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Predicting Recidivism: Base-Rates for Massachusetts Correctional Institution Concord

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This study represents a 2½ year follow-up study of all men discharged or paroled from the Massachusetts Correctional Institution Concord during 1959. Rates of return, by time period and by background actuarial factors were computed and are presented here as the basic material for the following purposes:

1) To assist in making the decision whether to parole and when to parole. Using these figures the Parole Board would be able to assign men to parole programs with greater accuracy; or men who are predicted to do well might be considered earlier for parole.

2) To study the effects of a specific treatment. The outcome, in terms of return rates, of any prison treatment program (such as therapy, vocational activities, etc.) must be compared to the outcome one would have expected if nothing were done. Furthermore the base-rate expectancies can be used to match treatment and control groups in any experimental studies.

Procedure

Description of sample

311 men were released on certificates of discharge or

parole during 1959. This relatively small sample was chosen for follow-up because (a) it permitted a 2½ year period to have elapsed since release and (b) time-pressure made it impossible to collect data from other institutions. Ideally, the figures presented here should be revised annually in order to keep the predictive efficiency up to date. The number released is smaller than the figure (356) given in the Statistical Report of the Commissioner of Correction for 1959 because only men who were actually released to the community were included in the sample. Men released from one sentence only to continue incarceration on another concurrent or consecutive sentence were not included. If a man was released from Concord more than once during 1959, we adopted the arbitrary convention of counting only the latest one. Of the 311 men in the sample 191 (61%) were paroled, 76 (24%) were released by Certificate of Discharge or expiration of sentence, and 45 (15%) were paroled and subsequently discharged from parole supervision during the follow-up period. In other words, although 1-2 years is usually considered an adequate follow-up period, a relatively small proportion of men had successfully completed their entire parole period during this time.

Follow-up criteria

The chief criterion used was whether or not the man was returned to a prison, either for a technical violation or committed on a new offense.

A second, supplementary criterion used was the length of time out before return. If a man was returned to prison

more than once during the follow-up period only the first return was counted. Jail or House of Correction sentences of less than 1 month were not counted. (There were only 2 such cases). Two men who died during the follow-up period were included in the sample as non-violators. The data for return to state prison were obtained from the files of the Department of Correction; the data for return to jails or houses of correction were obtained from the Department of Probation. A total of 36 men were released to states other than Massachusetts. 27 of these were paroles and 9 were discharged; the follow-up did not cover these cases after they left the state. Furthermore conviction to federal penitentiaries were not counted. These two factors would possibly make the figures slightly inaccurate.

Selection of variables and collection of data

The background data obtained for each man were determined by the following three criteria: (1) A search of the literature (Wheeler, 1954; Mannheim and Wilkins, 1955; Glaser, 1961; Ohlin, 1951) for the dozen or so variables previously found to be the best predictors of parole success or failure. (2) Inclusion of at least one variable from each of the following categories: prior criminal history, age, institutional conduct, future plans, social background. (3) The variables had to be objective and easily coded from the department records.* Appendix A shows the variable code and a sample record sheet. The community population

* In our experience, two practised scorers can collect all the data for 15-20 men in one hour.

figures were obtained from the reports of the U.S. Bureau of Census for 1960. These data were then punched on IBM cards in columns 1 through 16. Columns 75-79 contained the inmate's number for identification.

Results

Basic Data

The overall return rate out of 311 releases was 174, or 55.9%, of whom approximately half (88) were technical parole violations and half (86) were recommitments for new offenses. These figures are surprisingly close to previously published recidivism rates from other prisons. For example, Zuckerman, et. al. (1953) report that 53% of the 345 men released from the Minnesota State Reformatory during 1944-45 returned within a 5-year period; the Gluecks (1930) report a 55.3% return rate for 474 men released from Concord in the late twenties; a rate of 55.2% is reported for the Elmira Reformatory in New York over a 4½ year follow-up period (N.Y. Parole Board, 1949). These figures are slightly lower than the nationwide average of 66.6% reported by Mattick (1960).

