PAROLE DECISION-MAKING

SUPPLEMENTAL
REPORT TEN

PAROLE SELECTION: A BALANCE OF TWO TYPES OF ERROR

PETER B. HOFFMAN

Project Staff

Don M. Gottfredson, Codirector
Leslie T. Wilkins, Codirector
Susan M. Singer, Research Associate
Carol Ann Riccio, Research Associate
Annie C. Miller, Research Assistant
Amy Levine, Research Assistant
James L. Beck, Research Assistant
Marilyn J. Nue, Research Assistant
Rhoda J. Kline, Research Assistant
James P. Curry, Research Assistant

Former Project Staff

Barbara J. Allan
Nina Jan Arnhols
Barbara A. Bullock
Yvonne D. Colbert
Lucille K. DeGostin
Gabrielle Pagin Ficklin
Anne L. Hatfield
Peter B. Hoffman
LaVerne L. Holmes
E. Cordelia Mapp
Anne M. Porowski
C. Ann Sadowsky

NCCD Research Center Staff Support

Marilyn M. Turner, Program Assistant
Patricia A. Wankum, Secretary to the Director
Max S. Zeigler, Data Processing Supervisor
Guy E. Pasela, Research Assistant
William H. Brown, Research Assistant
Judith Ingram, Research Assistant
Deborah K. Russell, Clerk-Typist

SUMMARY

In making parole selection decisions, a parole
board runs the risk of making two types of error: the
first concerns the premature release of individuals
who will commit new offenses or parole violations; the
second involves not releasing individuals who, if re-
leased, would have completed parole without violation.

This paper focuses upon a method of assessing the
incidence of both error types and describing the balance
between them. A feedback device to provide information
concerning the potential consequences of changes in pa-
role selection policy upon this balance, and the resul-
tant "social costs," is then discussed.

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TABLES AND FIGURES

PAROLE SELECTION: A BALANCE OF TWO TYPES OF ERROR

An elementary theorem of decision theory states
that for any decision, there are two possible types
of error. Statistical texts refer to these as errors
of the first and second kind (Type I/Type II error);
in industrial quality control they are known as con-
sumer and producer risk. In relation to the parole
selection decision, these error types involve:
(a) paroling an inmate who would violate parole, and
(b) not paroling an inmate who would have completed
parole without violation.

From the field of personnel selection, the analogous
errors are hiring an applicant who proves unsuitable,
and overlooking or rejecting an applicant who would have
performed satisfactorily. In welfare administration,
these error types involve allowing funds to those who
are ineligible, and denying funds to those actually
eligible.

For certain of these situations, the decision
problem can be resolved or reduced by further investiga-
tion (obtaining more information). Consequently, a
policy decision becomes one of how much effort to expend
in order to obtain a certain amount of error reduction.
Taking the welfare situation, it may be seen that a

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thorough investigation of each case could substantially reduce the incidence of "welfare cheating"; however, the cost of investigating every case in this manner would most likely be more than the amount saved.

For other types of decision problems, additional useful (error reducing) information simply may not be available. In personnel selection, interviews and psychological tests are useful to a certain extent. However, increasing the number of interviews or tests for any one applicant will not necessarily make the decision easier or more accurate.

Parole selection falls into this category of decision problem in that the information available or obtainable has not proven tremendously useful in predicting parole "success" or "failure." The traditional research approach to parole selection has concentrated upon the formulation of a variety of predictive devices (similar to actuarial tables used by insurance companies) using information about the personal, social, and psychological characteristics of offenders as predictors and information about parole outcome, generally the incidence or absence of recidivism (the commission of a new offense) or parole revocation as criterion

measures.[1] While these measures have been able to separate groups of offenders into risk categories, the accuracy of prediction for individual cases is relatively low.[2] Unfortunately, clinical predictive assessments seem to do no better, if as well.[3]

