THE DIAGNOSTIC PAROLE PREDICTION INDEX

(DPPI)

Grant Award Number 75-NI-99-0039

Continuation Report

Submitted to the

Corrections Division

Law Enforcement Assistance Administration

Ernst A. Wenk

Thomas V. Halatyn

Sydney A. Springer

April, 1976

Research Center
National Council on Crime and Delinquency
Suite D, Brinley Building
Davis, California 95616

TABLE OF CONTENTS

TABLES

T A B L E S (continued)

ABSTRACT

The primary objective of the continuation period of the Diagnostic Parole Prediction Index (DPPI), Grant Award Number 75-NI-99-0039, was to explore both the differences in predictive items for different offender subgroups and to determine if our predictive efficiency might be improved by applying multiple regression analysis to each subgroup.

The entire study population was subdivided three times on the basis of: (1) Type of Commitment offense; (2) Racial affiliation; and (3) Admission status. Multiple regression analysis was applied to each subgroup and additional regression runs were undertaken to determine the relationship of any one group's predictive equation to the other subgroups of that division.

Results indicated that different predictive items may be predictive for different offender groups, although the primary intent of the analyses, i.e., to increase predictive power, was not successful.

Rather than undertaking subgroup prediction analyses with a priori groups divided on the basis of a single variable, e.g., race, it is recommended that more complex divisive efforts be undertaken. Such efforts should be based upon more intriguing theoretical or empirically derived methods and should at least provide justification that the resulting groups might be considered homogeneous.

Preface

The following report describes activities concluded during a project continuation period, October 22, 1975 to April 22, 1976. The project in question, the Diagnostic Parole Prediction Index (DPPI), Grant Award Number 75-NI-99-0039, had satisfactorily completed the stated objectives of the project during the funded project period, October 22, 1974 to October 22, 1975. However, due to project related savings, a six month project extension was requested and granted although the specific objectives of the extension period were at that time not specifically identified (the continuation objectives are described herein).

The continuation report will not provide an extensive review of the methodology nor the findings of the initial project period as these are provided in two final report volumes. Also, no attempt will be made here to thoroughly describe methodological concerns reported in the final report from which the present issues and findings partially follow.

To reduce the amount of redundancy between the final and continuation reports, the authors will refer the reader to appropriate sections of the final report

for a more complete description. Also, the reading and comprehension of this report is based partially upon the assumption that the reader is somewhat familiar with the content (particularly those sections dealing with predictive strategies and their comparison) of the final report.

The following narrative, unlike the final report, makes no attempt to separate "technical" and supplementary information from other narrative. Rather than present two separate volumes (of text and appendices), the authors will either: (1) refer the reader to an appropriate section of the final report; (2) provide a cursory explanation and/or a reference; or (3) provide a brief supplementary description in the form of a footnote. Therefore, the accompanying appendix of this report will consist primarily of a listing of variables used during the continuation period analyses.

Introduction

The primary goals of Grant Award Number 75-NI-99-0039, "The Diagnostic Parole Prediction Index" (DPPI) were: (1) To demonstrate that predictive information regarding parole outcome can be fused with clinical concerns in a device relevant to decision-making within the case-study process; (2) compare several prediction methods (multiple regression, predictive attribute analysis, association analysis, and the Burgess method) in terms of their accuracy in forecasting parole outcome; and (3) design and test in the field several alternative formats for figuratively displaying DPPI information in a manner that is readily understandable and useful to case-study workers. From these goals were derived four study objectives defined as project tasks: (1) derivation of seven information dimensions or variable categories believed to be relevant to the clinical context; (2) the comparison of four prediction strategies in terms of their appropriateness to the clinical format of the DPPI as well as their predictive efficiency; (3) the design of three alternate formats for the presentation of dimensional data, and (4) the field testing of the formats to determine their relative utility and

appropriateness for decision-making by the practitioner.

All variable items (described in Appendix B of the Final Report, the DPPI codebook) were divided into seven case-study dimensions: individual case history, offense specific, academic, intelligence, vocational, social psychological, and psychological areas. After the grouping of variables was complete, a number of analyses were undertaken including: (1) the application of the multiple regression and Burgess techniques to each of the variable dimensions and to the overall variable pool; (2) the application of the association and predictive attribute analyses to the entire variable pool, and (3) the comparison of results achieved by the regression and Burgess techniques for each of the dimensional pools, and a comparison of all techniques for the entire variable pool.

The results showed the multiple regression technique to be superior over the Burgess technique as measured by r^2 and MCR construction sample values when compared across the information dimensions. However, the better data fitting capabilities of the multiple regression technique also meant that the amount of shrinkage was greater for this technique than for the Burgess method (as measured by the change of r^2 and MCR values from construction to validation samples).

When all four predictive strategies were compared by r^2, MCR, and the difference or shrinkage measure for the entire variable pool, the four techniques performed as follows: (1) Predictive attribute analysis achieved the highest r^2 or Eta^2 on construction, (2) Predictive attribute analysis achieved the highest r^2 or Eta^2 on validation, (3) Association analysis displayed least difference (shrinkage) between construction and validation, (4) Predictive attribute analysis achieved the highest MCR values on both construction and validation, (5) Association analysis achieved least difference between MCR values for construction and validation samples. Generally, these results indicate that the configural methods (predictive attribute and association analysis) were somewhat superior over the Burgess and multiple regression techniques. This finding was somewhat surprising in regard to the predictive power of the methods since it might be expected that multiple regression would achieve the highest r^2 on construction.

Although the configural approaches seemed to fare somewhat better than the remaining techniques, it should be stressed that the best predictive results were generally not very impressive in regard to the amount of variance explained (less than 7% for the predictive attribute technique on construction). These

disappointing results form, in part, the basis for undertaking a number of additional analyses which form the primary objectives of this continuation report.

It is probably helpful to remind the reader that the total study involved two somewhat distinct objectives. The first broad objective (already reviewed) involved a number of predictive analyses, while the second was directed towards testing several methods of presenting actuarial prediction information to a variety of case study workers in the California Youth Authority. This second objective proceeded in a manner that was not dependent upon the specific results of the predictive analyses (hypothetical data could have been used) but rather to determine: (1) If CYA staff felt that predictive information presented in the form of separate information dimensions was helpful; and (2) To assess staff response to a variety of prediction formats which follow from the methodological assumptions of the different predictive techniques.[1]

Results from the field study indicated that field personnel cared little for any specific format

[1]The specific formats derived from the techniques as well as questionnaires designed to assess field staff responses to the formats can be found in the appendices volume of the final report.

(dimensional, base expectancy, and decision tree models) and it became obvious that many staff people queried cared little for actuarial prediction or they responded favorably to a simple computational model based upon either the Burgess or multiple regression (after the weights were simplified) techniques. Also, it was often expressed that specific computations for any one individual should be completed before any such device was distributed to the field worker.

Unfortunately, the nature of the responses obtained during the course of the field testing were disappointing because few field staff were willing to reconstruct the process by which they make individual decisions concerning CYA wards. Although situations requiring an assessment of an offender's probable "success" or "failure" on parole would certainly seem frequent, few field staff attempted to divulge the manner by which an offender in question was labeled a probable success or failure. This lack of cooperation meant that the study's central construct, i.e., the clinical synthesis model as discussed in Chapters 2 and 3 of the final report's first volume, was not adequately tested.

