

68260

DISTRICT COURT PROBATION DIVISION

EXECUTIVE SUMMARY

RESEARCH RE:

1. AN EVALUATION OF PROBATION SUPERVISION
2. A VALIDATION STUDY OF THE BES
3. AN EVALUATION OF THE LOW-RISK SUPERVISION UNIT

HENNEPIN COUNTY COURT SERVICES

JANUARY 1978

68260



DATE: 1 March 1978

TO: HCCS Staff and Members of the  
District Court Bench

FROM: Clif Rhodes, Principal Management Analyst

**HENNEPIN COUNTY  
DEPARTMENT OF COURT SERVICES**

SUBJECT: Highlights of District Court Probation Research Project

A staff committee in District Court Probation recently completed a research project that included: (1) an evaluation of probation supervision; (2) a validation study of the Division's Base Expectancy Scale (BES); and, (3) an evaluation of the low-risk supervision unit. The methods and results of the research are described in the Research Project Notebook and the project's Executive Summary. The findings of the project are highlighted below.

An Evaluation of Probation Supervision - The basic question addressed was: "How effective is probation supervision in District Court Probation with respect to preventing recidivism?" Recidivism data on the project sample of 289 probationers were: (1) examined in terms of a four-point outcome index (i.e., success, marginal success, marginal failure, failure); (2) compared with similar data from a 1975 study of 170 District Court probationers; and, (3) compared with data from a study of the federal General Accounting Office (GAO) involving 1200 probationers in four correctional agencies outside Minnesota.<sup>1</sup>

- On the measure of greatest concern -- probation revocations and/or new felony convictions -- the project sample showed a failure rate of 12.9% during the 12 month follow-up period. The failure rate when all convictions were accounted for (including felonies, technical violations and misdemeanors) was 23.4%.
- The failure rates for the project sample and the 1975 District Court sample were essentially the same. Using the all convictions definition of recidivism, the projected recidivism rate for the project sample was 37.8% as compared with 41.2% for the 1975 sample.<sup>2</sup>

---

<sup>1</sup>The probation agencies in the GAO study were located in King County (Seattle), Washington; Maricopa Co. (Phoenix), Arizona; Multnomah Co. (Portland), Oregon; and, Philadelphia Co. (Philadelphia), Pennsylvania.

<sup>2</sup>A projected recidivism rate for the project sample had to be developed in order to effect a comparison with the 1975 study sample and the GAO sample. This was necessary because the follow-up period in the two earlier studies extended from sentencing to the point of probation termination, while the project follow-up period was limited to the first 12 months of probation. The projected recidivism rate was based on a finding in the 1975 study that 62% of all failures occur within the first 12 months of probation. Thus, it was assumed that the 67 "known failures" in the project sample accounted for 62% of all sample members who will fail during probation. The solution for "total failures" was 108 of the 289 sample members, or 37.8%.

- The projected failure rate for the project sample (37.8%) was slightly lower than the lowest rate recorded in the GAO study (Multnomah County, Oregon - 39%) and 7.5% lower than the GAO average of 45.3%.

A Validation Study of the BES - The basic question addressed was: "How adequate is the BES in distinguishing probationers who will differ in the future with regard to returning to law violative behavior?"

- The BES does a fairly adequate job of identifying low-risk probationers. Yet, overall it is a rather weak prediction model. Most telling in this regard are: (1) the test results which show a mediocre to poor association between BES total score and the four-point outcome index; and, (2) the test results which show that (when the all convictions definition of recidivism is used) medium-risk probationers fail more often than high-risk probationers and that the BES does not discriminate very well among risk categories in predicting failure (i.e., all 3 risk categories had a relatively low failure rate).
- Given certain limitations in the study design (e.g., the small number of high-risk probationers in the sample population and the possibility that recidivism is a poor measure of client risk), it is recommended that the Division continue to use the BES for identifying low-risk probationers while research is conducted to develop a stronger prediction model.

An Evaluation of the Low-Risk Supervision Unit - The basic question addressed was: "What is the low-risk unit's level of effectiveness with regard to preventing recidivism?"

- The low-risk unit had an outright success rate at 12 months of 86.2% (where assigned probationers had no new convictions/re-convictions in either the District Court or the Municipal Court). If one discounts misdemeanor convictions, the success rate stands at 92%.
- Of the 11 low-risk unit probationers (8.0% of the 138 member sub-sample) who had a new felony conviction or technical violation, only 4 had their probation status revoked.

---

<sup>1</sup>The primary data base for the low-risk unit study was the same as for the evaluation of probation supervision (N = 289). The major difference between the two studies was that the low-risk evaluation focused on a sub-sample of 138 probationers where the "primary action" for each sample member was identified as assigned to low-risk unit. Primary action refers to the initial and primary contact person (or program) re case supervision responsibility.