Given the limited predictive accuracy available, a parole board may be expected to make a number of errors of each type. Furthermore, the number of each type of error will depend to a considerable extent upon the proportion paroled. As the proportion paroled increases, the number of Type I errors will increase, while the number of Type II errors will decrease. Conversely, as the proportion paroled decreases, the number of Type I errors will decrease, but the number of Type II errors will increase. Of course, if the parole board desired to eliminate all Type I errors, it could do so by

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[1] For a comprehensive review of prediction literature see Gottfredson, D. M., "Assessment and Prediction Methods in Crime and Delinquency," Task Force Report: Juvenile Delinquency and Youth Crime, The President's Commission on Law Enforcement and the Administration of Justice, Washington, D.C.: United States Government Printing Office, 1967.

[2] Loc.cit.

[3] Meehl, P. E., "Clinical vs. Actuarial Prediction," in Proceedings, 1955 Invitational Conference on Testing Problems, Princeton: Educational Testing Service, 1956.

paroling no one. Similarly, if it desired to eliminate all Type II errors, it might parole everyone. However, neither of these strategies seems readily acceptable. Consequently, parole selection policy, whether set explicitly or implicitly, will reflect a balance of the two error types. It is this balance that will be the subject of study.

Each type of error has certain costs. The costs of the first error type include the consequences of new crimes or parole violations to the community, the resultant negative publicity concerning the correctional and parole systems, and the financial costs of apprehending and processing violators for reimprisonment. The costs of the second type of error include the social and moral consequences of not paroling an inmate who could be safely released, the substantial financial costs of incarceration compared to those of parole supervision, the community burden of supporting the inmate's dependents, and the danger that continued incarceration will further reduce the inmate's chances of favorable outcome when eventually released.

Considerable effort has been devoted to the identification and assessment of the incidence of Type I error, although agreement as to how this

category should be defined is far from complete.[4] A
number of states keep records of the number of parole
successes and the number of the various types of parole
violators. A national parole data collection and
retrieval system (Uniform Parole Reports),[5] which
collects outcome information as well as certain informa-
tion concerning parolee characteristics, has been
established at the National Council on Crime and Delin-
quency Research Center. A major contribution of the
Uniform Parole Reports project has been the development,
in conjunction with parole board members, of a set of
standard definitions of parole outcome behavior.[6] These
definitions are used in the present project.

The problem of identifying the incidence of
Type II error is even more difficult. When a decision
to defer parole (not to parole) is made and the inmate
is successful upon eventual release, a parole board
might attribute this success to the rehabilitative or

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[4]Vasoli, R. H., "Some Reflections on Measuring
Probation Outcome," Federal Probation, 31(3):24-32,
September, 1967.

[5]Gottfredson, D. M., Neithercutt, M. G., Venezia,
P., and Wenk, E. A., A National Uniform Parole Reporting
System, Davis, California: National Council on Crime
and Delinquency Research Center, 1970.

[6]National Parole Institutes, Uniform Parole Reporting
Coding Manual, Davis, California: National Council on
Crime and Delinquency, 1966.

deterrent effects of the longer period of incarceration. On the other hand, a parole violation or new crime by this inmate might be interpreted as demonstrating the parole board's good judgment in not releasing him earlier. Acceptance of this argument leads to the inevitable conclusion that while a parole board may err in releasing a man, it can never be wrong in holding him. With the rising public apprehension about crime, there can be little wonder why parole board members might be tempted toward conservative (risk aversive) solutions.

However, there is considerable question as to the rehabilitative or deterrent benefits of continued incarceration. The little research available seems to emphasize the negative aspects of incarceration, both economic and social. The deleterious effects of the incarceration process have been described by Clemmer,[7] Sykes,[8] and Cressey.[9] Two recent empirical studies conducted in California have found length of

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[7]Clemmer, D., The Prison Community, Princeton: Princeton University Press, 1958.

[8]Sykes, G., The Society of Captives, Princeton: Princeton University Press, 1958.

