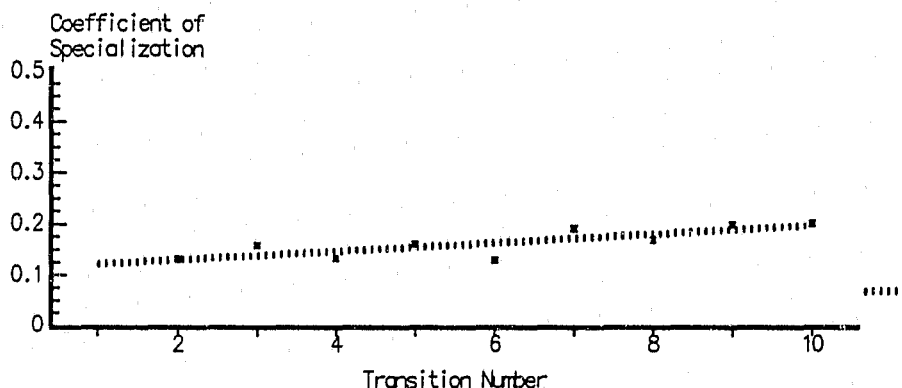
[101] Defining equations are as follows:

Nuisance Coefficient: $.120 + .00483$(Transition No.); $R^2 = .514$; $p < .03$.

Property Coefficient: $.120 + .00842$(Transition No.); $R^2 = .638$; $p < .01$.

change with increases in transitions. Notably, there is no apparent

trend for person/person transitions.

Figure 17
Property Transitions:
Coefficient of Specialization
As a Function of Transitions

The Question of Offense Mix: Another way of considering the

specialization vs. versatility in offending question is through

examination of the mix of offenses committed. For example, a person who

completely specialized in property crimes would commit those and only

those types of crimes. Similarly, a person who only offended against

persons could be considered to specialize in crimes against the person.

When offenders are grouped in terms of the mix of offenses they

committed subsequent to release from incarceration, almost 28% are found

to be complete specialists -- that is, they were subsequently charged

with only one type of offense (Figure 18). Two offense mixes are quite

common: nuisance and property offending, and nuisance, person, and

property offending. Other mixes were not likely to occur (e.g., person

and fraud).

Figure 18
Offense Mixing in Post-Release Careers
(N = 3,369)

Percent of Active
Sample

Offense Mix
(See Legend)
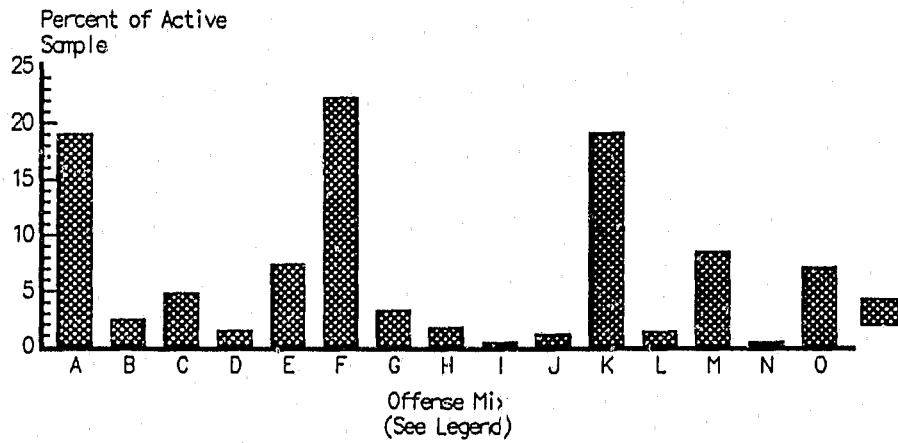
Legend

A: Nuisance Only
B: Person Only
C: Property Only
D: Fraud Only
E: Nuisance & Person
F: Nuisance & Property
G: Nuisance & Fraud
H: Person & Property
I: Person & Fraud
J: Property & Fraud
K: Nuisance, Person & Property
L: Nuisance, Person & Fraud
M: Nuisance, Property & Fraud

Among "specialists," so defined, the bulk (69%) specialize in nuisance offending. Seventeen percent specialize in property offenses, 9% in offenses against persons, and about 5% specialize in frauds.