DATE: 14 March 1978  
TO: HCCS Administrative Staff  
FROM: Clif Rhodes,  
Principal Management Analyst  
SUBJECT: Executive Summary of a Cost Study of the  
Juvenile Court Investigator Program

**HENNEPIN COUNTY  
DEPARTMENT OF COURT SERVICES**

A cost study of HCCS' Juvenile Court Investigator Program was recently completed. This memorandum provides a brief description of the objectives, methods and findings of that study.

OBJECTIVES OF THE STUDY

In early 1976 Director Ken Young asked that more complete data be obtained on the cost of using volunteers to provide services in HCCS.

The initial focus of study was the volunteer court investigator program in the Juvenile Division. A four-member ad hoc committee was formed to carry out the cost study.<sup>1</sup> The committee's objectives included: (1) to develop a model for collecting cost data on the volunteer court investigator program; and, (2) to calculate the total cost and unit cost associated with this volunteer service.

RESEARCH METHODOLOGY

To verify and validate the research findings -- particularly where judgment data were involved -- the committee adopted the adversary principle as a guidepost for discussions. The principle called for the individual members of the committee to represent explicitly different points of view when reviewing relevant cost data. In effect, the three program staff members on the committee served as research "critics" and occasional "adversaries." They also assumed responsibility for some data collection activities. The fourth member of the committee, a social researcher, served the committee as both a "facilitator" (re developing necessary data collection methods) and a "mediator" (re managing conflict or differences of opinion).

The pivotal question in developing a conceptual framework for measurement was, "What are the primary sources of cost (i.e., the expenditure of organizational resources) for the juvenile court investigator program?" The answer to this question led to the identification of two types of organiza-

---

<sup>1</sup>The committee included: Clifton Rhodes, Principal Management Analyst; Thomas Faust, Principal Probation Officer; Richard Hodgkins, Director of Volunteer Services; and, Robert Leach, Principal Probation Officer.

tional resource that are spent in developing and supporting this program. The first involves the "time of paid staff," including that of both professional and clerical personnel. The second involves several "miscellaneous support activities" which are needed to sustain a volunteer program.

The committee assumed that dollar costs can be estimated for both paid staff time and miscellaneous support. Examination of the latter type of expenditure resulted in the quick identification of four support activities: (1) car mileage; (2) in-service training where an outside resource is used; (3) the volunteer newsletter; and, (4) an awards ceremony.

In identifying relevant paid staff activities, the committee developed a role cost model. The model stems from the concept of the volunteer's "role set." That is: In occupying a position or role in HCCS, the volunteer court investigator necessarily relates to a set of actors who occupy other organizational roles. Where such roles are occupied by a paid staff member there exists the possibility of a cost to the organization. The term "role cost" is used to describe this circumstance. The role cost model calls for pyramiding the various role costs (i.e., time invested by role occupants multiplied by hourly or annual pay rate) in determining the total cost of a volunteer program.

The primary method of data collection for documenting the cost of miscellaneous support activities involved the inspection of existing administrative reports in the volunteer program. On the other hand, the collection of data related to paid staff time involved either an interview or a self-administered questionnaire. (A total of 34 individuals were surveyed by the committee.) The time frame for the cost study was calendar year 1976.

#### RESEARCH FINDINGS

Calculating the unit cost (i.e., cost per report) for the court investigator program involved two basic steps: (1) developing a total cost estimate for program operation during the study period; and, (2) dividing the total cost estimate by the total number of pre-disposition reports completed by volunteers during the same period, i.e., 227.

The total cost of the court investigator program for the 12 month study period was estimated at \$27,867. The following table summarizes the amount contributed to this total by the major cost categories (i.e., role costs and miscellaneous support activities).

---

<sup>1</sup>In this instance, all hourly or annual rates include fringe benefits.

TABLE: TOTAL COST ESTIMATE

COST CATEGORY	COST ESTIMATE	
	Dollars	%
1. Juvenile Volunteer Administrator	\$ 4,790	17.2%
2. Juvenile Volunteer Secretary	2,226	8.0%
3. Unit Supervisors	3,055	11.0%
4. Line Probation Officers	12,742	45.7%
5. Clerk Typists	1,069	3.8%
6. Administrative Overhead <sup>1</sup>	2,355	8.4%
7. Miscellaneous	1,630	5.9%
TOTALS:	27,867	100.0%

The unit cost for the study period was found to be \$123 per volunteer report. This estimate was obtained by dividing the total cost estimate of \$27,867 by 227 reports. By way of comparison, the unit cost for paid staff reports in calendar year 1976 was estimated at \$279 -- or a cost difference of \$156.

The implications of the study findings for administrative decision-making and future research are discussed in the committee's final report: A Cost Study of the Juvenile Volunteer Court Investigator Program (HCCS, February 1978).

