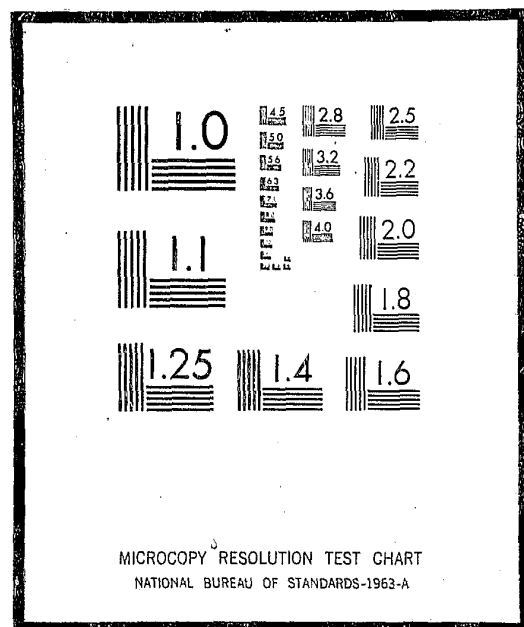


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RESEARCH REPORT NO. 10

A COST-BENEFIT STUDY OF AN
ALTERNATIVE TO INCARCERATION

DECEMBER 1974

(LEAA PROJECT NO. 73A-10.1)

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Foreword

This study is but an initial - and only one - attempt at estimating the social value of an offender's correctional experience. It is an estimate, at best, and as such is in no way intended to advocate policy.

The principal investigator in this project was Mr. Francis Okano, Research Associate, who was assisted by Mr. Dave Hamamura, Research Statistician. Extensive data collection was undertaken during the months of July and August 1974 by summer aides Harumi Hatchie, Ronalda Jay, Ann Kaminishi, Howard Maetani, Wesley Nishimoto, Roxanne Onouye, Patricia O'Toole, and Pauline Ouchi.

Acknowledgements are fully and gratefully extended to all members of the Corrections Division and the Board of Paroles and Pardons, DSSH, for their unstinting cooperation and assistance in the provision of data.

ABSTRACT

As a means of handling committed felons, is in-community treatment economically efficient? Based on cost items estimated in this study, it has been found that those offenders who had gone through Conditional Release Center, as part of their correctional commitment, incurred less costs to society in relation to benefits than those who had not. The difference is due to lower CRC operating costs, wages earned by CRC residents in the community, and slightly better parole performance by CRC residents.

The overall benefit to cost ratio for those with CRC exposure was 1.067 while for those without, it was .610. The majority of the societal costs (about 90%) concentrated during the individual's stay in corrections, while the majority of the societal benefits (about 70%) were incurred on parole, during an average case process.

Moreover, the benefit to cost ratio for correctional stay was .320 for those with CRC experience and .184 for those without, while the ratio for parole was 7.036 for those with and 4.721 for those without CRC exposure. Therefore, although corrections appears to be relatively "expensive" in comparison with parole, CRC experience tended to be relatively more socially "beneficial" than traditional incarceration.

A major benefit of the CRC experience was found to be the productivity of residents in community jobs.

This study does not examine the causal relationship between CRC exposure and its long-term effect, a problem that would require more controls on subject characteristics.

I. INTRODUCTION

Consistent with the emphasis in the Correctional Master Plan for more in-community treatment and less incarceration, it is worthwhile to examine the relative efficiency in resource use of these two correctional methods.

Within the Corrections Division, there are presently two community conditional release centers, Laumaka, started in 1968, and Kanehameha (formerly Adult Furlough Center), started in 1973. Both programs enable a small number of residents to work and attend school in the community. This opportunity, combined with active group participation in facility operations, provides convicted felons with one means of readjustment into the community to which they will eventually return.

Hawaii State Prison, which holds about 70% of the total Corrections Division custody population, is designed primarily for incarceration. Residents participate in work and educational activities within the prison compounds, but are not allowed the same privileges in the outside community, as are CRC participants.

We have chosen Laumaka Conditional Release Center and Hawaii State Prison as focal points of our study.

Problem

In terms of overall impact on society, what are the relative social benefits and costs of the alternative programs?

We can reasonably guess that Laumaka is cheaper to run, if only for the lack of extensive custody costs; but we do not know by how much. In fact, if protection of society from dangerous offenders were considered, would the cost of security incurred at HSP be justified? Or would the opportunity provided CRC residents of competing for jobs or education in the community and earning prevailing wages outweigh the risks of exposing the community to the threat of crime?

We attempt to answer those questions by examining two groups of committed felons, those who participated in the CRC program and those who did not. By enumerating the major benefits and costs that have accrued to the two groups, we obtain a group benefit/cost ratio, an index of how well resources were used from the point of view of society. An alternative is economically efficient if the benefits it generates exceed costs ($B/C > 1$).

II. Methodology

Model

What we measure is the mean social value accruing to an average offender as he passes through corrections and parole in approximately one case process. This involves 1) calculating the average time an individual spends in CD facilities and parole, and 2) multiplying it by the average cost and benefit accruing to an individual in that time period.

The general model for total social costs or benefits per subject is,

$$P(S_i) (T_i \times C_i),$$

where $P(S_i)$ = expected probability that event/item i occurs per subject

T_i = mean duration (in years) of event i per subject

C_i = mean value of event i per year per subject, discounted or projected to FY 71-72 present value.

Where T_i and C_i are computed on a base of all subjects in a group (experimental or control), $P(S_i)$ equals 1. Where T_i and C_i are based on only those subjects who have incurred that event, $P(S_i)$ becomes a weight, or expected probability, of an average group subject incurring that event, estimated as,

$$P(S_i) = \frac{\text{number of individuals incurring event } i}{\text{number of individuals in group}}$$

In calculating values for Tables 2 to 5, we have used $P(S_i) = 1$ for all items except escape. Detailed derivations of values are presented in Appendix C.

Control

The 'experimental' group is composed of all who spent time in CRC from its inception in 1968 to June 1972, combined with stays at other facilities. $N=55$ after elimination of subjects with incomplete information. The 'control' group consists of a random sample of those who were in corrections at the same time as the experimentals but did not go through CRC because either they did not meet CRC admission criteria or, if they did, space was not available. Thus, controls are those without CRC exposure who were paroled during the period July 1969 to July 1, 1974, the cut-off date for data collection. ($N=203$)

The two groups are not matched except fortuitously by the average corrections time served prior to parole. Therefore, it is not correct to say that what we observe is the effect of CRC and HSP. Rather, what we observe is the estimated average stream of costs and benefits that have accrued to two groups of committed felons who have undergone different combinations of CD facility programs.

A refinement of this study should incorporate stricter controls on subjects' characteristics that may affect performance. Only then will it be possible to make stronger statements about program differences.

III. FINDINGS

Time Periods

Mean durations in corrections and parole of the two groups of offenders are given in Table 1 and Figure 1. Total time period of our study was equalized for the two groups at 5.4 years. Mean dates of status change provide perspective and were derived by computing mean parole dates for both groups and approximating the rest through respective mean durations. For a fuller explanation of time

lengths, including frequency charts and descriptive statistics, see Appendix B.

Table 1
Time Periods

	Experimental		Control	
	Average stay (in years)	Mean dates of status change	Average stay (in years)	Mean dates of status change
Corrections pre-parole	3.17	8/22/68	3.28	12/27/68
HSP	2.06		2.82	
CRC	.92		--	
Other	.19		.46	
Parole	2.23	10/23/71	1.78	4/8/72
Corrections post-parole	--		.34	5/21/74
Total time	5.40		5.40	

The average experimental subject spent 3.17 years in corrections, of which .92 years was spent in CRC. He was incarcerated on 8/22/68, paroled on 10/23/71, and spent 2.23 years (out of our total study time of 5.4 years) on parole. The average control subject spent a month longer in corrections (3.28 years), about 5 months shorter on parole (1.78 years), and the remaining .34 years (out of our 5.4 years study time) back in corrections. He was imprisoned on 12/27/68, paroled on 4/8/72, and re-incarcerated on 1/19/74. The absolute difference between mean beginning dates of the two groups is 4 months, 5 days, with the experimental group having the earlier case process starting date.

Table 2
Cost-Benefit Analysis of Experimentals
(@ 5% growth/discount rate)

C O S T S					
S T A T U S	Cost Items	Years In Status	Yearly Per Capita X	= Per Capita Per Status	% Distribution
<u>Corrections</u>					
HSP	HSP Accomodations Wages foregone	2.06	9,976 4,815	20,551 9,919	71%
CRC	CRC Accomodations CRC escapes	.92	4,563 70	4,198 64	10%
Other	KHC & OHC Accomodations Wages foregone	.19	12,466 4,815	2,369 915	8%
<u>Parole</u>	Parole supervision Community protection lost	2.23	389 1,743	867 3,887	11%
T O T A L		5.40		42,770	100%
B E N E F I T S					
S T A T U S	Benefit Items	Years in status X	Yearly Per Capita =	Per Status	% Distribution
<u>Corrections</u>					
HSP	Community protection	2.06	2,789	5,745	13%
CRC	Community protection Wages earned	.92	1,743 4,671	1,604 4,297	13%
Other	Community protection	.19	2,789	530	1%
<u>Parole</u>	CD accomodation lost Wages earned	2.23	10,185 4,815	22,713 10,737	73%
T O T A L		5.40		45,626	100%
<u>Ratios</u>					
		B/C = 1.067		B/C Corrections = .320	
		B-C = \$2,856		B/C Parole = 7.036	
		$\frac{B-C}{C} \times 100 = 6.7\%$			

Table 3
Cost-Benefit Analysis of Controls
 (@ 5% growth/discount rate)

C O S T S					
S T A T U S	Cost Items	Years in status X	Yearly Per Capita =	Per Capita Per Status	% Distribution
<u>Corrections</u> (pre-parole)	HSP accomodations Wages foregone HSP escape	2.82	9,976 4,815 -10	28,132 13,578 -28	69%
Other	KHC & OHC accomodations Wages foregone	.46	12,466 4,815	5,734 2,215	13%
<u>Parole</u>	Parole supervision Community protection lost	1.78	389 2,789	692 4,964	9%
<u>Corrections</u> (pre-parole)	HSP accomodations Wages foregone	.34	9,976 4,815	3,392 1,637	9%
T O T A L		5.40		60,316	100%

B E N E F I T S					
S T A T U S	Benefit Items	Years in status X	Yearly Per Capita =	Per Capita Per Status	% Distribution
<u>Corrections</u> HSP	Community protection	2.82	2,789	7,865	21%
Other	Community protection	.46	2,789	1,283	4%
<u>Parole</u>	CD accomodation lost Wages earned	1.78	10,185 4,815	18,129 8,571	73%
<u>Corrections</u> (post-parole)	Community protection	.34	2,789	948	2%
T O T A L		5.40		36,796	100%