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Moreover, considering all offenses committed by "specialists," the vast

majority are of the nuisance variety (82%).

Finally, it might be argued that "specialists" are important

because they tend to commit offenses at a high rate. In this sample,

however, specialization is negatively correlated with the rate of

offending (that is, "specialists" have the lowest rates of offending,

and "generalists" the highest).[102]

Does the Seriousness of Offending Change in Meaningful Ways as the

Career Progresses? An unfortunately brief answer to this question seems

possible based on this examination of the careers of 6,000 offenders:

No (Figure 19). The average seriousness score of offenses committed is

invariant over offense episodes.

Figure 19
Seriousness of Offending Across
Offense Episodes

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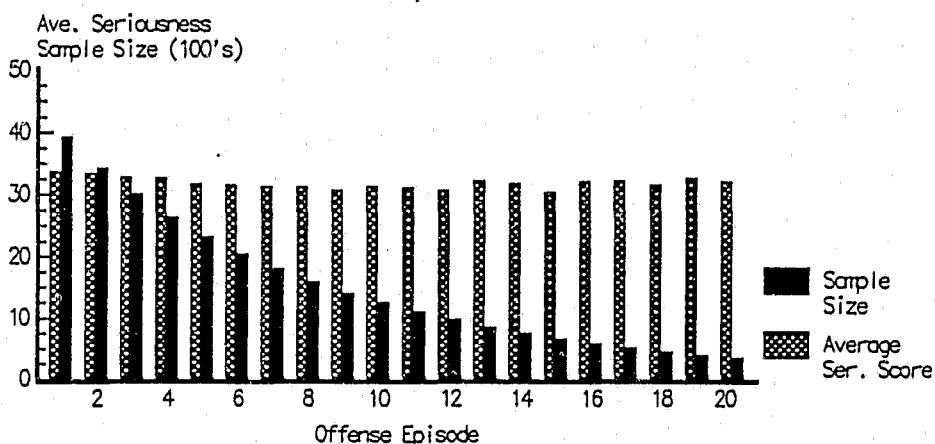
[102]   It also is important to note that the rate of offending is
        inversely correlated with the age of the offender -- another
        finding contradictory to well-conceived incapacitation strategies.

<u>Does the Rate of Offending Change in Meaningful Ways as the Career</u>

<u>Progresses</u>? Again, a brief answer is possible: Yes, but not in a

fashion that advantages incapacitation strategies (Figure 20). The rate

of offending declines dramatically as offenders age: the rate for

youthful offenders (25 and under) is about three times that for older

offenders (50 and over).

Figure 20
Average Arrest Rates By Age

Average Arrest Rate

Age Group

Median
Mean
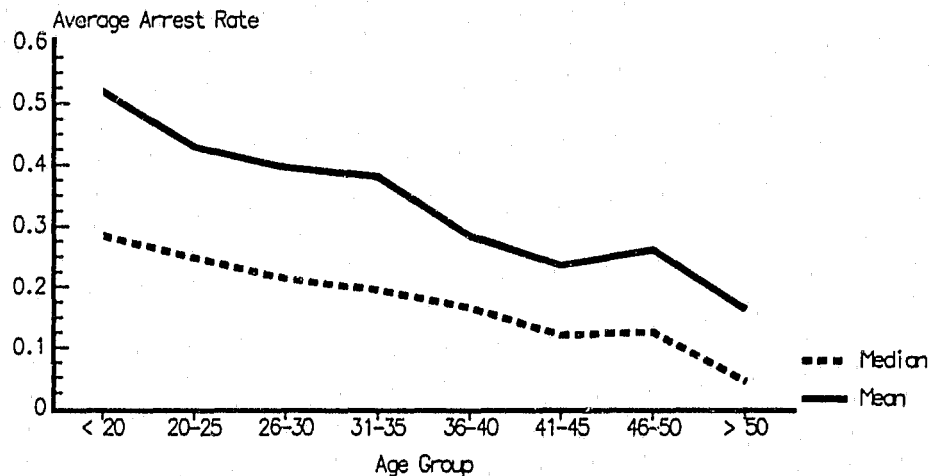
<u>Incapacitation Strategies: The Wish List and The Reality</u>

Three related features of the state of nature desirable from the

standpoint of incapacitation strategies involve *prediction*, *offense*

specialization, and *characteristics of arrests and of their rates* when

persons are observed over time. If incapacitative strategies are to be

effective, the behaviors of offenders (and of the criminal justice

system) must be reasonably predictable.