<sup>1</sup>Administrative Overhead involved time contributed by the occupants of several administrative and staff positions in and outside the Juvenile Division.

<sup>2</sup>The unit cost estimate for paid staff reports is based on time and cost data supplied by the Division Director. It should be noted that 1078 reports were completed by paid staff during 1976. Moreover, a time study during that same period showed that P.O.'s spent an average of 16 hours on a pre-disposition investigation.

TABLE OF CONTENTS

AN EVALUATION OF PROBATION SUPERVISION . . . . .	1
Research Methods . . . . .	2
Major Findings . . . . .	3
Conclusions . . . . .	6
A VALIDATION STUDY OF THE BES . . . . .	8
Research Methods . . . . .	10
Major Findings . . . . .	10
Conclusions . . . . .	16
AN EVALUATION OF THE LOW-RISK UNIT . . . . .	18
Research Methods . . . . .	19
Major Findings . . . . .	20
Conclusions . . . . .	23
APPENDIX . . . . .	24



TABLES

1.	Outcome Index . . . . .	4
2.	Comparison of Failure Rate - Project Sample vs. 1975 Study . . . . .	5
3.	GAO Recidivism Data . . . . .	6
4.	First Chi-Square Test . . . . .	12
5.	Second Chi-Square Test . . . . .	13
6.	Results of T-Test . . . . .	14
7.	Outcome Index (Low-Risk Unit) . . . . .	21
8.	Comparison of Outcome Rates for Different Methods of Supervising Low-Risk Cases . . . . .	22

## INTRODUCTION

This Executive Summary provides an overview of the methods and results of a recent research project in Hennepin County Court Services' (HCCS) District Court Probation Division. The summary is divided into three parts: (1) an evaluation of probation supervision; (2) a validation study of the Base Expectancy Scale; and, (3) an evaluation of the low-risk supervision unit.

The reader should keep in mind that conclusions are presented at the end of each part of the summary. It should also be noted that each part corresponds with a separate report in the Research Project Notetook.<sup>1</sup>

The committee that designed and implemented the research project included staff from both District Court Probation and HCCS' Office of Research and Statistics. The following is a list of the committee members:

Jeffrey Benson, Principal Probation Officer  
Arthur Cavara, Unit Supervisor  
Clifford Carlson, Research Analyst  
David Freedland, Unit Supervisor  
Clifton Rhodes, Principal Management Analyst  
Joseph Spano, Principal Probation Officer  
Donald Spencer, Principal Probation Officer

---

<sup>1</sup>The Research Project Notebook includes: Report No. 1, An Evaluation of Probation Supervision; Report No. 2, A Validation Study of the Base Expectancy Scale; and, Report No. 3, An Evaluation of the Low-Risk Supervision Unit.

PART 1: AN EVALUATION OF PROBATION SUPERVISION

The first part of the research project involved an assessment of case outcome in the post-sentence component of District Court Probation.<sup>1</sup> The primary service activity associated with this component is probation supervision. In developing a conceptual framework for measurement, the project research committee identified two basic dimensions of probation supervision. One is the legal dimension, which stresses client accountability (i.e., the probation officer holding the probationer accountable for meeting the conditions set forth by the sentencing judge). The other is the social dimension, which stresses client problem-solving (i.e., the probation officer establishing some form of counseling or problem-solving relationship with the probationer). The research committee decided to concentrate on the legal dimension of probation supervision, particularly as it relates to the prevention of recidivist crime. The basic question addressed was: "How effective is probation supervision in District Court Probation with respect to preventing recidivism?"

### Research Methods

Data on client characteristics, case processing and probation outcome were collected on a sample of 289 District Court defendants who met the following criteria:

1. Received a sentence of either straight probation or modified probation;<sup>2</sup>

---

<sup>1</sup>The pre-sentence component of District Court Probation involves the conduct of pre-sentence investigations (PSI's).

<sup>2</sup>Modified probation denotes a court disposition that included an initial stay in the Adult Correctional Facility (Workhouse). Note: Probationers who received a court disposition that called for extended stay (e.g., one year) in a community-based residential facility were excluded from the sample. This exclusion was because of the time parameters established for sentencing date and follow-up.

2. Had a sentencing date in District Court between September 1, 1975 and April 30, 1976 (inclusive);
3. Could have experienced a 12-month period of probation "on the street" on or before April 30, 1977; and,
4. Maintained residence in Hennepin County during the period of probation supervision.

The primary sources of data for the study included District Court Probation's case file system, Municipal Court Probation's case file system, and the State Bureau of Criminal Apprehension's case file system.