Clinical synthesis as outlined by Sawyer (1965) meant that there is a process by which the caseworker might integrate the results derived from actuarial

prediction into his decision-making process. Further, the study hypothesized that there were different "subjective" processes by which decision makers combine predictive data, i.e., forming typologies, etc. Based upon these assumptions, it was thought that various predictive formats would be accepted or rejected by the practitioner as mediated by his own decision style.

Results regarding the study's assumptions were disappointing partially because of the ambitiousness of the field study (requiring at least one hour of time per person) and certain time restrictions of the CYA which disallowed greater participation of field staff.

Summarily, no matter how plausible the clinical synthesis model is, the unfortunate reality is that a much more intensive field study, i.e., one requiring possibly a multi-day effort, probably should have been undertaken. Although some 42 CYA personnel of different variety were queried, it would have been better to involve a fewer number of staff for a greater period of time. It became obvious during the early phase of the field study that the complexity of the theoretical concerns addressed as part of the study were not the ones with which the practitioner was concerned, which meant that little of a conclusive nature regarding clinical synthesis could be ascertained. Obviously, the

seeming lack of participation by CYA staff may not be due solely to the specific issues of the study. It does not require much foresight to imagine that there is a resistance on the part of practitioners to gracefully accept either the process or findings of the researcher. Even if this be partially true, a better tactic in respect to this study would have been to "build in" several such field personnel as consultants to the project. This would at least have allowed a more intensive effort in regard to confronting the variety and complexity of actuarial-clinical issues raised and would have at least addressed, in more rigorous fashion, the notion of clinical synthesis.

Continuation Report Objectives: Derivation and Rationale

At the end of the regular project period, there existed two "kinds" of findings, i.e., those associated with the application of various prediction techniques to the information pools and to all variables, and results derived from the study of CYA staff reaction to the prediction formats. With a surplus of money available, a decision had to be made regarding the aspect or aspects of the study which should be pursued as objectives of the continuation period.

The primary objective of the continuation period was derived from several concerns stemming from the assumptions as well as the findings of the study. Each of these should be reviewed in some detail.

A major finding of the study, regardless of the specific prediction technique applied, is the relatively poor results achieved when attempting to predict parole outcome. Table 17 of the final report, recreated below as Table 1, reports both MCD and r^2 or Eta^2 coefficients for all four methods on construction and validation.[2]

Table 1

Comparison of Prediction Methods
Using MCR, r^2 and Eta^2 Coefficients

Prediction Method	MCR		r^2 or Eta^2	
	Construction	Validation	Construction	Validation
Multiple Regression	.289	.139	.0655	.0083
Burgess	.169	.058	.0219	.0024
Predictive Attribute	.324	.167	.0697	.0220
Association Analysis	.158	.129	.0190	.0129

Although predictive attribute analysis achieves a Mean Cost Rating (MCR) value of .32 while explaining 7%

[2]The reader is referred to the final report for a description of these measures of predictive efficiency.

of the variance on construction, this result is not particularly impressive. Numerous studies reviewed in Simon (1971) report MCR values of anywhere from .25 to .40, which also are not particularly impressive. In this study, the remaining methods fare somewhat poorer than the predictive attribute techniques, although multiple regression, with its good data fitting characteristics, has the second highest MCR and r^2 values associated with it.

As an attempt to predict parole outcome, these analyses are, again, not very impressive. Another method of looking at these results is to put the Y scores (parole outcome) into numerical sequence and to choose a cutoff score which would separate the group into those predicted to be successes (falling above the cutoff score) and those predicted as failures (falling below). Further, let us assume that the group associated with our best prediction (predictive attribute validation group, MCR = .17, N = 794) was ordered in numerical sequence and the score corresponding with the base rate, i.e., the score that divides the sample as closely as possible into two groups of an approximate proportion of 60 to 40 percent, was used as the cutoff score. Now, with the prediction that all falling above this point will succeed and all below will fail on parole we can

examine our success in predicting parole outcome for this group. Table 2 provides information associated with this prediction. First of all, for every correct prediction (54.3%) there is almost one incorrect prediction (45.7%). When comparing true and false negatives this ratio is translated into two to three (for every two correct predictions there are three incorrect predictions). Although not shown here another attempt to predict parole outcome, using a cutoff score which divides the sample into two equal groups, resulted in a slight improvement of correct to incorrect predictions.

Table 2

Predictive Attribute Analysis
Base Rate Validation

	Predicted Success	Predicted Failure	Total
Actual Success	264 True Positives	242 False-Negatives	506
Actual Failure	121 False-Positives	167 True-Negatives	288
Total	385	409	794

N	%	
431	54.3%	Hits
264	33.2%	Correct Success Predictions (True Positives)
167	21.0%	Correct Failure Predictions (True Negatives)
363	45.7%	Misses
121	15.2%	InCorrect Success Predictions (False Positives)
242	30.5%	Incorrect Failure Predictions (False Negatives)

Most important is the fact that except for those individuals falling in the highest or lowest score categories (regardless of the predictive method), there is usually a large number of individuals that fall in the middle of the distribution about whom we know little in terms of probable success or failure on parole.

The mediocre results achieved during the project period in attempting to predict parole outcome led project staff to question how our predictive ability might be improved. Suggestions included such things as transforming the dependent measure from a dichotomous to a continuous variable, attempting a different strategy, e.g., discriminant function, etc.

Another reason for attempting a slightly different predictive strategy stemmed from a realization which can be attributed to both clinical and actuarial prediction. As mentioned in the final report (Chapter 3), Wallin (1941) noted that the clinician may associate a case with a class and, once this typological association is formed, a prediction is made from the class. Although this represents only one method by which the clinician might formulate a prediction, it represents a technique which was not one of the primary bases of the study's actuarial prediction efforts. Except for the use of the configural techniques (predictive attribute and association

analyses), which do form empirically derived typologies, the remaining predictive strategies were applied to the information dimensions as well as to the overall variable pool.

While multiple regression and the Burgess techniques were both applied to the information dimensions, the results achieved by such a strategy were certainly not unexpected. For example, those dimensions containing either individual case history or offense information, as other parole prediction studies have demonstrated, usually account for the greatest number of variables significantly related to parole outcome. While this "dimensional analysis" may potentially help the clinician to re-examine his own assumptions about the characteristics which may be indicative of parole success or failure, it accomplished little in regard to either improving our predictive ability or to help further understand, as Wallin (1941) remarks, how our predictive ability might be improved by predicting for different "classes" of people. While the configural methods help derive empirical typologies, the point remains that this process is nevertheless alien to the clinician since it is more likely true that he perceives a "class" of people as based upon some a priori expectation of them and their relative success or failure on

parole. If, for example, he perceives different parole success rates and associated characteristics for different racial groups, he might proceed to distinguish between different sets of characteristics for these groups.

