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RECIDIVISM AMONG CRIMINAL OFFENDERS

A Review of the Literature

April 1986



Program Services Unit
Division of Juvenile Rehabilitation

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RECIDIVISM AMONG CRIMINAL OFFENDERS:

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Preface

This paper presents both a summary and an annotated bibliography of recent literature on recidivism among offenders.

This review is the fifth in a series produced by the Division of Juvenile Rehabilitation, Program Services Unit. All reviews issued will be periodically updated and reissued, with the intent of providing a useful resource to those involved in the treatment of juvenile offenders.

We would like to acknowledge the effort of Denise Lishner in developing this review.

Other reviews:

The Sex Offender (October, 1984)

Social Skills Training for Juvenile Offenders (February, 1985)

The Treatment of Drug/Alcohol Abuse Among Juvenile Offenders (July, 1985)

Education as Rehabilitation for Juvenile Offenders (October, 1985)

SUMMARY OF THE RESEARCH LITERATURE:
RECIDIVISM AMONG CRIMINAL OFFENDERS

I. Introduction

One of the most important factors considered when making treatment and rehabilitation decisions is the likelihood that an offender will commit another offense. The prediction of recidivism is integral to improving decisions about alternatives for rehabilitation, determining who should receive parole and what type of supervision is needed, and providing an immediate measure of program effectiveness (Toch, 1978). The recidivism research literature reflects successive attempts to isolate factors which discriminate between recidivists and non-recidivists and efforts to improve the efficiency of prediction systems as a basis for criminal justice decisions.

In this summary of the literature, definitions that have been used for recidivism and at-risk period are discussed. Issues regarding the prediction of offenders are then reviewed. A more technical section reviewing risk assessment instruments and statistical techniques follows. Findings regarding general recidivism and juvenile recidivism are then presented. Finally, an implications section completes the literature summary.

II. Recidivism and At-Risk Period Defined

Juvenile recidivism has been variously defined as commission of a second offense, rearrest, reconviction, reincarceration, parole revocation, rearrest or reincarceration as an adult, or reconviction for a felony or major offense. These definitions of recidivism are usually dichotomized so that a person is either considered to be a recidivist or non-recidivist. This definition does not generally take into account the severity of the offense, and therefore, may label in similar fashion a person who fails to go to school (resulting in a parole violation) and a person who commits a murder. Sellin and Wolfgang (1964) developed a measure of severity of offense, employing relative outcomes such as parole violation, misdemeanor or felony. This method differentiates each category of outcome but requires more complicated methods of analysis than those used with simple dichotomies (Kerr, 1982).

It is important that the criterion be specified for purposes of prediction studies. Depending on which of six definitions of recidivism were applied, Holland et.al.(1983) found that the rate of failure varied from 10 to 57 percent. Furthermore, the use of certain criterion measures may reflect patterns of law enforcement, or problems with reliance on official measures, rather than actual rates of reoffense.

Studies of recidivism specify a follow-up period which may range from several months to ten or more years. A six-month follow-up study which categorizes recidivists as those who commit a second offense in that time period will fail to label as recidivist a person who commits a murder seven months later. Study outcomes, and especially recidivism rates, are therefore dependent on the length of the "at risk" period being assessed.

Although it has generally been shown that the risk of failure is greatest the first two years after release, this may be a function of the methods used to compute failure rates (Waldo and Griswold, n.d.; Minor and Courlander, 1979). In a study of parolees, Heilbrun (1978) found that the relationship of some prediction variables to recidivism can change depending on the length of follow-up used in the study. He challenged the assumption that violent criminals are better parole risks than non-violent criminals by demonstrating that violent prisoners only appear to be better risks in studies with relatively short follow-up periods.

Different procedures for computing failure rates have yielded differing periods of high risk for failure (Berecochea et al, 1972). This casts doubt on the notion that the months just after release are always the most risk-prone. A study of federal prisoners found that most violations occur the first year, but that the violation rate of those remaining at risk is relatively constant for each of the four succeeding six-month periods (Hoffman and Stone-Meierhoefer, 1979). Considerable differences were found in the rate of arrest among four distinct risk groups but these differences decreased over time.

In general, the findings on at risk period suggest that variations in at risk periods across groups may lead to erroneous conclusions if recidivism rates are not constant. The best way to avoid this problem is to use a constant at risk period.

III. The Prediction of Risk

To predict recidivism, one uses knowledge of factors related to recidivism to estimate the probability of a crime being committed in the future. Researchers have attempted to isolate variables associated with high risk, including predispositional factors (demographic and criminal history variables such as sex, race, age at first arrest) and environmental or treatment variables (personality factors, length of employment, and family relationships).

Risk is a statement of probability that can be applied to an individual based on empirical experience with groups of people having similar characteristics. Any statement of risk has an associated success and error rate. For example, if male juvenile burglars have a 60 percent risk of recidivism, that means that 60 percent of young male burglars will become recidivists and 40 percent will not. If these rates are applied to an individual being released on parole to indicate that person has a 60 percent chance of being a recidivist, the prediction that he will be a recidivist will be wrong 40 percent of the time (Kerr, 1982).

The issue of false positives and false negatives in the prediction of risk raises correctional management concerns. "False positives" refer to non-recidivating subjects predicted to become recidivists; "false negatives" refer to those predicted to be non-recidivists who became recidivists. If parole decisions are influenced by predictions of risk, administrators must be concerned about the rate of false negatives (parolees committing crimes in the community) and false positives (delinquents denied release who would not have reoffended if released). A large number of false positives are likely to occur when predicting a low rate of occurrence (Monahan, 1981).

When addressing the accuracy of a prediction, it is important to first determine the base rate of recidivism for that population (Ohlin and Duncan, 1949). Knowledge of base rates does not indicate who will be a recidivist but can be used to determine the differential effectiveness of rehabilitation treatments by comparing post-treatment recidivism rates to the base rate for a given population. Base rates can also be used to assess the efficiency of a given prediction system.

The calculation of predictive accuracy is more complicated when assigning subjects to risk groups rather than dichotomous predicted outcome groups (Kerr, 1982). The most commonly used statistic to measure separation of risk groups and associated recidivism rates is the "Mean Cost Rating" (Duncan, Ohlin, Reiss and Stanton, 1953).

The value of a prediction system is judged by its ability to predict above the chance level. In the case of a 10 percent recidivism base rate, if one were to predict that a person would be a non-recidivist, they would be right 90 percent of the time. For a prediction system to make a contribution at this base rate, it would need to have a better than 90 percent accuracy rate. The difficulty of predictive accuracy increases with very high or very low base rate populations (Kerr, 1982).

The accuracy of most predictor systems is judged retrospectively by applying the prediction to a group of people where the outcomes are known--the derivation sample. The real proof of accuracy occurs when the prediction is applied to a new or "validation" sample of the target population. There is a reduction or "shrinkage," in the accuracy rate in a validation sample because the effects of chance relationships are maximized in the deviation sample (Kerr, 1982).

IV. Prediction Instruments and Methods

Systematic attempts to develop a prediction system began in 1923 when social scientists began looking at differences between those who were arrested and those who were not. Warner (1923) found that the greater the number of previous crimes committed by a delinquent, the greater likelihood of recidivism. Hart (1923) first used the "experience table" which provided an estimate of "prior probability" of reoffense depending on the descriptive category of the offenses, based on selected variables. Burgess (1928) weighted the predictors of recidivism, finding the best predictors to be criminal record, marital status, and previous work record. The Gluecks (1930) weighted each category according to its associated failure rate. Vold (1931) later found a high correlation between the Burgess and Glueck scoring methods. He also was first to use cross-validation methods. Ohlin and Duncan (1949) stressed the importance of cross validation to assess the applicability of a prediction system on a new sample.

Ohlin (1951) identified 12 predictors of recidivism, including items representing the offender's behavior/attitude during current sentence. Points were summed to obtain a prediction score for each prisoner. A

failure rate was established which indicated the probability of parole failure for prisoners obtaining that score. Glaser (1954) developed predictors reflecting social development patterns. A configuration table (Glaser, 1955) used a series of variables partitioned into sub-categories. Shrinkage was later found on cross-validation (Gottfredson, 1967; Simon, 1971). Mannheim and Wilkins (1955) computed multiple regression equations to predict recidivism using 60 variables (history of drunkenness, number of previous convictions, whether living with parents, residence in an industrial area).

Prediction of recidivism with personality inventory data developed independently from a correctional management research tradition, largely based on the Minnesota Multiphasic Personality Inventory, or MMPI (Hathaway and McKinley, 1943). Hathaway and Monachesi (1953) found that different MMPI scales were associated with delinquency and non-delinquency. Wirt and Briggs (1959) used the MMPI to understand the interaction between personality and environmental causes of delinquency.

Subsequent research stressed discriminating criterion groups by the creation of new scales of items, emphasizing empirical and mathematical prediction accuracy rates. Stanton (1956) reported that multiple offenders scored higher on the MMPI Pd and Ma (delinquency) scales and Morrice (1957) found adult recidivists to have higher scores on the MMPI F scales indicating differences between adult recidivists and non-recidivists. Freeman and Mason (1952) developed a new scale to discriminate recidivists from non-recidivists but it did not cross-validate. Panton (1962) developed a scale which discriminated adult violators and non-violators, and successfully identified 80.5 percent of both recidivists and non-recidivists in the derivation sample.

Gough, et.al., (1965) looked at the relative contribution of demographic and personality inventory data and produced prediction scores based on different combinations of predictor variables. Black (1967) created a 22-item scale and formed a recidivism-rehabilitation index which reached 90 percent accuracy with only 7.8 percent false positives, although cross-validation demonstrated shrinkage (Frank, 1970). In a study of 646 juvenile offenders, Gendreau et.al., (1979) concluded that experimental scales were mediocre predictors of recidivism and that the MMPI fared poorly in comparison to these scales.

Most early prediction systems took the form of configuration or expectancy tables which successively break down categories of subject characteristics and associated recidivism rates. Advantages of this technique are that it is easy to understand, can be applied without the use of a computer, and is more stable than linear approaches when applied to validation samples (Babst, et. al., 1968).

The California Youth Authority's Base Expectancy Table (Gottfredson and Bonds, 1961) represents the most thoroughly researched and widely applied prediction system for juveniles (Kerr, 1982). These tables were derived from a multiple regression analysis producing scores which were then grouped into risk classes. The Base Expectancy table for male delinquents is based on seven variables, and resulting groups are scored with associated rates of failure.

The salient factor score prediction instrument (Hoffman and Beck, 1980) is used to classify parole applicants into four risk groups, based on number of prior convictions, prior incarcerations, age at first commitment, type of offense, parole history, drug history and employment. Hoffman and Beck (1980) found that the salient factor score retained predictive power when applied to a sample of federal prisoners. However, another validation study (LeClair, Metzler, and Landolfi, 1980) found weak evidence of validation, except when scores approached high and low extremes.

Multiple regression or linear approaches use a correlation technique to minimize errors. This technique has been found to be at least as accurate as configural strategies (Pritchard, 1977; Wiggins, 1973). In a series of reports, Gottfredson and colleagues found that multiple linear regression analysis was superior to several configural strategies in separating parole successes from failures (Ballard and Gottfredson, 1963; Gottfredson and Ballard, 1965). Babst, Gottfredson, and Ballard (1968) found the two strategies were equal in predictive efficiency. Duncan, Ohlin, Reiss and Stanton (1953) reported a similar finding for male delinquents. Goldberg (1965) found the linear approach to be superior for diagnosis of neurosis or psychosis. In recent times, multiple regression techniques have been applied to configuration tables for more sophisticated prediction.