The predictions required usually are of arrests or convictions for

specific crime types, and therefore could be made more easily and with a

greater degree of validity if offenders tend to specialize in the types

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of crimes committed. Or, at any rate, the nature of "crime switching" (that is, of transistions from one offense type to another) must be reasonably predictable; and it would be helpful if expected transitions are to a more serious crime type. Arrest or conviction _rates_ also must be reasonably predictable, and it would be desirable that these tend to be constant or increasing. Further, it would be helpful to incapacitation strategies if the persons classified as "specialists" have higher arrest rates than those classified as "generalists."

A simple and straightforward incapacitation strategy could be formulated if (a) both the termination of offending and the rate of committing crimes could be predicted with confidence, (b) the rate of doing crime was constant or increasing, and (c) there was a high degree of specialization in crime types committed (or, if the tendency to specialize increases with time). Thus, for implementation of a selective incapacitation strategy, it would be helpful if we could identify future high rate offenders who specialize in serious crimes (with both specialization and rates of crime commission constant or increasing over time).

A more complex strategy could be formulated if the termination from criminal activity and the rate of committing new offenses could be predicted reasonably well, if the distribution of the rate of new crimes (arrests, charges, or convictions) over time were known with some precision, and if (absent a high degree of specialization) probable crime switching could be defined with a reasonable degree of confidence.

This section considers evidence from this study on these issues so that the feasibility of developing viable incapacitation strategies may be considered.

Incapacitation and Prediction   The prediction models developed
provide very typical and quite modest estimation of a variety of
outcomes relevant to incapacitative strategies.   When tested on a second
sample to provide better estimates of true validity, most models hold up
quite well, although with an expected small amount of "shrinkage" in
validity coefficients.   Still, the validity of the predictions must be
described as modest at best.

Incapacitation and Specialization   The problem of specialization
vs. versatility in offending was considered in terms of a classification
of offenses into empirically-derived groups based on how people consider
crimes to be related.   It may be assumed that if we had used a finer
classification (that is, used more categories of offenses) we would have
found less specialization.   On the other hand, had we combined groups
and used fewer classifications of offenses, we would have found more.
If, however, the classifications are accepted as a reasonable and useful
middle ground that appears to represent some cognitive reality, then
four points must be concluded.

First, specialization in offending was observed; but the
coefficients describing the degree of specialization -- although higher
than those found in other studies -- were (like the predictive validity
coefficients) quite modest.   Second, a high degree of versatility was
observed, which aptly may be described as overwhelming specialization.
Third, the most probable next arrest (if indeed one is to occur)
invariably is for an offense of the nuisance variety.   This is true
irrespective of the offense episode examined.   Fourth, such
specialization as was observed does not increase very much with
successive transitions; there was a very small trend of increasing

specialization in nuisance and property offending, but none when the more serious person offenses were considered.

Incapacitation and Characteristics of Lambda   Arrest rates were found to be inversely related to specialization: "Specialists" had lower arrest rates than did "generalists."

Arrest rates decreased precipitously with age -- which was one of the best predictors of those rates in the context of the predictive variables considered in this study. The observed decline of arrest rates with age is consistent with the results of much other research. For example, a study of a substantial sample of California Youth Authority wards institutionalized for serious offenses in the 1960s and followed for 15 to 20 years found the same result over a variety of classifications of offenders (as well as a decline with age in participation).[103]