[9]Cressey, D. R., (ed.), The Prison: Studies in Institutional Organization and Change, New York: Holt Rinehart, and Winston, Inc., 1961.

incarceration either unrelated[10] or negatively related[11]
to favorable outcome after release, with both studies
controlling for base expectancy scores. A similar
result was obtained by Mannheim and Wilkins in their
study of English borstals.[12] Robison and Smith, having
reviewed a number of studies, including those cited
above, argue:

> It is difficult to escape the conclusion
> that the act of incarcerating a person at all
> will impair whatever potential he has for
> crime-free adjustment and that, regardless of
> which "treatments" are administered while he
> is in prison, the longer he is kept there the
> more he will deteriorate and the more likely
> it is that he will recidivate.[13]

Similarly, Bixby argues:

> The evidence that prolonged incarceration
> works against successful reentry places the
> burden on showing why an eligible (inmate)
> should not be paroled rather than why he should.[14]

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[10]Mueller, P., "Advanced Releases to Parole," Research
Report #20, Sacramento, California: California Depart-
ment of Corrections, Research Division, 1965.

[11]Jaman, D., "Parole Outcome and Time Served by
First Releases Committed for Robbery and Burglary, 1965
Releases," Sacramento, California: California Department
of Corrections, Measurement Unit, 1968.

[12]Mannheim, H. and Wilkins, L. T., Prediction Methods
in Relation to Borstal Training, London: Her Majesty's
Stationery Office, 1955.

[13]Robison, J. O., and Smith G., "The Effectiveness
of Correctional Programs," Crime and Delinquency, 17(1):
67-80, January, 1971

[14]Bixby, F. L., "A New Role for Parole Boards,"
Federal Probation, 34(2):24-28, June, 1970.

Acceptance of the assumption that length of incarceration is negatively or at least not positively related to favorable outcome upon release enables the development of a measure of Type II error.

At this point, it must be mentioned that, in reality, parole selection is not a dichotomous decision (parole/no parole) but rather a decision as to when an inmate is to be released within the limits or constraints set by statute and/or the sentencing judge (the lower limit being the minimum sentence or parole eligibility date and the upper limit being the maximum expiration of sentence or mandatory release date). Therefore, measures of Type I and Type II error are proposed which consider the parole selection decision in terms of time held before release.

Type I error is defined as the number of months remaining until mandatory release for each case in which parole outcome is defined as unfavorable. Under this scheme, a person held to mandatory release who is classified as having unfavorable outcome would be considered to reflect zero Type I error (Measure A). An unfavorable outcome case released four months before the mandatory release date would be considered to reflect four (4) months of Type I error. Similarly, an unfavorable outcome case released two years before

the mandatory release date would be considered to reflect
24 months of Type I error.

However, it is recognized that not all parole vio-
lations have the same "social cost." That is, it is
obvious that the error in releasing a parolee who commits
a new homicide is different from that of releasing a
parolee who is returned for a technical violation (such
as excessive drinking). Therefore, a weighting scheme
for Type I error according to the severity of the parole
violation is also developed. The Uniform Parole Reports
outcome coding format permits assignment of severity
weights (albeit crude) to a number of violation categories.
Assume that a weight of 1.0 is given to the category
defined as return to prison or new commitment for major
violations (UPR codes 5, 7, and 8). An arbitrary
weight of 0.3 might be assigned to the categories of
return to prison for new minor convictions (UPR code
4) and return to prison for technical violations (UPR
codes 2 and 3). This permits the calculation of a
summing measure (although an arbitrary one) of Type I
error in terms of major violations (Measure B). Thus,
a person paroled at six months from the mandatory release
date who is returned for a parole violation involving a
new minor conviction would be assigned a Type I error

(Measure B) of 6 x 0.3 = 1.8 months. If returned
for a major violation, this error measure would be
6 x 1.0 = 6.0 months.