Several studies have compared the various statistical methods for predicting recidivism. Simon (1972) assessed several multivariate methods for combining variables into a prediction instrument, including point scales, multiple regression, and hierarchal configurations, and concluded that all worked equally well when predicting reconviction of probationers. Alumbaugh, et. al., (1978) contrasted factor analysis, stepwise regression, and stepwise discriminant functions and found that stepwise discriminant functions provided more consistent selection of variables and showed the most predictive efficiency. Wenk (1979) compared the predictive power of four different strategies (multiple regression, predictive attribute analysis, association analysis, and the Burgess method) and found that predictive attribute analysis had the highest predictive power and the Burgess technique the least. Gottfredson and Gottfredson (1980) compared the predictive utility of five statistical methods: two linear additive models, two configural models, and a model based on a multivariate contingency approach. They found that most methods were highly intercorrelated and no single method had an advantage. The authors suggest that the decision as to which risk screening device to use should depend on factors other than the statistical power of the methods, and add that a combination of these methods may hold promise.

Despite these advances in prediction efficiency, accuracy rates are disappointing (Sawyer, 1966; Simon, 1971) and it is rare to classify correctly more than 70 percent of offenders (Kerr, 1982). Nevertheless, studies have consistently shown improvements in prediction when applying the various statistical methods (Holland et.al., 1983; Monahan, 1981; Sawyer, 1966), linear methods (Gough, 1962; Meehl, 1954) or combined statistical and clinical methods (Wenk, 1979), as compared to clinical judgments alone.

One study found that therapists were accurate in no more than one out of three predictions of violent behavior over a several year period with violent offenders (Monahan, 1981). Statistical prediction systems were found to consistently out-perform decision makers in predicting arrest and conviction; decision makers performed best when forecasting violent criminal conduct resulting in incarceration (Holland et al, 1983).

V. General Findings

It is well established that the best predictor of future criminal behavior is past criminal behavior (Gottfredson, 1967). Prior felony convictions accounted for almost half the variance between recidivists and non-recidivists in a sample of prison inmates (Brown et al, 1978). Schmidt and Witte (1979) describe the type of ex-inmate likely to return to prison as young, single, uneducated, imprisoned for a crime other than crimes against persons, with many previous convictions and rule violations. Factors determining parole outcome (National Institute of Corrections, 1980) include nature of the committing offense, existence of a juvenile criminal history, prior probation or parole violations, and prior adult-felony incarceration. In a review of 71 studies relating predictors to recidivism among adult offenders, Pritchard (1979) reported that first arrest before the age of 18 was consistently related to recidivism. The most stable predictors were auto theft convictions, presence of prior convictions, instability of employment, first arrest at an early age, unstable living arrangements, lower current income, and history of opiate or alcohol use.

Other researchers have focused on personality factors which are harder to measure reliably, but are more easily changed than demographic factors and are thus more often a focus of treatment programs (Kerr, 1982). Recidivists have consistently been reputed to have lower intelligence test scores than non-recidivists (Ganzer and Sarason, 1973; Hollard and Holt, 1975; Laulicht, 1963), to demonstrate greater impulsivity (Roberts et al, 1974) and a greater degree of emotional disturbance such as anxiety and social alienation (Holland and Holt, 1975). Gendreau et.al. (1979) report that social history variables predict better than psychometric variables, despite their earlier findings (1950) that a change in self esteem during incarceration was the strongest predictor of recidivism two years after release. While Mandelzys (1979) found that the severity of the most recent offense and probability of recidivism were related to social background and psychometric factors among adult inmates, the most consistent relationship centered on background variables (total number of arrests and first offense variables).

VI. Juvenile Recidivism

Most studies of factors predicting parole success or recidivism have involved adults and it is not known to what extent these findings are applicable to juveniles (Laulicht, 1965). Studies involving juveniles are, however, consistent with the literature on adults. Mannheim and Wilkins (1955) found that early initiators of crime, truants, runaways, and youths

with a long stay in training school, were more likely to be repeaters. Laulicht (1965) found 17 items to be significantly associated with recidivism among boys released from training school including delinquency record, type of offense, younger at age of commitment and discharge, below average intelligence, length of stay and type of discharge.

Ganzer and Sarason (1973) isolated variables to discriminate recidivists and non-recidivists among formerly institutionalized juvenile delinquents, using an experience table. Recidivists were institutionalized at younger ages, had lower estimated verbal intelligence and were more likely to be diagnosed as having a sociopathic personality compared to non-recidivists. Offense type did not differentiate recidivists and non-recidivists in this study. Alumbaugh et.al. (1978) indicated that the strongest predictors include frequency of delinquent behavior, number of isolations at the diagnostic center, adjustment at release from parole, number of times committed final offense, and primary diagnosis as "dyssocial". The most powerful predictors were institutional variables (length of stay and adjustment to the institution).

Recently, researchers have studied whether certain predictors of recidivism are more useful for different delinquent populations. This research assumes that different relationships between predictors and recidivism will be found because of differences among the groups of recidivists. Glaser and O'Leary (1956), for example, highlighted differences in post-release violator rates of males and females within such categories as age at release and type of offense. Beverly (1968) explored the potential for different combinations of predictors to differentially predict subgroups of male delinquents and came up with three variables to distinguish subgroups: readmission status, admission from adult court, and under 16 years old at admission.

In general, the research findings suggest that different groups of offenders reoffend for different reasons. The relationship between psychological attitudes and criminal activity was found to vary considerably within groups defined by seriousness of offense (Werner and Palmer, 1976). The importance of considering sex differences in predicting recidivism has also been demonstrated (Alder and Bazemore, 1980; Ganzer and Sarason, 1973). Separating subgroups facilitates prediction and suggests differing supervision and treatment needs (Schmidt and Witte, 1979).

Generally, researchers have determined that crimes against property are associated with higher recidivism rates than crimes against persons in both delinquents (Beverly, 1959; Gottfredson and Bonds, 1961) and adult criminals (Waller, 1970). However, this is disputed by Heilbrun (1978) who claims it is an artifact of the follow-up period being assessed. Mandelzys (1979) found that low to moderate severity offenses (property crimes) had a high probability of recidivism and high severity offenses (person crimes) had a lower recidivism rate.

VII. Implications

The findings of the recidivism research summarized in this section have important practical implications for those involved in the day to day treatment and custody of juvenile offenders. Several things are clear. Recidivism is not a random, unpredictable event; specific factors have been consistently associated with reoffending. These factors can be used to predict the risk of reoffending. Predictions are not perfect and any policy based on the prediction of risk must take into account false positives (those who are predicted to reoffend but who do not) and false negatives (those predicted to remain offense free but who do reoffend). Despite the problem of false negatives, false positives, and shrinkage (prediction models never predict as well for new populations as they do on the population used to develop the model), the predictability of risk can be a useful tool in making decisions on parole eligibility, placement, and treatment effectiveness.

As the previous section indicated, two general types of variables predict risk: predispositional factors and environmental factors. Predispositional factors are the strongest predictors of recidivism. Unfortunately from a treatment perspective, they are also the factors that cannot be altered through treatment intervention. Included in this category are factors such as age at first arrest, age at first commitment, prior criminal history, current offense, etc.

Environmental factors, on the other hand, while not as good a predictor of risk, are amenable to change through treatment intervention. Included in this category are personality factors (self-esteem, impulsivity, etc.) and other variables such as social skills, drug/alcohol dependence, family relationships, etc. These factors should be the target of treatment intervention, and change in these variables can be used as an indicator of anticipated treatment effectiveness.

Risk prediction instruments, based on the factors related to recidivism, have a long history dating back to the 1920's. In general, instruments based on objective measures of the variables described in the preceding paragraphs have proved much more effective than clinical predictions or predictions based on personality measures alone.

There has been considerable debate over the degree to which instruments developed in one jurisdiction can be transferred to other jurisdictions (transferrability) but in general, regardless of where risk instruments have been developed, they tend to include the same or similar sets of variables. The following eight factors have been identified as being most highly predictive of juvenile recidivism (Baird, Classification of Juveniles in Corrections: A Model Systems Approach, n.d.):

- 1) Age at first adjudication.
- 2) Prior criminal behavior (composite measure of frequency and severity).
- 3) Number of prior commitments to juvenile facilities.

- 4) Drug/chemical abuse.
- 5) Alcohol abuse.
- 6) Family relationships (lack of parental control).
- 7) School problems (truancy; disciplinary problems).
- 8) Peer relationships (lack of positive, supportive relationships; delinquent companions; gang membership).

Baird suggests that risk instruments can be used for two somewhat different purposes. The first involves the traditional judgment on risk to reoffend and would influence placement and supervision decisions. The second, involving environmental factors, uses risk predictive variables to target specific areas of special need. Needs assessment enables treatment staff to focus treatment on areas most likely to produce a decrease in recidivism.

In summary, it should be clear that not only can risk be predicted, but that the prediction of risk should become increasingly important in the day to day decisions made in the treatment and custody of juvenile offenders. Clinical judgment, to the extent that it is not based on the predispositional and environmental factors predictive of risk, has been shown to be a poor predictor of who will reoffend. Paradoxically, it is such clinical judgments which have traditionally played the major role in decisions on placement and parole.

The use of risk predicting factors can be viewed either negatively, as part of the trend toward a more mechanical and less individualistic treatment systems, or positively, as a means of targeting those areas of need which should be the focus of treatment. Hopefully, treatment staff will view the developments in the area of risk prediction as an opportunity to provide better treatment while also providing increased protection to the community.

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Alder, C. and Basemore, G. "Female Offenders." In Issues in the Application of Parole Guidelines to Females. Griffins, Curt T. and Nance, Margit (eds.), 1980, 289-307.

The issue of whether existing predictive parole decision making guidelines validated for male offenders are valid for female offenders, or whether a separate set of guidelines should be developed for women, is examined. The predictive items used with the federal parole guidelines have not yet been validated for their female subpopulation. While a host of studies have developed prediction items for male populations, very few have attempted to develop items for females. Currently, only two of the items now used in the federal guidelines--number of prior incarcerations and history of drug dependency--have been clearly established to predict future offending for women parolees. Earlier work by Glaser and O'Leary (1956) highlights differences in post release violation rates of males and females within such categories as age at release, prior contact with agencies of the law, type of offense, and racial or national descent. For type of prior contacts, although the pattern of prediction is roughly the same, differences in the magnitude of violation rates for men and women are evident. In terms of offense seriousness, however, even the pattern of prediction is not consistent. Such variation in offending for men and women within risk categories should warrant skepticism about using the same predictive or item weightings for male and female offenders. If it is the case that existing predictive items used in parole guidelines are not appropriate or valid for female inmates, ethical and legal issues would dictate the creation of separate guidelines for females. However, the body of research currently available cannot unequivocally refute the possibility of applying current guidelines to women as a subpopulation nor state with certainty that separate guidelines for women are required. Further cooperative research is needed.

Alumbaugh, Richard V., Crigler, Marcia, and Dightman, Cameron R. "Comparison of Multivariate Techniques in the Prediction of Juvenile Post Parole Outcome." Education and Psychology Measurement, 1978, 38, 97-104.

Most researchers have used a variation of multiple regression, while a few have made use of discriminant functions and factor analysis. This study contrasted three approaches in terms of predictive efficiency. 579 juvenile cases were selected from 1971 Washington State juvenile archives. Forty predictive variables from personal histories and behavior records of Office of Juvenile Rehabilitation were qualified. Set of predictors were generated on each of two samples by three methods: factor analysis, stepwise regression, and stepwise discriminant functions. Validation of these methods was assessed. Results showed that stepwise discriminant functions: 1) provided more consistent selection of variables, with seven of ten the same for all samples, and 2) demonstrated the most predictive efficiency, with fewer misclassifications and greater discriminability. Other methods had more misclassification, less discriminability, and were unreliable in selection of predictive variables for two validation samples. The regression analysis had problems with shrinkage.

Advantages of discriminant functions are that interrelationships among variables are analyzed and relative discriminatory power of each variate in combination can be determined. Factor scores provide heterogeneity to improve transferability from one sample to another. Few studies have contrasted the efficiency of these methods.