The Feasibility of Incapacitation Strategies

A strong argument against the feasibility of *collective* incapacitation strategies based on the offense of conviction is given simply by the transition matrices considered earlier. For example, locking up "assaulters" to prevent assaults may be expected first of all to prevent future nuisance offenses; second, to confine a substantial number of persons who will commit no future offenses; and only thirdly to prevent assaults. Confining "robbers" similarly may be reasonably expected to prevent some robberies, but mainly it will prevent nuisance

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[103]   Haapanen, Rudy A., Selective Incapacitation and the Serious Offender: A Longitudinal Study of Criminal Career Paterns, Sacramento, California: Department of the Youth Authority, September, 1988.

offenses and confine some persons who do not -- at least on

incapacitative grounds -- warrent confinement.[104]

The expected next offense (if any) for any of the classifications
of offenses studied is a nuisance offense. Thus, small reductions in
the targeted crime(s) would have to be considered in the context of
large expenditures that principally would (a) unnecessarily confine
false positives, and (b) prevent nuisance offenses.

Indeed, the quotation marks around the words "assaulter" and
"robber" above are well justified. If a person convicted of burglary is
more apt to be a nuisance offender next time, then it is not very
helpful to classify him as a burglar for the purpose of suggesting the
form of his next most likely offense. As with offenders in other crime
categories, he is more aptly described as an expected nuisance offender.

Similarly, data presented in relation to the predictive
requirements of a *selective* incapacitation strategy provide little
support for that orientation. Rates of arrest or of conviction can be
predicted, but not well. Rates of arrest for person offenses -- a most
likely target for selective incapacitation strategies -- can be
predicted, but even less well.

Rates of arrest are inversely related to the degree of
specialization, so the small specialist group is less apt to be arrested
at a high rate. Specialization increases very little with age, and not
at all for the crime groups most likely to be targeted in a selective
incapacitation strategy.

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[104] There may of course be other grounds to warrent confinement, such
as the satisfaction of desert principles.

Finally, arrest rates decline with age. For a century and a half it has been known that "participation" declines with age:

> Of all the causes which influence the development of the propensity to crime, or which diminish that propensity, age is unquestionably the most energetic.[105]

Data reported here show that *arrest rates* for active adult offenders also decline with age.[106]

It is apparent that those advocating selective incapacitation as a strategy for the more efficient or effective use of criminal justice resources will have many serious obstacles to overcome even if ethical arguments surrounding the issue (considered briefly in the next section) are set aside. The state of nature --- of offense behavior and criminal justice response --- does not appear conducive to the effective development of such strategies.

Ethical Considerations:[107] The serious ethical questions raised by the selective incapacitation concept are of two types. One set of issues focuses on the consequences of errors of prediction. The other group of concerns addresses more basic questions about the proper purposes of sentencing and correctional practice. Taken together, these issues lie at the heart of a fundamental conflict between values of

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[105] Quetelet, Lambert A. J., A Treatise on Man and the Development of His Faculties. A Facsimile Reproduction of the English Translation of 1842 with an introduction by Solomon Diamond, Gainsville, Florida: Scholars' Facsimiles and Reprints, 1969, p.92.

[106] It has been found that arrest rates for offenders age nine through 16 increase with age (Loeber, Rolf, and Snyder, Howard N., "Rate of Offending in Juvenile Careers: Findings of Constancy and Change in Lambda," Criminology, 28, 1, 1990, pp. 97 - 109).

[107] Portions of this section are adapted from Gottfredson, Stephen D. and Gottfredson, Don M., "Selective Incapacitation?," Annals of the American Academy of Political and Social Science, 478, March, 1985.

fairness and equity in sentencing and the values of utilitarian efforts at societal protection.

Since predictions _always_ must be imperfect, two types of errors _always_ will be made; and this is the case regardless of the basis of the predictions. The first type, called false negatives, are persons mistakenly predicted to be good risks. For these persons, a policy of selective incapacitation will fail to provide the public protection sought. False positives, on the other hand, are "false alarms" --- persons mistakenly predicted to be recidivists or to commit crimes at a high rate. Under a selective incapacitation strategy, these persons would be imprisoned for crimes that in fact never would be committed.

The resulting dilemma for correctional policy is posed by the conflict between the offender's right not to be a false positive -- and kept in prison unfairly and unnecessarily -- and the citizenry's right not to be victimized by a false negative.