Conversely, our Type II error measure is defined
as the number of months incarcerated before release
for cases in which parole outcome is defined as favor-
able (UPR codes 0, 1, and 6). Under this procedure,
a case with favorable outcome paroled after 15 months
would be considered to have 15 months of Type II error,
while a case with favorable outcome released after 48
months would be considered to have 48 months of Type
II error.

It is apparent that a parole board may be more
willing to take a given amount of Type I risk with
certain types of offenders (e.g., check forgers)
than with others (e.g., homicide cases). It also may
be expected that a parole board will be willing to
tolerate a certain amount of Type II error to satisfy
goals of general deterrence or punishment (referred
to by the United States Parole Board members as
"accountability") dependent primarily upon the severity
of the commitment offense. For these reasons, the
sample cases are grouped into offense severity levels
using an offense severity rating index developed by

Gottfredson.[15] Offense rating refers to the present offense and indicates the most serious behavior reported. It was coded by project staff from the case folder (generally, a description of the instant offense is found in the presentence report). Offense rating was chosen in preference to legal commitment offense for this study as the legal commitment offense may not adequately reflect the behavioral picture presented to the parole board. For example, while a subject may be convicted of vehicle theft, the offense behavior might include an assault upon the arresting officers for which the subject is not prosecuted in return for his plea of guilty to the vehicle theft charge.

For the following analyses, the offense ratings are grouped into three severity categories with cutting points chosen somewhat arbitrarily. The grouping is

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[15]This offense rating severity index (unpublished) was developed by Gottfredson from an instrument completed by parole board members who listed the probability of favorable outcome they would require to grant parole (assuming that the inmate had served the median time for the commitment offense). For example, the average probability of favorable outcomes required for paroling an inmate who had served the median time for the offense of car theft (unplanned) was .400; for an inmate whose commitment offense was classified as criminal act (with a weapon), the average probability required for a paroling decision was .696. By ranking these average probabilities in ascending order, an offense severity scale from least to most serious is formed. Personal communication with D. M. Gottfredson, 12/5/72.

intended to provide subsamples large enough for meaning-
ful analyses while retaining a crude offense severity
classification. Unclassified offenses (N = 12) are
not included in these calculations.

Description of the Sample

The sample consists of three retrospective sub-
samples of male initial parole or mandatory parole Youth
Corrections Act releases (not rereleases). Youth Cor-
rections Act cases generally receive maximum sentences
of six years with no minimum sentences.[16] They are
immediately eligible for parole. Furthermore, they must
be initially released no later than two years from their
maximum expiration date. That is, an offender with a
six-year YCA term must be mandatorily released to parole
supervision after serving four years, if not released
earlier by the parole board. As all original releases
will have at least two years of parole supervision
scheduled, a two-year parole follow-up may be used for
each individual. This is advantageous as it avoids a
common difficulty of having to compare parolees under
supervision with expiration cases who do not receive
supervision or receive supervision for only a short

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[16]In certain cases (e.g., robbery or murder) a longer
sentence is permitted. 18 U. S. Code, 5010c.

period. However, use of this follow-up measure does
assume that there is equivalence of supervision for
parolees and mandatory parolees. It might be argued
that those held until mandatory parole by the parole
board have been labeled as worse risks and are treated
as such by the supervising probation (parole) officers.
This assumption has not been investigated. However,
if mandatory parolees are treated as worse risks by
supervision staff, it might be expected that fewer
rule infractions would be tolerated before requesting
parole revocation. This would tend to make Type II
error measure a conservative one.

Retrospective sample A includes 10 percent of all
cases in which the decision to release or actual release
occurred in fiscal 1966 (N = 116). Sample B is a similar
sample from fiscal 1968 (N = 102). Sample C includes
a 20 percent sample of decisions to release from fiscal
1969 (N = 143). As these samples were originally collected
for the purpose of developing and testing predictive
devices, various time periods were selected to enable
validation tests on samples from time periods subsequent
to the construction sample. Due to the small numbers
involved, the following analyses consider the combined
samples. The method of sampling involved the selec-
tion of all cases during the fiscal period whose prison

register (identification) number ended in a specific
digit or digits. This method is assumed to approximate
random selection.