The strongest predictors included frequency of delinquent behavior, number of isolations at diagnostic center, adjustment at release from parole, delinquency behavior score, number of times committed final offense, primary diagnosis of "dyssocial," and two institutional variables, length of stay and adjustment to the institution. The most reliable predictors as determined by discriminant function analysis were number of days in the system, number of commitments, sex, and times placed in isolation.

Babst, Dean V., Gottfredson, Don M., and Ballard, Kelley B. "Comparison of Multiple Regression and Configural Analysis Techniques for Developing Base Expectancy Tables." Crime and Delinquency, 8(3), 1968, 72-80.

This study compares two statistical techniques (multiple regression and configural analysis) used in developing parole prediction tables, according to their ability to: (1) differentiate between offenders who violate parole and those who do not, (2) predict violators from among a new group of parolees and (3) assist administrators and researchers.

First, experience tables had to be developed and tested for prediction ability. Once their accuracy in predicting had been demonstrated, they could be used as base expectancies because they had the quality of being "expected." As such, they could be used as a yardstick to evaluate correctional programs' ability to reduce these "expected" violation rates.

The two methods were applied to the same body of data and the results were compared. The data consist of Wisconsin adult male offenders paroled in 1954-57 and in 1958-59. All were followed up for two years while they were on parole. The first group was used to develop the experience tables; the second used to test prediction ability.

The tables were compared for accuracy in differentiating parole violators and non-violators using Daniel Glaser's data gathered from federal parolees. Both configural and regression methods worked about equally well in differentiating between violators and non-violators and in estimating the proportion who will become violators in later groups. A combination of approaches is suggested.

Recent efforts to study effects of correctional programs have used parole prediction measures (called base expectancies) to control for variance in the parole violation criteria known to be related to variance in offender characteristics. Significant variation from the expected parole violation rate may be attributed to treatment, to unknown offender characteristics associated with treatment, or both. Base expectancies have been developed by multiple regression and configural analysis. Prediction devices developed through multiple linear regression are used by California's Department of Corrections and Department of Youth Authority. Tables developed by configural analysis have been used by federal government and other states. Advantages and disadvantages of the two methods are described. Both methods, as commonly used for development of parole prediction devices, work about equally well in differentiating between known violators and non-violators and in predicting the proportion who will become violators in later groups.

Barton, Russell R., and Turnbull, Bruce W. "Evaluation of Recidivism Data and Use of Failure Rate Regression Models." Evaluation Quarterly, 3(4), 1979, 629-642.

Recent papers have demonstrated the usefulness of failure rate methods in the evaluation of data from recidivism studies. The authors extend the discussion to show the applicability of recently developed failure rate regression techniques. Such methods allowing for covariates are important for demonstrating construct validity, adjusting for bias in observational studies, and identifying factors associated with successful outcomes. One technique presented in the paper allows for time varying covariates and does not require any particular parametric assumption about the time-to-failure distribution. Recidivism data from a Connecticut parolee study were used.

Recidivism is defined here as a relapse into criminal activity which may lead to rearrest, reconviction or reincarceration, or in this study, the rearrest rate of ex-offenders. Same technique can be applied to other measures such as reincarceration rate (Maltz and McCleary, 1977) or rate of rearrest leading to conviction (Witte and Schmidt, 1977).

When comparing performance of two non-randomly assigned treatment groups, regression analysis is especially important since bias can result if results are not adequate for inhomogeneity of covariate values across groups. Also used to suggest covariates associated with recidivism and those which are not. Most recidivism studies have used limited chi-square tests to check for factors correlated with post release failure, with recidivism given a dichotomous nature. Only recently have regression techniques been used to examine importance of factors in light of other covariates, yet the problem of confounding variables is characteristic of observational studies.

A study by Stollmack and Harris (1974) showed the power of failure rate techniques for evaluating recidivism data. The model assumed that risk was constant. Turnbull (1977) showed how non-parametric methods could be used to compare two programs.

The sample consisted of 37 and 71 maximum security male offenders paroled from two correctional institutions. The dependent variable was time from release until first arrest. The five covariates that were measured were correlated with recidivism. Tests all demonstrated a considerable difference between arrest rates for the two institutions. Adjustments were made for inhomogeneity of covariate values between groups to see whether the difference could be attributed to effectiveness of treatment. After adjustment for the four other covariates, the difference between institutions was not significant. Age alone explained most of the difference.

Berecochea, John E., Himelson, Alfred N., and Miller, Donald E. "The Risk of Failure During the Early Parole Period: A Methodological Note." Journal of Criminal Law, Criminology and Police Science, 1972, 63(1), 93-97.

The common assumption in corrections that risk of failure is highest during the first few months has frequently been supported by the literature. This paper focuses on the method of assessing failure rates used in these studies. The question of risk must be answered in terms of the entire population who risk parole failure, including those who do not fail. A proper statistical method asks what proportion of those at risk violate their parole during a given period. Three methods to compute failure rates are survivor cohort, ex post facto failure, and total release cohort. Different issues are addressed by the three methods, so the best method depends on what question is being asked.

This paper applies these procedures to an actual parole system. A total of 1270 narcotic addict releasees were studied for a three year period. The number of men who violated conditions of release was expressed as a percentage of the total number of those at risk. The rate of suspension was higher during the earlier periods following release and declined or leveled off at about the fifteenth month. The findings cast doubt on the theory that risk of parole violation is highest during the first few months following release.

Bloom, Howard S. "Evaluating Human Service and Correctional Programs by Modeling the Timing of Recidivism." Sociological Methods and Research, 8(2), 1979, 179-208.

This paper developed a new statistical model of recidivism which enables program evaluators to: (1) examine the short-term program impact of the postponement of recidivism through estimates of the average time at which recidivism occurs; (2) measure the long-term program impact on the prevention of recidivism through estimates of the ultimate probability of recidivism; and (3) help determine when individuals have been successful long enough to be considered "safe" through estimates of their conditional probability of future recidivism.

The statistical model is based on the premise that the longer one is successful (i.e., has avoided recidivism), the more likely one will remain so. A standard procedure for studying recidivism is to determine the percentage of individuals in a cohort who fail within a prescribed period (one to three years), yet this method ignores the timing of failures and may be misleading. This issue has been addressed by recent models (Stollmack and Harris, 1974; Maltz and McCleary, 1977; Witte and Schmidt, 1977; Harris and Moitra, 1978), yet there are methodological problems with many of these models. The author of this report developed a model based on a plausible behavioral assumption (probability of failure at risk period declines with time) by deriving parameters which are meaningful to policy makers. The study found that failures generally occur quite early (three to five months), declining to 10% in about nine months. Thus, there is little need for lengthy parole.

Brown, Robert C., D'Agostino, C. A., Craddick, E. A. "Prediction of Parole Outcome Based on Discriminant Function." Corrective and Social Psychiatry, 24(2), 1978, 93-101.

The study divided nine variables into three categories: (a) pre-institutional, (b) intra-institutional, and (c) post-institutional. Seven hypotheses were postulated to test whether specific internal and environmental factors could differentiate 37 recidivists from 101 non-recidivists in a group of parolees from a Georgia prison. Using discriminant analysis, 76 percent of the subjects were classified correctly. Six of the seven hypotheses were supported. One pre-institutional factor, the number of prior felony convictions, accounted for almost half of the total variance between groups. Two post-institutional factors, hourly wage on parole job and contacts with parole office, were also highly significant. Discriminant analysis showed promise as a statistical tool for constructing an adequate system for predicting parole outcome.

Cowden, James E., and Asher, R. "Predicting Institutional and Post Release Adjustment of Delinquent Boys." Journal of Consulting Psychology, 31(4), 1967, 377-381

Summary:

152 consecutive first admissions to a correctional school for delinquent boys were assessed in order to compare the predictive efficiency of five multiple-regression equations. Those equations demonstrating significant predictive efficiency predicted: (a) institutional adjustment, (b) the first three months of post release adjustment, (c) time on parole until revocation, and (d) time on parole until discharge. A global prognostic rating based upon personality factors best predicted institutional adjustment, while a global prognostic rating based primarily upon family background factors best predicted post release adjustment. Ratings from parole agent's reports were most predictive of time on parole until revocation and of time on parole until discharge from parole status. The study also demonstrated a technique for using multiple-regression results to segregate delinquent boys into subgroups with differing supervision and treatment needs, facilitating the use of such results in making day-to-day decisions about them.

The purpose of the study was to select variables which best predict institutional and post release adjustment, and to devise a means for classifying newly committed delinquent boys as to probable adjustment. The selection of predictors was based on earlier research, which suggested personality factors (Hathaway and Monachesi, 1953; Peterson, Quay and Cameron, 1959), age (Reckless, 1955), home environment (Weeks, 1943; Glueck, 1950), and seriousness of offenses (Glueck, 1945). Predictive efficiency of the following predictor variables was assessed: age at first admission; IQ; ratings of hostility; anxiety; religious involvement; scale scores from inventory measuring hostility, guilt, and other factors; and seriousness of offense and counselor prognostic ratings. Criterion variables were ratings of institutional adjustment, post release adjustment based on parole reports, time on parole until revocation, and time on parole until discharge.

The results demonstrate the value of the clinician in integrating various data for making a predictive judgment. Personality and behavior rating factors predictive of poor institutional and post release adjustment included high anxiety rating, high dependency rating, low rating on depressive features and guilt and inability to relate positively to adults. Parole agents' reports were accurate predictors of length of time until revocation or release. Four of five regression equations functioned satisfactorily in segregating boys in low, medium, and high subgroups showing progressively higher mean criterion scales, and can be used to segregate boys into groups differing in supervision or treatment needs.

David, George F. "Assessing Parole Violation Rates by Means of the Survivor Cohort Method." Federal Probation, 1980, 44(4), 26-32.

The survivor cohort method was compared to two other methods for assessing parole violation rates, and the hypothesis that early months on parole are the most risk prone was examined. The study sample consisted of the 4,959 youths paroled during 1972 by the California Youth Authority. The follow-up period was 48 months. The first method of calculation determined the percent of violators, by dividing the number of violators each month by the total violators, to indicate how long they were on parole at the time of removal. In the second method, the number of violators was divided by all youths released to show what percent violate parole each month. Both methods supported the theory of a higher violation rate during the early months of the parole period. However, neither rate indicated what period of time had the highest risk of failure.

Dean, Charles W. "New Directions for Parole Prediction Research." Journal of Criminal Law, Criminology and Police Science, 1968, 59(2).

Hypotheses relating parole outcome to theoretically relevant variables are suggested and data on the relationship between these and parole outcome are presented. Findings indicate that such variables can contribute significantly to the effectiveness of parole prediction research.

Early efforts to predict parole outcome utilized a long list of variables whose discriminating power was limited due to crude methods of scoring. Later research subjected procedures to more rigorous analytical techniques and weighted the variables on the basis of multiple regression coefficients to reduce the number of items with only a slight loss of predictive power. Current prediction devices are usually in the form of base expectancy scores. No research has demonstrated predictive ability of variables derived solely because of theoretical relevance. Three hypotheses that relate parole outcome to objective life conditions and five to social-psychological states are assessed in this report.

- a. Parole success varies with access to legitimate economic opportunities (Merton).
- b. Parole success varies with proportion of anti-criminal associations (Sutherland).
- c. Parole success varies inversely with access to illegitimate opportunities (Cloward and Ohlin).
- d. Parole success varies inversely with aspiration for culturally acclaimed success goals.
- e. Parole success varies inversely with prisonization.
- f. Parole success varies inversely with criminality of self concept (Reckless).
- g. Parole success varies inversely with identification with criminal others (Glaser).
- h. Parole success varies inversely with orientation to criminal means of problem solving (Sutherland).