Ratios

B/C = .610
 B-C = -\$23,520
 $\frac{B-C}{C} \times 100 = -39.0\%$

B/C Corrections (pre-parole) = .184
 B/C Parole = 4.721

Table 4
Cost-Benefit Analysis of Experimentals
 (@ 13% growth/discount rate)

C O S T S					
S T A T U S	Cost Items	Years in Status X	Yearly Per Capita =	Per Capita Per Status	% Distribution
<u>Corrections</u> HSP	HSP Accomodation Wages foregone	2.06	9,976 5,284	20,551 10,885	71%
CRC	CRC Accomodation CRC escape	.92	4,563 75	4,198 69	10%
Other	KHC & OHC accomodation	.19	12,466 5,284	2,369 1,004	8%
<u>Parole</u>	Parole supervision	2.23	427 1,867	952 4,163	11%
T O T A L		5.40		44,191	100%

B E N E F I T S					
S T A T U S	Benefit Items	Years in status X	Yearly Per Capita =	Per Capita Per Status	% Distribution
<u>Corrections</u> HSP	Community protection	2.06	2,987	6,153	13%
CRC	Community protection Wages earned	.92	1,867 5,010	1,718 4,609	13%
Other	Community protection	.19	2,987	568	1%
<u>Parole</u>	CD accomodation lost Wages earned	2.23	10,185 5,284	22,713 11,783	73%
T O T A L		5.40		47,544	100%

Ratios

B/C = 1.076
 B-C = \$3,353
 $\frac{B-C}{C} \times 100 = 7.58\%$

B/C Corrections = .334
 B/C Parole = 6.744

Table 5

Cost-Benefit Analysis of Controls
(@ 10% growth/discount rate)

C O S T S					
S T A T U S	Cost Items	Years in Status	Yearly Per Capita X Per Status	Per Capita = Per Status	%Distri- bution
Corrections (pre-parole) HSP	HSP accomodation	2.82	9,976	28,132	69%
	Wages foregone		5,284	14,901	
	HSP escape		-9	-25	
Other	KHC & OHC accomodation	.46	12,466	5,734	13%
	Wages foregone		5,284	2,431	
Parole	Parole supervision	1.78	427	760	10%
	Community protection lost		2,987	5,317	
Corrections (post-parole)	HSP accomodation	.34	9,976	3,392	8%
	Wages foregone		5,284	1,797	
T O T A L		5.40		62,439	100%
B E N E F I T S					
S T A T U S	Benefit Items	Years in Status	Yearly Per Capita X Per Status	Per Capita = Per Status	% Distri- bution
Corrections HSP	Community protection	2.82	2,987	8,423	22%
Parole	CD accomodation lost Wages earned	1.78	10,185	18,129	72%
			5,284	9,406	
Corrections (post-parole)	Community protection	.34	2,987	1,016	2%
T O T A L		5.40		38,348	100%
Ratios					
B/C = .614		B/C Corrections (pre-parole) = .191			
B-C = -\$24,091		B/C Parole = 4.531			
$\frac{B-C}{C} \times 100 = -38.6\%$					

Benefits and Costs

Itemized costs and benefits are presented in tables 2 to 5. Detailed derivations are shown in Appendix C. Since relationships do not vary much using either 5% or 10% as a discount/growth rate, the discussion below will cover tables 2 and 3 which employ the 5% annual rate of change.

Overall benefits exceeded costs for those who went through CRC, but the reverse held true for those who did not go through CRC. B/C for experimentals was 1.067, for controls .610. As can be seen in tables 2 and 3, a large part of this difference is due to the experimentals' longer parole time, shorter HSP time, and the fact that those who underwent CRC maintained economic productivity (earned community wages) while at CRC.

While the individual was in corrections, the benefit to cost ratio for experimentals was .320, for controls .184. While on parole, however, the offender incurred more benefits than costs to society; benefit/cost ratio for experimentals while on parole is 7.036, for controls 4.721.

All this would seem to imply that of the two groups of offenders, those with CRC experience were actually more productive to society (CRC wages, longer parole) than those without CRC exposure (longer prison confinement with foregone productivity, shorter time on parole). The experimentals also incurred less correctional facility accomodation costs to the state, because CRC operating costs are lower than those of HSP.

Considering only those items used here, one can estimate the per year difference in costs and benefits of CRC and HSP as follows:

	Costs		Benefits		B/C
CRC:	Accomodation	4563	Protection	1743	
	Escape	70	Wages	4671	
		<u>4633</u>		<u>6414</u>	<u>1.384</u>
HSP:	Accomodation	9976	Protection	2789	
	Escape	-10			
	Wages lost	4815		<u>2789</u>	<u>.189</u>
		<u>14781</u>			

By the above, CRC is socially more 'beneficial' per individual per year by approximately \$10,148 in terms of costs and \$3,625 in terms of benefits. Or, the social opportunity cost of maintaining an offender in prison as opposed to CRC is the difference in the benefit-cost ratios-or roughly \$1.38-\$0.19=\$1.19 on each dollar spent per year on an incarcerated offender.

A conceptually helpful way of looking at these differences might be to look at Figure 2. In Fig. 2(a), the benefit-cost ratios are plotted for per-year values of CRC and HSP obtained above. Fig. 2(b) shows approximate case process benefit-cost ratio lines for the experimental and control groups from tables 2 and 3.

The dashed line at a 45° angle to the Benefit Cost axis represents a benefit-cost ratio of 1. When correctional programs result in more efficient resource use - as possibly by the creation of more CRC's - the benefit-cost ratio lines ought to move from the region around line BO to the higher ratio neighborhood of line AO.

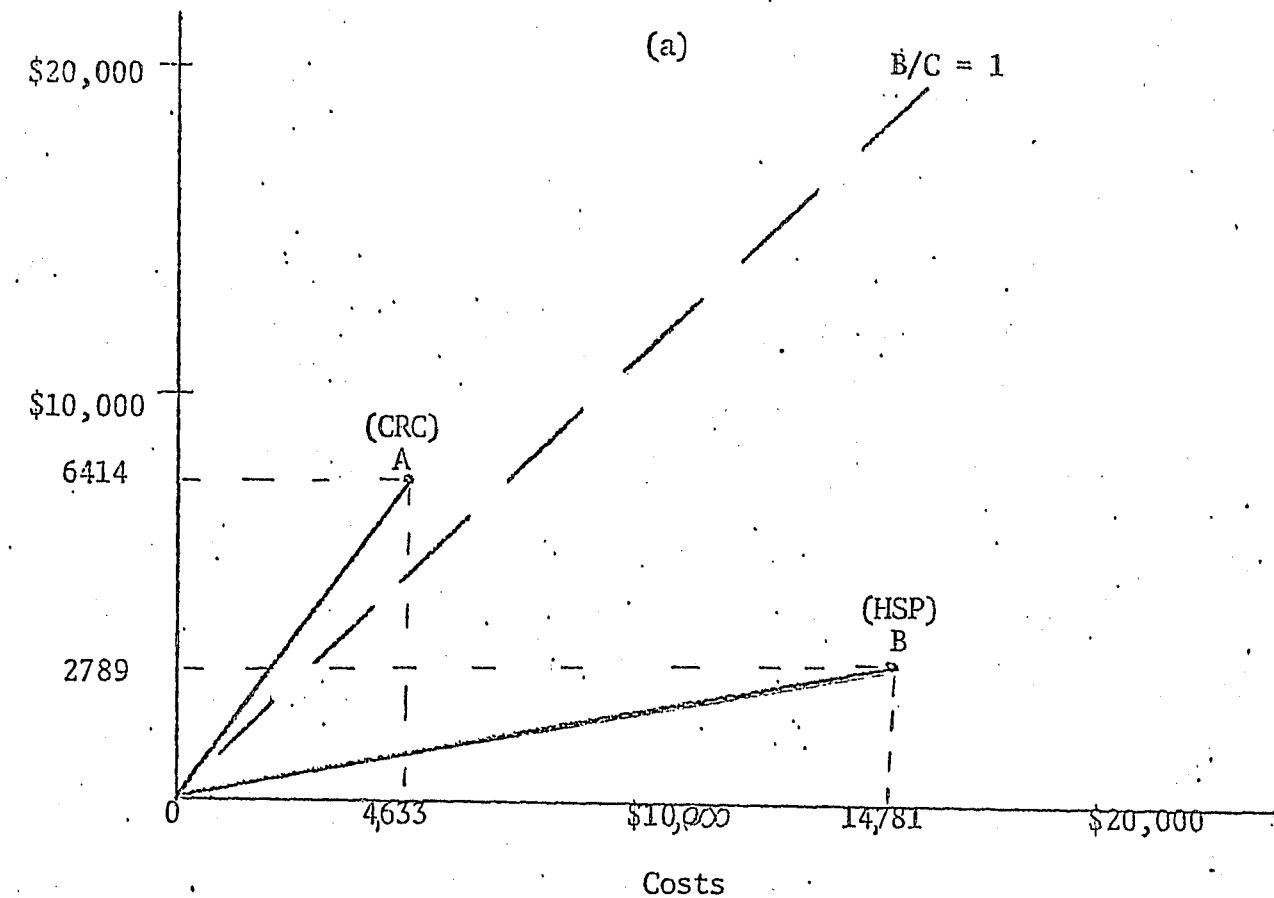
IV. Limitations of Analysis

What this study measures are only those items shown in Tables 2 to 5 whose values are computed in Appendix C.