The devotion of the study to the case study dimensions pursued only one of Wallin's (1941) probable methods of making an individual prediction, i.e., every case may be studied with reference to a series of factors known ot assumed to be relevant to the prediction criterion. While this may be a common procedure in certain cases for certain decision makers and their particular methods of arriving at a prediction regarding a specific case, there nevertheless exists the decision style that characterizes a person with some class and some assumed characteristics associated with that class.

Most discussion of parole success assumes the likelihood that there may be different "types" of individuals within a given population of offenders. This raises the question as to whether there may be not only different success rates associated with different groups of offenders but that also different characteristics within these groups may distinguish those successful from those unsuccessful on parole. This recognition is nothing new within the field of corrections, since it has often been the goal (or at least it has been desirable)

"...to break crime into more homogeneous units" (Opp, 1973). The discovery of homogeneous groups within a heterogeneous population has led at least one researcher to note after dividing a heterogeneous group of offenders into two more homogeneous groups to note:

> "...if both types were to be included in a criterion group of violent individuals, their differences would cancel each other out so that the group, on the average, would appear no different from a nonviolent group...(Megargee, 1969)

Megargee's conclusion is an excellent example of an underlying assumption of classification entitled masked heterogeneity. The point here is not that subgroup differences may actually cancel each other out or even that differences are negated, but rather that criterion groups may reflect greater heterogeneity than presently recognized (Halatyn, 1975).

It is obvious that the DPPI study spent too little time studying the possible differences between criterion groups in regard to certain characteristics which might distinguish or isolate more homogeneous units in regard to parole outcome.

Possible Procedures for Identifying Homogeneous Criterion Groups

Methodological processes for unearthing such homogeneous criterion groups are several in number. The

first is to simply proceed as the major study proceeded, i.e., to generate predictive score categories for the entire population based upon the assumption that all factors are generally relevant to the entire population. The second approach is to derive empirically based typologies by using association analysis and then applying multiple regression analysis to each subgroup (known as the hurdle technique). The third approach is to proceed with a number of a priori classification assumptions, divide the sample based upon the variable of interest and then undertake separate multiple regression analyses for each subgroup. Interestingly, the first and second procedures will only divide a sample based upon either variables found to be significantly related to the dependent variable or, in the case of the hurdle technique, the sum of Chi-squares or relationship of any one variable to all other variables. The third alternative splits the sample without any empirical evidence that the classification variable is even related to the dependent variable. There seems to be little indication that there need be such a relationship since there is no reason to assume that the classification variable(s) need be related to the dependent variable. In fact, the use of a variable for classification purposes would most likely proceed from a clinical perspective without the

clinician's knowledge of whether or not the splitting variable is related to the dependent variable.

It is thereby assumed that the practitioner who makes decisions which rest in part on the probable parole success rate of a class of offenders does so without the aid of empirical evidence.

In contrast to the use of the configural methods in deriving subgroups based upon the Chi-square or sum of Chi-squares, the primary objective of the continuation report centers around an attempt to subdivide the study population on the basis of variables felt to be important a priori. This procedure might allow the identification of specific subgroups with greater homogeneity, thus confronting the possible presence of masked heterogeneity. However, to allow this process to operate while retaining a clinical perspective, the decision as to which variables would be used in dividing the sample was not to be determined by any identifiable evidence.

Objectives of the Continuation Period

If there exist somewhat more homogeneous groups within the study population and different characteristics may be related to parole outcome for these groups, then the assumption of masked heterogeneity can be explored. By continually subdividing the study population on

variables felt to be indicators of subgroup homogeneity and applying multiple regression analysis to each subgroup, the plausibility of the homogeneity of such a priori subclassifications can be explored.

The primary objective of the continuation analyses centered around the subdivision of the study population by applying three classification variables: (1) the nature of the commitment offense, i.e., offense against person, property, or drug and/or alcohol related; (2) the admission status of the ward, i.e., first admission versus all others; and (3) racial affiliation of either black, white, or Mexican-American descent.

The study of masked heterogeneity was guided by two assumptions regarding the subdivision of the study population: (1) If subgroups identified are homogeneous it is useful to compare measures of predictive efficiency for those subgroups with measures associated with the prediction for the entire population; and (2) Depending partially upon the results of (1), to further compare each subgroup on the basis of variables included in the equation for each group. The second guiding assumption can be assessed simply by the variable content of each equation as well as the B weights associated with each variable if that variable is common to two or more subgroups.

A third objective which follows from the second guiding objective is to see if variables found as part of one subgroup equation are significantly related to other subgroups of that major subdivision. Therefore, for two of the three subgroup divisions (race and admission status), three continuation objectives were applied, while to the remaining division (commitment offense), only the first and second objectives were tested.

Methodology

The manner in which the continuation objectives were satisfied was structured on the basis of four components for the subgroup classification comparison: (1) Selection of variables for the continuation analyses and comparisons; (2) Division of study population into subgroups on the basis of the different classification variables and the random selection of construction and validation groups for each subgroup; (3) The application of multiple regression analysis to each subgroup (8 in number) and the application of derived equations to validation groups of each subgroup; and (4) The computation of an additional measure of predictive efficiency (Mean Cost Rating) for both samples of each subgroup which, combined with r^2 and difference (shrinkage) measures, form the basis of the comparisons.

The only major deviation of this process involved the third continuation study objective, i.e., the determination if those variables making up the equation for any subgroup are significantly related to any other subgroup of that classification substudy.

(1) Selection of Variables for Continuation Analyses

With few exceptions, the same number of variables were applied to each of the three subgroup analyses. The DPPI codebook (Appendix B of the final report) is recreated as Appendix A in this report although there is some difference between the number of variables used in the regular study analyses and the analyses undertaken as part of the continuation period. One major distinction involves the number of variables included for the regression analysis for the subgroups which was reduced by approximately half for the continuation analyses. The variables used as part of the present analyses are marked by an asterisk and can be noted when reviewing Appendix A. For the regression runs pertinent to the racial and admission status analyses, several criteria were applied which followed from the analyses undertaken during the regular study period. Variables of the total pool were used if they: (1) were significantly related to the dependent variable as part of the multiple

regression, predictive attribute, or association analysis; or (2) the amount of variance associated with the variable was at least greater than zero.

The application of these criteria for retention resulted in the elimination of a negligible number of variables (3-4 in number), which meant that Appendix A is a reliable source for all continuation analyses.

(2) Division of Study Population and Drawing Samples

For each of the three subgroup analyses, the population was first subdivided on the basis of the classification variable and then construction and validation samples were lrawn within each subgroup. The results of this procedure for all analyses are presented below.