### Major Findings

To answer the question regarding the effectiveness of probation supervision, recidivism data on the sample of 289 probationers were: (1) examined in terms of a four-point outcome index;<sup>1</sup> (2) compared with similar data from a 1975 study of 170 District Court probationers;<sup>2</sup> and, (3) compared with data from a study by the federal General Accounting Office (GAO) involving 1200 probationers in four agencies outside Minnesota.<sup>3</sup>

Outcome Index. Table 1 presents the distribution of project sample members on the four-point outcome index.

---

<sup>1</sup>The four-points on the outcome index include: (1) Success - No new convictions of any sort (misdemeanor, felony or technical violation) during the 12-month follow-up period; (2) Marginal Success - Conviction for no more than one misdemeanor or major traffic offense; (3) Marginal Failure - Conviction for more than one misdemeanor or major traffic offense (with no felony or gross misdemeanor convictions); and, (4) Failure - Probation revoked for reason of a technical violation or new conviction, or admits to or is convicted of one or more felony or gross misdemeanor offenses.

<sup>2</sup>John Broady and Lucille Johnson, Study of Adult Felon Recidivism: 1972-74 (HCCS: April 1975).

<sup>3</sup>Comptroller General of the United States, State and County Probation: Systems in Crisis (Washington, D.C.: General Accounting Office, May 1976).

TABLE 1: OUTCOME INDEX

INDEX	DISTRIBUTION
1. Success	219 ( 76.6%)
2. Marginal Success	22 ( 7.7%)
3. Marginal Failure	8 ( 2.8%)
4. Failure	37 ( 12.9%)
TOTAL:	286 <sup>1</sup> (100.0%)

Table 1 shows that on the measure of greatest concern -- probation revocations and/or new felony convictions -- District Court Probation experienced a failure rate of 12.9% during the 12 month follow-up period. On the other hand, when all convictions are accounted for (including felonies, technical violations and misdemeanors) the failure rate stands at 23.4%.

Comparison With 1975 Study Sample. Research staff had to develop a projected recidivism rate for the project sample in order to effect a comparison with the 1975 study sample and the GAO sample. This was necessary because the follow-up period in the two earlier studies extended from sentencing to the point of probation termination, while the project follow-up

---

<sup>1</sup>Outcome data were missing on 3 of 289 sample members. This accounts for the reduction in the sample size to 286.

period was limited to the first 12 months of probation. Moreover, the projected rate had to be keyed to the all convictions definition of recidivism, because this was the only definition common to all three studies.<sup>1</sup>

Table 2 summarizes the comparison between the project sample and the 1975 study sample on the all convictions definition of recidivism.

TABLE 2: COMPARISON OF FAILURE RATE -  
PROJECT SAMPLE VS. 1975 STUDY

INDEX	PRESENT SAMPLE (PROJECTED)	1975 STUDY
1. Success	178 ( 62.2%)	100 ( 58.8%)
2. Failure	108 ( 37.8%)	70 ( 41.2%)
TOTAL:	286 (100.0%)	170 (100.0%)

Table 2 shows that the failure rate for the project sample (37.8%) closely approximates the failure rate accounted for in the 1975 District Court Probation study (41.2%).

Comparison With GAO Study Sample. Table 3 presents the corresponding recidivism data from the GAO study.

---

<sup>1</sup>The projected recidivism rate was based on a finding in the 1975 study that 62% of all failures occur within the first 12 months of probation. Thus, it was assumed that the 67 "known failures" in the project sample accounted for 62% of all sample members who will fail during probation. The solution for "total failures" is shown in Table 2.

TABLE 3: GAO RECIDIVISM DATA

COUNTY	TOTAL PROBATIONERS	NUMBER CONVICTED	FAILURE RATE (ROW PERCENTAGE)
1. King Co., WA (Seattle)	300	158	52.7%
2. Maricopa Co., AZ (Phoenix)	300	140	46.7%
3. Multnomah Co., OR (Portland)	300	117	39.0%
4. Philadelphia Co., PA	300	128	42.7%
TOTAL:	1200	543	45.3%

Examination of Tables 2 and 3 shows that the failure rate for the project sample (37.8%) is slightly lower than the lowest rate obtained in the GAO study (Multnomah, 39%) and 7.5% lower than the GAO average of 45.3%.<sup>1</sup>

Conclusions

The small percentage difference (3.4%) between the outcome rates for the project sample and the 1975 study sample suggests that the level of probation supervision effectiveness in District Court Probation was essentially the same for both periods under study (roughly 1975-1977 and 1972-1974).

---

<sup>1</sup>The comparison of Hennepin County rates with those of outside probation agencies must be tempered with the understanding that significant differences may exist between jurisdictions in regard to population characteristics and the policies and processes of local criminal justice organizations.



Examination of the outcome rates for the project sample and the GAO sample suggests that the level of effectiveness in District Court Probation compares favorably with several probation agencies outside Minnesota. The recidivism rate for the project sample fell below both the lowest agency rate and the average agency rate in the GAO study.