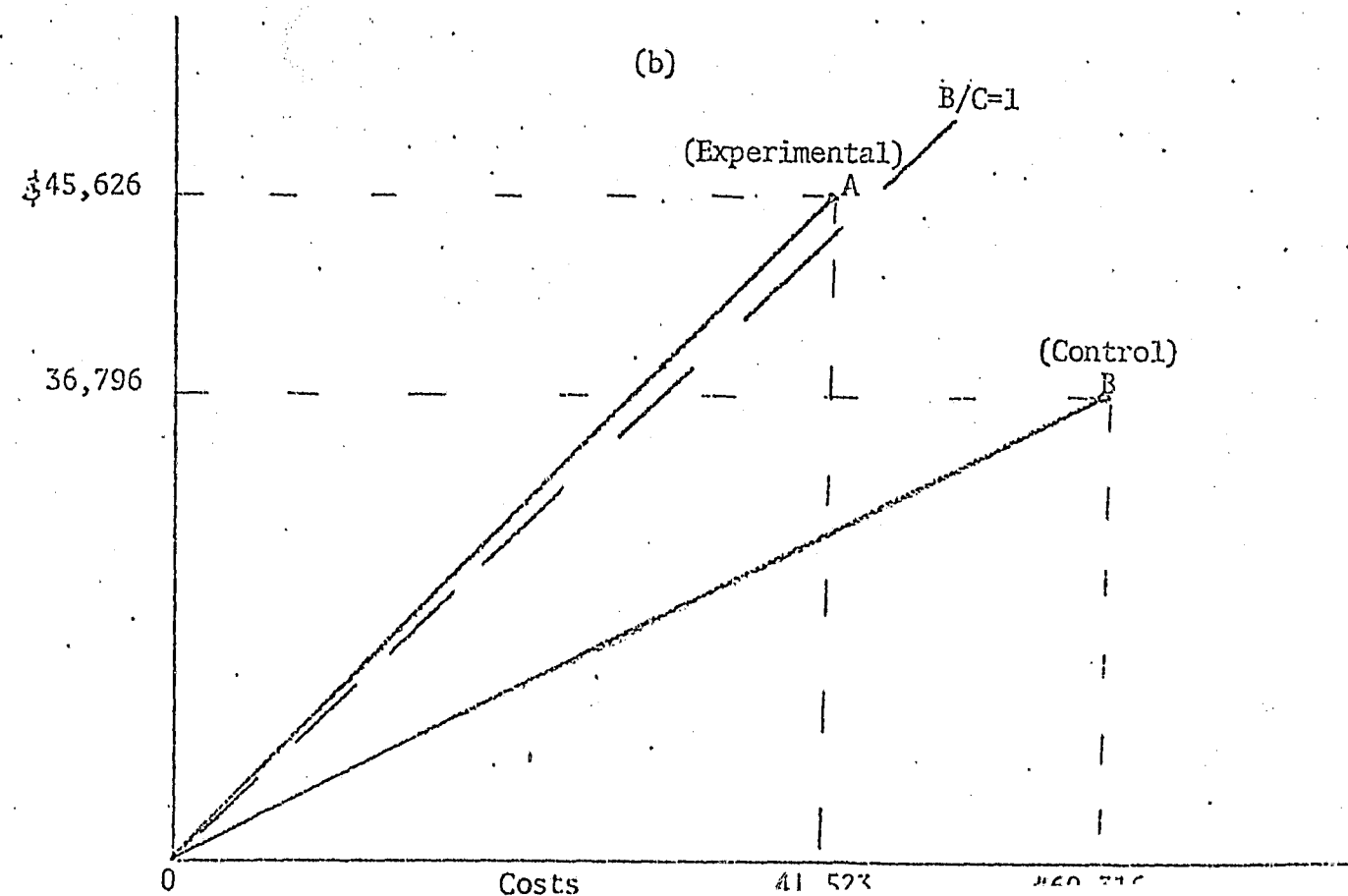
There are many other items that could have been included were it desirable. Among the values excluded from analysis are:

- 1) The per-resident value of correctional industries, which is financially

Benefits



Benefits



independent of the HSP operating budget.

- 2) Vocational and academic training at Hoomana School.
- 3) The impact of incarceration or CRC work experience on welfare.
Presumably prison incarceration would tend to increase, and CRC wage earning tend to decrease, the offender's family's dependence on welfare.
- 4) The value of grounds maintenance and repair by both CRC and HSP residents.
This is a savings in custodial costs to the state, for which inmates receive a small remuneration.
- 5) Resident crime in facilities which might incur extra costs.

The above items were difficult to measure and in some cases could be considered negligible.

Also, conclusions derived from comparing CRC and HSP facilities are based on the assumption that the residents of both facilities are statistically matched. Only if we make the assumption that the experimental and control groups are comparable, can we make comparisons about facilities as such.

Further, the measurement in this study is short-term, not long-term. We do not measure the long-term effects of programs, but the short-range balance of costs to benefits. For example, it is intuitively plausible that incarceration tends to "criminalize" more than "decriminalize" a person in the long run; thus the immediate benefits of community protection offered by imprisonment may be offset by the long range cost of repeated crimes or enhanced criminality. However, measurement of long-term effects is beyond the scope of this study.

V. Discussion

The real interest of program evaluation is the long-term view of whether or not CRC experience is a causal predictor variable in an offender's behavior subsequent to release from corrections, that is, whether or not CRC experience

correlates negatively with future criminality. One approach to this problem would be to run a multiple regression analysis of criminal behavior after correctional release on several characteristic variables, one of which would be CRC exposure.

In substance, this study does not allow us to say that CRC is more effective towards rehabilitation in the long run than traditional incarceration; instead, in terms of immediate costs to society, it permits the weaker statement that those who did go through CRC were societally more "beneficial", during the period under correctional and parole custody, than those who did not. On the average, inclusion of CRC as part of correctional treatment was less costly to the community by a factor of 1.067 to .610 in terms of benefits to costs per individual for the same time period.

Whether or not the obtained benefit-to-cost ratios would prevail if more CRC's were created would depend on several considerations. First, as mentioned earlier, there is only indirect evidence (shorter time on parole for controls) that CRC makes a difference in long-term 'rehabilitation'. And we do not know if this evidence is due to selection into CRC or treatment. Second, the obtained ratios depend on the items considered in the analysis and their computation. If more or fewer items were used, the results would differ. If, for example, wages were eliminated from the analysis, the balance of facility accomodation costs to community protection benefits would be comparable for both HSP and CRC.

	Costs		Benefits		B/C
CRC:	Accomodation	4563	Protection	1743	.376
	Escape	70			
		<u>4633</u>			
HSP:	Accomodation	9976	Protection	2789	
	Escape	-10			
		<u>9966</u>			.280

This would seem to imply that high security costs at HSP are justified. In fact, if furloughs were eliminated from CRC, CRC accomodation costs might well increase to provide for resident activities during the day, thereby minimizing cost differences between HSP and CRC. However, there would be some psycho-social benefits to be had from smaller group environments at CRC-something not measured here.

Third, the impact of inmate wages merits comment, since employment contribute significantly to our analysis. Wages earned or foregone may be seen as an individual's value contribution, or lack of it, to society and to himself. The community as well as the individual, benefits from his productivity. One of the major benefits of CRC is that resident earnings partially support facility operations through individual payments toward room and board and resident cook; in addition, portions of earnings go toward family support, which may lessen the tendency to seek welfare, and taxes. Moreover, the intangible psychological benefits of employment are pointed out by a recent study of the Adult Furlough Center, in which it was found that,

...the ability to maintain employment on parole was the single variable most predictive of parole success. The second most important variable was performance in the Adult Furlough Center Program, in which one of the main goals was to establish employment prior to going on parole."²

The economic consideration of conditional release versus incarceration would seem to be that, given that the process of "treating" an offender through conditional release is societally more productive, as shown here, is the community subjectively willing to regard the worth of immediate community protection gained by imprisonment as being greater than the cost of security and lost productivity? Though transgressions ought not to go unchecked, by incarcerating the offender, society punishes itself as well as the individual through

²

The Adult Furlough Center: Variables Related to Successful Parole, Social Welfare and Development Research Center, Report No. 137, September, 1974, p. iv.

his lost productivity. If rehabilitation, of those who are willing, is the goal of corrections, then conditional release - especially in its aspect of employment - has been shown to be, as a process, societally more beneficial than imprisonment. Though the sufficient grounds of long run effectiveness of conditional release have not been established, there are necessary reasons for believing that if there are yet many offenders who would benefit from conditional release, then creation of more CRC's merits consideration.

Appendix A

Statement of Purpose

Excerpted from Operating Costs, Program Budget Request Summary, Budget Period
1971-1973

CRC:

"The Department of Social Services and Housing established the first Conditional Release Center on 6/17/68 in accordance with Act 75, SLH 1967, Section 353.22, Hawaii Revised Statutes, which authorized the establishment of conditional release centers and the implementation of work furlough programs in the state. The Legislature in 1970 authorized the establishment of the New Community Centers Branch of the Corrections Division, and the Adult Furlough Center, both to be operational beginning FY 1970-71. The role of the in-community residential center without walls and fences is to provide links in the total redirective processes with the major concern on the increase of parole success and enhancing the level of social functioning of the resident-prisoners. The programs of the Centers are designed to make the prisoners' period of commitment productive and meaningful to aid in the re-integration into the community.

"Conditional Release Center Section: The Center, established in 1968, is to assist prisoners in integrating into the community as an alternative to the traditional correctional treatment, and to return to independent living as quickly as feasible. The in-community treatment program is limited to selected setting while undergoing intensive group-oriented therapy and while still maintaining family and community ties from the onset. Every resident is processed and involved in work and/or educational furlough program. The Center is located on state land on the former Superintendents' residences at 647 Launaka Street." (page G-93)

HSP:

"The Hawaii State Prison is mandated to offer committed offenders those services and programs that are deemed necessary to assist him in becoming a useful citizen on release. At the same time, the protection of the community, both immediate ultimate, is the primary goal of the Hawaii State Prison. In conjunction with the above goal, our current goal is to motivate the inmates in their own self-development and improvement with maximum assistance and guidance from the entire correctional personnel and with the utilization of all community resources and support. The end result is to prepare them for adjustment more adequately with greater awareness of themselves, increased strengths and skills and greater ability for positive self-determination upon their release to the community. These services and programs consist of vocational and academic training, psychological and psychiatric services, dental and medical services, individual and group counseling services, on-the-job training in various skills and trades, and religious support and education." (page G-2)

Appendix B
Time Periods

Subjects' lengths of stay in correctional facilities and parole were derived from data gathered from prison records. The mean, median, and standard deviation of lengths of stay are presented below.

Table B-1
Time Periods

	Experimental (N=55)			Control (N=203)		
	mean	mdn	sd	mean	mdn	sd
<u>Corrections, pre-parole</u>	3.17	2.2	2.41	3.28	2.4	2.63
HSP	2.06	1.2	1.52	2.82	2.0	2.47
CRC	.92	.8	.44	-	-	-
<u>Parole</u>	2.27	2.2	1.41	1.78	1.4	1.31
<u>Corrections, post-parole</u> (all subjects)	.31	(n=N) 0	.73	.34	(n=N) 0	.70
(subjects returned)	1.32	(n=13) 1.3	.96	1.01	(n=66) .75	.89
<u>HSP:</u> (all subjects)	.30	(n=N) 0	.69	.31	(n=N) 0	.67
(subjects returned)	1.27	(n=13) 1.02	.90	.95	(n=66) .70	.87

The sum of mean durations differed for the two groups:

	Experimental	Control
Corrections	3.71	3.28
Parole	2.27	1.78
Corrections	<u>.31</u>	<u>.34</u>
Total	5.75	5.40

To control for time, the total period under study was fixed at the lesser of the above totals - 5.4 years. Thus, the time periods for our study are those given in Table 1 and Figure 1.