Data were obtained from two groups of former inmates of penal institutions, 97 recidivists returned to prison (failure group) and 56 who were paroled without reoffending (success group). Data were collected on 83 variables used in prediction research plus social-psychological measures. These were correlated with parole outcome. Only 15 were strongly related to parole outcome. Data support hypotheses that parole success is related to criminal identification and to orientation to criminal means of goal attainment. (Only length of criminal record was more closely related to parole outcome than those two variables.)

Derenge, J. F. "Self-Concept, Family Congruence, and Productivity as Predictors of Success on Probation." Florida Institute of Technology, doctoral dissertation.

Ratings of 49 juveniles were obtained when they were placed on probation to determine if measures of self-concept, family congruence, and productivity would enhance the prediction of probation success beyond that provided by

demographic information. The scales used were the Tennessee Self-Concept Scale, the Family Environment Scale, and the Child and Adolescent Profile. Ratings were obtained from court and school personnel, parents, and subjects. After three months on probation, success was measured by recidivism and probation supervisors' judgements of personal growth and adjustment. The discriminant analyses on the two outcome criteria resulted in an accurate prediction rate of 92 percent for recidivism and 98 percent for a judgment of probation performance; however, the lower confidence level for the prediction of recidivism was 63.8 percent, a level too low for applying the selected predictors in actual practice. The lower confidence level for probation performance, 85.9 percent, was high enough for application, but it was based on supervisors' ratings that have failed to demonstrate adequate reliability or validity. The scores used to measure self-concept and productivity showed particular value as predictors of probation outcome. Generally, the psychological variables demonstrated more promise as predictors of probation outcome than did the demographic variables. The measure used for family congruence and most of the teachers' rating showed little predictive ability.

Fuchs, Camil and Flanagan, John "Stepwise Fitting of Logit Models with Categorical Predictors in the Analysis of Parole Outcomes. In the Van Alstyne and Gottfredson Study." Journal of Research in Crime and Delinquency, 17(2), 273-279.

A multiple dimensional contingency analysis to study parole prediction (Van Alstyne and Gottfredson, 1978) did not distinguish between relevant and non-relevant variables. This study utilized a stepwise procedure for fitting logit models with categorical predictors, to detect non-relevant predictor variables. Previously reported discrepancies between models were removed by collapsing the table over the non-relevant variable age. The results emphasize the importance of properly screening the set of possible predictor variables and detecting the relevant ones.

This study examined the relationship of the dichotomous parole outcome on four predictor variables: type of commitment offense, age, prior record, and alcohol or drug dependency. The sample of 5,587 men granted parole in Ohio 1965-72 was randomly divided into two subsamples: the construction sample (N=2793) and the validation sample (N=2794). When the table was collapsed for the validation sample, the data were adequately represented by a simple model.

Ganzer, Victor J., and Sarason, Irwin G. "Variables Associated with Recidivism Among Juvenile Delinquents." Journal of Consulting and Clinical Psychology, 1973, 40, 1-5.

Summary:

This study attempted to isolate variables which would discriminate between recidivists and non-recidivists in a sample of formerly institutionalized juvenile delinquents using experience table methodology. Institution case

files were selected and compared for 200 subjects, half male and half female, half recidivists and half non-recidivists. Thirty-four family background and personality variables were compared. Seven significantly discriminated between recidivists and non-recidivists. Recidivists were first arrested and first institutionalized at younger ages, had lower estimated verbal intelligence, and were more frequently diagnosed as sociopathic personality than non-recidivists. Females more frequently came from personally and socially disorganized families than did males. Findings underline importance of considering sex differences in future research to predict juvenile recidivism.

Recidivism was defined as the return to a juvenile institution as a parole violator or recommitment, conviction with resulting probationary placement, or conviction and incarceration in an adult correctional facility. Only a slightly greater proportion of recidivists came from broken families. Socioeconomic status was not related to recidivism for either sex, but 85 percent fell within the two lowest socioeconomic status categories. No appreciable differences were found for educational level of head of household or family contacts with police. Male recidivists were younger at time of first commitment. More female recidivists than non-recidivists had a history of anti-social behavior at age 14 or younger. Fourfold classifications of offense type did not differentiate between recidivists and non-recidivists, contrary to findings by Gough, Wenk and Rozyko (1965) and Craig and Budd (1967) that suggested that juvenile male recidivists more frequently committed property offenses than non-recidivists. A significantly greater proportion of males than females were committed for high severity offenses and had histories of more chronic delinquent behavior. Diagnosis of sociopathic personality demonstrated the strongest overall relationship to recidivism. A greater proportion of non-recidivists than recidivists had good institutional adjustments. A greater proportion of recidivists had IQ's in dull normal range and below.

The most promising potential predictors of recidivism were associated with several family background factors, age at first offense and commitment, and diagnostic classification. Females come from more disorganized families, yet this may be because only the most severely delinquent girls are represented due to systematic selection factor.

Gendreau, Paul, Grant, Brian A., Leipziger, Mary and Collins, Stephen. "Norms and Recidivism Rates for the MMPI and Selected Experimental Scales on a Canadian Delinquent Sample." Canadian Journal of Behavioral Sciences, 1979, 2(1), 21-31.

Summary:

This study provides norms and recidivism rates on the MMPI and selected experimental scales for a sample of young offenders. The data confirmed a need for updating the MMPI and selected experimental scale norms on correctional samples. Specific changes in delinquents' MMPI norms were noted and compared to norms gathered on psychiatric samples in Ontario. The adequacy

of psychological tests, in particular the MMPI and the selected experimental scales, in predicting recidivism is discussed. At best, the scales in the present study are mediocre predictors of recidivism and the MMPI fared relatively poorly in comparison to some of the selected experimental scales.

Correctional psychology frequently focuses on personality variables, relying on MMPI and other experimental scales. Limited normative data are available on these scales for special subgroups of delinquents. A need is indicated for updating of MMPI norms and norms for experimental scales necessary to develop better classification systems and provide baseline data for comparative studies in corrections. There is also a need to document the relationship between personality assessment and recidivism.

This study's subjects were 646 inmates, mean age 20, who were tracked over two years. Data included MMPI scales, Pantoni's (1958) prison adjustment scale, and two outcome prediction scales. The inmates were interviewed and tested on the scales. Recidivism data were obtained for the two years after release. Stepwise regression was applied to the data. The reconviction rate after two years was 48.8 percent. MMPI single scale correlations with recidivism were low ($R=.00$ to $.11$). Correlations of experimental scales with reconviction ranged from $.00$ to $.18$, $R=.39$. There was a slight increase in predictive power for the MMPI and the experimental scales combined. Discriminant function analysis was carried out to determine the accuracy of predicting scales. The authors selected 12 scales for optional classification, which correctly classified 66.5 percent of reconvicted inmates (as opposed to 50 percent by chance).

A need to update norms on correctional samples was indicated. Identification with the subculture and impulsivity are still common to delinquent samples, but these samples display traits once considered characteristics of psychiatric samples. The capability of psychological tests to predict recidivism is a complex question. This study provided favorable conditions for adequate predictions to occur, yet the MMPI fared poorly. Some experimental scales compared favorably but had high false positive rate. The study does not provide compelling reasons for use of trait--like measures such as the MMPI to predict offenders' behavior. Other types of information can predict as well with less time (Gendreau, Madden and Leipziger, in press). The study suggests designing studies that account for the interaction of traits with situations to enhance prediction accuracy.

Gendreau, Paul, Grant, Brian A. and Leipziger, Mary. "Self-Esteem, Incarceration and Recidivism." Criminal Justice and Behavior, 1979, 6(1), 67-75

Changes in self-esteem, measured shortly after entry to prison and prior to release, were predictive of recidivism two years after release. Results confirmed the assumption that the assessment and treatment of self-esteem in correctional settings is important because the variable is related to

post prison adjustment. Self-esteem measured prior to release was the best predictor of recidivism. The discriminant function analysis found a classification rate for recidivism of 82.4 percent. The results provided several suggestions for correctional clinicians concerned with the diagnosis of self-esteem, particularly in relation to recidivism.

Gendreau, P., Madden, P. G., Leipziger, M. "Predicting Recidivism with Social History Information and a Comparison of their Predictive Power with Psychometric Variables." Canadian Journal of Criminology, 1980, 22(3), 328-336.

The value of social history data as compared to psychometric variables, in predicting recidivism is examined for 802 inmates of an Ontario (Canada) correctional facility from 1970 to 1972. At the time of admission, subjects completed extensive social history interviews exploring their family background, educational and work history, prior criminal contacts, and situation immediately prior to incarceration. Psychometric data were collected on the Minnesota Multiphasic Personality Inventory (MMPI) and 14 commonly used experimental scales. The criterion used for recidivism was a reconviction at two years after release from the facility. Recidivism predictions were made on the basis of (1) social histories, (2) psychometric variables, and (3) social histories and psychometric variables combined, and compared to the actual recidivism data. Statistical analysis (step-wise multiple regression using a forward selection technique) indicated that social history variables predicted recidivism better than psychometric variables. Moreover, upon cross validation, less shrinkage in prediction was found for the social history variables as compared to the psychometric data, indicating superior reliability and stability in the social history data. Furthermore, when the psychological test data and social history data were combined, the regression correlation with recidivism was even higher. Thus, any correctional administration interested in obtaining rough predictive estimates of recidivism and having limited resources should utilize social history information.

Gervais, P. E. Recidivism of Adult Offenders - A Pilot Recidivism Study in Eleven Oregon Counties. 1980, Oregon Law Enforcement Council Attn. Pamela Erickson Gervais, Planning and Data Analysis Unit Supervisor, Salem, OR 97310, 27 pages.

This report presents the rearrest and conviction rates of a group of offenders tracked in the Oregon criminal justice system from July 1, 1975 to June 30, 1976. Records of each of the 966 offenders were examined for subsequent arrests and convictions through August 1978.

A review of other research on recidivism was made to determine if the major findings could be confirmed by similar studies. Two studies examined were from the Institute of Law and Social Research and from the Iowa Statistical Analysis Center. Of the offenders in the study sample, 35 percent were rearrested within the three year time period; 25 percent were convicted. One-fourth of those rearrested accounted for 75 percent of all subsequent charges. Most subsequent arrests occur within one year and the vast majority within two years.

At the end of one year, 22 percent of the sample had been rearrested; at the end of two years, 32 percent had been rearrested. There was no general pattern of crime specialization found among those rearrested in this study. While there was no tendency to recommit exactly the same crime, there was some tendency to recommit similar types of crimes. Those most likely to be rearrested were younger offenders, (21 and under) who were originally arrested for a property crime, particularly burglary and motor vehicle theft.

All three studies found a defendant's at first offense age to be the highest predictor of recidivism. The percent of persons convicted ranged from 52 to 56 percent and the percent incarcerated was about 28 percent. Although only 55 percent were convicted on their first subsequent arrest, only 7 percent continued to be rearrested without conviction.

If resources for prosecution and corrections are limited, the most effective use would be to focus on the high-risk offender. Since the highest number of recidivists are rearrested within the first four months, and most within one year, early concentration of resources is advised. Special enforcement or prosecution programs which focus on certain classes of offenders should avoid target groups that are classified by single crime categories.

Goldberg, R. T., Johnson, B. D. "Prediction of Rehabilitation Success of Delinquent Boys." Journal of Offender Counseling Service and Rehabilitation, 1980, 4(4), 319-329.

Only enrollment in vocational training or other schooling helped to predict the rehabilitation success of 109 delinquent boys in a community-based program, analyzed by stepwise multiple regression. Each boy was selected at random and matched with a control group youth by father's occupation, presence of father in the home, and type of offense. The predictive efficiency of the following independent measures was assessed: age, school grade, presence of father in the home, socioeconomic level of head of household, whether the boy was in school or was a dropout, urban or suburban court, age at first offense, and total severity of all offenses.