The false positive problem has received the most attention from critics on ethical grounds. Given current levels of predictive accuracy, with strategies that select any sizable group for incapacitation, large numbers of persons would be subjected to increased terms of confinement as a result only of their misclassification.

The debate also addresses more fundamental issues of sentencing and correctional treatment. Should people be sent to prison for _deserved punishment_ or for _utilitarian_ purposes? The latter include any purposes with a crime control intent. _All_ such purposes -- including incapacitation -- require predictions. The conflicting ethical theory of _just desert_ asserts that it is unfair to punish for harms expected but not yet done --- that is, for expected crimes that might never be

committed. Moreover, this ethical postion requires that punishments

must be similar in severity for offenders convicted of similar crimes

with similar culpability. The basic focus of this theory is on

blameworthiness, and critics of selective incapacitation have pointed

out that some predictive information used may have nothing to do with

the blameworthiness of the offender; hence, they should not be used in

determination of the penalty.

These issues are fundamental to policy questions about the

applicability of the study results reported here, and we will return to

them in a later section. Next, however, some implications of current

levels of predictive validity should be discussed.

Is Prediction Accurate Enough? We have discussed the predictive

validities shown in this study, and the level of validity to be expected

from each of the models described, as modest. The levels of predictive

accuracy in the criminological prediction literature generally are aptly

described by that term, or, perhaps more accurately, as rather low.[108]

There is no escaping the question of whether statistically based

prediction tools such as discussed in this report are accurate enough to

justify their use in policy formulation or practice.

Some scholars and practitioners argue against the use of

prediction in any case on ethical grounds alone. This is true of a

strict just desert argument, in which prediction may be seen as properly

irrelevant to decisions made about criminal offenders. However, if aims

of crime control in sentencing and correctional practice are thought

ethically permissable, then prediction must be regarded as central to

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[108] For a detailed review of issues of accuracy in prediction, see
Gottfredson, S.D., and Gottfredson, D.M., supra note 41.

the attainment of those ends. This is the case even if it is believed

that crime control purposes may be sought but only within limits of

punishments justly deserved.[109] _Prediction is a central problem to the_

extent that crime control objectives are believed to be permissable in

the formulation of sentencing or correctional policies.

Remaining arguments against the use of statistically based

prediction tools all reduce to considerations of their accuracy. The

technically sophisticated arguments directly confront the accuracy

issue. They cite low proportions of explained variance and resulting

high error rates. Commonly, the focus is on false positives, although

false negatives may be equally, or more, undesirable depending on the

application. Other arguments cite misspecification of prediction

models: this too is essentially a complaint about accuracy. Less

technically sophisticated critics complain of reducing people to numbers

and observe that human behavior is too complex to allow judgmental

decisions to be made on the basis of an equation. This complaint too is

essentially one of accuracy.

Part of the answer to the question of whether statistical

prediction methods are accurate enough to justify their use depends on

the use to which the resulting tools will be put. Over a decade ago, it

was reported that:

> the data accumulated to date on criminal careers do not
> permit us, with acceptable confidence, to identify career

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109   See, e.g., Morris, Norval, "Punishment, Desert and
      Rehabilitation," in U. S. Department of Justice, _Equal Justice_
      Under the Law, Bicentennial Lecture Series, Washington, D. C.: U.
      S. Government Printing Office, 1976; von Hirsch, Andrew, _Past and_
      Future Crimes, New Brunswick, New Jersey: Rutgers University
      Press, 1985.

criminals prospectively or to predict the crime reduction
efforts of alternative sentencing proposals.[110]

In respect to a study that directly proposed selective incapacitation as
a possible panacea for correctional problems, it has been reported that

> ... for purposes of selective incapacitation, where
> predicted high rate offenders will be subject to longer
> prison terms than all other offenders, much better
> discrimination of the high-rate offenders would seem to be
> required.[111]

Nothing from this twenty-year year study of the careers of over 6,000
adult felons would lead to a different conclusion. _Proposals for
dramatic change in sentencing and incarceration policies based on
individual level prediction studies are at best premature. Prediction
of such low validity as thus far demonstrated cannot justify the policy
changes proposed under the banner of selective incapacitation_.