	Experimental	Control
Corrections	3.17	3.28
Parole	2.23	1.78
Corrections	<u>-</u>	<u>.34</u>
Total	5.40 yrs	5.40 yrs

Frequency distributions of lengths of stay are charted on the following pages. Some observations on these distributions and Table B-1:

-Nearly every distribution is positively skewed; there are proportionately more shorter than longer stays. In every case the mean is larger than the median. Thus, either the mean or the median could be used throughout to estimate "average" length of stay.

-The controls had higher variability in HSP stay than did experimentals (note difference in standard deviations). The reason for this could be that HSP holds extreme cases while those selected into CRC are smaller and more homogeneous.

-Although we have not controlled for characteristics, there is a fortuitous control in that the mean stay in corrections prior to parole is roughly equal for both groups - 3.17 yrs for experimental and 3.28 yrs for control. Time served is at least controlled.

-The source of group differences in parole performance (shorter mean time on parole for controls) is unknown. This may reflect CRC treatment or the selection process into CRC.

-There is a greater percentage of the control population returning to corrections after parole ($66/203 = 32.5\%$) than the experimental group ($13/55 = 23.6\%$). This coincides with the longer mean parole time of experimentals over controls.

Chart 1

FREQUENCY DISTRIBUTION
OF TIME SPENT IN CD BEFORE PAROLE
OF EXPERIMENTAL GROUP

N=55
MEAN=3.17
MDN=2.2
SD=2.41

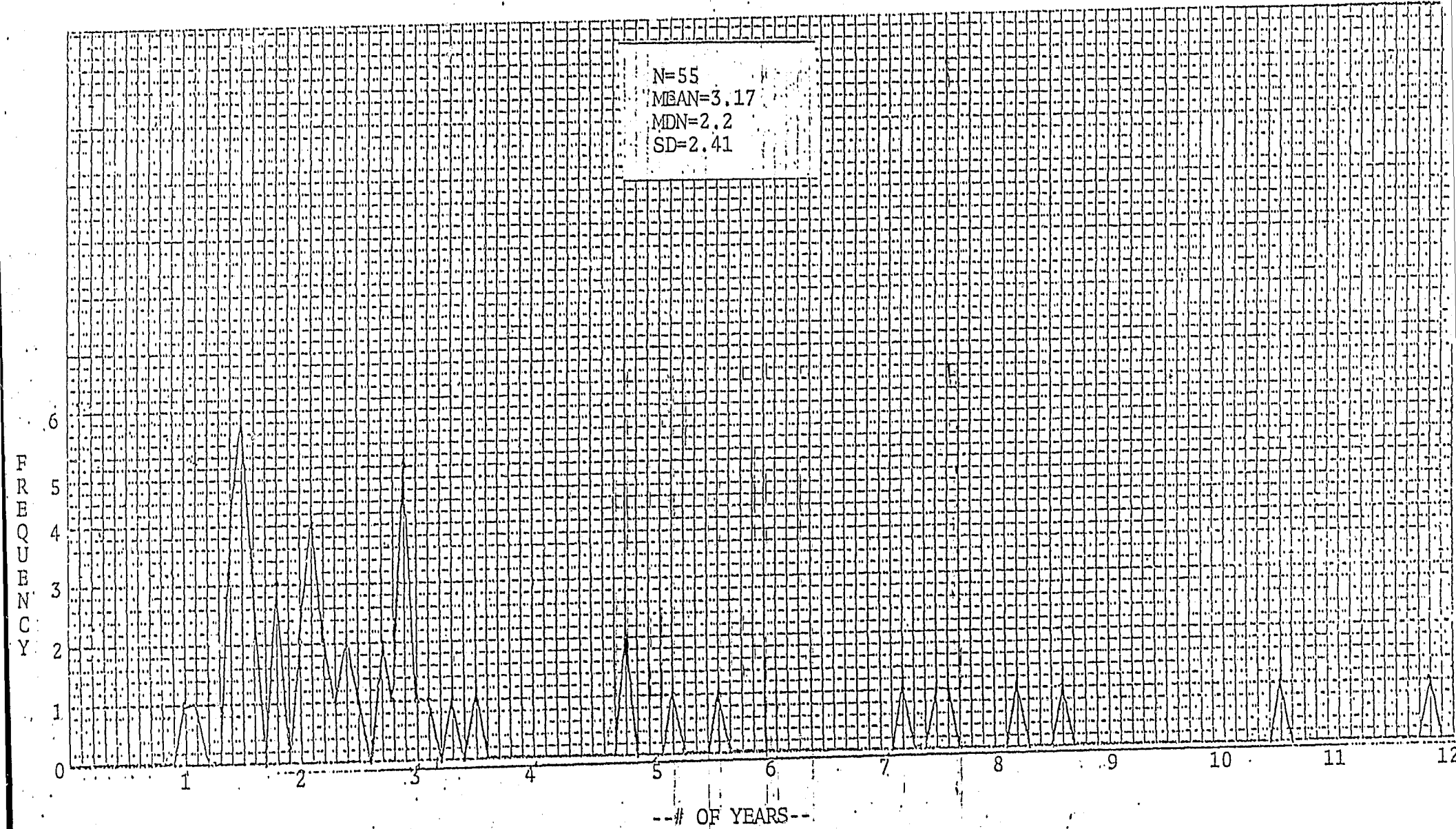


Chart 1-a
FREQUENCY DISTRIBUTION
OF TIME SPENT IN CD BEFORE PAROLE
OF CONTROL GROUP

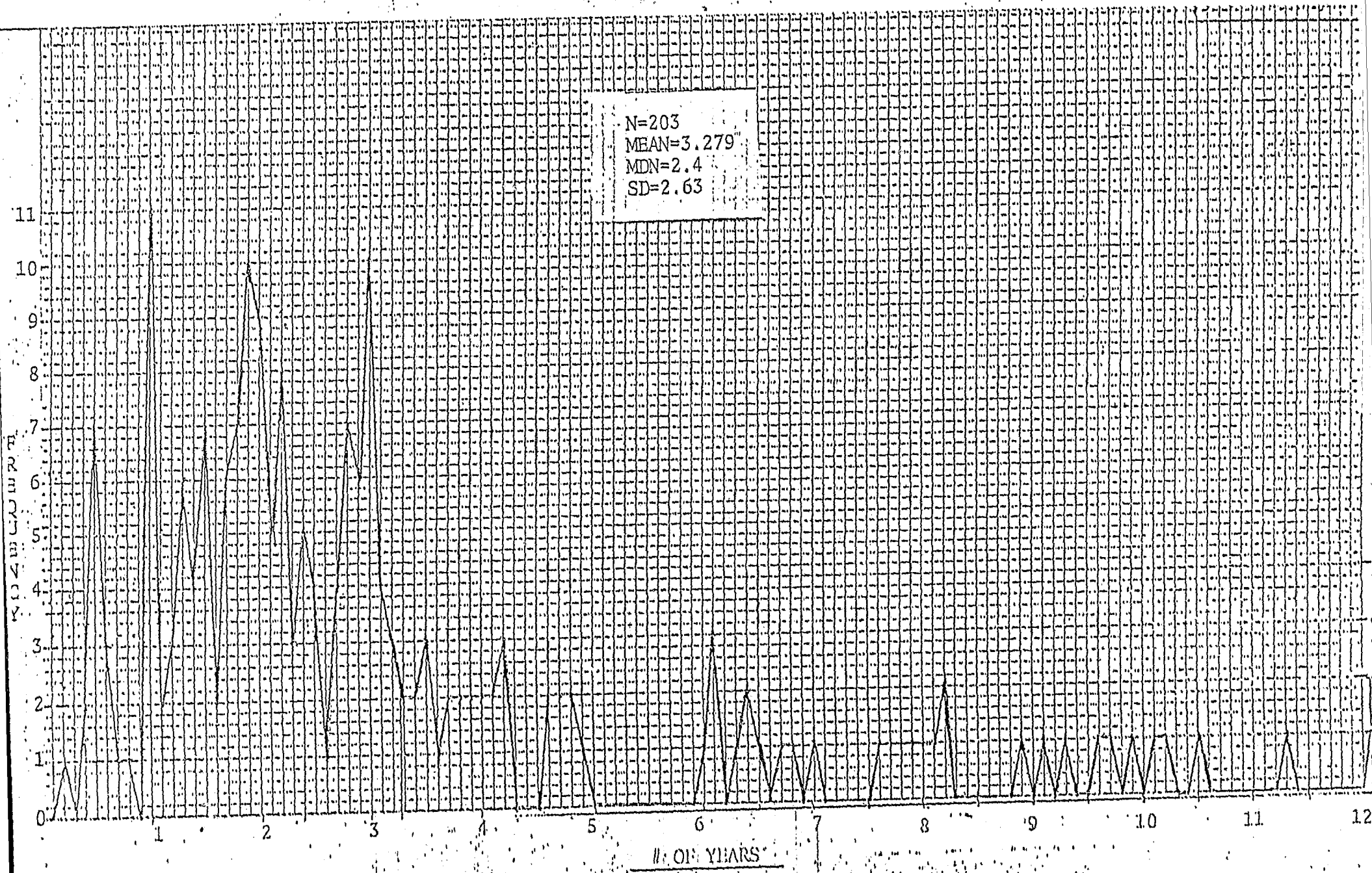


Chart 2
FREQUENCY DISTRIBUTION
OF TIME SPENT IN HSP BEFORE PAROLE
OF EXPERIMENTAL GROUP

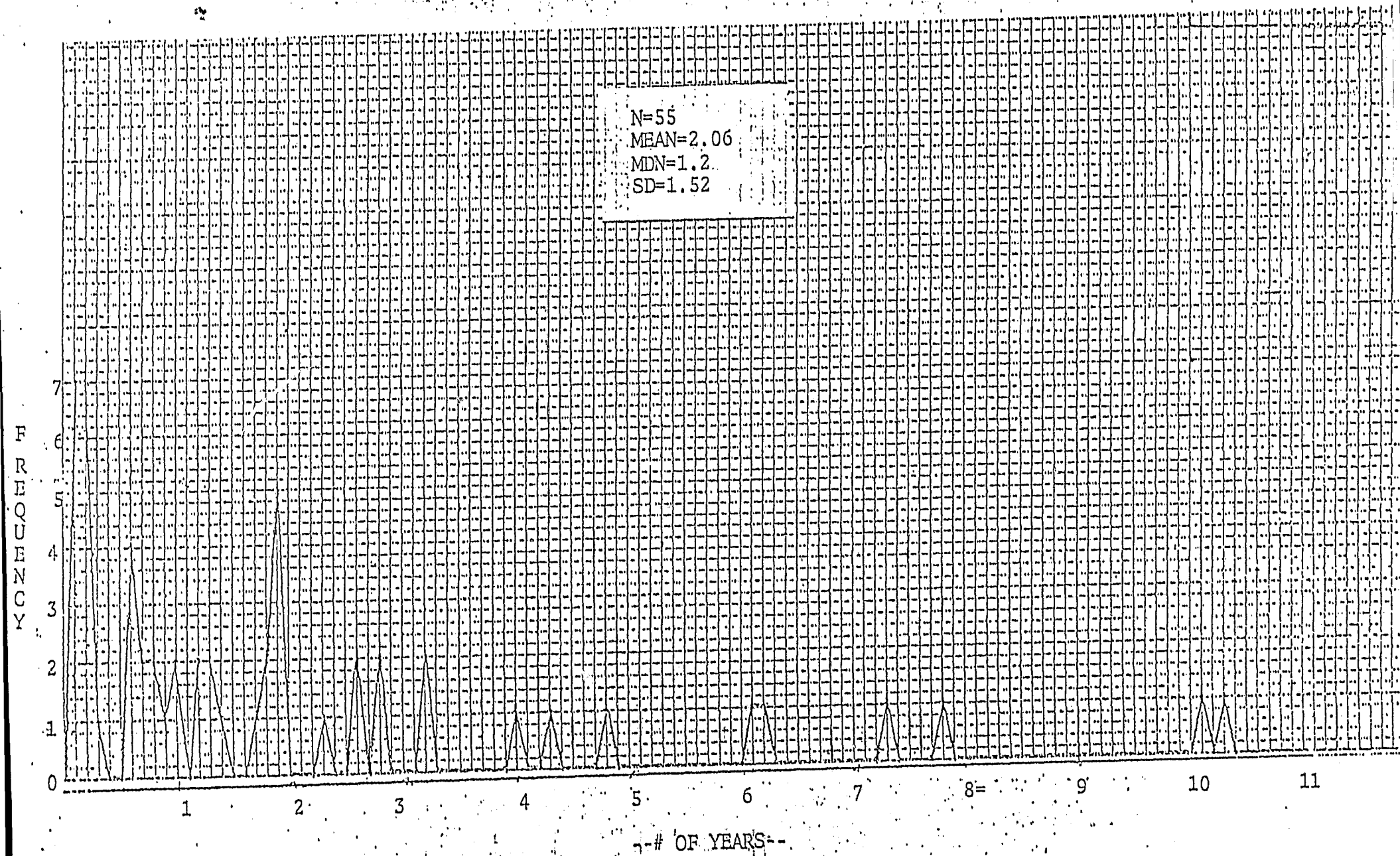


Chart 2-a
FREQUENCY DISTRIBUTION
OF TIME SPENT IN HSP BEFORE PAROLE
OF CONTROL GROUP

27

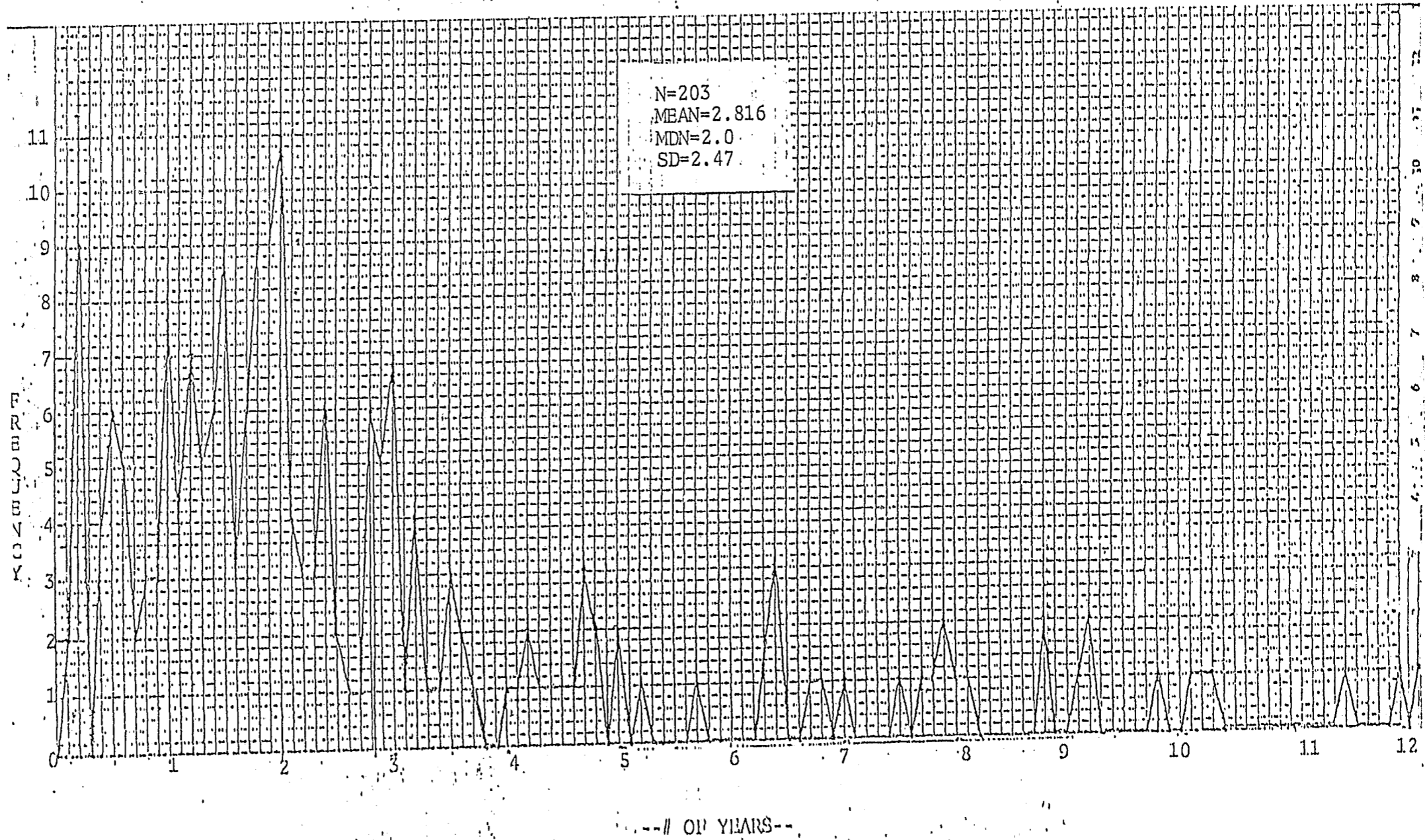
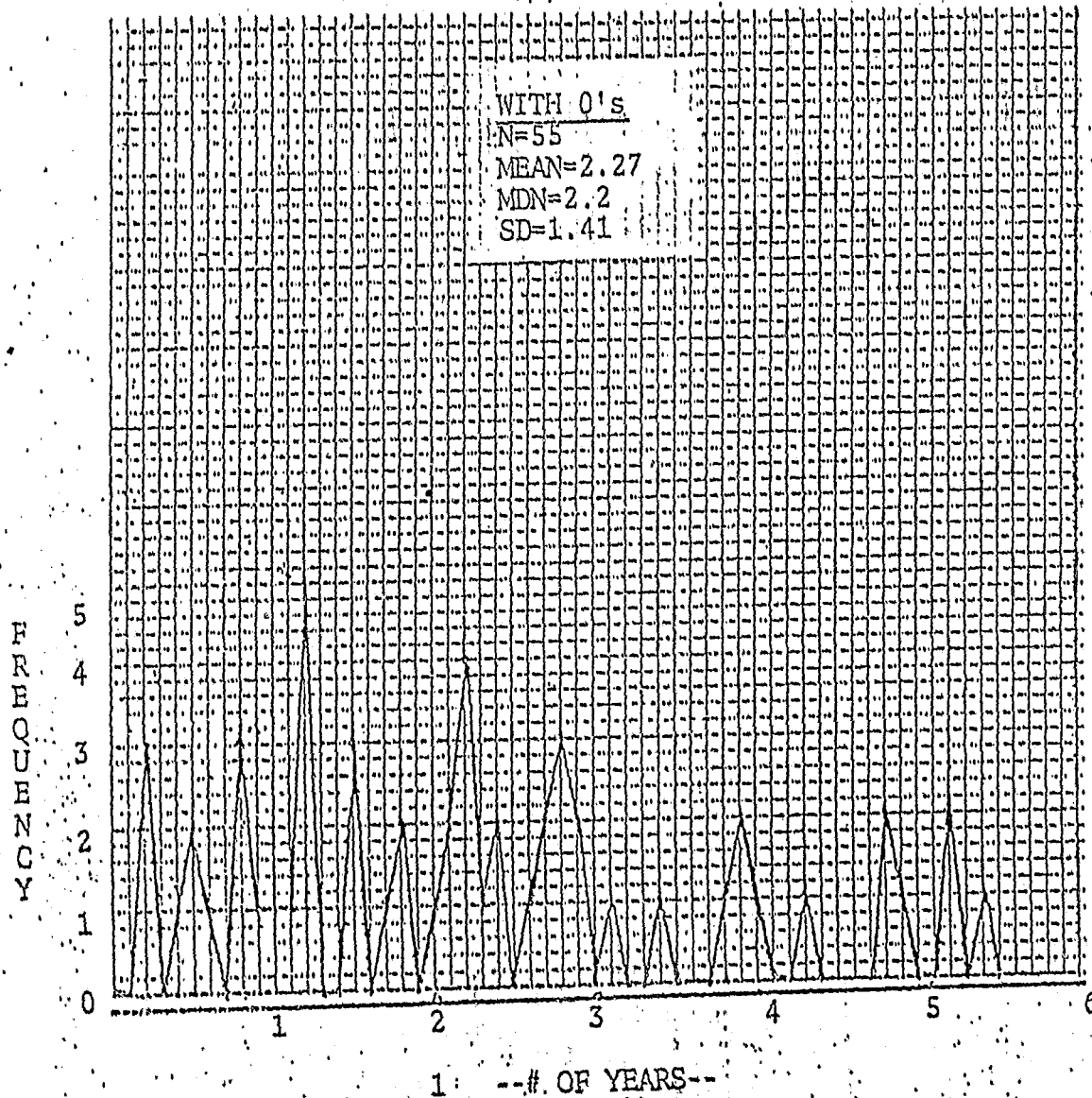