HCCS staff should be further encouraged by the fact that the above comparisons involved the all convictions definition of recidivism. If the measurement of outcome had been limited to new felony convictions and/or probation revocation, then the projected recidivism rate in District Court Probation would have been closer to the range of 21% - 25%.

\* \* \*

PART 2: A VALIDATION STUDY OF THE BES

The second part of the research project concerned the validation of District Court Probation's prediction model -- the Base Expectancy Scale (BES). The BES is a judgmentally modified version of a California parole model.<sup>1</sup> The model consists of eleven predictive variables and a total score of zero to 70 (see Appendix A). The total score is used to classify a probationer in terms of the "risk" that he represents in regard to future criminal behavior. The risk categories are three in number: (1) high-risk (0-26); (2) medium-risk (27-44); and, (3) low-risk (45-70). It should be noted that while prediction models are viewed as being potentially useful in several types of decision-making,<sup>2</sup> District Court Probation has limited the application of the BES to selecting low-risk probationers for assignment to the low-risk supervision unit.

The validation study was keyed to the notion of predictive validity, i.e., the usefulness of a measuring instrument as an indicator or a predictor of some characteristic of an individual. The basic question addressed in the research was: "How adequate is the BES in distinguishing probationers who will differ in the future with regard to returning to law violative behavior?"

---

<sup>1</sup>Richard C. Nicholson, "Use of Prediction in Caseload Management," Federal Probation, 1969, pp. 54-58. Also see selected research materials on "Male Base Expectancy Scoring for Parole Adjustment," California Department of Corrections, 1969.

<sup>2</sup>See Comptroller General of the United States, pp. 58-61. Potential uses of prediction models include: recommending sentencing alternatives for individual offenders (e.g., prison vs. probation); deciding which type of supervision a probationer should receive (e.g., one-to-one vs. low-risk unit); and, selecting probationers for early release.

### Research Methods

The data base for the validation study was the same as for the evaluation of probation supervision. As described in Part I of this report the data collection plan included a sample of 289 probationers, with a follow-up period (re recidivism data) of 12 months. The major difference between the two studies was the emphasis given to certain data elements (or variables) at the time of statistical analysis. In the validation study, the analysis focused primarily on the BES variables (i.e., individual BES characteristics, the BES total score, and the BES risk categories) and the outcome index.

### Major Findings

The statistical approach in the validation study was similar to the GAO study of prediction models.<sup>1</sup> In both, three statistical techniques were employed: a chi-square test, a t-test, and correlation analysis. The chi-square test was used to determine whether there is a statistically significant association between BES risk category and case outcome. The t-test was used to determine whether there is a statistically significant difference between the average or mean BES score for successful probationers and the mean BES score for unsuccessful probationers. Correlation analysis was used to examine the strength of association between total BES score and the outcome index. (Note: A detailed description of these statistical tests is presented in Appendix B.)

---

<sup>1</sup> Ibid., pp. 83-85.

Association Between BES Risk Category and Outcome. If the BES is a valid prediction model, we would expect the distribution of successes and failures on the outcome variable to be different for the three BES risk categories. (In particular, we would expect: low-risk probationers to have the smallest proportion of failures; medium-risk probationers to have a larger proportion of failures than the low-risk group but a smaller proportion of failures than the high-risk group; and, high-risk probationers to have the largest proportion of failures.) A chi-square test of independence was used to determine if such a relationship exists between BES risk category and case outcome.

Two chi-square tests were carried out. The basic difference between the two was the definition used for case outcome. The all convictions definition of recidivism was employed in the first test; and, the felony-only definition was used in the second test.<sup>1</sup> Table 4 presents the results of the first test.

---

<sup>1</sup> "Failure" under the felony-only definition denotes probation revocations and/or new felony convictions occurring in the District Court. Misdemeanor convictions are excluded.

TABLE 4: 1ST CHI-SQUARE TEST

RISK CATEGORY	DISTRIBUTION	
	SUCCESS	FAILURE
1. Low Risk	130 (86.7%)	20 (13.3%)
2. Medium Risk	68 (63.0%)	40 (37.0%)
3. High Risk	17 (70.8%)	7 (29.2%)
TOTAL:	215 (76.2%)	67 (23.8%)

Chi-square value 19.900

Degrees of freedom 2

Level of significance .000

The first chi-square test identified a statistically significant association between BES risk category and probation outcome. However, interpretation of the results was confounded somewhat by: (1) the finding that medium-risk probationers fail more often than high-risk probationers; and, (2) the high percentage of successes in all three risk categories. The latter point suggests a lack of discrimination or power in predicting failure, particularly for high-risk probationers.

Table 5 presents the results of the second chi-square test.