Prediction tools of equal validity can, however, be used
appropriately for other purposes, and we will try to explain this
argument next. In doing so, we will focus on the two types of errors to
be made in any predictive selection problem and on ethical
considerations involved in the type of policy changes involved in the
proposed use of prediction tools.

The Predictive Selection Problem:[112] Predictive selection
decisions require the specification of cut-off scores. For example, in
selective incapacitation strategies, values of the predictor score at or

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110   Petersilia, J., "Criminal Career Research: A Review of Recent
       Evidence." In N. Morris and M. Tonry (eds.), _Crime and Justice_:
       An Annual Review of Research. Chicago: University of Chicago
       Press, 1980, at 322.

111   Cohen J., _supra_ note 7.

112   For a more complete explication of the argument made in this
       section, see Gottfredson, S. and Gottfredson, D. M., _supra_ note
       41.

above which an individual is expected to fail, or commit crimes at a high rate, must be identified. Similarly, values of the criterion variable at or above which a case is considered an actual failure and below which persons are considered to have succeeded must be specified. Thus, at or above a selected cutting-score on the predictor scale distribution, we predict failure and select accordingly. Below that cutting-point, we predict success. The value decided upon for the predictor cut-off determines what is known as the _selection ratio_: This is the ratio of the number of persons to be selected to all persons available for selection. Irrespective of the prediction made, some persons would fail, and others would succeed: The ratio of these is called the _base rate_.

Simultaneous consideration of the base rate and the selection ratio gives rise, necessarily, to the four potential consequences to any predictive selection decision. There are two types of errors to be made: We will predict some persons to fail who in fact succeed (false negatives), and we will predict some persons to succeed who in fact will fail (false positives). There are also two types of "hits" or correct predictions to be made. There are the persons predicted not to fail who in fact do not; these are known as negative hits. Some persons predicted to fail will in fact fail; these are called positive hits. The two types of correct predictions and the two types of errors exhaust the possible outcomes of the predictive selection problem.

Placement of the selection ratio and the definition of the base-rate determine (within the expectation of the marginal distributions) the errors of each type to be made. In selective incapacitation proposals, the cutting score will be selected somewhere above the mean

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of the risk distribution (or else the high risk cases would not be selected). The criterion cutting score would lie above the mean of the distribution representing subsequent criminal behavior (or else the scheme would call for selectively incapacitating average or below average offenders).

As mentioned, the placement of the cutting scores (base rate and selection ratio) will determine the relative numbers of false positives and false negatives experienced. The _number_ of errors to be made cannot be manipulated in this way -- only the relative proportion of the two types may be changed.[113] Thus, either false positives or false negatives may be increased or decreased, but always at the expense of the other; one has only to change the cutting score(s).

Clearly, neither error is desirable in the context of selective incapacitation. False positives must be abhorred from the ethics of desert, false negatives from the ethics of utility. Which error is more important is a question that may never be settled in moral philosophy or in public policy. Moreover, it may well be that the two types of error are not equal in either human or monitary costs.

Selective Deinstitutionalization: Consider instead a policy not of selective incapacitation but one of "selective deinstitutionalization." Assume the population of interest to be persons already incarcerated (or to be incarcerated) under _any_ existing incarceration policy. Suppose that we wish to reduce the institutional population. Obvious selection criteria for the decision as to who not to incarcerate could include the risk of recidivism, or the risk of

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[113] The only way to change the _number_ of errors to be made is to increase the accuracy of the prediction tool used.

serious harms, or the risk of serious harms to be committed at a high
rate.[114]

Now the selection criterion (the cutting-score on the risk
measure) would lie _below_ the mean of the distribution of risk scores.
That is, we wish to select those inmates or otherwise prison-bound
offenders who appear to represent the _least_ risk of repeated offending.
Since we seek to identify the best risks, the criterion cutting score
also likely would lie below the mean. Just as before, the trade-off of
false positives and false negatives could be manipulated by moving the
cutting-scores for the risk measure up or down. For any given value of
the criterion cutting score, the value of the risk cutting-score will
determine size of the selected group but also whether more false
positive or false negative errors will be made.[115]

Errors, Ethics, and Policy: The ethical consequences of errors
made under the strategy of selective incapacitation and that of
selective deinstitutionalization are quite different. In a selective
incapacitation strategy, the effect of a false positive is to deny
liberty based on faulty prediction. The aim is to minimize false
negatives; that is, it is sought to minimize the failure to select those
who in fact pose a substantial risk of continued criminal behavior.
And, unless predictive accuracy can be increased, reducing false
negatives can be done only at the expense of increasing false positives.