Insert Table I about here

Table I shows the return figures broken down by type of release, i.e. parole or certificate of discharge. It can be seen that the chances of a parolee returning are somewhat greater than those of a discharged man. This may be a function of the

Table I

Return rates according to type of release

Type of release	Return Rates			Return %
	Violation	New offense	Total	
Parole N = 236	88	48	136	58%
Discharge or Expiration N = 76	0	38	38	50

closer supervision which the parolee receives and the fact that he can be returned for "technical" violations, which would not be legal grounds for commitment in a discharged man.

Insert Figure 1 near here

Figure 1 shows the time course of recidivism, for new offenses and violations combined. It can be seen that the most critical period in terms of frequencies of return is between 1 month and 6 months after release. By the end of 1 year over half of those who are going to return have returned, so that 1 year may be considered a good preliminary evaluation point for any new treatment.

Insert Table II about here

Table II shows the relationship between the two criteria, type of return and length of time out of prison. There is a significant tendency for most of the parole violations to take place within the first 6 months and for most of the new offenses to take place after that period.

Prediction of return

There are several methods of deriving predictive tables for estimating parole success or failure. (For a review, see Wheeler, 1954). The most common involve the derivation of some sort of total expectancy score, either by simple arbitrary weighting of favorable and unfavorable items (e.g. Ohlin, 1951);

Figure 1

The course of recidivism
(new offense and violations combined)

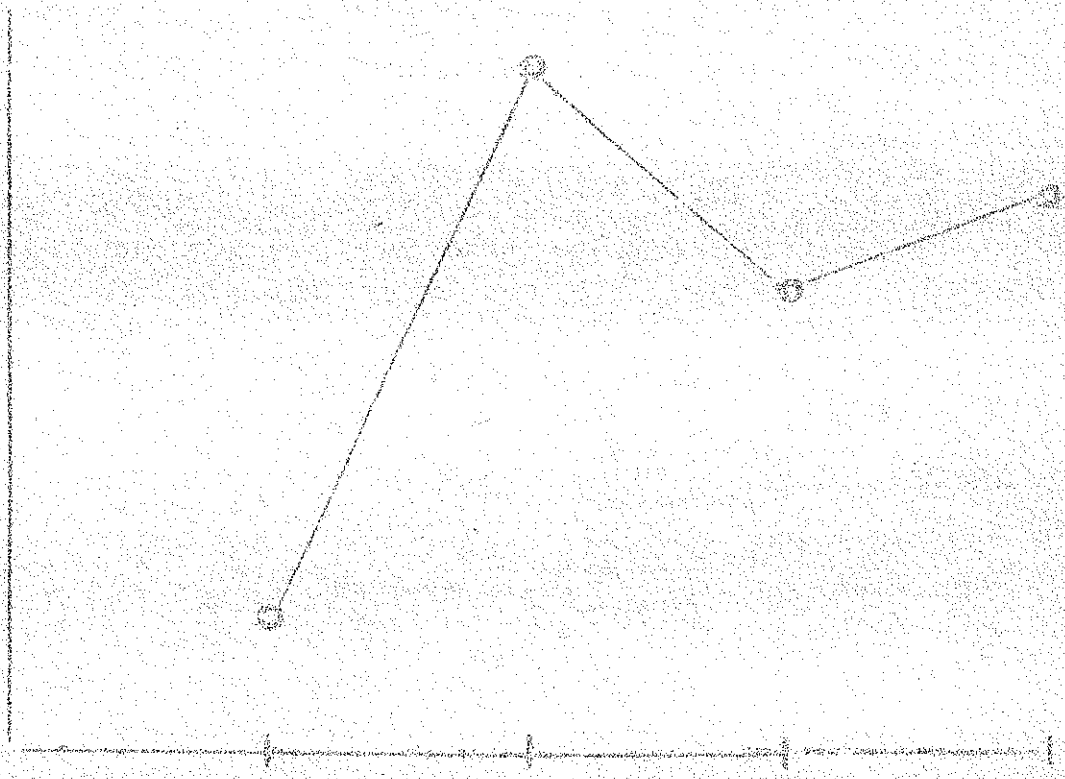


Table II

Interrelation between the two criteria:
type of return and time out of prison

Type of return	Time before return			
	Less than 1 month	1 month - 6 months	6 months - 1 year	More than 1 year
Parole violation N = 88	8	40	19	21
New offense N = 86	5	25	24	32

χ^2, comparing "less than 6 months" with "more than 6 months,"
= 6.79, 1 df, $p < .01$

or by the more sophisticated weighting techniques such as regression analysis or discriminant functions. In the present study a different technique was used, called the method of "qualitative types" by Wheeler (1954) or "prognostic configuration analysis" by Glaser (1961). It involves breaking down the total sample by successively dichotomizing the best predictor variables until a series of classes is arrived at, which are then the basic predictive categories.