TABLE 5: 2ND CHI-SQUARE TEST

RISK CATEGORY	DISTRIBUTION	
	SUCCESS	FAILURE
1. Low Risk	139 (92.7%)	11 ( 7.3%)
2. Medium Risk	88 (81.5%)	20 (18.5%)
3. High Risk	18 (75.0%)	6 (25.0%)
TOTAL:	245 (86.9%)	37 (13.1%)

Chi-square value            10.139

Degrees of freedom        2

Level of significance      .006

A statistically significant association between BES risk category and probation outcome was again evident in the second chi-square test. More importantly, the findings are in keeping with the expectation that low-risk probationers should have the smallest proportion of failures; that medium-risk probationers should have a larger proportion of failures than the low-risk group but a smaller proportion of failures than the high-risk group; and, that high-risk probationers should have the largest proportion of failures.

Difference in Mean BES Scores. If the BES is a valid prediction model, we would expect the mean BES score of successful probationers to be different than that of unsuccessful probationers. (In particular, we would expect the group of successful probationers to have a higher mean BES score than un-

successful probationers, because probationer risk is suppose to decrease as the BES score increases.) A t-test was used in the validation study to determine if such a difference exists in the project sample.

Table 6 summarizes the results of a t-test on the project sample where the all convictions definition of recidivism was used to distinguish between successful probationers and unsuccessful probationers.

TABLE 6: RESULTS OF T-TEST

GROUP	# OF CASES	MEAN BES SCORE	STANDARD DEVIATION
1. Successful Probationers	215	47.2	14.2
2. Unsuccessful Probationers	67	39.7	14.3

Difference between means 7.5  
t-value 3.78  
Level of significance .000

Table 6 shows that successful probationers had a higher mean score (47.2) than unsuccessful probationers (39.7). Moreover, the difference was found to be statistically significant at the .000 level.

While the results of the t-test do not discount the limitations cited under the first chi-square test, they do lend some confidence to the use of the BES as a prediction model.

Strength of Association Between BES Score and Outcome. If the BES is a valid prediction model, we would expect the four-point outcome index to vary



in relation to the BES total score. (In particular, we would expect that as the BES total score increases the outcome index decreases, because high BES scores are defined as low risk and low scores on the outcome index indicate a high degree of success.)<sup>1</sup> In the validation study, a Pearson correlation coefficient ( $r$ ) was computed to determine the strength and direction of the association between the BES score and the outcome index. If  $r$  is close to zero, we can assume there is no association (or linear relationship) between the two variables. If the value of  $r$  approaches + 1.0 or - 1.0, we can assume there is a strong association.

The results of the correlation analysis on 282 sample cases were as follows:<sup>2,3</sup>

$$r = -0.24 \text{ (level of significance, .00002)}$$

$$r^2 = 0.059$$

An  $r$  of -0.24 indicates two things. First, the minus sign denotes an inverse relationship between BES total score and probation outcome. Secondly, a coefficient of 0.24 provides some evidence of an association or linear relationship between BES total score and outcome; however, the association is not very strong. The latter point is illustrated by the value of  $r^2$ , which is only 0.059. This means that only 5.9% of the variance in the outcome variable is explained by the BES total score. To have confidence in a prediction model, one would like to have an  $r$  of at least 0.50 and an  $r^2$  of 0.25.

---

<sup>1</sup>The four-point outcome index is: 1 = Success, 2 = Marginal Success, 3 = Marginal Failure, 4 = Failure.

<sup>2</sup>The reduction in sample size from 289 to 282 was due to missing values on the BES total score and/or the outcome index.

<sup>3</sup> $r$  squared (denoted by  $r^2$ ) is also used to assess the strength of a relationship.  $r^2$  ranges from a minimum of zero to a maximum of 1.0. Its usefulness is derived from the fact that it is a measure of the proportion of variance (i.e., the variability, or dispersion of data) in one variable "explained" by another.

### Conclusions

The conclusion to be drawn from the study findings is that the BES is a rather weak probation prediction model. Most telling in this regard are: (1) the test results of the correlation analysis, which show a mediocre association between BES total score and the four-point outcome index; and, (2) the results of the first chi-square test, which show that medium-risk probationers failed more often than high-risk probationers and that the BES did not discriminate very well among the risk categories in predicting failure (i.e., all three risk categories had relatively low failure rates).

At the same time, however, the findings do not justify discontinuance of the BES. One reason is that there is an inherent value in having a method available for "systematically assessing" client risk. Another reason is that the design of the validation study had several limitations, including:

1. The sampling plan (if not the nature of probation -- or the probation disposition -- itself) made for a rather "homogeneous sample population." In particular, many high-risk cases were excluded because of prison sentences or long-term placements in residential treatment centers. If the time frame for the study had permitted follow-up on these high-risk cases, it is conceivable that a stronger association between risk and outcome would have resulted.
2. The follow-up period did not account for failures that occurred after the first 12 months on probation.