Chart 3

FREQUENCY DISTRIBUTION
OF TIME SPENT ON PAROLE OF EXPERIMENTAL GROUP

FREQUENCY DISTRIBUTION
OF TIME SPENT ON PAROLE
OF CONTROL GROUP

29

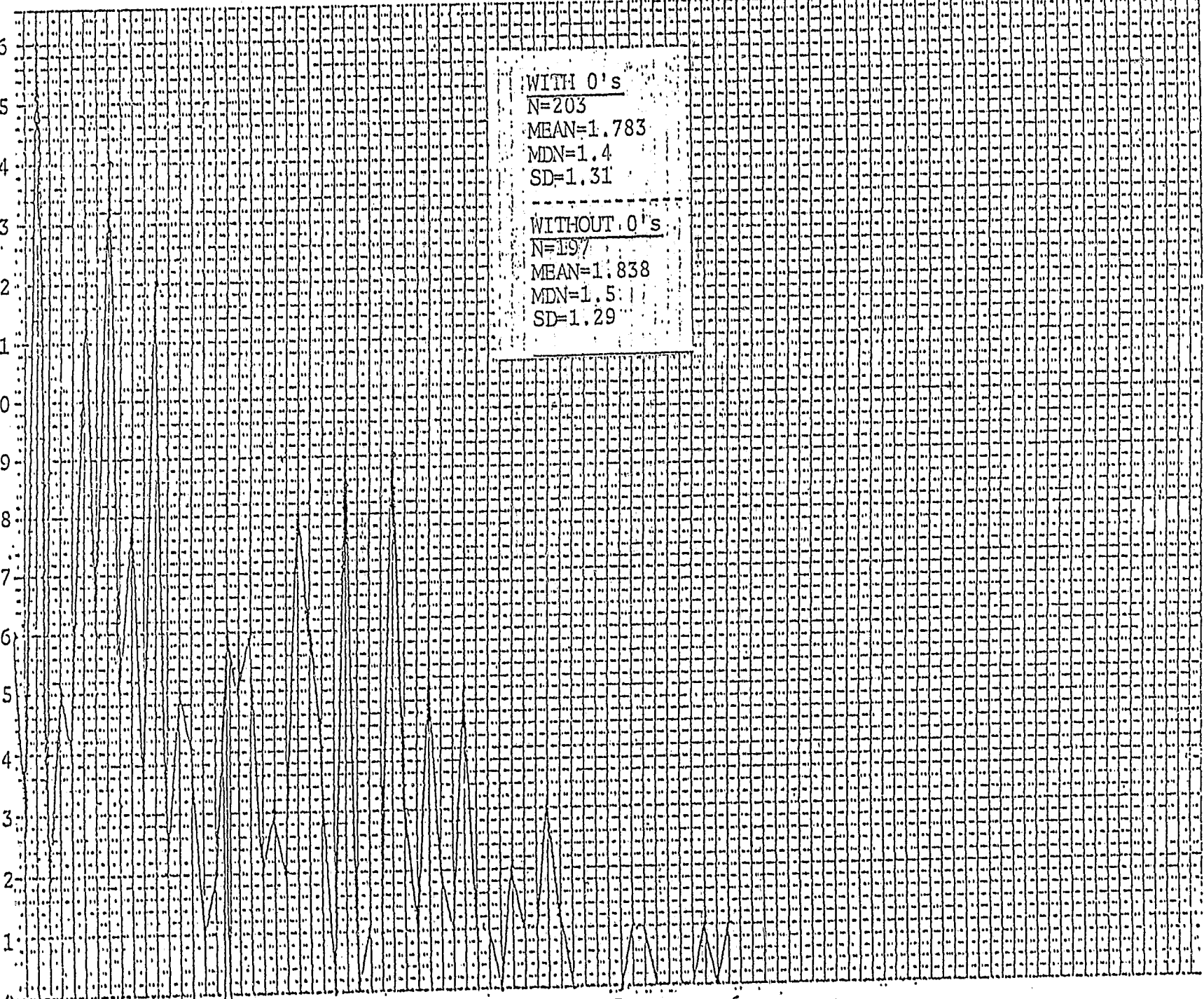
FREQUENCY

16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0

1 2 3 4 5 6

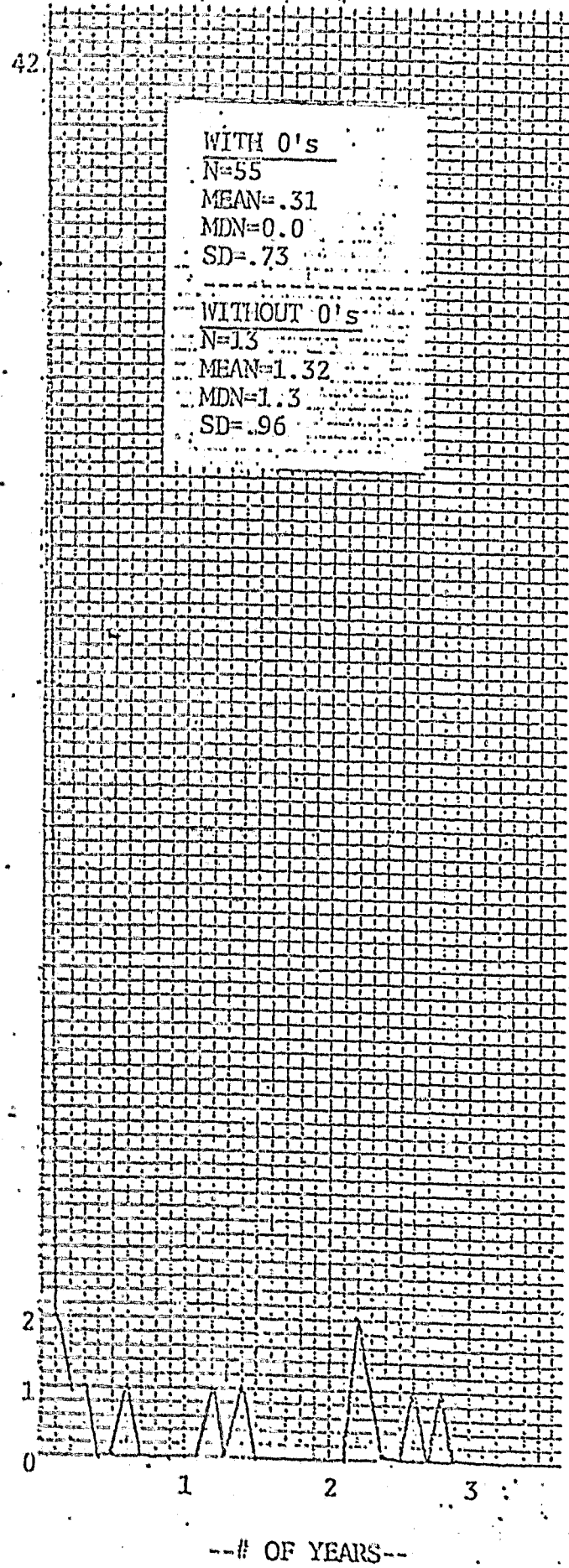
WITH 0's
N=203
MEAN=1.783
MDN=1.4
SD=1.31