Since we have two criterion variables, this technique could be applied to both of them. In the present study however only the criterion of return is used. Inspection of the tables in Appendix B showed that there were no appreciable differences between the categories "violation" and "new offense" so these two were combined to give a total return rate. All variables which had a return rate which differed by more than 10% from the overall rate of 56% were dichotomized so as to yield the maximum differentiation between the two classes. These dichotomized variables and the return rates associated with them are shown, in rank order of discrimination, in Table III.

Insert Table III about here

It can be seen that the variables time served prior to release, ethnic status, institutional conduct, home contacts, type of home on parole and type of community, were excluded because they did not provide discrimination greater than the overall rate. Military record was eliminated because the figures seem inconsistent. Type of offense, since it involves qualitative

Table III

Return rates in terms of dichotomized predictor variables

	Total Number	Number Returned	% Returned
1. Type of offense:			
sex offenses	25	5	20%
all other offenses	286	169	59%
2. Prior penal commitments:			
none	82	27	33%
some	229	147	64%
3. Age at first arrest:			
14 or less	116	78	67%
15 or more	195	96	49%
4. Number of prior arrests:			
5 or less	138	57	41%
more than 5	173	117	68%
5. Type of offense:			
theft, other and combined	130	91	70%
all other offenses	181	83	46%
6. Age at last commitment:			
30 or less	274	160	58%
more than 30	37	14	38%
7. Behavior disorders:			
2 or more arrest for drunkenness or narcotics	77	51	66%
neither	234	123	53%

categories, rather than a continuous variable, was dichotomized twice (#4 and #5 in Table III). The variable with the greatest difference in % return rate was "sex offenders vs. all other offenders;" however since the relatively small size of the sex offender sample, it was thought wiser to use a variable which split the sample more nearly in half. Hence the variables chosen for the first split was number of prior arrests which divided the total sample into 82 cases (26%) with a 33% return rate and 229 cases (84%) with a 64% return rate. Each of these two groups was then treated as a seperate sample and all return rates by predictor variables computed again for this particular subsample. The variables were again dichotomized to give the maximum split.

The first group, offenders with no prior commitments, was divided into 25 cases with no prior arrests and a 22% return rate; and 59 cases with one or more prior arrests and a 37% return rate. The second group, offenders with prior commitments, was divided by type of offense: one class (group "X" for convenience) included offenses against a person, against property, combination and other offenses--in these 158 cases the return rate was 65%; the second class (group "Y") included only sex offenders and technical parole violators"--in these 71 cases the return rate was 49%.

The whole process was then repeated a third time for groups X and Y. Group X was subdivided into 137 whites with a 69% return rate and 21 "others" with an 86% return rate.

" Type of offense always refer to the offense for which they were committed prior to being released in 1952.

Group I was subdivided into 44 cases whose age at last commitment was greater than 24 years, with a return rate of 61%, and 27 cases whose age at last commitment was 24 or less, with a 70% return rate. By this process we have arrived at a "prognostic configuration table" with six classes using five variables. The whole table is shown in Table IV. Table V shows the six categories

Insert Tables IV and V near here

described and ranked. These six classes have return rates ranging from 22% to 86%, and the distribution of cases is approximately bimodal with 28% of the sample having a rate between 30-40%, and 44% having a rate around 70%.

In order to examine the relationship between the two criteria more closely, the number returning at different time periods in the six groups was computed and the results are shown in Table VI. From this table it can be seen that the time course

Insert Table VI near here

of recidivism is approximately the same for these six groups, with a maximum around the 6 months period.