Operational Definitions

The following operational definitions are utilized:

Favorable Parole Outcome

Completion of two years from the date of
release with no difficulty, or continued on
parole with sentences of less than 60 days, or
continued on parole with new minor convictions
(UPR outcome codes 0 or 1).[17]

Unfavorable Parole Outcome

Parole revocation, absconder at large, or
new major conviction within two years of date of
release (UPR outcome codes 2, 3, 4, 5, 7, or 8).

Parole Outcome Severity Rating

(a) Returned to prison for technical vio-
lation or absconding, or absconder at large (UPR
codes 2 or 3); returned to prison for new minor
offense or continued on parole with new major
conviction (UPR code 4 or X) = 0.3.

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[17]National Parole Institutes, op.cit., supra note 6,
p. 34. This category also includes UPR Code 6: return
to prison--no violation (e.g., medical) for which no
cases were found.

(b) Returned to prison for new major offense
or in lieu of prosecution for new major offense,
or committed to prison for new major offense in
any jurisdiction (UPR codes 5, 7 or 8) = 1.0.

Type I Error Measure (A)

The number of months between actual release
date and the mandatory parole date for each case
in which parole outcome is defined as unfavorable.

Type I Error Measure (B)

The number of months between actual release
date and mandatory parole date for each case in
which parole outcome is defined as unfavorable
times (x) the parole outcome severity rating
(a = 0.3, b = 1.0).

Type II Error Measure

The number of months in custody for each case
in which parole outcome is defined as favorable.

Findings

Tables I-III display the Type I and Type II error
measures for each offense rating group. The first
three lines at the bottom of Table I indicate the sums
of the Type I (A), Type I (B), and Type II error
measures, respectively. For Offense Severity Rating Group
A (low severity offenses), 61 individuals with unfavorable

Table I

Offense Rating Group A[18]

	Favorable Outcomes $n_1 = 50$	Unfavorable Outcomes Minor Violations $n_2 = 29$	Unfavorable Outcomes Major Violations $n_3 = 32$
Total Months in Prison	832	538	473
Total (Months remaining until Mandatory Release as of Date Paroled)	1568	680	871

Type I Error Measure (A) = 680 mos. + 871 mos. = 1551 mos.
Type I Error Measure (B) = 680 x .3 + 871 x 1.0 = 1075 mos.
Type II Error Measure = 832 mos.

outcomes $(N_2 + N_3)$ had a total of 1551 months remaining
until their mandatory release dates as of date of release
from prison [Type I Measure (A)]. There were 29 indivi-
duals with minor violations with a total of 680 months
remaining until their mandatory release date. For major

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[18]Includes: prostitution (.247); possession of mari-
juana, less than or equal to $100 (.333); forgery or
counterfeiting, less than or equal to $500 (.335);
possession of heavy narcotics, less than or equal to
$50 (.394); theft, unplanned (.395); and vehicle theft,
unplanned (.400).

Table II

Offense Rating Group B[19]

	Favorable Outcomes $n_1 = 104$	Unfavorable Outcomes Minor Violations $n_2 = 43$	Unfavorable Outcomes Major Violations $n_3 = 54$
Total Months in Prison	1815	669	833
Total (Months remaining until Mandatory Release as of Date Paroled)	3221	1161	1447

Type I Error Measure (A) = 1161 mos. + 1447 mos. = 2608 mos.
Type I Error Measure (B) = 1161 x .3 + 1147 x 1.0 mos. = 1795 mos.
Type II Error Measure = 1815 mos.