Table 3

Total Subgroup and Sample Sizes for all Regression Analyses

	Subgroup	Total N	Construction N	Validation N
Comparative Analysis I Commitment Offense	Person Offenders	857	709	148
	Property Offenders	2426	1950	476
	Drug/Alcohol Offenders	407	329	78
Comparative Analysis II Racial Affiliation	White Offenders	2212	1389	823
	Black Offenders	1076	555	521
	Mexican-American Offenders	772	391	381
Comparative Analysis III Admission Status	First Admission	2570	1635	835
	All Other Admissions	1532	782	750

As noticed in Table 3, the sample sizes derived are in almost all cases not equal proportions of the total subgroup. This follows from a sampling strategy explained as part of the final report in which the random selection of construction and validation samples is construed in such a way that a sufficient number of cases, allowing a fairly accurate estimate of validity, fall in the construction sample.[3]

(3) Application of Multiple Regression Analysis

The procedure of applying multiple regression analysis proceeded in similar fashion as the dimensional and total population analyses, i.e., a stepwise procedure was applied which allowed variables to enter the equation in order of their F values. This was a standard procedure during the continuation analyses except for those situations in which a suppression effect (explained in the appendices of Volume One) was present or was relevant to continuation objective three, i.e., numbers of equation variables of one subgroup were forced into the first regression step for other subgroups.

[3]The reader is referred to the Appendices volume of the final report for an explanation of this strategy.

(4) Computation of Measures of Predictive Efficiency

Explanation and previous applications of M.C.R., r^2, and shrinkage coefficients is provided in both volumes of the final report. The computation and interpretation of these measures are also exactly similar to their use in the final report.

Results

The results achieved for each regression analysis and the subsequent comparison regarding each classification subgroup are organized according to subgroup analysis (three in number).

(1) Subdivision by the Nature of the Commitment Offense

This analysis sought to determine if better predictive results might be achieved if the study population was subdivided into offenders who had committed offenses typically called either crimes against property, persons, or crimes involving the abuse of either drugs or alcohol.

Table 4 below reports the results of measures of predictive efficiency as applied to the three subgroups when compared with the efficiency measures for the overall population.

Table 4

Comparison of Measures of Predictive Efficiency for Commitment Offense Subgroups and Total Study Population Multiple Regression

Comparison Group	MCR			r^2		
	Construction	Validation	Difference	Construction	Validation	Difference
Total Population N = 4,146	.289	.139	.150	.0655	.0083	.0572
Property Offenders N = 2,426	.226	.149	.077	.0502	.0190	.0312
Person Offenders N = 857	.298	.032	.266	.0681	.0003	.0678
Drug and Alcohol Offenders N = 407	.394	.068	.326	.1142	.0006	.1136

When comparing MCR and r^2 values for the four comparison groups, it is obvious that little predictive power is gained when dividing the population by type of commitment offense. In those instances where the r^2 values are somewhat high on construction (drugs and alcohol), the amount of shrinkage is also extremely high. It seems quite obvious from this comparison that if we might improve our predictive ability by identifying more homogeneous subgroups, commitment offense may not be an important classification variable.

A second objective for each of the subgroup analyses was to compare the variables relevant to each

predictive equation for each subgroup. Table 5, below, lists the variables in the equation for each subgroup and the associated B-weight and constants.

Table 5

Equation Variables and B-Weights for Each Commitment Offense Subgroup

Property Offenses	B-Weight	Person Offenses	B-Weight	Drug and Alcohol Offenses	B-Weight
Admission Status	-0.14055	Admission Status	-0.10307	Opiate Use	-0.19002
Escape History	-0.13318	Escape History	-0.17059	Non-Language Language	-0.00457
Economic Loss	-0.01163	Statutory Rape	-0.16349	Academic Training Potential	-0.14363
Age at Reception	0.0021	CTMM/Total Average	0.00161	Drug Misuse	-0.16392
Vocational Training Potential	-0.06418	GATB/Q Factor	0.00137	Alcohol Misuse	-0.05689
CAT/Comp. Vocab.	0.00208	CAT/Reasoning Fund.	-0.00402	CYA Violence History	0.15938
				Violence History	-0.10948
Constant	0.1965	Constant	0.5018	Constant	0.9540

Table 5 indicates that the property and person offense equations have more variables in common (admission status and escape history) than any other comparison. The equation for the drug and alcohol offenders is somewhat different since a number of previous measures of drug and/or alcohol use plus measures of violence history account for a major number of equation variables.

A balance of two concerns is required when comparing

the results of Tables 4 and 5 for the commitment offense subgroups. Although each subgroup has a different configuration of significant variables associated with it (Table 5), the measures of predictive efficiency provided in Table 4 indicate that subdivision by commitment offense has not succeeded in appreciably improving our predictive ability beyond that achieved for the total study population.

(2) Subdivision by Racial Affiliation

A second exploratory attempt to improve the study's predictive efforts followed from the subdivision of the study population based upon racial affiliation, (white, black, and Mexican-American).

Table 6 provides the results of measures of predictive efficiency as applied to the three racial subgroups and the entire study population.

Except for the white subgroup, Table 6 indicates that little more predictive efficiency was obtained by applying multiple regression to racial subgroups than to the entire population. Although the MCR and r^2 values associated with the white validation group are somewhat higher than those for the entire study population, little, if any, difference is noted in regard to the remaining subgroups. Except for this finding, the other noteworthy

result is the great amount of shrinkage from construction to validation for the Mexican-American group. Again, it seems that the application of multiple regression analysis to a number of offender subgroups has not resulted in a substantial increase in predictive efficiency.

Table 6

Comparison of Measures of Predictive Efficiency for Racial Subgroups and the Total Study Population Multiple Regression

Comparison Group	MCR			r^2		
	Construction	Validation	Difference	Construction	Validation	Difference
Total Population N = 4,146	.289	.139	.150	.0655	.0083	.0572
White Offenders N = 2,212	.391	.254	.137	.0950	.0432	.0518
Black Offenders N = 1,076	.281	.161	.020	.0618	.0177	.0441
Mexican-American Offenders N = 772	.287	-.002	.289	.0675	.0011	.0664

Table 7 reports the equation variables and associated B-weights for each racial subgroup.

Table 7

Equation Variables and B-Weights for Each Racial Subgroup

White Offenders		Black Offenders		Mexican-American Offenders	
Predictor Variables	B-Weight	Predictor Variables	B-Weight	Predictor Variables	B-Weight
Admission Status	-0.09020	Admission Status	-0.16914	Violence History	0.06165
Opiate Use	-0.23348	GATB/G Factor	-0.00516	Vocational Training Potential	-0.11214
Escape History	-0.11166	GATB/G Factor/M	0.00533	CPI/Ai	0.00802
Height	-0.46575	CYA Violence History	0.08350	MMPI/L/M	0.51700
CTMM/Total Average	0.00415	Grade Achieved-Expected	0.00177	MMPI/Pt	0.00509
CTMM/Total Average/M	0.35508				
CPI/Sa	-0.00239				
CPI/So	0.00291				
Months in Institution	-0.00598	Months in Institution	-0.00907		
Individual Violence	0.10528				
Violence Potential/M	-0.07673				
CAT/Comp.-Vocab.	0.00219				
Vehicle Theft	-0.13836				
Forgery	-0.14210				
Constant	0.3895	Constant	0.6095	Constant	-0.0042

The most obvious finding from viewing this table is the great disparity between the number of variables significantly related to parole outcome for the

subgroup in contrast to the other groups. Except for the presence of admission status for white and black subgroups, there are few similarities regarding predictor variables for the subgroups. Again, however, it should be noted that the amount of variance explained as part of any analysis (Table 6) of any racial subgroup was hardly impressive.