Discussion

The prognostic configuration table presented above enables one to predict the probability of return on the basis of a five-variable classification. The exact figures would of course have

Table VI

Frequency returning within different time periods in the six prognostic groups

Group	% Return	Time of Return				% Returning in first 6 months
		Less than 1 month	1 month - 6 months	6 months - 1 year	More than 1 year	
1 (N = 23)	22		3	1	1	13
2 (N = 27)	30	1	2	3	2	11
3 (N = 59)	37	2	4	2	14	10
4 (N = 44)	61	3	9	9	6	37
5 (N = 137)	69	6	42	30	26	35
6 (N = 21)	80	1	5	6	4	32

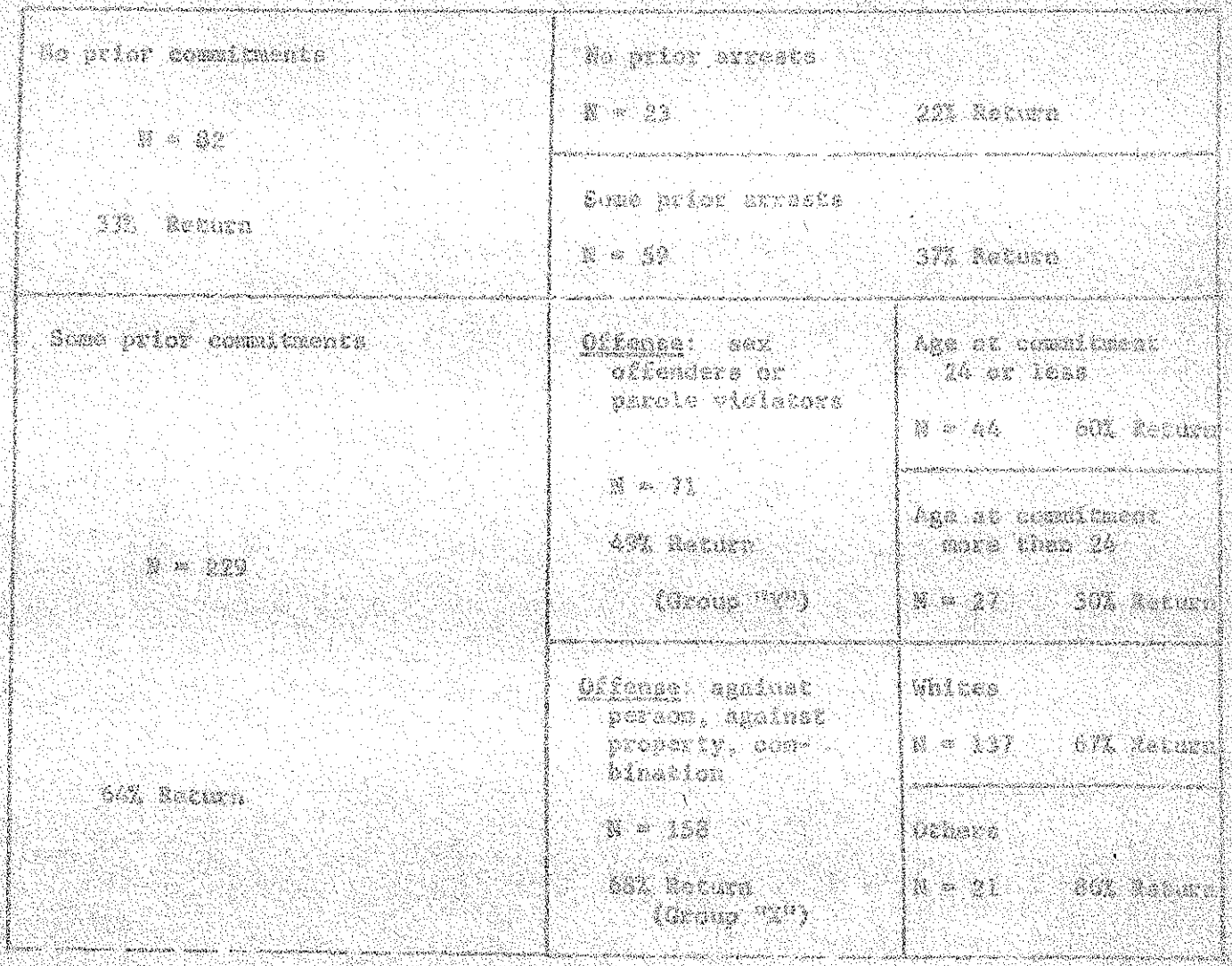
Table 7

Prognostic categories derived by successive dichotomization

Description	% of Sample N = 311	% Return
1. No prior commitments; no prior arrests	7%	22
2. Some prior commitments; non offender or parole violator whose age at last commitment was more than 24	9%	30
3. No prior commitments but some prior arrests	19%	37
4. Sex offenders or parole violators with prior commitments aged 24 or less at last commitment	14%	61
5. Some prior commitments; offense against person (except sex), against property or combination; whites	44%	65
6. Some prior commitments; offense against person (except sex), against property or combination; other ethnic group	7%	36

Table IV

Prognostic configuration table for 311 men released from Concord during 1959



to be cross-validated on a new sample before they can be accepted as reliable. Furthermore, it would be desirable to add the information for men released subsequently to 1959, so as to keep the figures continuously up to date and abreast of any changes in commitment or parole policies which might occur.*

By classifying an inmate in one of the six categories shown in Table V, Parole Agencies can predict the probability of return with greater accuracy than they could on the basis of the overall expectancy alone. For example a 20-year old sex-offender with some previous record would have a 61% chance of returning; if he was older than 24 he would be classified in class (2) with a 30% chance of returning. Glaser (1961) has pointed out the advantages of this kind of table over numerical score tables (based for example on regression analysis): "first of all, it seems likely that a judge or a parole board will more readily accept a configuration table because it indicates exactly what went into the prognosis which it yields by showing the combination of factors involved. The numerical score tables blur their sources of information by presenting the official only with a score. In addition, the configuration table promotes testing of criminological theory by generating and testing hypotheses as to which combination of factors will be of most prognostic significance." For example in the present study the three most discriminating variables--prior penal commitments, prior arrests and