violations, these figures are 32 individuals and 871 months, respectively. To calculate Type I Error Measure (B), the number of months remaining for minor violators is multiplied by 0.3 (680 x 0.3 = 204) and added to the number of months remaining for major violators multiplied

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[19]Includes: forgery or counterfeiting, more than $500 (.425); possession of marijuana, more than $100 (.426); selling marijuana to an adult (.462); receiving stolen property (.469); selling heavy narcotics to support a habit (.480); theft planned (.484); vehicle theft, planned (.486); burglary, weapon or night-time, unplanned (.494); and possession of heavy narcotics, greater than $50 (.496).

for Offense Rating Category B (medium severity offenses) and Offense Rating Category C (high severity offenses)..

Discussion

Parole board members and the public are most aware of Type I errors (parole violations), especially "dramatic incidents" such as aggravated or heinous crimes committed by a parolee. Public pressure upon the parole board (e.g., adverse newspaper publicity) is more likely to be generated by "dramatic incidents" than by average cases. Probably, no use of clinical and/or actuarial prediction will ever be able to come close to insuring that a parole applicant will never commit a crime that will attract public attention. Thus, parole board members may expect occasionally to be faced with demands to reduce the incidence of Type I errors. Type II errors, on the other hand, are not dramatic unless they result in prison overcrowding and/or rioting. Consequently, they tend to be overlooked. With this feedback measure, however, attention is focused on both types of error and upon the balance or ratio between them.

This feedback measure might be utilized in the following manner. (For simplicity, the following analyses will consider Type I error Measure A. The same analyses utilizing Type I error Measure B may be found in Appendix A).

For low severity offenses (Table I), we see that the Type II measure is 832 months for 50 individuals. Taking our measure of Type I Error (A) as 1551 months, we find a ratio of Type I (A)/Type II Error of 1.86/1.0. The parole board must now decide whether or not under present policy either of the error types exceeds the permissible limits and whether or not the balance between them is appropriate. Given the limited predictive ability available and our assumption that time served is not significantly related to favorable parole outcome, it may be seen that tightening parole selection policy (increasing the average time served) will tend to reduce the amount of Type I error, but the amount of Type II error will tend to increase. Conversely, relaxing parole selection policy (reducing the average time served) will tend to reduce Type II error, but Type I error will tend to increase. Table IV shows the probable consequences of five alternative parole selection strategies for the Category A (low severity offenses) Offense Rating Grouping on the Type I/ Type II error balance.

Table IV may be read in the following manner. If parole selection criteria were relaxed so that the average time served was reduced by one month for each case, Type II errors would likely be reduced from 832 to 782. Type I (A) errors would increase from 1551 to 1612. This

would change the Type I (A)/Type II error ratio from 1.86/1.0 to 2.06/1.0..

Similarly, if the average time served was increased by one month, Type I (A) errors would decrease from 1551 to 1490 while Type II errors would rise from 832 to 882. In this case, the ratio of Type I (A)/Type II errors would become 1.69/1.0. It is noted that these policy shifts assume no additional predictive power. That is, they would result if the parole board merely increased or reduced each term by the given amount.

Tables V and VI show the probable results for similar policy alterations with Offense Rating Categories B and C. It may be seen that, under present policy, as the severity of the offense increases, the ratio of Type I/Type II errors decreases. For low severity offenses, this ratio is 1.86/1.0; for moderate severity offenses, it is 1.44/1.0; and for high severity offenses, it is .26/1.0. As has been noted, a certain amount of Type II error for each case may be desired (or, at least, accepted) to satisfy concerns of "accountability" or general deterrence. This amount is likely to be proportional to the perceived severity of the offense. Furthermore, the willingness of the parole board to accept a given amount of risk (of parole violation) is likely to be inversely proportional to the severity of the commitment offense.