Nine criterion variables were used to assess rehabilitation outcome. Three of the variables were change scores derived from three tests--the Goldberg Scale of Vocational Development, Maher's sentence completion test, and Rosenberg's self-esteem test. Rehabilitation case closure status was the official agency criterion of success. A dichotomous measure of current activity was scored as unemployed versus working, in school, or in armed services. Working boys were measured on a percentage of time employed. A dichotomous measure of school listing was divided into school dropout and school completed. Two measures of recidivism were taken--new offenses after project closure and total severity of offenses measured during two years after entering active services.

Rehabilitation counseling was found to have a positive effect upon rehabilitation closure; however, the counseling did not have a significant effect on the reduction of recidivism. The older boy from a suburban court, who

came from a higher social class, with a higher vocational maturity level initially, and who received schooling through the rehabilitation agency, had a better chance of successful employment.

Guedalia, L. J. Predicting Recidivism of Juvenile Delinquents on Restitutionary Probation from Selected Background, Subject and Program Variables. American University - doctoral dissertation, 1979, 113 pages.

This study was conducted to identify personal and program variables that would help predict which court-adjudicated juvenile delinquents would be successful in a restitution program in Tulsa, Oklahoma. The subjects for the study were 200 males randomly selected from among 400 placed on restitutionary probation between January 1975 and January 1978. Information on variables such as family structure, socioeconomic status, age, race, school status, nature of offense, individual rather than group delinquency, and restitution owed were gathered from official delinquency records from Tulsa's juvenile court. Data on violent and nonviolent recidivism were also gathered.

Cross tabular analyses and chi square statistics were used to determine if these characteristics impacted success in the program. The results of the analyses showed that offenders who were either living with both natural parents, were not failing in school, made contact with their victim, or paid \$100 or less in restitution had significantly lower recidivism rates than other delinquents. The results of an analysis of family structure, school failure, and victim contact variables and recidivism proved to be significant. These findings indicate that those managing restitution programs for juvenile offenders should work more closely with the school systems and families of offenders, and that victim-offender contact should be encouraged.

Hanley, C. "Gauging of Delinquency Potential" in Psychology of Crime and Criminal Justice, 1979, Toch, H. (ed.), Holt, Rinehart and Winston, New York, NY 10017.

Reasons for measuring delinquency potential are cited. Problems in obtaining such measures are discussed, and representative studies of delinquency and recidivism prediction are considered. An ideal measure of delinquency potential would be useful in locating predelinquents for preventive treatment, in improving decisions about alternatives for rehabilitating offenders, in determining who should receive parole and prescribing the type of supervision needed, and in providing an immediate measure of the effectiveness of a rehabilitation or prevention program. Thus far, prediction research has been hampered by problems of reliability, validity, base rate determination, and selection ratio--all aspects of developing a satisfactory psychological instrument for predictive delinquent behavior. Personality questionnaires (e.g., the Minnesota Multiphasic Personality Inventory) and other predictive devices have been used to assess the potential for antisocial behavior among children and teenagers. If delinquency potential exists in children, questionnaire scales are not

satisfactory measures of it, although the scales can delineate attitudes that distinguish offenders from ordinary persons and might be useful in improving rehabilitation procedures or as temporary estimates of the impact of treatment. Nominating methods (i.e., assessments of delinquency potential by teachers, peers, or some other observer) have a tendency toward overprediction, and steps to eliminate overprediction might affect the validity of such methods.

Researchers have used experience tables, personality questionnaires, and other devices to predict recidivism. The success of various investigators in predicting parole outcome at better than chance supports the idea that delinquency potential exists and affects important behaviors. The degree of influence does not appear to be large, but it is possible that the opportunistic nature of most recidivism studies may have hidden true impact. It may be necessary to aggregate information about different types of offenders, and include offenders who have been convicted but not yet sentenced, in order to reveal the true status of delinquency potential. However, this suggestion is counter to another remedy proposed for the prediction problem--disaggregation, involving the construction of differential predictors for a variety of criminal types. Predicting potential for violent crime has proved even more problematic than other forms of prediction, primarily because of the low base rate of criminal violence. It has yet to be shown whether delinquency potential is a real function of personality. One obstacle to progress in prediction research has been the failure of social scientists to build on the work of earlier researchers.

Offenders who were either living with both natural parents, were not failing in school, made contact with their victim, or paid \$100 or less in monetary restitution had significantly lower recidivism rates than other delinquents. The results of an exploratory, multiple cross tabular analysis of family structure, school failure, and victim contact variables and recidivism proved to be significant. These findings indicate that those managing restitution programs for juvenile offenders should work more closely with the school systems and families of offenders, and that victim offender contact should be encouraged.

Hassin, Yael "Early Release Committee for Prisoners Versus Computer." Criminology, 1980, 18(3), 385-397.

This study compared the results of two decision making processes. The first process relates to the Early Release Committee for Prisoners, which has a discretionary power to release prisoners who have served two-thirds of their sentence. The second process involves the use of the same variables which were available to the release committee in the course of the decision making process, to obtain a computer decision. It was found that the committee was wrong in 75.4 percent of its decisions, while the computer was wrong in only 30.3 percent.

Main variables which affect recidivism are age of onset of criminal careers, type of offense, duration of criminal career, lack of continuing employment, and age of release. Sociodemographic, criminal background, and program variables were subjected to discriminant analysis in this study. Fifteen statistically significant variables distinguished recidivism from non-recidivism. Sociodemographic variables included age at date of release, continuity of same occupation, family situation, relationship with parent or spouse, country of origin, place of residence, employment and education. The criminal background variables included number of previous convictions, kinds of previous offenses, and age of first offense. Prediction rate was higher for the computer than the Early Release Committee (the computer recommended a much smaller number of releases, and since rate of recidivism is high, the computer recommendations were closer to reality). The rate of correct prediction of future recidivism, using 13 variables, reached 71.2 percent for existing prisoners. The prediction formula derived from discriminant analysis was more accurate for those prisoners with criminal backgrounds and less for those serving first sentence and with no criminal record.

Haynes, Jack P. and Bensch, Marlene. "The P - V Sign on the WISC-R and Recidivism in Delinquents." Journal of Consulting and Clinical Psychology, 1981, 49(3), 480-481

The performance-verbal (P-V) discrepancy on the Wechsler Intelligence Scale for Children (revised version) was examined as a predictor of recidivism among ninety 14 and 15 year old adjudicated white male delinquents. The P - V sign was displayed significantly more frequently among the recidivists than non-recidivists, who did not differ in frequency from the normal population. No significant relationship was found between amount of P-V difference and degree of acting out. The findings support the view that cognitive differences differentiate recidivists from non-recidivists. Recidivists demonstrated a pattern similar to that described for psychopaths. Intellectual imbalance not found to differentiate recidivists from non-recidivists. It may be that there is a higher percentage of psychopaths among recidivists. Further research exploring the mechanism of P - V in relation to recidivism is needed.

Heilbrun, Alfred B. "Race, Criminal Violence, and Length of Parole: A New Look at Parole Outcome." British Journal of Criminology, 1978, 18(1), 53-61.

Numerous researchers have documented greater parole success for prisoners who have committed crimes against persons (violent) compared to those committing crimes against property. Heilbrun, Knopf, and Bruner (1976) examined attributes of violent and non-violent crimes and related these to parole outcome. They found violent criminals were better parole risks, though they were more impulsive. Successful parolees, especially blacks, were sentenced for more impulsive crimes. Heilbrun and Heilbrun (1977) compared black and white prisoners on three measures of self control to test whether violent criminals had adequate self control. Black violent criminals scored lower on measures of impulse control.

Violent crimes are generally awarded longer prison sentences by courts, and prisoners serving longer sentences have longer parole terms despite a lower probability of recidivism. Researchers should track violent criminals for a longer period. Violent prisoners may be better short term risks only. The purpose of this study was to determine effects of violence versus non-violence on the offender's success or failure on parole.

Parole records of 1,509 male felons were studied. Criterion for success was successful discharge from parole. The study's results indicated greater proportion of blacks among violent criminals, better parole risks among violent criminals using short-term criterion of success, and better parole risk among first offenders. A significant relationship was found between race and violent crime and between race and outcome black parolees represented poorer risks on parole. No overall difference was found in parole performance between violent and non-violent criminals. There was a significant interaction between race, violence, and outcome. Black violent parolees were poorer risks than black non-violent parolees. Time on parole was not significantly related to outcome. Significant differences were found between types of violent and non-violent crimes. The author concludes that black violent offenders are the poorest parole risks, demonstrating the importance of impulsivity in violent crime and problems of social reentry among blacks.

Hoffman, P. B. and Adelberg, S. "Salient Factor Score - A Nontechnical Overview." Federal Probation, 1980, 44(1), 44-52.

A nontechnical overview of the salient factor score is presented, and its predictive power in relation to two measures of recidivism is examined. The U.S. Parole Commission uses the salient factor score as an aid in assessing an offender's likelihood of favorable outcome upon release. The most recent revision of the score became effective in April, 1977. The instrument contains seven items: prior convictions, prior commitments, age at first commitment, whether the commitment offense involved auto theft or checks, whether parole had ever been revoked or the inmate has been a probation violator, history of opiate dependence, and verified employment or full-time school attendance for at least six months during the last two years in the community. A total score ranging from 0 to 11 points is assigned: the higher the score, the higher the probability of favorable outcome upon release. The informational base for the construction of the salient factor score was obtained through the analysis of a random sample of 2,497 federal prisoners released in 1970. An additional random sample of 2,149 prisoners released during 1971-1972 provided the informational base for validating the device. The types of release covered include parole, mandatory release, and expiration of sentence. The first measure of recidivism defines favorable outcome as no arrest for a new criminal offense, resulting in a conviction and commitment of 60 days or more, and no return to prison as a result of a violation of the terms of release. The second measure defines favorable outcome as no arrest for a new criminal offense (regardless of disposition) and no return to prison as a result of

a violation of the terms of release. Each of the seven items in the salient factor score was found to be significantly associated with each measure of favorable outcome, although the items were more significantly related with the first measure.

Hoffman, Peter B. and Beck, James L. "Revalidating the Salient Factor Score: A Research Note." Journal of Criminal Justice, 1980, 8, 185-188.

This study examines the predictive instrument used by the U.S. Parole Commission as an aid in the parole selection process. Known as the "salient factor score," it was constructed by using information obtained for a random sample of federal prisoners (N=2483) released in 1970, and initially validated using information from two random samples of federal prisoners released in 1971. For purposes of this revalidation effort, a non-random sample of federal prisoners released in 1976 (N=1,260) was used. Favorable outcome was defined as no new arrest and no parole violation warrant issued.

The percentage of cases with favorable outcome within each of the four salient factor score groups remains stable over the three samples (i.e., 1970, 1971, 1976): 51-51-56 percent for the poor risk group, 64-60-63 percent for the fair risk group, 76-78-73 percent for the good risk group, and 91-91-92 percent for the very good risk group. The results indicate that the salient factor score retains predictive power when applied to a revalidation sample.

Hoffman, Peter B. and Stone-Meierhoefer, Barbara. "Post Release Arrest Experiences of Federal Prisoners: A Six-Year Follow-Up." Journal of Criminal Justice, 1979, 7, 193-216.

The likelihood of further criminal conduct is important in allocation decisions for parole supervision resources. The relationship between arrest-free time after release (alone and in combination with other variables) and the probability of subsequent arrest is examined for a relatively large random sample of released federal prisoners (N=1,806). A six-year follow-up period is made possible by use of "rap sheet" records from FBI.

Knowledge of this relationship may be used to provide empirical guidance for decisions about the intensity and/or duration of supervision; and a method for the practical application of this knowledge in case decision making is illustrated.

The common assumption is that the first year after release is most critical, with chances of subsequent favorable outcome enhanced. This may be due to weakness in statistical logic (Berecochea, Himelson and Miller, 1972). While most violations occur during the first year, violation rate of those remaining at risk is relatively constant for each of four six-month periods (20 percent first six months, and 20 percent of those remaining at risk each of the three subsequent periods).