Before turning to several additional measures of the "fit" of predictor variables of each racial subgroup to the remaining groups, it should be speculated as to why there are 14 variables significantly related to the white subgroup while only 5 were found to be so related to the black and Mexican-American groups. A question which must certainly be asked is whether information collected, and subsequently used as predictive information, is equally pertinent to all racial subgroups. The lower r^2 values achieved for the black and Mexican-American groups may be due in part to the fact that information typically collected as administrative and screening data (of which this data base is one example) may be primarily pertinent to white offenders.

Since there is the possibility that the variables identified as significantly related to the criterion for any subgroup might be so related due to chance variation, a validation procedure for determining the

significance of predictor variables of any racial subgroup to the remaining subgroups was applied. This procedure simply consisted of the "forcing" of all predictor variables for any racial group into another subgroup as the first step in the regression sequence and prior to allowing variables to enter on the basis of their independent F to remove values. By examining the F values associated with this "forcing" process, an additional assessment of the relationship of one subgroup's predictor variables to the other subgroups is possible. Table 8 provides evidence of the relationship of each subgroup's predictor variables to other subgroups.

Table 8

The Relationship of Racial Subgroup Variables to Other Subgroups

		Applied to this Subgroup		
		White	Black	Mexican American
This equation	White		2.82060*	1.62317
	Black	9.62226*		1.89771*
	Mexican-American	1.43241	0.81868	

*P = <.05

Significant F values were achieved when the white equation was applied to the black subgroup and when the black equation was significantly related to both white and Mexican-American subgroups. The Mexican-American

equation failed to achieve significance for either white or black subgroups.

Another question of some interest involved the measure of how much r^2 values might increase from the first step of forcing equation variables of one subgroup into the regression sequence of other subgroups to the point at which all other significantly related variables had entered the equation. These r^2 values, and values expressed as increases in r^2, are presented in Table 9 although only those regression runs achieving a significant F value, as derived from Table 8, are presented.

Table 9

Comparison of r^2 Increases for Several Racial Subgroups

What equation applied to what subgroup	r^2 at first significant step	r^2 at final significant step	Increase in r^2
Black to White	.0401	.0840	.0439
White to Black	.0634	.0634	0
Black to Mexican-American	.0288	.0619	.0331

As noted in Table 9, the amount of explained variance added from r_1^2 to r_2^2 when applying the black equation to the white group is 4 percent, while the increase when applying the black equation to the Mexican-American group is 3 percent. In these cases, it seems that the

Table 10

Comparison of Measures of Predictive Efficiency for Admission Status Subgroups and the Total Study Population Multiple Regression

Comparison Group	MCR			r^2		
	Construction	Validation	Difference	Construction	Validation	Difference
Total Study Population N = 4,146	.289	.139	.150	.0655	.0083	.0572
First Admissions N = 2,570	.212	.137	.075	.0421	.0168	.0253
Second and More Admissions N = 1,532	.228	.060	.168	.0567	.0045	.0522

The results presented in Table 10 indicate that the admission status subgroup with the highest MCR and r^2 values (second and more admissions) are nevertheless lower than those for the entire population.

Of all previous subgroup analyses, the results of this comparison are less impressive than previous comparisons. These findings are, however, similar to those achieved by Beverly (1968), in which he found that base expectancies developed (by multiple regression) for separate "first" and "readmission" subpopulations of CYA wards were slightly less powerful for each group than was an equation developed for the whole population. The results achieved here are quite similar in this regard,

i.e., a loss of predictive power resulted when the population was divided by admission status.

Table 11 lists the variables in the equation for each admission status subgroup as well as the associated B-weights and constants.

Table 11

Equation Variables and B-Weights for Each Admission Status Subgroup

First Offense	B-Weight	Two and More Offenses	B-Weight
Escape History	-0.15825	Admission Status	-0.02101
CYA Violence History	0.05801	Age at Reception	0.00361
GATB/G Factor	0.00108	Age at Reception/M	0.80303
Statutory Rape	-0.20541	Opiate Use	-0.20619
Opiate Use	-0.18948	Violence History	-0.04574
Weapon Used	0.08741	Weight/M	0.52201
Months in Institution	-0.00631	GATB/M Factor	0.00085
CPI/Ai	0.00279	CYA Violence History	0.08148
CPI/Py	-0.00252	Narcotics Offense	0.23551
MMPI/Ma	0.00150		
MMPI/Si	0.00210		
Individual Violence/M	-0.50027		
Length of Experience/M	0.50241		
Constant	0.5930	Constant	-0.3451

When comparing variables for the two equations, it

can be noted that with the exception of CYA violence history and opiate use there are no other variables common to both equations.

As with the racial subgroups, two regression runs were undertaken in which the predictive equation for one admission status group was "forced" into the stepwise regression sequence at the first step for the other subgroup. The F value associated with this step was then assessed as being significant or nonsignificant. When this process was undertaken for the admission status groups, and the first admission subgroup equation was applied to the second or more admissions group, a nonsignificant F value resulted. However, when the second or more admissions subgroup equation was applied to the first admission subgroup, a significant F value ($P < .05$) was obtained. This of course provides additional evidence that the subgroups may not be extremely dissimilar in relation to characteristics associated to parole outcome.

When seeking to determine the increase in r^2 from the step at which the other equation variables were forced into the sequence to the step at which the final significantly related variable enters the equation, a difference in r^2 values for these steps was computed.

Table 12

Comparison of r^2 Increases for Admission Status Subgroups

What equation applied to what subgroup	r^2 at first step	r^2 at final significant step	Increase in r^2
Second and More Applied to First Admission	.013	.036	.023
First Applied to Second and More Admissions	.023	.047	.024

Table 12 reports the r^2 values and increase in r^2 for the two admission status subgroups. The increase in r^2 for the application of the second and more admissions group equation to the first admission group is large in proportion to the initial r^2. This is no doubt due to the fewer number of variables in the first admission equation. Therefore, when the fewer number of equation variables pertinent to the second and more admissions subgroup is applied to the first admission subgroup, it would be expected to find a somewhat smaller r^2 value would result than when the first admission equation is applied to the second or more admissions subgroup. Also, the increase of r^2 in the former case would be expected to be proportionately larger in the former case (which is supported by the results of Table 12).

These findings indicate that although the characteristics related to parole outcome are somewhat different for the two admission status groups, the loss (rather than the anticipated gain) of predictive power after different equations were generated was certainly disappointing.

Summary and Conclusion

The subdivision of the study population on the basis of three classification variables: (1) Type of commitment offense; (2) Racial affiliation; and (3) Admission status and the application of multiple regression analysis to each subgroup lends itself to two types of summaries. Although the assumption of masked heterogeneity has been partially justified by the preceding analysis (different characteristics are related to parole outcome for different subgroups), the associated idea of more homogeneous groups leading to improved predictive ability has been partially vilified. The total amount of variance explained for all subgroup analyses ranges from 11.4 percent (Drug and Alcohol Offenders) to 4.2 percent (First Admission) on construction which, in relation to the percent of variance explained for the total study population construction sample (6.5 percent), is at least somewhat impressive. However, in this same

instance in which a value of 11.4 percent was achieved, the r^2 value dropped to .1 percent on validation.