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[114] Other criteria of course could be used. For example, those
classified as least deserving of punishment could be released or
excluded from incarceration.

[115] Manipulation of the criterion cutting score would, of course,
present the same trade-off.

In the selective deinstitutionalization scenario, it also is the case that false positives will be punished more harshly than will those selected for release or non-incarceration based on the selection device. *The critical distinction is that they will not be punished more harshly than they would have been had the device -- and prediction -- not been used.* Rather than falsely treating some persons more harshly than is believed to be justly deserved, this proposal treats some persons less harshly than that and treats some persons no more harshly than that.

The selective deinstitutionalization proposal does rely, for its ethical justification, on a permissive rather than positive retributivism. Attention recently has been called to these two types of retributive principles, along with one other: negative retributivism.[116] The principle of negative retributivism asserts that one who is not guilty must not be punished. (One may think that negative retributivism is non-controversial; yet, it is precisely one point of criticism of selective incapacitation proposals that some persons expected to commit crimes will be punished for offenses not yet committed and which might not ever be committed.) That of positive retributivism states that one who is guilty ought to be punished. The principle of permissive retributivism posits that one who is guilty *may* be punished.

The selective deinstitutionalization proposal is not inconsistent with the ethical view of permissive retributivism: the guilty may be punished.

A selective incapacitation proposal and a selective deinstitutionalization proposal differ substantially with respect to

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[116] Mackie, J.L., "Morality and the Retributive Emotions," _Criminal Justice Ethics_, Winter/Spring, 1982, 3 -10.

proposed policy changes and the consequences of these. Proponents of

selective incapacitation clearly suggest that a proper purpose of

incarceration is the prevention of crime by removal of offenders from

society in order that they can not engage in criminal activity in the

community. The suggestion then has been made for a radical change in

sentencing and imprisonment policy, based in part on the claims made for

the accuracy of prediction.

The selective deinstitutionalization proposal relies on no

presumption of a need for radical change in sentencing policy in

general. The strategy could be adopted even if it is assumed that all

purposes for sentencing as currently practiced are equally valid. The

scheme does propose that risk -- and an incapacitative purpose -- should

be a primary consideration in decisions aimed at prison population

reduction.

There is a fundamental difference between the two situations, and

this difference requires clarification of the earlier question: Is

prediction currently accurate enough to be useful? When the question is

stated in this way, the answer can only be yes and no. Prediction in

criminal justice settings clearly is not sufficiently accurate to form

the basis of social policy. Proposals for dramatic changes in policy

and practice that rely on the accuracy of prediction are premature at

best.

Once social policy has been set, however, prediction clearly is

sufficiently accurate to be useful, and the decisions made will be more

accurate if statistically based prediction tools are used.[117] Even when

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[117] For reviews, see Meehl, Paul E., <u>Clinical vs. Statistical</u>
       <u>Prediction</u>, Minneapolis: University of Minnesota Press, 1954;

validity is quite low, it has been demonstrated that such selection

devices provide significant improvements in accuracy.[118]

We prefer the selective deinstitutionalization proposal over the

selective incapacitation proposal and note that the choice mainly is an

ethical one. But the consequences of the proposal are more benign than

are those arising from the selective incapacitation concept. Predictive

accuracy, while sufficient for the former, is insufficient for the

latter. Thus, the selective deinstitutionalization concept is believed

to meliorate the ethical concerns discussed and to hold promise for

reducing prison crowding without endangering the public.

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[118]   Dunnette, M. D., Personnel Selection and Placement, Belmont,
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