Gottfredson and Ballard (1965) found risk does not decrease over a two year period. Similar findings were found by Kitchener, Schmidt, and Glaser (1977). While this was not shown by Bennett and Ziegler (1975), methodological problems were present.

This study looked at 1806 released federal prisoners during the first six months of 1970. Background and criminal information was coded, and FBI records reviewed. Favorable outcome was defined as no arrest or parole violation warrant. By the end of the six-year follow-up period, 62.5 percent had been arrested at least once for criminal charges or parole violation (more than one arrest for 41.6 percent). Rate of arrest for the whole sample for the first year was 32.2 percent, 21.6 percent the second year, declining in the third and fourth years, and then stabilizing.

Holland, Terrill R., Holt, Norman and Brewer, David L. "Social Roles and Information Utilization in Parole Decision Making." Journal of Social Psychology, 1978, 106, 111-120.

Summary:

Preparole evaluations conducted by prison caseworkers were compared with board action and parole outcome on 421 cases heard by the California Adult Authority in 1968-69. These two groups of decision makers emphasized different considerations in performing their tasks, with board members focusing primarily on the seriousness of the most recent offense and caseworkers weighting recidivism-related variables. Furthermore, board decisions were unrelated to subsequent parole performance, and a weak relationship was seen between self-reported and actual utilization of offender case information by board members. The findings, discussed in terms of social role differences between caseworkers and board members, were interpreted as consistent with the need for guidelines which structure and limit the discretion of personnel making prison release recommendations and decisions.

Investigators have reported sizable differences in the conclusions reached by decision makers (parole agents, judges, probation officers, correctional officers), evaluating the same or similar cases in making decisions to release incarcerated offenders back into the community. Researchers have not been able to accurately measure judgmental processes or to subject them to quantitative analysis. Hoffman (1960) proposed use of multiple linear regression in reconstructing naturally occurring decision making events. Obtaining relative weights allows for a comparison of the manner in which information is synthesized. Other studies (Wilkins, et al., 1973; Holland and Holt, 1978) studied utilization of offender case information by lenient vs. punitive decision makers. Another distinction is between primary decision makers (judges, parole board members) and ancillary personnel, with advisors tending to emphasize offender characteristics associated with likelihood of recidivism rather than seriousness of offense.

This study tested the hypothesis that differences in the utilization of correctional information would emerge as a function of the social role of the decision maker. Predictor variables included seriousness of most recent offense, likelihood of post release recidivism, and adjustment

during incarceration. Offense severity was quantified by a offense severity scale (Gottfredson and Ballard, 1964) and other pertinent variables reflected in total score on the California Base Expectancy Scale, which has shown to be predictive of post prison recidivism. Criterion variables were caseworker evaluation, board action, and parole outcome. Data were subjected to multiple regression analyses. Decision maker and parole outcome regression equations were statistically significant. As hypothesized, advisors focused on case characteristics related to recidivism probability (base expectancy level) and on number of disciplinary reports (adjustment within the institution). Board members focused on seriousness of offense. Differences in social role, accompanied by different degrees of exposure to inmates, were important factors. Neither groups' judgements notably increased the predictive accuracy relative to base expectancy alone. The findings suggest use of explicit guidelines for parole decision making to limit and structure discretion, and to introduce increased accountability and equity.

Holland, Terrill R., Holt, Levi, Mario, and Beckett, Gerald E. "Comparison and Combination of Clinical and Statistical Predictions of Recidivism Among Adult Offenders." Journal of Applied Psychology, 1983, 68(2), 203-211.

Summary:

Clinical and statistical predictions of six categories of recidivism among 198 adult male felony probationers were compared and combined, both before and after correcting for the restricted range of the predictor variables. The statistical composite consistently outperformed decision makers for the recidivism criteria of arrest and conviction. The opposite was seen for all three indices of violent recidivism, but only after correction for restriction of range. The combination of both variables tended not to produce significant increases in criterion variance compared to the superior predictor alone, except for incarceration for any offense. Partially because of the seeming impossibility of achieving perfect prediction, it was concluded that there is a need for decision making guidelines that include only those criminological variables that can serve the dual purpose of predicting recidivism and indicating which offenders are the most deserving of imprisonment as punishment as retribution for their crimes.

Insofar as recidivism has been predictable, statistical composites have performed as well or better than human judges (Sawyer, 1966). Although prediction is disappointing for violent criminality, the highest level of predictive accuracy has been clinical judgment (Kozol, Boucher, and Garofalo, 1972). This study attempts to analyze an approach using a statistical composite of case history variables, relative to clinical judgments. Predictor variables were total score on salient factor scale and staff ratings. Outcome variables were general recidivism and violent recidivism.

Rate of failure on probation varies depending on manner in which recidivism is defined (i.e., it is higher for non-violent crimes). Clinical predictions were more accurate for violent than undifferentiated recidivism. In multiple regression composites, decision makers' recommendations did not significantly contribute to the prediction of general recidivism resulting in arrest or conviction, compared to salient factor scores alone.

Staff recommendation and salient factor scale were not highly correlated and their combination resulted in minimal increases in predictive accuracy compared to each alone. Various writers (Monahan, 1975) have questioned the advisability of basing release decisions on decision maker assessment when looking at dangerousness, due to false positive issue. The American Psychological Association advocates a "just deserts" model in which penal sanctions reflect the degree of social harm for which an offender has been responsible (based on extent and type of history of antisocial behaviors).

Horton, Arthur MacNeil, and Medley, Donald M. "Prediction of Recidivism in a Criminal Population by Birth Order and Family Size." Psychological Reports, 1978, 42, 27-30.

This study investigated the prediction of recidivism by birth order and family size. Subjects were 204 black, 193 white and four other adult male offenders who completed an intake interview classifying birth order and family size. A statistically significant negative effect was found for the first born adult male offender (i.e., fewer first borns were recidivists than other birth orders). No other significant effects were found for family size or birth order, contrary to other studies.

Horton, Arthur MacNeil and Whitesell, Luke, J. "Prediction of Recidivism by Sex and Number of Siblings." Psychological Reports, 1979, 45, 98.

Recent research (Horton and Medley, 1977) has suggested a significant relationship may exist between recidivism rates of criminal offenders and birth order. This study sought to determine if sex and number of siblings could be used as joint predictors of criminal recidivism. Subjects were 396 adult male offenders who completed a ten item questionnaire at intake. Outcome criteria were number of prior incarcerations and number of months of incarceration. Standard multiple regression analyses were computed. Number of older sisters was significantly, though not strongly, related to number of prior incarcerations and months of incarceration.

Kerr, Douglas. Inaccuracy in the Prediction of Recidivism in Juvenile Delinquents, 1982, Ph.D. Dissertation, University of Denver.

Summary:

One of the factors important in making decisions about when and whom to release from juvenile institutions is the likelihood that the person will commit another offense. Prediction varies from parole officers' opinion to computerized formulas. Systematic attempts to develop a prediction system began in 1923 (Warner, 1923) when social scientists began looking at differences between those who were rearrested and those who were not.

In the early 1960's, the prediction of recidivism was seen as the potential breakthrough in criminology. However, prediction accuracy rates have been disappointing. It is rare to classify correctly more than 70 percent of offenders. Researchers have prescribed alternative approaches to improve predictions, including more extensive use of psychological instruments (Monachesi, 1950); application of criminological theory (Glaser, 1954; Reiss, 1951); use of demographic and personality variables (Gough, Wenk and Rozytko, 1965); use of clinical ratings and demographics (Gottfredson, 1967); analysis of non-linear predictive relationships (Werner and Palmer, 1976); and the need for a continuous criterion measure (Simon, 1971).

Early recidivism prediction research had many flaws, e.g., the criterion variable was not clearly defined, variables discriminating delinquents from non-delinquents were assumed to discriminate recidivists from non-recidivists, adult and juvenile populations were often mixed, developmental differences were not accounted for, and the legal criteria or length of follow up were not specified. Warner (1923) found that the greater the number of previous crimes committed by a delinquent, the greater likelihood of recidivism. Hart (1923) first used the "experience table" which provided an estimate of "prior probability" of reoffense depending on the descriptive category of the offenses, based on selected variables. Burgess (1928) weighted the predictors of recidivism finding the best predictors to be criminal record, marital status, and previous work record. The Gluecks (1930) weighted each category according to its associated failure rate. Vold (1931) found a high correlation between the Burgess and Glueck scoring methods. He also was first to use cross-validation methods.

Ohlin and Duncan (1949) developed a statistic which compared the accuracy of prediction to the base rate. Ohlin (1951) identified 12 predictors of recidivism, including items representing situation during current sentence. Points were summed to obtain a prediction score for each prisoner, and a failure rate was established which indicated the probability of parole failure for prisoners obtaining that score. Glaser (1954) developed predictors reflecting social development patterns. A configuration table (Glaser, 1955) used a series of variables partitioned into sub-categories. Shrinkage was later found on cross-validation (Gottfredson, 1967; Simon, 1971). Mannheim and Wilkins (1955) computed multiple regression equations to predict recidivism using 60 variables (e.g., history of drunkenness, number of previous convictions, whether living with parents, residence in an industrial area).

Prediction of recidivism using personality inventory data developed independently from correctional management research tradition largely based on the MMPI. Hathaway and Monachesi (1953) found that different scales were associated with delinquency and non-delinquency. Wirt and Briggs (1959) used the MMPI to understand the interaction between personality and environmental causes of delinquency. Research after 1960 stressed discriminating criterion groups by the creation of new scales of items, emphasizing

empirical and mathematical prediction accuracy rates. Stanton (1956) reported that multiple offenders scored higher on the Pd and Ma (delinquency scales) and Morrice (1957) found adult recidivists to have higher scores on the F scales, indicating differences between adult recidivists and non-recidivists.

Freeman and Mason (1952) developed a new scale to discriminate recidivists from non-recidivists, but it did not cross-validate. Panton (1962) developed a scale which discriminated adult violators and non-violators, and successfully identified 80.5 percent of both recidivists and non-recidivists in the validation sample. Gough, et al. (1965) looked at relative contribution of demographic and personality inventory data and produced prediction scores based on different combinations of predictor variables. Black (1967) created a 22 item scale and formed a recidivism-rehabilitation index which reached 90 percent accuracy with only 7.8 percent false positives, although cross-validation demonstrated shrinkage (Frank, 1970).

The most thoroughly researched and widely applied prediction system is the California Youth Authority (CYA) Base Expectancy Table (Gottfriedson and Bonds, 1961). The table for male delinquents is based on seven variables with each sub-category assigned a regression weight which yields a score for each individual. Scores are grouped into classes with associated rates of failure on parole. The BE table has also contributed as a covariate in quasi-experimental evaluations of treatment programs. It is based on the assumptions that: 1) the same predictors can be used to predict a burglary as to predict an assault and 2) recidivists constitute a homogeneous group that is identifiable from the criminal population as a whole. Recent efforts to try prediction strategies based on nonlinear assumptions have failed to yield improvements (Pritchard, 1977; Smith and Lanyon, 1968). Werner and Palmer (1976) illustrated the heterogeneity of a juvenile recidivist sample (variance within outcome groups), identifying considerable error in linear statistical approaches. Beverly (1968) separated three variables to distinguish subgroups among a CYA population, as a basis for establishing groups for whom specific base expectancy tables could be developed. Prediction systems for specific subgroups failed to improve on a standard base expectancy index. Wenk (1979) compared different prediction strategies with CYA parolees and included clinical judgments as predictors. Predictive attribute analysis (Ballard and Gottfredson) was found to be more predictively efficient than multiple regression.