Obviously, there may be no necessary relationship between isolating different predictive variables for different subgroups and any increase in predictive power. The idea of isolating subgroups with different associated characteristics and varying parole success rates has been shown to be effective if attempted from an empirical perspective, e.g., predictive attribute analysis. Configurations of variables associated with subgroups with different parole success rates seem, from prior experience wtth configural methods, to be an important antecedent condition to applying multiple regression analysis to each subgroup. What becomes obvious when comparing this method with the a priori classifications attempted as the basis of this continuation period is the simplicity of the subgroups formed. First of all, why should a singular variable division, e.g., race, for example, be isolating subgroups of any greater homogeneity than that of the total study population? Is there something inherent in racial affiliation per se that allows us to assume that they are homogeneous groups? Again the continuation study has demonstrated that different variables may be related to parole outcome for different racial groups; however, it has done so without improving

ability to predict parole outcome.

One possible explanation is that simplistic divisions based upon offense groupings or race do not form homogeneous groups which, in turn, might imply that additional subdivisions within racial groups must be undertaken before homogeneous groups are identified. Also, if the identification of homogeneous groups proceeds on the basis of a larger number of population subdivisions, and if this process identifies groups of similar characteristics, then it might be plausible that predictive efficiency might be improved.

Unfortunately, the combined application of a configural approach with multiple regression analysis was not financially possible which, if undertaken, might have provided some very interesting findings concerning the derivation of empirically derived subgroups and its relationship to predictive efficiency. As it stands presently, it does not appear that a sizable increase in predictive power will be achieved by subdividing an offender population on the basis of a singular variable. If the interest in classification in criminology is at all valid, it is probably valid at a level of complexity coterminous with the complexity of human behavior rather than at a level of such simple divisions.

If increased predictive power is related to isolating

more homogeneous offender groups, then this process should proceed by applying either a more intriguing a priori classification scheme or by means of an empirically based approach. Of course, this assumes that characteristic homogeneity is somehow related to parole outcome which, of course, is the basis for most predictive efficiency thus far identified.

Alternative explanations for our inability to improve the prediction of parole outcome are potentially far too extensive to review here, although it is plausible that no correlation between any characteristic and parole outcome exceeds .25, simply because no characteristic or group of characteristics can adequately explain human behavior. I am reminded of a simple premise derived from field theory which said that $B = P(E)$, which is a way of saying that certain people do certain things in certain situations.

If situational considerations were somehow included in our predictive efforts, we might find r^2 values increased to 20 percent of the variance explained. Of course, I am inclined to accept the opinion of certain investigators who maintain that parole prediction may have reached a point of "diminishing returns" and until the MCR values of most such studies increase beyond a range of, let us say, .25 to .35, less time should be

spent correlating characteristic items with parole outcome and more time should be spent designing data elicitation strategies which address the problems of "what person in what situation."

REFERENCES

Sawyer, J. "Measurement and prediction: clinical and statistical" Psychological Bulletin 66:3 178-200, 1965.

Simon, Francis H. Prediction methods in criminology. (Home Office Research Unit Report). London: Her Majesty's Stationery Office, 1971.

Opp, K. D. Methodological aspects of classification in criminology (European Committee on Crime Problems) Strasberg: Council of Europe, 1973.

Megargee, E. I. "The assessment of violence with psychological tests," a paper prepared for Task Force III: Individual acts of violence, National Commission on the Causes and Prevention of Violence, November 15, 1969.

Halatyn, T. V. "Violence prediction using actuarial methods: a review and prospectus" Research Center, National Council on Crime and Delinquency, April, 1975.

APPENDIX A

This codebook is a duplicate of Appendix B as it appeared in the final report. However, the number of variables used in the continuation analyses was reduced considerably from the original number. This symbol (*) appearing alongside a variable title indicates that the item was used in the multiple regression analysis for the commitment offense subgroups, while this symbol (+) indicates the item was used in the racial and admission status subgroup analyses.

Unfortunately, different selection criteria were applied to the variable pool to define variables for these two subgroup analyses. For example, all CPI and MMPI subscales were dropped from the commitment offense group analyses, while only those subscales of these instruments which failed to significantly relate to the dependent variable (as derived from all previous prediction technique applications), or had little variance associated with them, were dropped from the other analyses. With different variable selection criteria, the number of variables retained for the commitment offense analysis was 51 while 48 were used in the racial and admission status analyses. Although there is a certain amount of similarity between variables used for the two analyses, the reader should be aware of the differences apparent from reviewing the codebook.

APPENDIX A

DPPI CODEBOOK

VARIABLE	REMARKS AND CODES
+*ADMISSION STATUS	0 = First re-admission after discharge from CYA 1 = First admission to CYA 2 = First return from CYA parole 3 = First return from CYA parole, with new commitment 4 = Second return from CYA parole 5 = Second return from CYA parole, with new commitment 6 = Third return from CYA parole 7 = Third return from CYA parole, with new commitment 8 = Four or more returns from CYA parole 9 = Four or more returns from CYA parole, with new commitment
+*AGE AT RECEPTION	CODED IN MONTHS, TO FULLY COMPLETED MONTH ONLY 180-311
*COMMITMENT COURT	1 = Juvenile 2 = Superior 3 = Municipal 4 = Justice
*RACE	1 = White 2 = Mexican 3 = Negro 4 = Oriental 5 = Other

* Offense
+ Race, Admission Status

VARIABLE	REMARKS AND CODES
+*GRADE CLAIMED	LAST FULL GRADE COMPLETED IN SCHOOL
*INTELLIGENCE CLASSIFICATION	CLASSIFICATION BY PSYCHOLOGIST 1 = Mental Defective 2 = Borderline 3 = Dull Normal 4 = Average 5 = Bright Normal 6 = Superior 7 = Very Superior
+*HISTORY OF ALCOHOL MISUSE	GENERAL 0 = None 1 = Moderate problem with alcohol, alcohol being a factor affecting this inmate's social functioning periodically 2 = Severe problem with alcohol, alcohol affecting this inmate's social functioning consistently
*HISTORY OF DRUG MISUSE	GENERAL 0 = None 1 = Insignificant history with isolated experimentation 2 = Moderate involvement with usage on more than an experimental basis 3 = Severe involvement with usage over extended periods and an established habit or addiction

* Offense
\+ Race, Admission Status

VARIABLE	REMARKS AND CODES
+*HISTORY OF OPIATE USE	GENERAL 0 = None 1 = Insignificant history of isolated experimentation 2 = Moderate involvement with opiates on more than an experimental basis 3 = Severe involvement with established habit or addiction
*HISTORY OF GLUE SNIFFING OR MARIJUANA USAGE	0 = None 1 = Any history of glue sniffing 2 = Any history of marijuana usage 3 = Any history of both glue sniffing and marijuana usage
+*HISTORY OF VIOLENCE	0 = None 1 = Involvement in crime(s) of an aggressive nature but without known assaults on victim(s) 2 = History of violence including personally assaulting victim(s)
*HISTORY OF HOMOSEXUAL ACTS	0 = None 1 = Isolated homosexual act in history 2 = Repeated homosexual acts in history 3 = Extensive homosexual pattern in history