* The data for the approximately 300 men released from Concord every year could be collected once a year, punched on cards and new frequencies obtained from the IBM 101. Two experienced scorers can code the data for 15-20 men in about one hour.

type of offense are all indices of past criminal record, which turn out to be more predictive than present behavior, at least in those variables which we were able to collect from the files.

The table might also be used in another way to predict optimum time of release. This could be done by computing the return rates for each category after specific amounts of time served (e.g., 12 months, 2 years, etc.) and determining at what time they are lowest.

Finally, the table can be used to assess the effectiveness of a correctional treatment program by showing to what extent the prognosis is altered by a specific type of therapeutic or correctional experience. Again, one would classify the participants in the particular treatment programs to be evaluated into the six classes, compute the return rate for each, and see to what extent it differs from the overall rate for that class. Unless the percentage is significantly lower in the treatment subsample, the treatment program cannot be said to make any difference to the probability of return.

Also in an experimental design involving treatment and control groups, the classification presented here can be used as a basis for matching the groups.

Summary

A follow-up study over a 2½ year period was conducted for a sample of 511 men released from a Massachusetts state prison during 1959. The overall return rate was 56% with half being returned on technical parole violation and half for new offenses. The time course of return was also estimated: most

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Appendix A: Base Rate Study Variable Code and Sample Record Sheet

1. Criterion
   - 0 on parole or discharged
   - 1 violated rules - revocation
   - 2 new offense

2. Length of time before return
   - 0 violated within 1 month
   - 1 1 month-6months
   - 2 6 months-1 year
   - 3 1 year-2 years

3. Time served in institution prior to parole (from commitment to release)
   - 0 one year
   - 1 1-2 years
   - 2 2-3 years
   - 3 3-5 years
   - 4 more than 5 years

4. Type of present offense (if parole violator, on new offense, classify new offense; if violator for technical - 5)
   - 0 offense against person
   - 1 sex against minor
   - 2 sex against major
   - 3 offense against property except forgery or auto-theft
   - 4 other offenses
   - 5 technical parole violation
   - 6 combination
   - 7 forgery
   - 8 auto-theft

5. Age at last arrest
   - 0 0-14
   - 1 15-19
   - 2 20-24
   - 3 25-29
   - 4 30-39
   - 5 40 or over

6. Ethnic status
   - 0 White
   - 1 Negro
   - 2 other

7. Military record
   - 0 none
   - 1 dishonorable discharge
   - 2 undesirable discharge
   - 3 medical discharge
   - 4 honorable discharge