Laulicht, Jerome. "Problem of Statistical Research: Recidivism and its Correlates." Journal of Criminal Law, Criminology and Police Science, 1965, 54, 163-174

The principal concern of this report is the correlation between recidivism and a number of factors associated with it. The study included a sample of 579 boys released from a training school. (Most studies on factors predicting parole success have involved adults and it is not known to what extent the findings are applicable to juveniles.) Data included post institution information (at least one year after training school) on each boy. Boys

were considered recidivists if they were apprehended for a criminal act or they violated parole and were committed within at least 30 days. Chi square tests were calculated to determine the relationship of each item to recidivism. Seventeen items were significantly associated with recidivism including delinquency record (but not prior institutionalization or age of first offense), kinds of offenses, age of commitment and discharge, below average intelligence, exposure to program (length of stay), and type of discharge. No significant relationships were found for whether the family was intact or had a criminal background.

LeClair, D. P., Metzler, C., Landolfi, J. Salient Factor Scores - An Aid to Administrative Prediction. Massachusetts Department of Correction, Boston, MA 1980, 49 pages.

The salient factor score prediction instrument was tested on an inmate sample from the Massachusetts Department of Correction to examine the feasibility of predicting potential risk of recidivism and program non-completion. Predictive instruments of these two outcome situations were developed to be used at different junctures of the incarceration process: reception/diagnosis, incarceration, and release. Salient factor scores for predicting recidivism and successful completion of a pre-release placement were developed from a 1975 sample of all releases from Massachusetts correctional facilities. The resultant scores, when computed for each individual in a comparable 1976 validation samples of Massachusetts pre-release centers, showed very low correlations. Therefore, the evidence for validation was quite weak. It is concluded that operational usage of prediction instruments for both outcome situations should proceed with extreme caution. Use of the scores when approaching the high and low risk extremes appeared to be more justifiable. A frequency distribution of the original data set suggested that a disproportionate number of cases fell in the median category, which suggests that use of the constructed scores should be for experimental purposes only. Suggestions for further research into the use of salient factor scores include the need to incorporate more data elements and reduce unknown, inconsistent, and inaccurate data elements to make a stronger predictive instrument.

Lejins, Peter P. "Parole Prediction: An Introductory Statement." Crime and Delinquency, 1962, 8(3), 209.

Parole prediction, an estimate of the probability of violation or nonviolation of parole by an offender on the basis of experience tables, was put into practical operation in 1933 in Illinois. Since then, many refinements of technique have been suggested and issues discussed, e.g., the weighting of predictive factors, the comparative importance of dynamic vs. static factors, evaluation of the changing attitudes of the inmates in the course of the correctional process, inconsistency of predictions based on different population of parolees, the need for continually adjusting the experience tables, attempts to develop an index of predictive efficiency, and the continued search for the most meaningful predictive factors. The central

problem is the comparative merit of experience tables vs. the case study in deciding on the parole of an individual offender. The author concludes that parole decision makers should consider the advantages to be gained from the development and judicious use of experience tables.

Lichtman, Cary M. and Smock, Sue M. "The Effects of Social Services on Probationer Recidivism: A Field Experiment." Journal of Research in Crime and Delinquency, 1981, 18(1), 81-100.

In the search for recidivism-reducing strategies, intensive probation programs featuring enhanced social services and lower officer caseloads have become a high priority. Project START employed random assignment of newly sentenced property offenders ages 18-30 to intensive or regular probation. Several variables, including demographic data, past criminal behavior indices, and use of services by clients were examined in relation to multiple measures of recidivism. Follow-up recidivism data were collected one year later and were limited to official court records.

The results revealed that intensive probation is not measurably superior to conventional procedures. The groups did not differ on reconviction rates or number of charges. When probationers receive only sparse services or referrals from the probation department, they will secure such services on their own. For felonious property offenders, regular probation is less expensive than intensive probation and no less effective.

A review of the literature reveals that rehabilitation remains an elusive goal (Lipton, Martinson and Wilks, 1975; Bailey, 1966; Robison and Smith, 1971). Wilkins (1976) argued humanitarian methods (e.g., probation or fines) are no less effective than prison in reducing the probability of recidivism. Another study (U.S. Comptroller General, 1976) concluded that the value of enhanced services for probationers is well supported. Most program evaluations of intensive probation and reduced caseloads have included flawed methodologies.

Mandelzys, Nathan. "Correlates of Offense Severity and Recidivism Probability in a Canadian Sample." Journal of Clinical Psychiatry, 1979, 35(4), 897-907.

Summary:

This study related severity of the most recent offense (Offense Severity Scale) and the probability of recidivism (California Base Expectancy Scale) to a number of social background and psychometric variables in a sample of inmates incarcerated in a Canadian federal institution (N=4547). Multiple regression analysis indicated that the most consistent relationships with offense severity and probability of recidivism centered on the background variables, in particular the total number of arrests and first offense variables (age, type of offense, and sentence). Further analyses were performed by classifying the group along the offense severity dimensions, and the results of these analyses clearly demonstrated the heterogeneity of the groups in question.

Much research has been directed toward the development of empirical scales for prediction of parole success (Gottfredson and Ballard, 1965; Hoffman and Beck, 1974; Nicholson, 1968). Procedures involve identification of factors that distinguish successful parolees from those who fail by parole violations or criminal recidivism. Advocates of a statistical rather than clinical approach to recidivism prediction suggest use of formal, reliable measurement devices to make decision making scientific, equitable and consistent. The California Base Expectancy Scale (Gottfredson and Bonds, 1961) is a widely used prediction instrument involving a 12 item checklist. It has been validated twice (Hemple, 1972; Weiner, 1970) with predictive capability around 70 percent for those who score within the top 25 percent and bottom 35 percent distinguish successful parolees from those who fail by parole violations or criminal recidivism. Advocates of a statistical rather than clinical approach to recidivism prediction suggest use of formal, reliable measurement devices to make decision making scientific, equitable and consistent. The California Base Expectancy Scale (Gottfredson and Bonds, 1961) is a widely used prediction instrument involving a 12 item checklist. It has been validated twice (Hemple, 1972; Weiner, 1970) with predictive capability around 70 percent for those who score within the top 25 percent and bottom 35 percent.

This study investigates the ability of several background and psychometric variables, and scores on the offense severity and base expectations scales, to predict parole outcome. Holland and Holt (1975) assert that psychometric studies have found either no group differences or very small differences in discriminating among types of offenders and probability of recidivism, and that offense severity and recidivism are statistically significant. This study assumes offenders form a homogeneous group and that the type of offense is a primary discriminating characteristic.

The sample was broken down into five groups by severity of most recent offense. Offense severity scores correlated significantly with age, type, and sentence for first offense, total number of arrests, and total number of years served. Base expectancy related significantly to all background variables except education and present age. Severity of offense related significantly to two MMPI scales and base expectancy to ten MMPI scales, suggesting that increases in recidivism probability are associated with increases in degree of psychological abnormality.

Between and within groups analyses showed that group background was parallel to offense severity classification. Low to moderate severity group (property offenses) had a high probability of recidivism, while the high severity group (person offenses) had a lower recidivism rate. Minor offenders were younger and served less time. Offense severity was related to the background variables in a consistent fashion only for minor offenders. As total number of arrests and years of incarceration increased, so did probability of recidivism.

The author suggests that recidivism rates of parolees have limited meaning if researchers do not address the large number of variables related to recidivism. This study examined background and personality variables related to offense severity and recidivism probability. The most powerful relationship with offense severity and base expectancy centered on background as opposed to psychometric variables, especially total number of arrests. Offense severity was related to background, but not psychometric variables, and base expectancy to both sets of variables. The greater the psychopathology and the lower the intelligence, the greater the probability of recidivism. Offenders are a heterogeneous group indicating a need to develop better discriminators. Research should focus on causes of recidivism, rather than probability.

Minor, W. W. and Courlander, M. "Post Release Trauma Thesis - A Reconsideration of the Risk of Early Parole Failure." Journal of Research in Crime and Delinquency, 1979, 16(2), 273-293.

Research and statistical evidence suggest that the post release trauma thesis, i.e., the time immediately after prison release that causes the offender particular stress, should be examined empirically. The thesis is questioned on three grounds: theoretical, statistical, and organizational. Theoretically, the post prison period is marked by trauma induced by extreme discontinuity in role expectations, degree of independence, and responsibility. However, much recent literature has stressed that inmates maintain a continued role throughout their careers. Further, there is little evidence that transition-easing programs significantly affect inmates leaving prison. Statistically, some researchers have suggested that the most common method of computing parole failure rates may exaggerate risk of failure during the first few months. In terms of organization, parole statistics may ignore the parole agent's: 1) discretionary power, 2) criteria in decision making, and 3) application of different standards to different categories of offenders. For example, one researcher found that violent offenders received more stringent treatment than property offenders, although violent offenders are better parole risks. Further, parole statistics may reflect conscious policy changes or differential group handling to ensure favorable program outcomes. Organizational constraints, therefore, may affect parole agent's decisions, and these may include such diverse elements as the potential for adverse publicity, assessment of case outcome, agent's length of service, and paperwork demands. Finally, belief in early parole failure may result in a self-fulfilling prophecy since increased surveillance after release is then justified and increases the chances of parole revocation.

National Institute of Corrections Administration and Research. Regular Parolees - Characteristics and Parole Success - A Study, 1975 and 1976, Washington, DC 20534, 1980.

Factual information on persons released through regular parole procedures is presented in terms of personal and criminal characteristics, parole performance, and variables associated with parole success or failure. This

report was funded by the National Institute of Correction as part of a broader evaluation of the furlough program. A 20 percent sample of all regular parolees released in Ohio during 1975 and 1976 was selected for the study (a total of 1,490 individuals); this large sample was expected to produce reliable statistics. In order to complete a description of all parolees, information was included on the whole population of furlough releases in addition to the survey population.

The first part of this study describes parolees in terms of personal characteristics (i.e., sex, ethnicity, county of commitment, age at admission and release, marital and employment status at arrest, and highest grade completed in school) and criminal histories (i.e., nature of commitment offense, prior felony convictions, prior imprisonment, juvenile criminal history, prior supervision violations, and history of drug and alcohol abuse). The second part of the report describes how the parolees in the study performed. The third section examines which variables are considered in the parole board decision making process. They appear to be the nature of committing offense (especially whether violence was involved); existence of a juvenile criminal history; prior probation or parole violations, number of prior adult felony incarcerations. Substance abuse, sex, ethnic background, and county of commitment were found to have little or no influence on the correlation with the other variables. Not surprisingly, persons placed on parole at their first parole hearing have a higher success rate than those released at continued hearings.

Pritchard, David A. "Linear Versus Configural Statistical Prediction." Journal of Consulting and Clinical Psychology, 1977, 45(4), 559-63.

Summary:

Three linear scales were compared with four configural strategies in the prediction of recidivism among adult male probationers. The linear scales were all superior to the configural strategies when compared using chi-square, total hit rate, an index of the spread of failure rates among risk groups, an index of reduction in classificatory error, and an index of stability of failure rates between the derivation and validation groups.

In a series of reports, Gottfredson and colleagues found that multiple linear regression analysis was superior to several configural strategies in separating parole successes from failures (Ballard and Gottfredson, 1963; Gottfredson and Ballard, 1965). Babst, Gottfredson, and Ballard (1968) found the two strategies were equal in predictive efficiency. Duncan, Ohlin, Reiss, and Stanton (1953) reported a similar finding for male juvenile delinquents. Goldberg (1965) found the linear approach to be superior for diagnosis of neurosis or psychosis. This study provides a more sophisticated comparison between linear and configural statistical prediction strategies in a sample of adult male probationers, using a procedure that avoids overfitting predictor items. Additionally, the procedure increases the probability that a dichotomy that was related to the criterion in the derivation sample is related to the criterion in the validating sample.