WITHOUT 0's
N=197
MEAN=1.838
MDN=1.5
SD=1.29



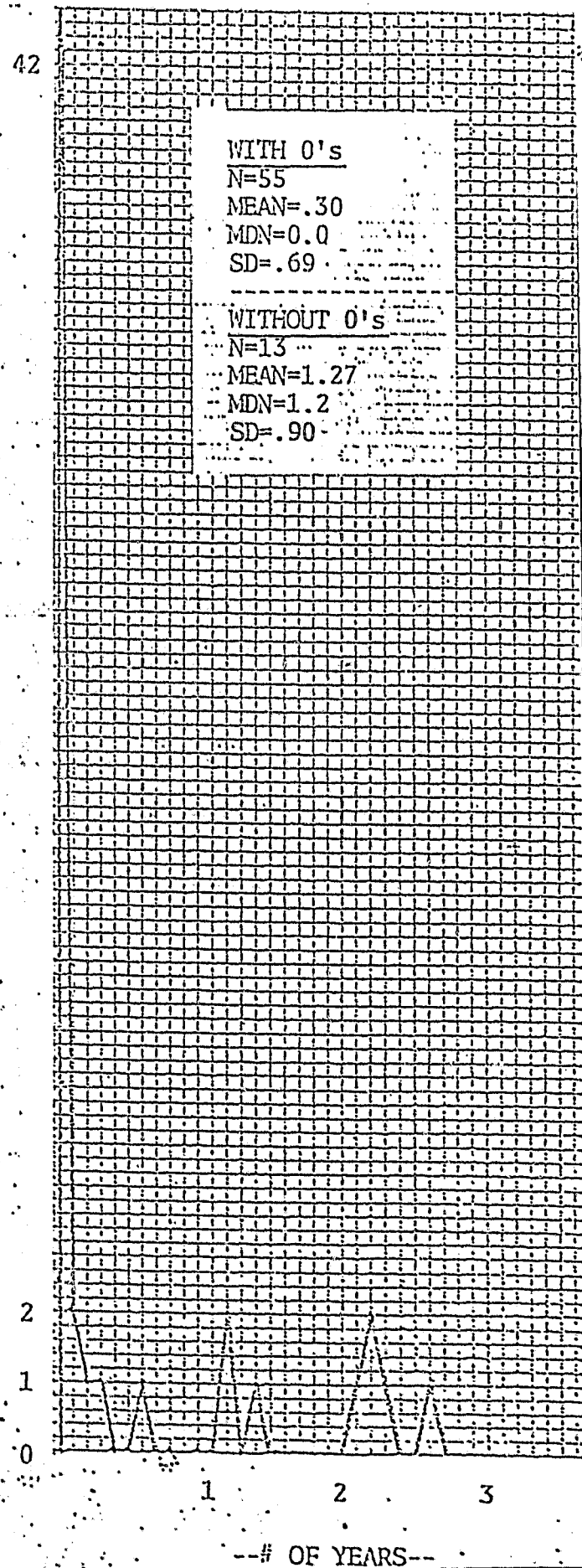
FREQUENCY DISTRIBUTION
OF TIME SPENT IN CD AFTER PAROLE
OF EXPERIMENT GROUP

Chart 4



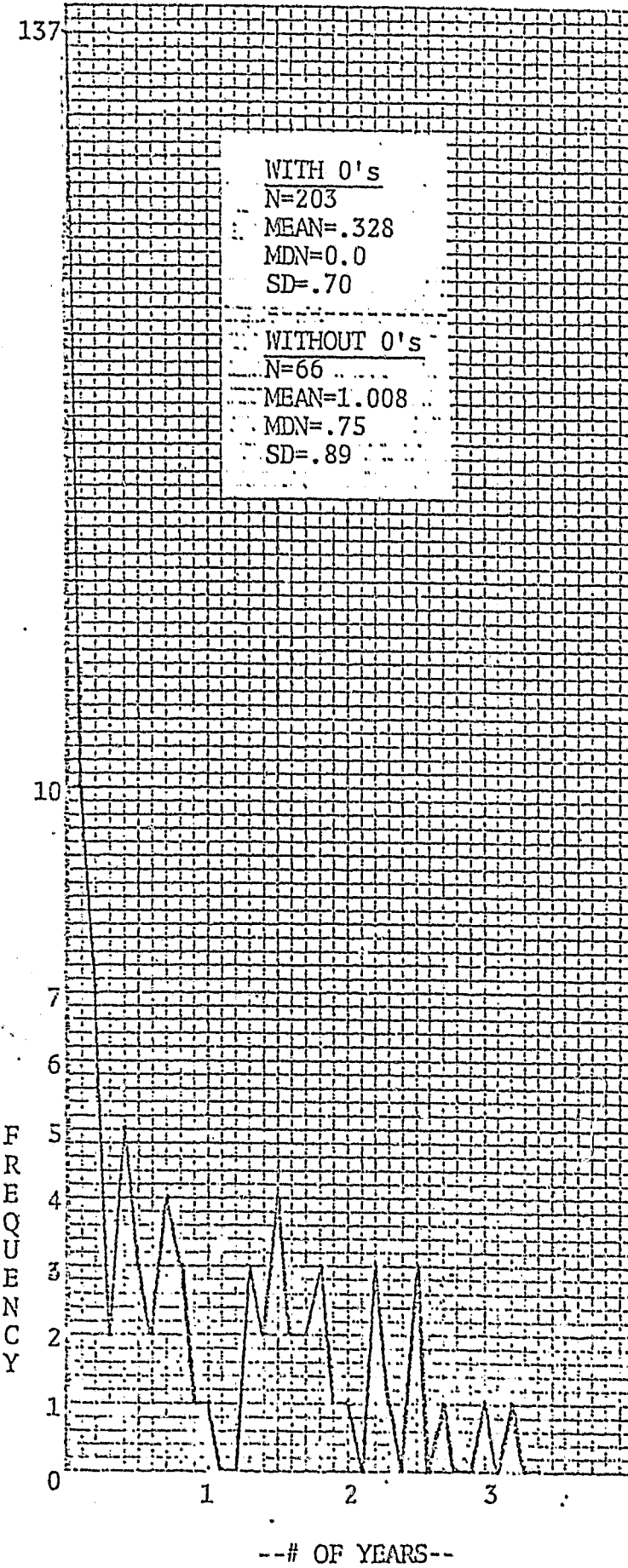
FREQUENCY DISTRIBUTION
OF TIME SPENT IN HSP AFTER PAROLE
OF EXPERIMENT GROUP

30



FREQUENCY DISTRIBUTION
OF TIME SPENT IN CD AFTER PAROLE
OF CONTROL GROUP

Chart 4-a



FREQUENCY DISTRIBUTION
OF TIME SPENT IN HSP AFTER PAROLE
OF CONTROL GROUP

31

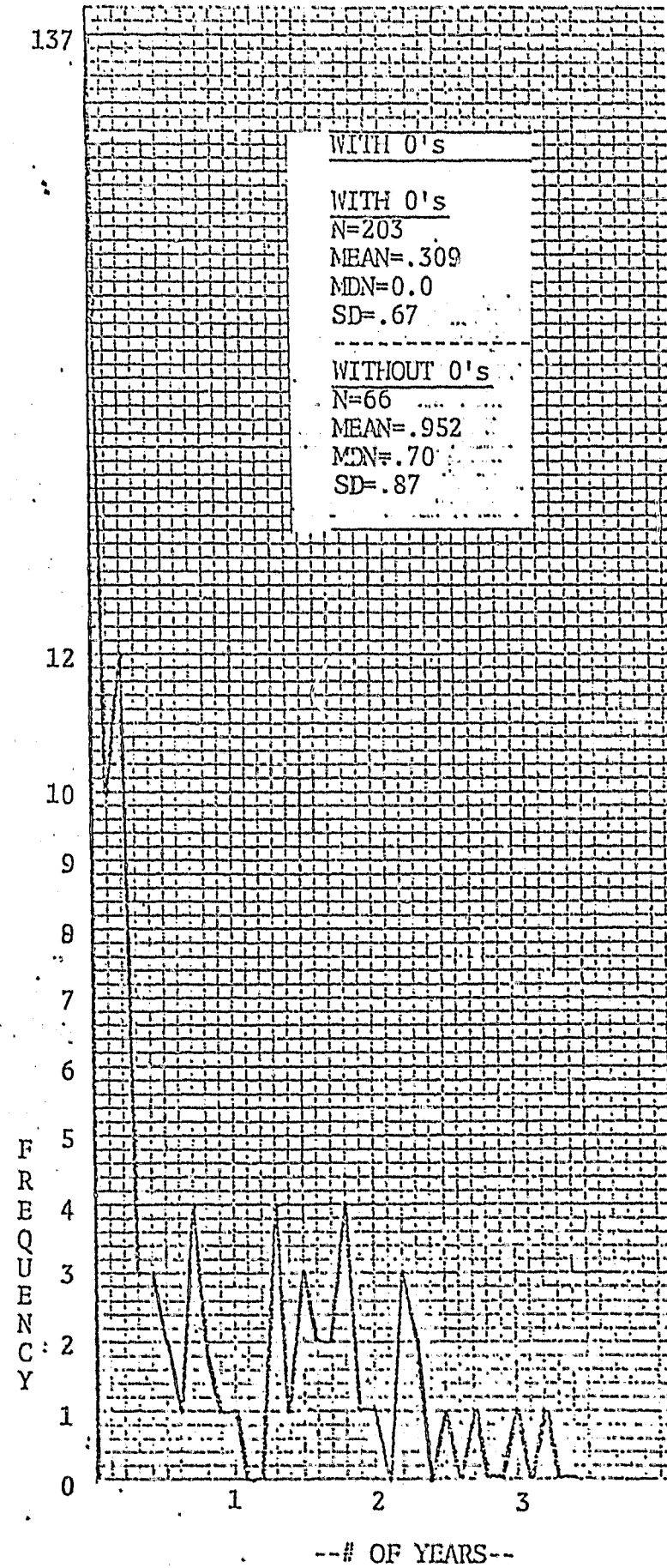
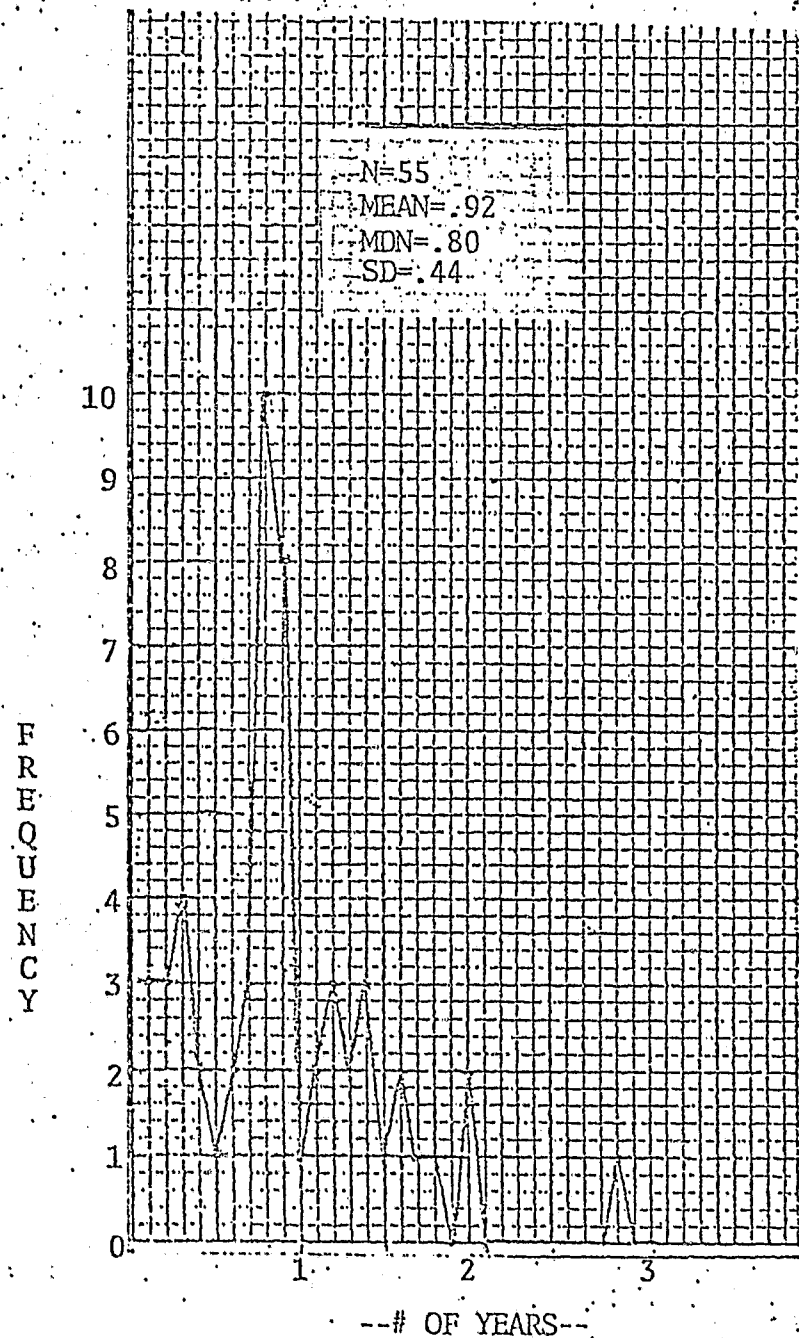


Chart 5
 FREQUENCY DISTRIBUTION
 OF TIME SPENT IN LAU CRC BEFORE PAROLE
 OF EXPERIMENT GROUP



Cost Calculations

Table C-1 gives the actual values used in cost-benefit Tables 2 to 5. Amounts are converted to FY 71-72 present value at the rates of 5% and 10% per annum, except for Corrections Division facility costs which are taken to be mean FY 71-72 values.