It is to be stressed that the feedback provided
by this table cannot indicate what ought to be done.
Rather, it shows what is being done and the probable
consequences of changing what is presently being done.
That is, consideration of decision feedback of the type
shown could enable parole board members to view the
prospective "social costs" of any policy changes (planned
or otherwise). Furthermore, it could enable them to
adjust parole selection policy regarding time served
before parole to produce the Type I/Type II error ratio
deemed most appropriate. By focusing attention upon
the costs of both error types, the support necessary
to avoid conservative overreactions to dramatic inci-
dents of Type I error might be produced. Moreover, by
articulating the desired error balance, the parole
board would allow the public to view what their repre-
sentatives (the parole board members) considered appro-
priate policy in relation to risk for each offense
category.

Limitations

The small sample size available is one source of
limitation in this demonstration. The information system
being developed by the Parole Decision-Making Project
will eventually, however, be able to provide the required

Table V

PROBABLE CONSEQUENCES OF PAROLING POLICY ALTERATION
(CATEGORY B--MODERATE SEVERITY OFFENSES)

Policy	Type I Error Measure A (Months)	Type II Error (Months)	Ratio: Type I/ Type II Error
Present Policy-- Average Time Served--17 Months	2608	1815	1.44/1.0
Tightened Parole Selection Policy-- Average Time Served Increased by One Month	2511	1827	1.37/1.0
Tightened Parole Selection Policy-- Average Time Served Increased by Two Months	2414	1839	1.31/1.0
Relaxed Parole Selection Policy-- Average Time Served Decreased by One Month	2705	1803	1.50/1.0
Relaxed Parole Selection Policy-- Average Time Served Decreased by Two Months	2802	1791	1.56/1.0

Table VI

PROBABLE CONSEQUENCES OF PAROLING POLICY ALTERATION
(CATEGORY C--HIGH SEVERITY OFFENSES)

Policy	Type I Error Measure A (Months)	Type II Error (Months)	Ratio: Type I/ Type II Error
Present Policy-- Average Time Served--33 Months	208	811	.26/1.0
Tightened Parole Selection Policy-- Average Time Served Increased by One Month	196	835	.23/1.0
Tightened Parole Selection Policy-- Average Time Served Increased by Two Months	184	859	.21/1.0
Relaxed Parole Selection Policy-- Average Time Served Decreased by One Month	220	787	.28/1.0
Relaxed Parole Selection Policy-- Average Time Served Decreased by Two Months	232	763	.30/1.0

information for a much larger sample on an ongoing
basis.

A second limitation concerns the type of sentence
considered. As Youth Correction Act Sentences have no
minimum and generally have six year maximums, the parole
board, in effect, has complete responsibility for deter-
mining the time served before release. In other sen-
tencing structures, this authority may be more limited
(i.e., when there are judicially set minimum sentences).
However, this does not change the basic nature of the
feedback, as minimum or maximum sentences may be treated
merely as constraints.

A third limitation is of greater importance. The
utility of any feedback measure depends in large part
upon the time lag between decisions and feedback. The
greater the time lag, the less will be the utility of
the feedback. Feedback to parole selection policy as
described above has an intrinsic time lag due to the
requirement of substantial follow-up period (e.g., two
years). The application of this measure to current
decision policy also assumes that the input to prison
is relatively invariant. However, if the input to
prison is actually changing (for example, worse risks
are being committed to prison), the output for any given

period may not reflect the policy of the parole board for
that period because some releases will result from
decisions made in an earlier period.

Suggestions for Further Research

In regard to this last limitation, the issues of
experience tables or predictive devices becomes relevant.
The application of an experience table to cohort samples
of releases by month might be used to obtain a prospective
measure of the expected Type I/Type II error incidence
for groups of offenders. Unfortunately, the prediction
of specific types of violations is much more difficult.
Consequently, the use of predictive devices to pro-
duce a measure such as the Type I (B) error measure is
not feasible given the present state of the art.