* Offense
\+ Race, Admission Status

VARIABLE	REMARKS AND CODES
*HISTORY OF SEXUAL DEVIATIONS OTHER THAN HOMOSEXUALITY	0 = None 1 = Isolated sexual deviant behavior 2 = Repeated sexual deviant behavior considered to be of a serious nature
*HISTORY OF RAPE	0 = None 1 = Any history of forcible rape
+*HISTORY OF ESCAPE	0 = None 1 = Any history of escape without force 2 = Any history of escape from a secured place
*HISTORY OF PSYCHOSIS	PSYCHIATRIC LABELING 0 = None 1 = Present but no previous diagnosis of psychosis 2 = Previous but no present diagnosis of psychosis 3 = Present and previous diagnosis of psychosis
*HISTORY OF NEUROSIS	PSYCHIATRIC LABELING 0 = None 1 = Present but no previous diagnosis of neurosis 2 = Previous but no present diagnosis of neurosis 3 = Present and previous diagnosis of neurosis

* Offense
\+ Race, Admission Status

VARIABLE	REMARKS AND CODES
*HISTORY OF PERSONALITY TRAIT DISTURBANCE	PSYCHIATRIC LABELING 0 = None 1 = Present but no previous diagnosis of personality trait disturbance 2 = Previous but no present diagnosis of personality trait disturbance 3 = Present and previous diagnosis of personality trait disturbance
*HISTORY OF PERSONALITY PATTERN DISTURBANCE	PSYCHIATRIC LABELING 0 = None 1 = Present but no previous diagnosis of personality pattern disturbance 2 = Previous but no present diagnosis of personality pattern disturbance 3 = Present and previous diagnosis of personality pattern disturbance
*HISTORY OF SOCIOPATHIC PERSONALITY DISTURBANCE	PSYCHIATRIC LABELING 0 = None 1 = Present but no previous diagnosis of sociopathic personality disturbance 2 = Previous but no present diagnosis of sociopathic personality disturbance 3 = Present and previous diagnosis of sociopathic personality disturbance
*HISTORY OF BRAIN DAMAGE OR EPILEPSY	0 = None 1 = Any history of brain damage 2 = Any history of epilepsy 3 = Any history of brain damage and epilepsy

* Offense

+ Race, Admission Status

VARIABLE	REMARKS AND CODES
MINNESOTA MULTIPHASIC PERSONALITY INVENTORY	STANDARD SCORES
MMPI L	Lie Score
MMPI F	Validity Score
MMPI K	K Score (Correction Factor)
MMPI HS	Hypochondriasis Scale
MMPI D	Depression Scale
MMPI HY	Hysteria Scale
MMPI PD	Psychopathic Deviate Scale
+MMPI MF	Masculinity/Femininity Scale
MMPI PA	Paranoia Scale
+MMPI PT	Psychasthenia Scale
MMPI SC	Schizophrenia Scale
+MMPI MA	Hypomania Scale
+MMPI SI	Social Introversion Scale
*REASONS FOR PSYCHIATRIC REFERRAL	
first reason	00 = None 01 = Board Order 02 = Parole Agent request 03 = Staff referral regarding behavior, adjustment or for evaluation of mental status 04 = Nature of offense 05 = History of treatment 06 = Prior history of mental illness, mental hospitalization, or psychiatric diagnosis 07 = Sexual problems 08 = Narcotic problems 09 = Alcohol problems 10 = Suicide potential and other self-destructive behavior 11 = Epilepsy 12 = Other organicity 13 = Violence potential 14 = Intellectual 15 = Assaultive behavior 16 = Presentence evaluation (Section 1203.03 of Penal Code) 17 = Section 1168 of Penal Code 18 = Programming - Academic/ Vocational Training 19 = Programming - treatment needs 20 = Programming - institutional adjustment 21 = Programming - institutional transfer 22 = Early release 23 = Inmate self-referral 99 = Other
second reason	
third reason	

* Offense
\+ Race, Admission Status

VARIABLE	REMARKS AND CODES
+*MONTHS IN INSTITUTION	ACTUAL NUMBER OF MONTHS 01-99
+*TYPE OF REMOVAL	0 = Discharge--parole not suspended 1 = Suspended 2 = Revoke for return 3 = Revoke while serving a jail sentence 4 = Discharge--parole suspended 5 = Continued on parole
ADMISSION OFFENSE	01 = Homocide 02 = Negligent Manslaughter 10 = Robbery 20 = Assault 30 = Burglary 40 = Theft 50 = Vehicle Theft 60 = Forgery 70 = Forcible Rape 71 = Statutory Rape 72 = Other Sex Offenses 80 = Narcotics Offenses 81 = Alcohol Offenses 90 = Other Offenses 91 = Parole Violation
+*INDIVIDUAL VIOLENCE IN COMMITMENT OFFENSE	0 = None 1 = Verbal threat without weapon 2 = Verbal threat with weapon 3 = Exchange of blows 4 = Minor injuries 5 = Fractures 6 = Major injuries 7 = Permanent physical damage 8 = Death 9 = Non-sufficient information
* Offense + Race, Admission Status	

VARIABLE	REMARKS AND CODES
*ECONOMIC LOSS BY VICTIM	0 = None 1 = Less than 2 = $1 less than $5 3 = 5 less than 20 4 = 20 less than 100 5 = 100 less than 500 6 = 500 less than 1,000 7 = 1,000 less than 5,000 8 = Over $5,000 9 = Non-sufficient information
+*WEAPON USED BY SUBJECT	0 = None or none given 1 = Firearm(s), simulated or toy 2 = Firearm(s), real and not loaded 3 = Firearm(s), real and loaded 4 = Firearm(s), not specified 5 = Knife(ves), or any other such sharp object used as a knife (i.e., razor blades) 6 = Other 9 = Insufficient information
+*AGE LEFT SCHOOL	00 = Never attended school 99 = No information or non-sufficient information
+*LENGTH OF EXPERIENCE	0 = None 1 = Less than 6 months 2 = 6 months--less than 12 months 3 = 12 months--less than 18 months 4 = 18 months--less than 24 months 5 = Over 2 years 6 = No job specified; sporadic, short-term or seasonal jobs indicated 9 = No information
* Offense + Race, Admission Status	

VARIABLE	REMARKS AND CODES
*MARITAL STATUS OF NATURAL PARENTS	0 = No information 1 = Never married 2 = Married 3 = Divorced 4 = Divorced--remarried 5 = Separated 6 = Common-law 7 = Widower
+*HISTORY OF VIOLENCE	0 = None 1 = Moderate history of violence 2 = Serious history of violence
+*CASEWORKER'S ESTIMATION OF VIOLENCE POTENTIAL	1 = Least potential 2 = Mild potential 3 = Moderate potential 4 = Serious potential 5 = Greatest potential

* Offense
\+ Race, Admission Status

APPENDIX B

Table 1

MULTIPLE REGRESSION: Parole Expectancy Rates

(Construction)