8. Institutional conduct (good time withheld)
   - 0 none withheld
   - * [1] withheld on 1-2 occasions
   - [2] withheld on more than 2 occasions

9. Number of prior arrests
   - 0 none
   - 1 1-5
   - 2 5-10
   - 3 10-20
   - 4 more than 20

10. Age at first arrest
   - 0 0-14
   - 1 15-19
   - 2 20-24
   - 3 25-29
   - 4 30-39
   - 5 40 or over

11. Behavior disorders
   - 0 none
   - 1 2 or more arrests for drunkenness
   - 2 narcotics (arrests)
   - 3 others (homosexuality, gambling, pimping)

12. Prior penal commitments
   - 0 none
   - 1 juvenile
   - 2 jail or house of correction - one or more
   - 3 camps or farms (Monroe, Plymouth) - one or more
   - 4 state prisons - 1 or more
   - 5 any combination

13. Home contacts (letters or visits)
   - 0 no letters or visits
   - * [1] occasional letters or visits
   - [2] frequent from friends or occasional from family
   - 3 frequent or regular from family

14. Type of home to which paroled
   - 0 live with parents or wife
   - 1 live with wife and children
   - 2 other relatives
   - 3 no family (alone or friends)

15. Community to which paroled
   - 0 rural (0-2500)
   - 1 town (2500-10,000)
   - 2 urban (10,000-over)

16. Release record
   - 1 paroled
   - 2 discharged
   - 3 paroled, then discharged

* These subcategories were later combined.

Sample Record Sheet

Name: _____ Number: _____

Date of birth: _____

Date of commitment:[1] _____ 1. Criterion _____

RELEASE DATE Paroled: _____ 2. Length of time before return[2] _____

Discharged _____ 3. Time served before release _____

RETURN DATE Violation: _____ 4. Type of offense _____

New Offense: _____

5. Age at last commitment _____ 10. Age at first arrest _____

6. Ethnic status _____ 11. Behavior disorders _____

7. Military record _____ 12. Prior penal commitments _____

8. Institutional conduct _____ 13. Home contacts _____

9. Number of prior arrests _____ 14. Type of home on parole _____

15. Community to which paroled _____ Code _____

[1]Take earliest date from which institutionalized without a break

[2]Difference between release and return; always count from earlier occasion

Notes:

Appendix A: Favorable Outcome and Type of Return by Various Background Variables

	OUTCOME				
	Favorable	Violation	New Offense	Total Return	Total
TYPE OF OFFENSE					
against person	64	30	13	43	87
sex against minor	14	1	1	2	16
sex against major	6	2	1	3	9
against property	19	19	22	41	60
other offenses	8	9	11	20	28
parole violation	34	12	23	35	69
combination	7	10	13	23	30
forgery	2	1	1	2	4
auto-theft	3	4	1	5	8
TIME SERVED					
One year	79	56	38	94	173
1-2 years	38	20	23	43	81
2-3 years	6	9	12	21	27
3-5 years	14	3	12	15	29
more than 5 years	0	0	1	1	1
AGE AT COMMITMENT					
0-14	0	0	1	1	1
15-19	30	21	24	45	75
20-24	52	32	37	69	121
25-29	32	23	22	45	77
30-39	17	12	2	14	31
Older than 40	6	0	0	0	6
ETHNIC STATUS					
White	116	72	64	136	252
Negro	21	15	20	35	56
Other	0	1	2	3	3
MILITARY RECORD					
none	83	46	62	108	191
dishonorable	14	4	4	8	22
undesirable	14	14	6	20	34
medical	0	1	0	1	1
honorable	26	23	14	37	63
INSTITUTIONAL CONDUCT					
no good time withheld	104	68	63	131	235
withheld once	30	18	21	39	69
withheld more than once	2	0	2	2	4
isolation	1	2	0	2	3

Appendix B: (2)