Table C -1.

Per Capita Cost Per Item

Values Converted to FY 71-72 Present Value	Growth/Discount Rate	
	5%	10%
Parole wages	4,815	5,284
CRC wages	4,671	5,010
Crime cost	3,669	3,935
Arrest cost	120	117
Trial cost	85	99
Parole supervision cost	389	427
Values derived from above:		
CRC community protection	1,743	1,867
HSP community protection	2,789	2,987
CRC escape cost	70	75
HSP escape cost	-10	-9
Mean FY 71-72 values:		
HSP accomodation	9,976	
CRC accomodation	4,563	
KHC and OHC accomodation	12,466	
Total CD accomodation	10,185	

The conversion formula used was: $\text{Present value, year a} = \frac{\text{value, year b}}{(1 + r)^t}$

where r = growth/discount rate
 t = difference between year b and year a,
 i.e. b-a.

1. Corrections Division Facility Per Capita Costs

A three-year average yearly per capita was used as the mean per capita value at FY 71-72 present value.

Table C-2

Expenditures for Corrections Division*

FY	HSP	LAU**	KHC & OHC	CD***
70-71 Expenditure	1,770,258	55,800	647,280	2,521,326
Daily Avg Pop	183	11	57	256
Yearly per capita	9,673.54	5,072.73	11,355.78	9,848.93
Daily per capita	26.50	13.90	31.11	26.98
71-72 Expenditure	1,978,235	57,800	721,279	2,853,311
Avg Daily Pop	181	14	51	256
Yearly per capita	10,929.47	4,128.57	14,142.72	11,145.75
Daily per capita	29.94	11.31	38.74	30.54
72-73 Expenditure	1,986,354	67,300	725,797	2,867,724
Daily avg Pop	213	15	61	300
Yearly per capita	9,325.60	4,486.67	11,898.31	9,559.08
Daily per capita	25.61	12.29	32.59	26.18
Avg (71-71) Yearly per capita	9,976.20	4,562.66	12,465.60	10,184.58
Daily per capita	27.33	12.50	34.15	27.90

*Source: Corrections Division record

**Estimates obtained from CRC

***Includes all CD facilities

2. Parole Supervision Costs

Table C-3 shows the three-year mean yearly cost, the projected value of which appears in Table B-1.

Table B-3

Per Capita Cost of Supervising a Parolee*

Fiscal Year	Per Capita Cost
68-69	308.91
69-70	343.56
70-71	405.29
Average (69-70)	352.58

*Source: Charles T. Araki, Comprehensive Plan of the Board of Paroles and Pardons State of Hawaii, (Honolulu, Hawaii: January 5, 1973), p. 163.

3. Parole Wages

Table C-4 shows unconverted average wages earned by parolees. This estimate is also used for the estimate of wages foregone while subject is incarcerated.

Table C-4

Average Annual Gross Earnings of Parolees*

FY	Average Gross Earnings
68-69	3,799
69-70	4,863
70-71	4,438
Mean (69-70)	4,366.66

*Source: Araki p.164

4. CRC Wages

Wages earned at CRC is estimated by the sum of actual earnings by all CRC residents in our sample divided by the number of subjects in our sample.

$$\frac{\sum \text{wages}}{\text{sample size}} = \frac{22,569}{51} = 444.5 \text{ per CRC subject stay}$$

This value, taken to be calendar year 1970 present value, is converted in Table C-1.

5. Crime Cost

Crime cost is estimated by awards granted by the Criminal Injuries Compensation Commission to victims of person offenses. The awards cover medical expenses, funeral and burial expenses, loss of earning power, peruninary losses, pain and suffering, and attorney's fees. The data were obtained from the Criminal Injuries Compensation Annual Reports for calendar years 1969, 1970, 1971.

Since the average award seems intuitively to underestimate the total social cost of crime, we use the mean award for the more serious crimes: murder, manslaughter, rape, and aggravated assault and battery. The mean award is projected in Table C-1. A gross approximation of the value of crime is estimated as follows:

Total Awards = \$430,028.57
 Number of cases = 126
 Average award = \$3,412.93
 (mean year = 1970)

6. Arrest Cost

The cost of apprehending an offender, or escapee, is estimated by the total operating expenditure of the Honolulu Police Department divided by the total number of reports and complaints received.

Table C-5

Police Arrest Cost*

Calendar Year		
1971	(a) Operating Expenditures*	20,170,428.61
	(b) Total Reports & Complaints*	171,831.00
	(c) Arrest Costs (a)/(b)	117.39
1972	(a) Operating Expenditures*	21,690,191.72
	(b) Total Reports & Complaints*	170,391.00
	(c) Arrest Costs (a)/(b)	127.30
1973	(a) Operating Expenditures*	24,488,230.26
	(b) Total Reports & Complaints*	196,962.00
	(c) Arrest Costs (a)/(b)	124.33
3-yr average (1972)		<u>123.00</u>

*Source: STATISTICAL REPORT, Honolulu Police Department, 1973.

This estimate of arrest cost assumes that all police work goes toward support of crime report investigations; it measures the process leading to arrest more than the act of arrest itself. This may overestimate, since the police engage in many non-crime activities, such as directing traffic, ceremonial duties, traffic accident investigations, etc. Nevertheless, the estimate is useful, if we assume that at least a major portion of police time goes toward crime detection, prevention, and apprehension.

7. Trial Cost

Trial cost is estimated as the total court and jury expenses of all state circuit courts divided by the total caseload terminated for FY 68-69, as given below. This value is converted in Table C-1.

Table C-6

Circuit Court Trial Cost*

FY 68-69	Caseload Terminated	Expenditure
1st Circuit Court	19,396	927,652.62
Jury Trial Expense		260,681.93
2nd Circuit Court	1,649	129,031.52
Jury Trial Expense		22,919.66
3rd Circuit Court	1,756	235,250.93
Jury Trial Expense		20,778.41
5th Circuit Court	554	100,338.91
Jury Trial Expense		5,663.42
Total	23,355	1,702,317.40
Average =	$\frac{\text{Expenditure}}{\text{Terminated Caseload}}$	<u>72.88</u>

*Source: ANNUAL FINANCIAL REPORT, STATE OF HAWAII, DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES, FY 68-69, and ANNUAL REPORT, THE JUDICIARY, STATE OF HAWAII, FY 68-69.

8. Community Protection

The benefit of community protection derived from placing an individual under correctional custody for one year is estimated as the value of crime costs that an offender might have incurred were he free, or,

$$\text{Community Protection} = (\text{Propensity to crime}) \times (\text{crime cost} + \text{arrest cost} + \text{trial cost}).$$

(a) Evidence for an offender's tendency to commit a crime if free is taken to be the parole time prior to reincarceration for those subjects who are returned to prison.

Experimental group mean parole time before reincarceration = 2.21 yrs.
Control group mean parole time before reincarceration = 1.38 yrs.

The propensity of an individual to commit a crime in one year if free is, therefore, the inverse of parole time before reincarceration.

$$\begin{aligned} \text{Experimental annual propensity to crime} &= \frac{1}{2.21} = .45 \\ \text{Control annual propensity to crime} &= \frac{1}{1.38} = .72 \end{aligned}$$

(b) With the converted values of Table C-1, the value of community protection per year becomes:

(a) 5% projection/discount rate
 Experimental: .45 (3669 + 120 + 85) = 1743
 Control: .72 (3669 + 120 + 85) = 2789

(b) 10% projection/discount rate
 Experimental: .45 (3935 + 117 + 97) = 1867
 Control: .72 (3935 + 117 + 97) = 2987

(c) In cost-benefit tables 1 to 4, we have assigned the experimental group community protection value to CRC and the control group value to HSP and KHC and OHC, to account for program differences.

9. Escape Cost

Ideally, we ought to measure the escape costs of two groups, experimental and control. But, since we partially focused on CRC and HSP program differences, we measured escape costs for the two facilities, CRC and HSP.

Generally, escape cost per individual is estimated to be the probability that he will escape times the fixed cost of escape, plus the probability that he will commit a felony on escape times the variable cost of crime (attributed to crime), plus the probability of escape times the difference between community protection foregone and facility accomodation cost foregone.

In notation,

$$\text{Escape Cost} = P(E) [FC] + P(E \cap C) [VC] + P(E) [T(CP - AC)],$$

where $P(E)$ = expected probability of escape
 $P(E \cap C)$ = expected probability of felony on escape, a subset of $P(E)$

FC = fixed cost of escape, namely, arrest cost
 VC = variable cost of escape, namely, crime cost and trial cost
 T = mean escape time per escapee
 CP = community protection foregone on escape
 AC = facility accomodation cost foregone on escape

The above equation applies to HSP. For CRC, we assume that a CRC escapee quits his community job while on escape; so escape cost is increased by a weighted W = CRC wages foregone.

$$\text{Experimental Escape Cost} = P(E) [FC] + P(E \cap C) [VC] + P(E) [T(CP + W - AC)].$$

Derivations of expected probabilities and mean years on escape are given in Table C-7.

Table C-7
 CRC and HSP Escapes

FY 68-69 to 71-72	CRC	HSP
(1) Gross population (total individuals processed)	71	863
(2) Number of Escapes	5	19
(3) Number of Escapes with felonies committed during escape	1	2
(4) Total number of days on escape	119	925*
$P(E) = \frac{(2)}{(1)}$.0704	.022
$P(E \cap C) = \frac{(3)}{(1)}$.014	.00231
Mean years on escape = $\frac{(4)}{(2)} \div 365$.0652	.1334

*One subject remained on escape for 521 days, accounting for more than half the total number of days on escape and grossly increasing the mean time on escape for the HSP sample.

Computations of escape costs are shown below:

@5% rate
 HSP: $(.022)(120) + (.00231)(3669+85) + (.022)(.1334)(2789-9976)$
 $= 2.64 + 8.67 - 21.06$
 $= -9.75$

CRC: $(.0704)(120) + (.014)(3669+85) + (.0704)(.0652)(1743 + 4671 - 4563)$
 $= 8.448 + 52.556 + 8.496$
 $= 69.50$

@10% rate
 HSP: $(.022)(117) + (.00231)(3935+97) + (.022)(.1334)(2987-9976)$
 $= 2.57 + 9.31 - 20.51$
 $= -8.63$

CRC: $(.0704)(117) + (.014)(3935+97) + (.0704)(.0652)(1867 + 5010 - 4563)$
 $= 8.237 + 56/448 + 10.622$
 $= 75.31$

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