3. Recidivism may not be a very good measure for assessing probation risk, particularly if the latter term refers to the propensity to commit and/or the occurrence of a new offense. Recidivism only accounts for offenses that have been detected and processed through arrest and conviction.

For these reasons, use of the BES should be continued while further research is conducted to develop a stronger prediction model.

\* \* \*

PART 3: AN EVALUATION OF THE LOW-RISK UNIT

The third and final part of the research project concerned an evaluation of District Court Probation's low-risk supervision unit. The low-risk unit was formed as a pilot project in late 1975 to serve probationers who are classified as "low-risk" on the BES. The unit is composed of 12 to 15 volunteer case managers, two case aides and one probation officer. Case management responsibility for most assigned probationers is vested in the volunteer case managers.

The initial evaluation plan called for testing the low-risk project assumption that "responsibility for case management of low-risk probationers can be assumed by volunteer staff with no loss in community protection." However, the focus of study had to be adjusted somewhat when the low-risk unit evaluation was incorporated into the larger research project described in this report.<sup>1</sup> The question addressed was simply, "What is the low-risk unit's level of effectiveness with regard to preventing recidivism?"

#### Research Methods

The primary data base for the low-risk unit study was the same as that described under the first part of this report (An Evaluation of Probation Supervision). The major difference between the two studies

---

<sup>1</sup>A comparison of low-risk unit results with those obtained by probation officers working with low-risk probationers was proposed in the initial evaluation plan. However, this comparison was not possible in the larger research project because of limitations associated with the data collection plan.

is that the low-risk evaluation focused on a sub-sample of 138 probationers where the "primary action" for each sample member was identified as assigned to low-risk unit.<sup>1</sup>

### Major Findings

The findings of the low-risk unit study included data on project utilization, probation outcome, and a comparison of the recidivism rate for the low-risk unit with that of other methods of supervising low-risk probationers.

Project Utilization. Examination of monthly Division management reports for calendar year 1977 showed that in an average month the low-risk unit caseload accounted for approximately one-fourth (27%) of all cases under supervision in District Court Probation. Moreover, research staff found that restitution cases (as supervised by a paid case aide) constituted an average of 32% of the low-risk unit's monthly caseload.

Probation Outcome. In assessing the effectiveness of the low-risk unit, research staff examined sample data on both arrests and convictions. In regard to arrests, research staff found that 15.2% (21 sample members) of the low-risk unit probationers were arrested on a new charge during the 12-month follow-up period. This compares with an arrest rate of 24.5% for the general sample of 289 probationers and an arrest rate of 13.3% for low-risk probationers who were not assigned to the low-risk unit (or 2 out of 15 probationers).

---

<sup>1</sup>Primary action refers to the initial and primary contact person (or program) re case supervision responsibility. Other primary actions include: one-to-one supervision, unsupervised, and refer to external resource.

In developing a recidivism rate for the low-risk unit, research staff used the four-point outcome index described in the first part of this report. Table 7 presents the distribution of low-risk unit probations on the outcome index.

TABLE 7: OUTCOME INDEX

INDEX	DISTRIBUTION
1. Success	119 ( 86.2%)
2. Marginal Success	8 ( 5.8%)
3. Marginal Failure	-
4. Failure	11 ( 8.0%)
TOTAL:	138 (100.0%)

Table 7 shows that the low-risk unit had an outright success rate at 12 months of 86.2% (i.e., where assigned probationers had no new convictions/revocations in either the District Court or the Municipal Court). If one discounts misdemeanor convictions, the success rate would stand at 92%. On the other hand, the unarguable failure rate was 8%.

Research staff found upon closer examination of the 11 "failure" cases that only 4 (3% of the sample) probationers actually had their probation status "revoked." The other failure cases involved a "modification" of the probation order.

Comparison with Other Methods. As part of their analysis, research staff also compared the low-risk unit's recidivism rate with that of other methods of supervising low-risk probationers. The latter methods include: (1) one-to-one supervision, where a probation officer (or a case aide outside the low-risk unit) serves as the primary contact person for the probationer; and, (2) unsupervised, where the court rules that no regular contact/supervision is required.

Table 8 summarizes the results of this analysis. (Note: In this table "failure" denotes both misdemeanor and felony convictions.)

TABLE 8: COMPARISON OF OUTCOME RATES  
FOR DIFFERENT METHODS OF  
SUPERVISING LOW-RISK CASES

METHOD OF SUPERVISION	SUCCESS	FAILURE	ROW TOTAL
1. Low-Risk Unit	117 (86.7%)	18 (13.3%)	135 <sup>1</sup> (100.0%)
2. One-to-one	11 (84.6%)	2 (15.4%)	13 (100.0%)
3. Unsupervised	1 (100.0%)	- -	1 (100.0%)
COL. TOTAL/ROW %:	129 (86.6%)	20 (13.4%)	149 (100.0%)

No conclusions can be drawn from Table 8 because of the uneven and small number of low-risk cases assigned to other methods of supervision.