The sample included 150 revoked and 153 nonrevoked probationers (derivation and validation samples). Descriptive information included 37 dichotomous descriptors, type of current offense, and age when youth was placed on probation. One linear and four configural prediction strategies, which were developed using the derivation sample and tested with the validation sample, included: (a) cumulative points analysis, (b) predictive attribute analysis, (c) mean cost rating analysis, (d) pattern probability analysis and (e) configuration analysis. These strategies were compared using five summary statistics emphasizing different aspects of the strategies' performance in the derivation sample. Predictive attribute analysis divided the cases into five risk groups (three predictors), mean cost rating analysis divided cases into three risk groups (two predictors), and configuration analysis produced four risk groups (three predictors). In the validation samples, only the first division of each of these configural strategies yielded a chi-square greater than 2.71, producing only two validated risk squares. The three linear scales produced distributions of cases that depart from expectation to a greater extent than those produced by any of the four configural strategies. Linear scales produced risk groups with more divergent failure rates than any configural strategy. Failure rates of risk groups were more stable for linear scales. Linear scales reduced classificatory errors more often. Each linear scale correctly classified more of the total sample. Small differences were observed among linear scales. The author concludes that linear strategies are equal or superior to configural strategies in predictive efficiency for recidivism among adult male parolees, and male probationers. Future research should test this generalization using different criteria, especially those not defined by human judgment. Future studies should also compare strategies under differing cost-benefit assumptions.

Pritchard, David A. "Stable Predictors of Recidivism: A Summary." Criminology, 1979, 17(1), 15-21.

This study reviews 71 studies which present data on the relationship between biographical predictors and recidivism in 177 independent samples of adult offenders. A summary table lists the number of samples in which a particular predictor was found to be related to recidivism and the number of samples in which that predictor was found to be unrelated to recidivism. Detailed summaries of the relation between "type of instant offense" and recidivism and "age at first arrest" and recidivism, were also included. Studies which investigate only juveniles were excluded.

Items were divided into two sets: those which were related to recidivism as indicated by a statistically significant index of association and those unrelated to recidivism. Only one offense category (auto theft) was more frequently associated to a statistically significant degree with an unfavorable outcome than with a favorable or neutral outcome. Thus, that type of offense is a stable predictor of recidivism, while the predictive ability of other offenses varies from jurisdiction to jurisdiction and from time period to time period. A first arrest before age 18 is consistently related to recidivism and a first age arrest after age 21 is consistently related to non-recidivism.

Frequency counts suggest a core of items which should be included in presentence reports, probation records, and parole files. An offense of auto theft, the presence of prior convictions, stability of employment, age at first arrest, living arrangements, current income, and history of opiate use or alcohol use appear to be the most stable predictors of recidivism. A combination of these items should account for the major portion of variance in legal outcome for large groups of offenders, regardless of jurisdiction. Usefulness of additional stable predictors depends on incremented validity or ability to improve predictability within a specific jurisdiction. Several items differentiate between recidivists and non-recidivists, but are not necessarily useful for accurate placement of offenders to different treatment settings (suspended sentence, probation, short vs. long prison terms). Some studies have shown that length of imprisonment shows no consistent relationship to parole outcome when biographical characteristics are controlled. There is a need for studies of treatment-by-offender interactions so that assignment of offenders to a treatment type will maximize the offender's chances of a successful legal outcome.

Rausch, Sharla. "Court Processing Versus Diversion of Status Offenders: A Test of Deterrence and Labeling Theories." Journal of Research in Crime and Delinquency, 1983, 70(1), 39-53.

Summary:

Two theoretical perspectives, labeling and deterrence, lie at the heart of the current controversy regarding status offenders. These perspectives predict discrepant effects from juvenile court and community based processing on subsequent behavior. Using data collected during an LEAA-funded evaluation of Connecticut's Deinstitutionalization of Status Offenders Project, this paper compares the effects of diversion programs with those of juvenile court processing on subsequent delinquency. The results indicate that it makes no difference, with respect to official recidivism, whether status offenders experience juvenile court processing or a diversion program. There is no support for one program over the other on the basis of either deterrent or negative labelling effects.

Controversy centers around whether or not contact with the juvenile court results in the propagation of a deviant self-concept and eventually a deviant career. Labeling perspective contends that juvenile court processing stigmatizes an individual as deviant, which in turn, results in a deviant self-concept. On the other hand, a deterrence perspective asserts that juvenile court processing deters further involvement in delinquency. There is weak, empirical support for the labeling perspective (Hirschi, 1975) as well as some support for the deterrence argument (McEachern, et al., 1968; Berg, et al., 1978; McCord, 1980).

This study compared court versus community-based treatment and maximum versus minimum degrees of intervention in four treatment groups in Connecticut. Labeling theory predicts that lower recidivism rates will occur with minimum intervention by a community-based program. A Quasi-experimental research design was employed consisting of comparison of the four treatment groups on subsequent court referrals. The sample included 350 status offenders. Recidivism was operationalized as the number of subsequent referrals to the juvenile court during a six month follow-up period. The control variables that were significantly related to treatment type or recidivism were retained for multiple classification analysis.

No differences in recidivism were shown between status offenders handled by the court in the usual manner and those diverted to each program. Multi-variate analysis controlled for demographic and legal characteristics or recidivism, separating their effects from those of treatment. The initial finding of no significant differences across all group was supported. Treatment models did not vary with respect to effects. Neither theory was supported, and one could justify equally well diversion or court process.

Sampson, Allan. "Post-Prison Success Prediction: A Preliminary Florida Study." Criminology, 1974, 12(2), 155-173.

Summary:

This preliminary study attempts to prepare the foundations for obtaining a valid predictive measure for the chance of "success for a prisoner" leaving the Florida penal system. A random sample of 200 releasees was analyzed from several vantage points. Parolee vs. expirer population differences were studied and a variant of the California Base Expectancy Scale was constructed. To overcome the weakness of utilizing the same predictive model for a broad spectrum of prisoners, an attempt was made to describe homogeneous subpopulations through the use of cluster analysis. One such subpopulation was identified. Predictive ability for this group was shown to be greatly increased.

Data consisted of information collected at time of processing, release, and, if applicable, recommitment. The success criterion was not returning to prison within a two-year post release period. Age, sentence length, alcohol-narcotic index score, and number of prior misdemeanors were significantly different between expirers and parolees (the average parolee is younger, has less drug involvement, has fewer misdemeanors, and serves less time). Three different success periods were examined using stepwise regression. Predictive ability remained constant for different success periods and best prognostic variables changed with time (ages of commitment and race became better predictors of success at later periods, while being a parole violator decreased in importance over time).

A cluster analysis approach was tried to improve predictive ability. Releasees were characterized as primarily young, first-time offenders. A predictive model was built, utilizing two years as the criterion for success. Three variables (IQ, sentence, number in parental family) explained most of the variability. A long original sentence slightly increased the chances of success.

This study verifies that the traditional prognostic instrument, the parole board, has questionable predictive ability. Using stepwise regression, ordinal data obtained a moderately effective predictive measure. Cluster analysis improved predictive ability since a regression model was more applicable within homogeneous clusters.

Schmidt, P. and Witte, A. D. "Models of Criminal Recidivism and an Illustration of Their Use in Evaluating Correctional Programs" in Rehabilitation of Criminal Offenders. L. Sechrist (ed.), 1979, National Academy of Sciences, Washington, DC 20418.

Using the truncated log normal distribution, models of the length of time after release until reimprisonment (recidivism) were developed. The data used to estimate the models was information on all persons released from the North Carolina Department of Corrections during the first six months of 1975. Information on personal characteristics was obtained from computerized inmate histories, with post release criminal activity collected from a search of Department of Correction records in February 1977. The dependent variable in the models was the length of time after release until reimprisonment. From an examination of past research on the determinants of criminal recidivism, it was hypothesized that the average length of time after release until reimprisonment was a linear function of 14 independent variables.

To check on the predictive accuracy of the models, the sample of 2,216 was randomly divided into two groups. The first group containing 1,616 was used to estimate the models and was the estimation sample. The second group, composed of 600 subjects, was used to test the predictive accuracy of the models. Results of the final specification indicated that the type of ex-inmate likely to return to prison most quickly after release is young, single, uneducated, imprisoned for a property crime, and has many previous convictions and rule violations. The model was tested by using it for predictions about subjects in the validation sample. There was an overprediction of a statistically insignificant 5.7 percent.

The models developed may be used to predict expected prison populations and improve correctional program evaluation. As an illustration of the use of the models, an innovative vocational evaluation program for juvenile offenders was evaluated. The model predicted significant higher rates of recidivism than actually occurred participants for the second, third, fifth, and sixth months after release. There were no significant differences between actual and predicted rates of recidivism beyond six months. Results indicate the effectiveness of the program over the short term after release and suggest the need for a long term followup program.

Simon, Frances H. "Statistical Methods of Making Prediction Instruments." Journal of Research in Crime and Delinquency, 1972, 9(1), 46-53.

A comparison of several multivariate methods for combining variables into a prediction and base expectancy instrument, including points scales, multiple regression, and hierarchical configurations, suggests that in practice they work equally well. Several studies have compared different methods (Vold, 1930; Monachesi, 1932, Glueck and Glueck, 1960; Mannheim and Wilkins, 1955; Gottfredson and Beverly, 1962; Hutcheson, Floyed, et al., 1963; Grygier, 1969). None of these studies showed any method superior. This study compared scoring methods, multiple linear regression, several configural techniques, and a central predictive method, using two distinct samples of cases aged 17-21. Data for predictive analysis on one sample were mainly factual and left little room for subjective judgments, while data on the second sample were a set of diagnostic judgments made by probation supervisors. The main criterion variable was reconviction for non-minor offenses within a fixed period. These analyses raised questions about the need for validation, sources of overfitting, desirable sample size, and the relative merits of objective and subjective data. None of the statistical methods for combining variables emerged as clearly superior, and each had weaknesses. Further demonstration needs to confirm that a combination of methods (Grygier, 1966) improves on other methods.

Wainer, H. Robust Estimation in Latent Trait Analysis - Final Report. Bureau of Social Science Research, Inc. Washington, D.C. 20036, 1980, 158 pages.

A new technique for parameter estimation in latent trait analysis is developed and applied to the prediction of recidivism among parolees. The theoretical aims of the project were to explore latent trait theory and robust methodologies in an attempt to derive estimation schemes that would yield correct and useful results in the face of contamination. In both biological and psychophysical applications of measurement models, the assumption of a single underlying dimension (a latent trait) has been coupled with some response function. This implies that as the latent trait escalates, the probability of a positive response on a specified dependent variable increases. In this study, the technique developed for parameter estimation in latent trait analysis combines traditional jackknifing with the Sine M Estimate to yield improved accuracy and efficiency of estimation. Asymptotically optimal methods of parameter estimation were found not to be necessarily optimal for small samples, nor were they found to be necessarily robust against departures from their assumptions in large samples. The new method, the AMT-Jackknife was found to be superior to all other tested procedures (including maximum likelihood) in extensive computer simulations. In applying the new technique to the prediction of recidivism among a sample of federal parolees, accuracy was improved significantly.

Wenk, E. "Diagnostic Parole Prediction Index." Responsible Action, 1979.

This study describes the Diagnostic Parole Prediction Index (DPPI) project to determine whether a parole prediction instrument combining statistical

prediction with clinical case study could be developed using a clinical - synthesis model. The project derived seven information dimensions of variable categories believed relevant to the clinical content (individual case history, offense-specific, academic, intelligence, vocational, social psychological, and psychological); compared four prediction strategies (multiple regression, predictive attribute analysis, association analysis, and Burgess method); designed the three alternative formats for presentation of dimensional data; and field tested these three formats to determine their relative utility and appropriateness for decision making. Comparison of multiple regression and the Burgess technique showed how predictive powers and substantive variation in the power of predictions developed from the seven dimensions. Analysis of the predictive power of the four techniques found that the predictive attribute analysis had the highest predictive power on construction and validation; the Burgess technique was the least efficient. A major feature of the analysis was the poor predictive power of the instruments. A survey of corrections practitioners found few with an interest in developing a predictive instrument.

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