Property Offenses

Score Categories	Success	Failure	Total
76-87	22 81%	5 19%	27
70-75	135 72%	52 28%	187
65-69	248 66%	125 34%	373
50-64	511 58%	373 42%	884
40-49	142 44%	180 56%	322
30-39	52 37%	87 63%	139
8-29	7 39%	11 61%	18
Total	1117 57%	833 43%	1950

r = .224
M.C.R. = .226

Table 2

MULTIPLE REGRESSION: Parole Expectancy Rates

(Validation)

Property Offenses

Score Categories	Success	Failure	Total
76-80	6 100%	0 0%	6
71-75	21 62%	13 38%	34
66-70	54 66%	28 34%	82
52-65	129 61%	82 39%	211
44-51	46 49%	48 51%	94
30-43	21 49%	22 51%	43
2-29	3 50%	3 50%	6
Total	280 62%	196 38%	476

r = .138
M.C.R. = .149

Table 3

MULTIPLE REGRESSION: Parole Expectancy Rates

(Construction)

Person Offenses

Score Categories	Success	Failure	Total
84-91	33 89%	4 11%	37
76-83	138 78%	40 22%	178
70-75	109 74%	39 26%	148
64-69	71 66%	37 34%	108
56-63	74 62%	46 38%	120
43-55	43 48%	46 52%	89
21-42	11 38%	18 62%	29
Total	479 68%	230 32%	709

r = .261
M.C.R. = .298

Table 4

MULTIPLE REGRESSION: Parole Expectancy Rates

(Validation)

Person Offenses

Score Categories	Success	Failure	Total
84-93	9 90%	1 10%	10
76-83	28 78%	8 22%	36
70-75	20 71%	8 29%	28
64-69	24 73%	9 27%	33
56-63	8 62%	5 38%	13
43-54	13 100%	0 0%	13
18-42	11 73%	4 27%	15
Total	113 76%	35 24%	148

r = -.016
M.C.R. = .032

Table 5

MULTIPLE REGRESSION: Parole Expectancy Rates

(Construction)

Narcotics & Alcohol Offenses

Score Categories	Success	Failure	Total
91-112	16 94%	1 6%	17
81-90	33 85%	6 15%	39
74-80	49 79%	13 21%	62
63-73	66 67%	33 33%	99
50-62	37 64%	21 36%	58
39-49	14 39%	22 61%	36
28-38	5 28%	13 72%	18
Total	220 65%	109 35%	329

r = .338
M.C.R. = .394

Table 6

MULTIPLE REGRESSION: Parole Expectancy Rates

(Validation)

Narcotics & Alcohol Offenses

Score Categories	Success	Failure	Total
87-117	3 75%	1 25%	4
81-86	7 78%	2 22%	9
75-80	7 50%	7 50%	14
62-72	16 67%	8 33%	24
55-61	8 57%	6 43%	14
47-54	6 67%	3 33%	9
37-44	2 50%	2 50%	4
Total	49 63%	29 37%	78

r = .025
M.C.R. = .068

Table 7

MULTIPLE REGRESSION: Parole Expectancy Rates

(Construction)

White Subgroup

Score Categories	Success	Failure	Total
6-14	1	5	6
15-28	7	16	23
29-42	42	85	127
43-56	172	157	329
57-70	329	189	518
71-84	246	80	326
85-101	54	6	60
Total	851	538	1389

M.C.R. = .3914
r = .3083
r^2 = .0950

Table 8

MULTIPLE REGRESSION: Parole Expectancy Rates

(Validation)

White Subgroup

Score Categories	Success	Failure	Total
5-12	2	0	2
19-28	9	7	16
29-42	27	51	78
43-56	163	96	199
57-70	181	111	292
71-84	147	58	205
85-97	27	4	31
Total	496 60.3%	327 39.7%	823

M.C.R. = .2546
r = .2079
r^2 = .0432

Table 9

MULTIPLE REGRESSION: Parole Expectancy Rates

(Construction)

Black Subgroup

Score Categories	Success	Failure	Total
19-30	2	1	3
32-41	9	21	30
42-52	53	66	119
53-63	93	59	152
64-74	131	57	188
75-85	41	15	56
86-95	7	0	7
Total	336	219	555

M.C.R. = .2813
r = .2486
r^2 = .0618

Table 10

MULTIPLE REGRESSION: Parole Expectancy Rates

(Validation)

Black Subgroup

Score Categories	Success	Failure	Total
12-30	1	4	5
31-41	10	8	18
42-52	49	52	101
53-63	113	73	186
64-74	99	55	154
75-85	40	16	56
87	1	0	1
Total	313 60.1%	208 39.9%	521

M.C.R. = .1610
r = .1329
r^2 = .0177

Table 11

MULTIPLE REGRESSION: Parole Expectancy Rates

(Construction)

Mexican-American Subgroup

Score Categories	Success	Failure	Total
16-28	0	2	2
31-40	10	16	26
41-51	41	43	84
52-62	52	37	89
63-73	87	41	128
74-84	33	12	45
85-96	16	1	17
Total	239	152	391

M.C.R. = .2867
r = .2598
r^2 .0675

Table 12

MULTIPLE REGRESSION: Parole Expectancy Rates

(Validation)

Mexican-American Subgroup

Score Categories	Success	Failure	Total
18-29	3	1	4
31-40	15	7	22
41 51	52	32	84
52-62	53	49	102
63-73	80	33	113
74-84	22	18	40
85-105	8	8	16
Total	233 61.2%	148 38.8%	381

M.C.R. = -.0019
r = -.0334
r^2 = .0011

Table 13

MULTIPLE REGRESSION: Parole Expectancy Rates

(Construction)

First Admission Subgroup

Score Categories	Success	Failure	Total
21-32	3	4	7
33-43	10	20	30
44-54	62	75	137
55-65	324	201	525
66-76	548	208	756
77-87	120	43	163
88-123	16	1	17
Total	1083	552	1635

M.C.R. = .2123
r = .2051
r^2 = .0421

Table 14

MULTIPLE REGRESSION: Parole Expectancy Rates

(Validation)

First Admission Subgroup

Score Categories	Success	Failure	Total
20-32	4	4	8
33-43	14	8	22
44-54	35	25	60
55-65	181	101	282
66-76	261	100	361
77-87	74	23	97
88-94	4	1	5
Total	573	262	835

M.C.R. = .1376
r = .1295
r^2 = .0168

Table 15

MULTIPLE REGRESSION: Parole Expectancy Rates

(Construction)

Other Admission Subgroup

Score Categories	Success	Failure	Total
13-27	3	11	14
28-41	50	76	126
42-55	191	214	405
56-69	114	72	186
70-83	33	8	41
84-97	7	1	8
98-111	2	0	2
Total	400	382	782

M.C.R. = .2279
r = .2382
r^2 = .0567

Table 16

MULTIPLE REGRESSION: Parole Expectancy Rates

(Validation)

Other Admission Subgroup

Score Categories	Success	Failure	Total
13-27	6	5	11
28-41	53	56	109
42-55	193	202	395
56-69	104	85	189
70-83	20	16	36
84-97	6	3	9
98-111	1	0	1
Total	383	367	750

M.C.R. = .0598
r = .0672
r^2 = .0045

END