---

<sup>1</sup>Three of the 138 cases were eliminated from this analysis because they were not classified as "low-risk" probationers.



Conclusions

The low-risk unit's record of performance in preventing recidivism is not unblemished. The findings include: (1) that 11 (8.0%) of the assigned probationers were convicted of a new felony offense or rule violation during their first 12 months on probation; and, (2) that an additional 8 (5.8%) probationers were convicted of a new misdemeanor offense. At the same time, however, some satisfaction can be taken in the fact that only 4 (3% of the sample) probationers had their probation status revoked.

There is no standard against which these findings can be compared. Yet, it seems reasonable to conclude that the small number of probationers involved in new felony convictions lends support for the continuation of the low-risk unit.

\* \* \*

APPENDIX

APPENDIX A

CASE SUPERVISION CLASSIFICATION

P.O. \_\_\_\_\_

DATE \_\_\_\_\_

NAME \_\_\_\_\_

D.C.# \_\_\_\_\_

CIRCLE POINTS IF APPLICABLE  
(to be completed prior to sentencing)

- A. Arrest free for past five or more years . . . . . 12
- B. No drug dependency . . . . . 9
- C. Not arrested for crimes against person (present offense) . . . . . 9
- D. Not checks, forgery, burglary (most recent court appearances) . . . . . 7
- E. No alcohol dependency . . . . . 6
- F. Few (0,1,2) jail or institutional commitments . . . . . 6
- G. Six or more months on same employment or school . . . . . 5
- H. Favorable environment . . . . . 5
- I. First felony charge . . . . . 4
- J. Few prior arrests (0,1,2) . . . . . 4
- K. No family record . . . . . 3

TOTAL SCORE

**HIGH RISK**  
0 - 26

**MEDIUM RISK**  
27 - 44

**LOW RISK**  
45 - 70

CLASSIFICATION \_\_\_\_\_

## APPENDIX B

### DESCRIPTION OF STATISTICAL TESTS

1. Chi-square Test of Independence: Provides a measure of the association between two categorical variables. Two variables are associated when the distribution of values of one variable differs for different values of the other. If no difference exists, the variables are said to be "independent" of each other.

The following hypothesis set was examined with the chi-square test: (1) Tested Hypothesis - The sample observations are from a population in which BES risk category and case outcome are independent of each other; and, (2) Alternative Hypothesis - The sample observations are from a population in which BES risk category and case outcome are not independent of each other (i.e., they are associated).

The decision rule established for rejecting the tested hypothesis in favor of the alternative hypothesis was a .05 level of significance. The level of significance refers to the probability of a test procedure (e.g., chi-square test) causing us to reject the tested hypothesis when it is true. A .05 level indicates that the tested hypothesis is to be rejected only if the value of the chi-square has a probability of occurring by chance 5 percent of the time or less.

2. t-test: Employed to ascertain if there is a statistically significant difference between the means of two groups. The following hypothesis set was examined with the t-test: (1) Tested Hypothesis - There is no difference between the mean BES score for successful probationers and the mean BES score for unsuccessful probationers; and, (2) Alternative Hypothesis - There is a difference between the mean BES score for successful probationers and the mean BES score for unsuccessful probationers.

The decision rule used for rejecting the tested hypothesis and accepting the alternative hypothesis was the same for the t-test as the chi-square test, namely, a .05 level of significance. In other words, the tested hypothesis of no difference was to be rejected only if the t-value had a probability of occurring by chance 5 percent of the time or less.

## APPENDIX B (CONTINUED)

3. Correlation Analysis: As a form of bivariate correlation, the Pearson product-moment correlation provides a single number (a coefficient) which summarizes the strength and direction of the association between two variables. In the case of Pearson's  $r$ , association refers to a linear relationship between two variables, i.e., a situation in which a change of a certain number of units in one variable results in a proportionate change in the other variable. If  $r$  is close to zero, we can assume there is no linear relationship between the two variables. If the value of  $r$  approaches +1.0 or -1.0, we can assume there is a strong linear relationship.

It should be noted that another statistic is available if  $r$  is squared (denoted by  $r^2$ ).  $r^2$  is a more easily interpreted measure of association when our concern is with the strength of a relationship rather than its direction.  $r^2$  ranges from a minimum of zero to a maximum of 1.0. Its usefulness is derived from the fact that it is a measure of the proportion of variance (i.e., variability, or dispersion of data) in one variable "explained" by the other.

**END**