Considerable work is required also in improving the
criterion measures of parole outcome. It may be argued
that one reason for the lack of utilization of present
experience table devices is that the criterion measure
(dichotomous success/failure) is so crude as to be almost
meaningless to the parole board members concerned. One
possible improvement might be an outcome rating which
could take into consideration the severity of the viola-
tion as well as the time under supervision before the
violation. For example, a technical violation after one

month might be given a score of 3; a technical violation after 18 months might be given a score of 1; completion of the follow-up period without any violation might be given a score of 0; while commission of a serious new offense immediately upon release might be given a score of 12. Outcomes defined in this manner might be found much more useful by parole members in assessing the consequences of different policies using the Type I/ Type II error model.

APPENDIX A

To calculate the new Type I Error Measure (B) under a policy shift, the number of individuals in each violation category must be multiplied by the weight given the category and the number of months of average change in time served. This sum must then be added or subtracted (depending upon whether time served decreases or increases) from the Type I (B) Error Measure under existing policy.

Example: Offense Category Group A (Low Severity Offenses)

Present Policy--Type I Error Measure (B) = 29 individuals with minor violations (680 months) plus 32 individuals with major violations (871 months) = 1075 months (Table I). A decrease in average time served by two months would increase Type I Error Measure (B) by 29 (individuals) x two (months) x 0.3 (weight-minor violations) plus 32 (individuals) x two (months) x 1.0 (weight-major violations) = 17.4 + 64.0 = 81.4 months.

Tables A-I through A-III display the analogous results to Tables IV through VI using Type I Error Measure (B).

Table A-I

PROBABLE CONSEQUENCES OF PAROLING POLICY ALTERATION
(CATEGORY A--LOW SEVERITY OFFENSES)

Policy	Type I Error Measure B Months)	Type II Error (Months)	Ratio: Type I/ Type II Error
Present Policy-- Average Time Served 18 Months	1075	832	1.29/1.0
Tightened Parole Selection Policy-- Average Time Served Increased by One Month	1034.3	882	1.17/1.0
Tightened Parole Selection Policy-- Average Time Served Increased by Two Months	993.6	932	1.06/1.0
Relaxed Parole Selection Policy-- Average Time Served Decreased by One Month	1115.7	782	1.43/1.0
Relaxed Parole Selection Policy-- Average Time Served Decreased by Two Months	1156.4	732	1.58/1.0

Table A-II

PROBABLE CONSEQUENCES OF PAROLING POLICY ALTERATION
(CATEGORY B--MODERATE SEVERITY OFFENSES)

Policy	Type I Error Measure B (Months)	Type II Error (Months)	Ratio: Type I/ Type II Error
Present Policy-- Average Time Served 17 Months	1795	1815	.99/1.0
Tightened Parole Selection Policy-- Average Time Served Increased by One Month	1728.1	1827	.95/1.0
Tightened Parole Selection Policy-- Average Time Served Increased by Two Months	1661.2	1839	.90/1.0
Relaxed Parole Selection Policy-- Average Time Served Decreased by One Month	1861.9	1803	1.03/1.0
Relaxed Parole Selection Policy-- Average Time Served Decreased by One Month	1928.8	1791	1.08/1.0

Table A-III

PROBABLE CONSEQUENCES OF PAROLING POLICY ALTERATION
(CATEGORY C--HIGH SEVERITY OFFENSES)

Policy	Type I Error Measure B (Months)	Type II Error (Months)	Ratio: Type I/ Type II Error
Present Policy-- Average Time Served 33 Months	153	811	.19/1.0
Tightened Parole Selection Policy-- Average Time Served Increased by One Month	144.5	835	.17/1.0
Tightened Parole Selection Policy-- Average Time Served Increased by Two Months	136	859	.16/1.0
Relaxed Parole Selection Policy-- Average Time Served Decreased by One Month	161.5	787	.20/1.0
Relaxed Parole Selection Policy-- Average Time Served Decreased by One Month	170	763	.22/1.0