	OUTCOME				
	Favorable	Violation	New Offense	Total Return	Total
NUMBER OF PRIOR ARRESTS					
None	18	5	0	5	23
1-5	63	23	29	52	115
6-10	40	38	31	69	109
10-20	12	19	26	45	57
more than 20	4	3	0	3	7
AGE AT FIRST ARREST					
0-14	38	29	49	78	116
15-19	71	42	28	70	141
20-24	18	14	9	23	41
25-29	7	2	0	2	9
30-39	2	1	0	1	3
over 40	1	0	0	0	1
BEHAVIOR DISORDERS					
none	109	58	62	120	229
drunkenness	23	25	17	42	65
narcotics	3	3	6	9	12
others	2	2	1	3	5
PRIOR PENAL COMMITMENTS					
none	55	16	9	27	82
juvenile	8	8	8	16	24
jail or house of correction	30	22	13	35	65
camp or farm	1	0	0	0	1
state prison	10	4	5	9	19
combination	43	36	51	87	130
HOME CONTACTS					
no letters or visits	5	3	7	10	15
occasional	67	45	48	93	160
frequent or regular	65	40	31	71	136
TYPE OF HOME ON PAROLE					
with parents or wife	90	57	56	113	203
wife & children	9	5	4	9	18
other relatives	19	15	8	23	42
no family	19	11	18	29	48

Appendix M: (3)

TYPE OF COMMUNITY	OUTCOME				
	Favorable	Violation	New Offense	Total Return	Total
Rural	16	8	7	15	31
Town	8	2	7	9	17
Urban	110	77	70	147	257
Unknown	3	1	2	3	6

Appendix D: Length of Time Before Return by Various Background Variables

	TIME OUT BEFORE RETURN		
	Less Than 6 Months	More Than 6 Months	Total Return
TYPE OF OFFENSE			
offense against person	16	27	43
sex against major	0	2	2
sex against minor	1	2	3
offense against property	22	19	41
other offenses	8	12	20
technical parole violation	15	20	35
combination	12	11	23
forgery	2	0	2
auto-theft	3	3	6
TIME SERVED			
1 year	40	54	94
1-2 years	24	19	43
2-3 years	9	12	21
3-5 years	5	10	15
more than 5 years	0	1	1
AGE AT LAST COMMITMENT			
0-14	1	0	1
15-19	22	25	47
20-24	31	38	69
25-29	17	28	45
30-39	7	7	14
40 or over	0	0	0
ETHNIC STATUS			
white	87	69	156
Negro	10	25	35
other	1	2	3
MILITARY RECORD			
none	48	60	108
dishonorable discharge	2	6	8
undesirable discharge	11	9	20
medical discharge	1	0	1
honorable discharge	16	21	37

Appendix 2

	TIME OUT BEFORE RETURN		
	Less Than 6 Months	More Than 6 Months	Total Returns
INSTITUTIONAL CONDUCT			
no good time withheld	59	72	131
good time withheld once	17	22	39
good time withheld more than once	1	1	2
isolation	1	1	2
NUMBER OF PRIOR ARRESTS			
none	3	2	5
1-5	18	34	52
5-10	35	33	68
10-20	19	26	45
more than 20	2	1	3
AGE AT FIRST ARREST			
0-14	35	43	78
15-19	29	41	70
20-24	11	12	23
25-29	2	0	2
30-39	1	0	1
40 or over	0	0	0
BEHAVIOR DISORDERS			
none	55	65	120
drunkenness	18	24	42
narcotics	4	5	9
others	1	2	3
PRIOR PENAL COMMITMENTS			
none	9	18	27
juvenile	10	6	16
jail or house of correction	15	20	35
camp or farm	0	0	0
state prison	3	6	9
any combination	41	46	87
HOME CONTACTS			
none	2	8	10
occasional letters or visits	39	56	95
frequent or regular letters or visits	37	34	71

	TIME OUT BEFORE RETURN		
	Less Than 6 Months	More Than 6 Months	Total Return
TYPE OF HOME TO WHICH PAROLED			
Live with parents or wife	53	60	113
Live with wife or children	3	6	9
Live with other relatives	10	13	23
No family (alone or with friends)	12	17	29
TYPE OF COMMUNITY TO WHICH PAROLED			
rural (0-2500)	8	7	15
town (2500-10000)	4	5	9
urban (10000-over)	65	82	147
not known	1	2	3